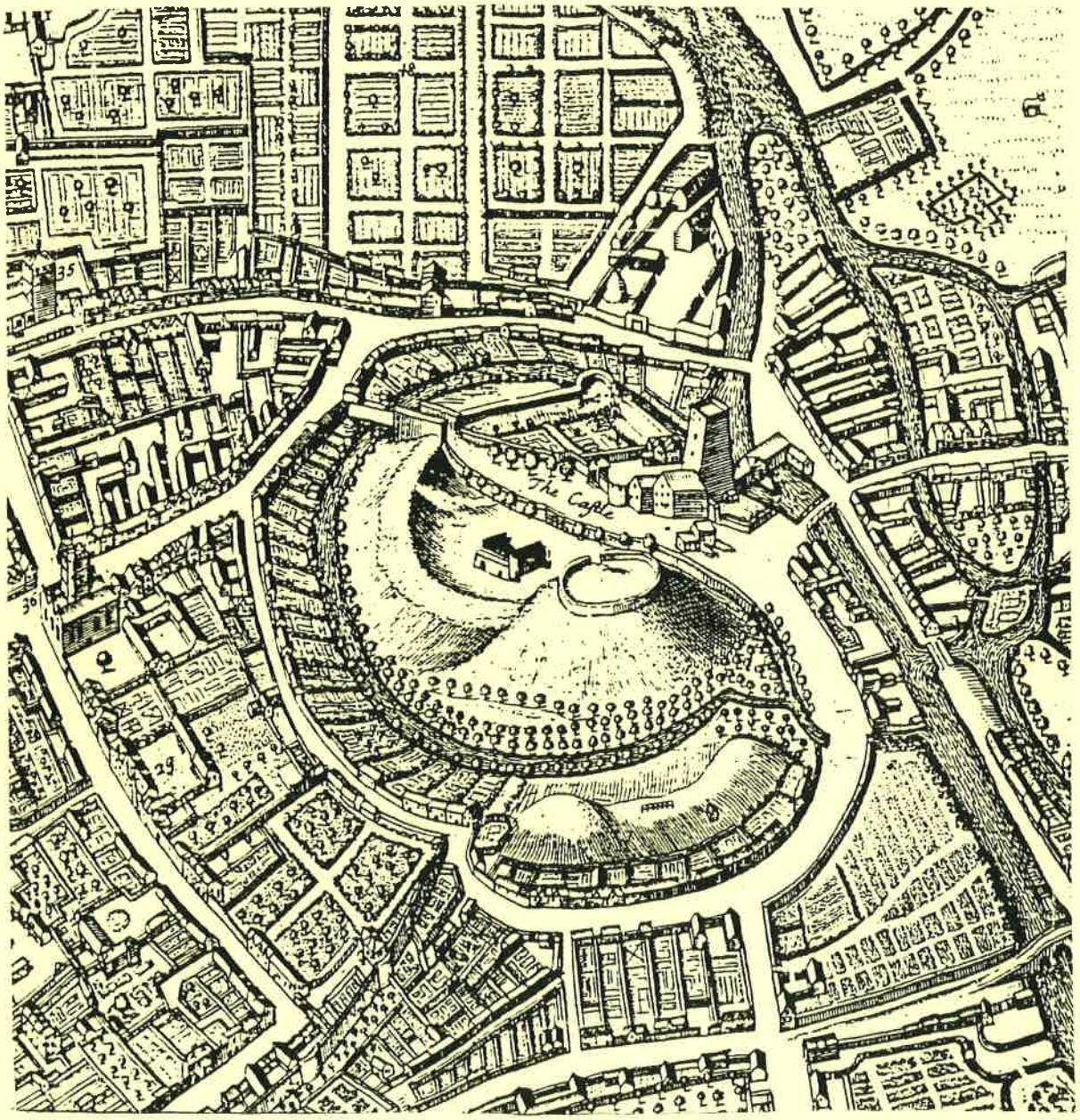
Oxfordshire County Council

Oxford Castle Project

Archaeological Field Evaluation Report

NGR SP 5698 0613



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Archaeological Field Evaluation Report

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Summary

The Oxford Archaeological Unit (OAU) carried out an archaeological field evaluation of part of the site of Oxford Castle in June and July 1999. The evaluation was commissioned by Oxfordshire County Council in advance of a proposed redevelopment.

The natural subsoil was identified in a few limited locations, and probable natural watercourse deposits were located at the southern extremity of the site. Pre-castle activity represented by late-Saxon soil layers was seen in two of the trenches. Evidence for medieval activity was limited, and the only significant medieval structure found was part of a large wall, again at the southern end of the site, which may represent a link to the City wall rather than being part of the curtain wall of the castle. In situ deposits of medieval date appear to survive in both the main moat and in the motte ditch. The latter seems to have been a very substantial feature, probably at least 15 m across. No features were identified associated with the east gate of the castle or with Shire Hall. The area of the former was partly disturbed by prison buildings, and the location of the latter may have been completely removed by extensive gravel quarrying, probably of later 18th century date. The motte ditch was partly recut by a substantial linear feature, also of post-medieval date.

Construction of B Wing of the former prison had caused extensive intrusion into deposits lying west of the main footprint of the building. Other 19th century prison features were identified. Installation of services for successive phases of the prison had also caused considerable disturbance, particularly in the southern part of the site.

1 INTRODUCTION

The Oxford Archaeological Unit (OAU) carried out an archaeological field evaluation on the site of the present Oxford Prison, part of the former Oxford Castle, in June and July 1999. The evaluation was commissioned by Oxfordshire County Council, who currently own the site, and was undertaken in advance of a proposed redevelopment. Outline planning permission has been granted for redevelopment of parts of the site, in accordance with sections EN42-46 of Oxford City Council's Local Plan. The evaluation area and the remainder of the site that is proposed for re-development is situated within the Central Oxford Conservation Area and the Area of Archaeological Interest defined in the Oxford Local Plan (1998). For the purposes of this report, the term Oxford Castle will be used to describe the site, much of which is a Scheduled Ancient Monument (AM 21701).

Oxfordshire County Archaeological Services and English Heritage prepared a project brief for an archaeological field evaluation of the parts of the site that may be affected by development proposals (Below Ground Archaeology, Oxford County Archaeological Services, April 1998). The evaluation was undertaken prior to determination of a detailed planning application by Oxfordshire County Council and Oxford City Council in accordance with PPG 16, in order to satisfy the Secretary of State's requirements under the Scheduled Ancient Monuments and Archaeological Areas Act, 1979. Scheduled Monument consent for the invasive archaeological works was granted in May 1999. This field evaluation was undertaken in accordance with the guidelines stipulated in the project brief and followed a programme of work set out in a detailed project proposal prepared by OAU and agreed with English Heritage and Oxfordshire County Council.

2 SITE LOCATION, TOPOGRAPHY AND ARCHAEOLOGICAL BACKGROUND

Oxford Castle is situated in the centre of Oxford, and is bounded by Castle Street to the east, New Road to the north, Tidmarsh Lane to the west and Paradise Street to the south (Fig. 1). The castle was originally built on the southern spur of the Summertown-Radley gravel terrace, to the east of the River Thames and to the west of the river Cherwell. The confluence of these two rivers is *c.* 2 km south-east of the castle. The topography of the site slopes from north-east to south-west; at the north-east the ground level is at *c.* 62.5 m OD, in the south-west it is at *c.*58.5 m OD. The archaeological background of the site has been extensively studied in *Oxford Castle – a Heritage Survey* commissioned by Oxford County Council (OAU 1996). The following is based on the information contained in that document, where full references will also be found. The date references given below (e.g. 1952, 1972e etc) refer to the entries in Appendix B of that document.

The castle was built in 1071 by Robert d'Oilli at the west side of the late-Saxon town, known to have been in existence as early as AD 911. There is no known evidence for activity on the site pre-dating the Saxon period. Pre-conquest (late Saxon) material has been found beneath the Castle mound (1952) and within the vicinity of the castle at Nuffield College (1948-9) and New County Hall (1972), indicating that the Saxon town extended as far west as the river – as represented by the present Castle Mill

Stream. Jope's excavations of 1952 revealed pits, occupation debris and traces of the houses overlain by the castle and part of a Saxon timber house was observed recovered during construction of the new County Hall in 1972. Recent reappraisal of the ceramic evidence suggests that a Danish ethnic group might have occupied the western suburb of the town (ex inf. M. Mellor). On the perimeter of the site, early street levels found below Castle Street in 1970 and 1972 have demonstrated the antiquity of the road leading out of Oxford to the west, which in its original form must have extended through the site of the later castle (1970c, 1972e). This route was diverted to the south-west of the castle, and a new West Gate constructed. Jope's excavations and Hassall's work (1966) have demonstrated that a minimum of 1 m of overburden seals the Saxon levels in places.

Originally the castle consisted of a motte and bailey, much of the latter of which survived into the 18th century, and the motte (the castle mound) still remains. The church of St. George in the Castle was founded in 1074 and its crypt and the 11th-century tower still survive. The date of the St George's tower itself is uncertain and it is possible that it is earlier than the castle. The internal layout of the medieval castle remains unclear; the circuit of curtain walls and towers, though broadly known, cannot be precisely located. A barbican on the south-east side of the castle appears to have been fairly short lived (though the inner gate continued in use) and it is possible that there was a corresponding feature to the north-west, but this is only known from a documentary reference. A study of documented medieval building repairs (OAU 1996, 5-6) suggests that there were many internal buildings, including the hall, chambers and wardrobe; these were supplemented by a range of service buildings including a kitchen, bakery, brewhouse and stables. The site was used as a prison after 1531 and the walls and towers surrounding the motte and bailey were still standing in 1578. The tower on the motte is still shown in an early 17th century representation. The layout of the site changed little until New Road was built in the 1770s and the first phase of the present prison was constructed south and east of the castle mound in the late 18th century.

3 EVALUATION AIMS, STRATEGY AND METHODOLOGY

3.1 Evaluation aims

The broad aims of the evaluation were to determine the location, extent, condition, character, date, significance and quality of archaeological deposits within the areas of the site where development is proposed, taking into account the wider framework of the current knowledge of, and questions about, the archaeology of the castle. In detail these aims were:

3.1.1 To establish the location, extent, condition, character, date, significance and quality of any archaeological deposits within the areas of proposed development belonging to the pre-Saxon period, if any.

3.1.2 To establish the location, extent, condition, character, date, significance and quality of any archaeological deposits within the areas of proposed development belonging to the Anglo-Saxon, later medieval and post-medieval periods.

3.1.3 To determine the relationship of any above ground structures (e.g. the Castle Mound) to the surviving archaeological deposits below ground.

3.1.4 To identify any areas of important archaeological remains which might require preservation *in situ.*

3.1.5 To generate, after reviewing the archaeological and geo-technical evidence together with the details of the development proposals, a programme of appropriate measures to mitigate the likely impacts of the development. This may include determining the most suitable and archaeologically sustainable foundation designs for future buildings on the site.

3.1.6 To provide information that may be suitable to answer or clarify any outstanding questions related to the research objectives of the project

3.2 Evaluation Strategy

The evaluation trenches were located in areas thought likely to contain archaeological features or deposits. The trench locations took account of all the available background information and the results of a non-intrusive ground probing radar (GPR) survey undertaken by Stratascan, Geophysical & Specialist Survey Services, which was carried out as a preliminary phase of the overall programme of evaluation (Stratascan, August 1998). The disposition of the trenches was carefully considered in order to meet the general and specific requirements of the brief, and best inform subsequent stages of the project in terms of future development. However, some ideal trench locations were affected in detail by the extensive layout of services across the site. A total of 14 trenches were originally proposed for excavation (OAU 1999), supplemented by 7 boreholes, the latter being intended to provide characterisation of potentially deep ditch fill deposits (Fig. 2). During the course of the work an agreement was made between OAU, the County Archaeological Officer and Rob Perrin of English Heritage to dispense with the proposed Trench 6 located in the garden of one of the warden's houses. In addition, two further Trenches (Trenches 15 and 16) were excavated within the prison grounds in the area of Trenches 12 and 13 as replacements for the essentially abortive Trenches 13 and 14. A total of 6 boreholes were drilled into the motte ditch and the main moat of the castle.

3.3 Evaluation Methodology

The trenches were excavated by JCB machine equipped with a concrete breaker and a 1.8 m wide toothless ditching bucket. Modern tarmac and make-up deposits were removed by machine in spits of 200 mm under close supervision down to the first significant archaeological horizon. Thereafter excavation proceeded by hand to general depths of 1.2-1.4 m. A scheme of shoring was implemented to enable deeper investigation in sample areas of most of the trenches. The results from the excavation of the trenches are presented in section 4 of this report.

Each evaluation trench was allocated a block of context numbers and all features and deposits were issued with unique context numbers within the trench blocks. Context recording was carried out according to standard OAU procedures (OAU Field Manual, 1992), and a full written and photographic record was made of each trench.

Trench plans were drawn at a scale of 1:50, or at 1:20 where detailed recording was required. Section drawings of features and trench sections were made at a scale of 1:20. The complete set of photographs and site drawings can be found in the site archive; selected illustrations from the trenches can be found at the rear of this report.

Contiguous with the evaluation was the drilling of 6 boreholes, carried out by pollen specialist Rob Scaife. These were targeted at known features; specifically, the former moat at the south-east side of the castle, and the ditch that surrounded the castle motte. The results of this work can be found in section 5 of this document.

3.4 Dating Evidence

Dating evidence proved to be of variable quality and mostly of the post-medieval period. For the post-medieval sequences greater precision in dating often came from the clay tobacco pipes rather than the pottery, though the presence of a preponderance of 17th century types may have resulted in an overemphasis on dates of this time. In most cases, however, where relatively well-dated pipes are associated with pottery for which a longer (and for the most part later) date range is given, it has usually been assumed that the pipes are more likely to reflect the probable *terminus post quem* of the deposit in question. However, the dating from both pottery and pipe evidence is generally given where available.

4 RESULTS: TRENCH DESCRIPTIONS AND INTERPRETATION

4.1 Area AI

4.1.1 Trench 1 (Fig. 3)

Trench 1 was aligned north-west – south-east and measured 6 m by 1.85 m. The trench was excavated to a general depth of between 1.2 m and 1.4 m. The deepest excavated point was 2.24 m below ground level, at 59.10 m OD.

The earliest deposit exposed was a layer of grey clay loam (31) containing tile and gravel, that tipped at a pronounced angle downwards to the north-west. A similarly angled deposit of grey sandy loam (30) containing gravel sealed layer 31. Above 30 lay a deposit of light whitish-grey sandy mortar (29) that contained small pieces of limestone and fragments of clay pipe dated between 1610 and 1700, together with ceramic tile of post-medieval date. A copper alloy button was also recovered from this deposit, together with pottery ranging in date from 1650-1880. Above layer 29 followed in turn a succession of soil layers interspersed with lenses of sandy gravel that extended along the length of the trench (layers 9 to 20 inclusive). These layers all tipped to the north-west at an angle of 45-50° to the horizontal and contained pottery of 17th-19th century date, with redeposited medieval pottery included. Clay pipes were recovered which varied in date from 1610-1800. The interpretation of these deposits is discussed below. Layer 12 in the sequence was cut by a linear flat-based feature (8), which was 0.18 m deep with a vertical north-west edge. The south-east side of the feature was not observed within the Trench. Feature 8 was filled with 7, a loose white deposit of mortar, upon which lay a mixed fill of loam and mortar patches (6). Above fill 6 lay a 0.3-0.45 m thick homogeneous layer of dark grey- brown clay

loam (5). This layer contained gravel and charcoal flecks and extended along the length of the trench. A service trench (24) containing a ceramic service pipe and its fill (22, 23) had been cut from the level of layer 5. Make up layers (3 and 4) for the current concrete and tarmac surfaces (1, 2) directly overlay layer 5.

Interpretation of deposits in Trench 1

The successive layers of tipped soil and sandy gravel appear to represent the deliberate filling of a pre-existing feature or hollow, the edges of which were not identified within the limits of the trench. The dating material from the layers suggest that the feature was in-filled during the 17th century at the earliest, and perhaps the 19th century at the latest; the types of pottery recovered have a broad date range in terms of their production, so precise dating for the fill deposits is not possible here. The latest date assigned to the clay pipes suggests that the fills were deposited at the end of the 18th century. Feature 8 is likely to have been formed during the construction of the Governor's House in the 1850s, and probably represents landscaping and construction activity, while the thick layer of loam above is certainly the soil imported for the creation of the garden here at the same time. The remainder of the deposits and services are modern.

4.1.2 Trench 2 (Fig. 4)

Trench 2 was located adjacent to the edge of the castle mound, on the presumed alignment of the motte ditch. The trench measured 6 m by 1.85 m and was excavated to a general depth of 1.25 m, at *c.* 59.8 m OD. Excavation proceeded deeper in a shored area to a depth of 2.05 m below ground level, at 59.06 m OD. Further excavation was not possible within the shored box due to safety reasons.

The earliest deposit identified in the trench was a grey-brown silty clay (245) including patches of blue clay and gravel. The deposit, presumably a fill of the motte ditch (arbitrary context 246), appeared to tip downwards to the south-west rather than to the west as might be expected if the ditch were in-filling naturally from the sides. Fill 245 was overlain by a 0.4 m thick grey-brown silty clay (241), in turn sealed by a 0.1 m thick deposit of blue clay (244). Above were two further clay fills (243 and then 240, both containing pottery dated to 1175-1425). Fill 240 was notable for the presence of a human femur within the deposit, the possible significance of which is discussed below. Further layers of clay and gravel (239, 231) followed in sequence above the level of fill 240.

Above 231 in the centre of the trench was a deposit of very dark grey clay silt (238) containing a quantity of charcoal, stems and bowls from clay pipes, pottery and animal bone. The pottery was of 16th-18th century date with a single sherd of 19th century pottery included which is probably intrusive. The clay pipes date to the 17th-18th century, with a good group of material dating from 1700-1770. To the west end of the trench this deposit was overlain by a 0.08 m thick layer of mortar and gravel (230) containing tile and pottery of Victorian date. The clay pipes date from 1700-1750. Above 230 was a layer of yellow-brown silt (237) containing 19th-century pottery together with clay pipes dated from 1700-1770, in turn sealed by a more extensive spread of yellowish-brown silty clay (236) which was 0.08 m thick. This layer produced a large amount of animal bone and contained pottery of 19th century

date with earlier post-medieval material included. The clay pipes from this deposit date from 1710-1770. At the level of 236 was an area of burnt soil containing charcoal and ash (232), animal bone and pottery of 17th-19th century date. Clay pipes from this context date quite securely to the period 1710-1730.

A localised deposit of silt (235) above 232 was sealed by an extensive spread of dark grey clay silt (228) notable for the inclusion of a large quantity of clay pipe stems and bowls dated 1710-1770. Pottery of 19th-century date was included in this layer, which was overlain by 229, a localised spread of sand (containing clay pipes dated from 1710-1730), in turn overlain by a gravel spread 227. Layer 226 above was cut by a circular feature (233), 0.45 m deep and 0.4 m in diameter with straight sides and a flat base. A shallow depression was observed to the centre of the feature in the layer below. Feature 233 was filled with a light grey brown silty clay (234) that included clay piped dated from 1700-1770. The feature is interpreted as post hole, though no stratigraphically equivalent features were present at this level.

Above the infilled posthole at the west end of the trench, a light brown silty clay layer (224) was covered by 223, an extensive spread of yellow-white silty sand, with reddish-brown patches suggestive of burning. The layer extended along the length of the trench sealing all the underlying deposits. A soil layer (222) and gravel lens (221) accumulated or were deposited prior to the formation of a 0.5 m thick layer of greyish-brown clay loam (205); pottery dated from 1780-1900 was recovered from the layer together with clay pipes dated between 1690 and 1720. The layer extended the full length of the trench. Cut into layer 205 were four shallow irregularly shaped features (216, 217, 218 and 219) that represent garden features/plant holes within the soil level. The fills of these features were sealed by a thin layer of compact reddish-brown sandy gravel (204), in turn overlain by a layer of gravel and sand (214). A north-south service trench containing a lead pipe (206, 207) had been inserted at the level of layer 214. The fill of 206 was cut by a later service trench (209) also containing a lead pipe (215). The fill of this trench was sealed by a succession of make-up layers (213, 203, 212, 202, 201) for the present tarmac surface (200).

Interpretation of deposits in Trench 2

The lowest excavated layers in the trench suggest that deliberate infilling of a deep feature (i.e. the motte ditch) was undertaken in the late-medieval period. The infilling layers appeared to tip to the south-west, rather than across the ditch, as would happen if the ditch were silting up naturally. The presence of the human leg bone in one of these fill layers, while possibly suggestive of macabre activity, is more likely explained as being brought in with the soil used to infill the ditch. After the ditch had been filled spreads of occupation material accumulated or were dumped in the early post-medieval period. The presence of large quantities of 17th-18th century clay pipe may suggest activity on this part of the site, or more likely have formed part of a rubbish deposit. Towards the top of the sequence there was further evidence for the construction of the Governor's House and the garden soils (205) that were created in association with it. Garden features were also excavated, indicating that some formal layout of the garden had been undertaken.

4.1.3 Trenches 3 and 4 (Fig. 5)

These two trenches were located on the alignment of the presumed ditch surrounding the castle mound. Trench 3 was joined to Trench 4 and in effect the two comprised a single trench. For ease of recording the trench was treated as Trench 3, and context numbers issued as a block beginning at 300. The trench measured 6 m by 1.85 m east-west, with the north –south axis measuring 3 m by 1.2 m.

The trench was excavated by machine to a general depth of 0.7 m, to the top of the archaeological deposits; thereafter excavation proceeded by hand within two areas made safe by shoring. The maximum depth reached in the north-south part of the trench was 2.28 m below ground level, at 58.69 m OD. In the east-west part of the trench the maximum depth attained was 2.25 m, at 58.75 m OD.

North-South Trench: shored box description

The earliest deposit identified at the base of the shored box here was a brown silty clay (331) including lenses of blue clay. This deposit produced no dating evidence. It was overlain by a compact brown clay-silt (330) with substantial gravel inclusions and lenses of blue clay, and pottery dated between 1650 and 1880. Closer dating of this deposit comes from the clay pipes, which give a *terminus post quem* of 1650-1670 for the deposition of fill 330. Above lay a friable dark brown silt loam (328) some 0.12 m thick containing clay pipes dated between 1700-1770, in turn sealed by 327, a compact brown clay silt containing 30% rounded gravel and clay pipes dated 1660-1700. The layer above (326) was a compact brown clay with gravel and lenses of blue clay, in turn overlain by a 0.5 m thick layer of light brown clay silt with 50% gravel inclusions (317). This deposit produced pottery of early medieval date, though in the light of the later dating evidence in the layers below, this material had clearly been re-deposited. Layer 317 was sealed by 316, a further substantial deposit *c.* 1 m thick. The layer comprised light brown sandy clay with 30% gravel and lenses of blue clay.

At the level of layer 316 a substantial cut feature was seen in plan and section to have been cut through all of the underlying deposits. Feature 315=325, either a ditch or a substantial pit, had in this part of the Trench a 45° sloping edge and was aligned north-west - south east. The feature was at least 2 m deep. The earliest deposit within the cut was a light brown clay silt with gravel (329), containing pottery of 18th-century date. The base fill was overlain by clay (308) that produced clay pipes dated from 1640-1700, in turn sealed by a sandy clay (307) that produced clay pipes dated from 1610-1700. Three further sandy clay fills followed in sequence (306, 305, 304); fill 304 was overlain by 303, a loose silty sand containing clay pipes of types in use from 1610-1880. Above was fill 302, a grey-brown sandy clay, containing pottery of mid-17th to mid 19th century date and clay pipes dating between 1605 and 1680. This was in turn overlain by 301 a further deposit of brown sandy clay, finally sealed by 300, a silty clay with stones.

East-West Trench: shored box description

The method of excavation of this shored box involved leaving a baulk at the centre of the box; the excavated sequence therefore is partly separated into two stratigraphic strings. At the east end of the box the earliest deposit excavated was a layer of small limestones in a matrix of grey-brown silty sand (347), tipping down to the south-west. Above was layer 346 a sandy silt again tipping to the south-west. This deposit was overlain by a further layer of limestones mixed with grey-brown silty sand (345) that contained pottery of 12th-15th century date. This was in turn covered by another layer of sandy silt (344), containing 15th-century pottery. Layer 343 above comprised brown silty sand with 30% gravel inclusions.

Towards the west end of the shored box the earliest deposit excavated was a tenacious blue-grey clay with occasional gravel inclusions (340), which was sealed by a thin horizontal layer of compact gravel (339). The layer above (338) consisted of a tenacious blue-grey clay with gravel, again level, which was overlain by 324, a lighter blue-grey silty clay. Layer 324 was sealed by reddish-brown layer of silty sand and gravel (323), in turn covered by 322, a further deposit of blue-grey clay, which produced a single sherd of early medieval pottery.

Layers 322 and 343 were overlain by a light grey clay silt (320) containing 20% gravel, several small limestones lying flat and a few pieces of animal bone. The layer above (337) was a mixed deposit of silty sand, gravel and blue-grey clay, which was overlain by a layer of gravel and sand (336). A further layer of sand and gravel (335) was in turn sealed beneath an equally mixed layer of blue-grey silty clay and sandy gravel.

Layer 334 was cut by a linear feature (333) aligned east-west, with a rounded terminus at its west end. The feature, perhaps a ditch or a garden feature, had steep, near-vertical sides descending to a rounded concave base. The ?ditch was excavated for a length of 1 m within the limit of the Trench, and was 0.6 m deep. The feature fill (332) was a grey brown sandy silt including pea grit and rounded gravel. No finds were recovered from the feature fill.

The fill of feature 333 and layer 334 adjacent were cut by the east edge of feature 315=325 excavated in the north-south part of Trench 3. Here ditch/pit 315 had a 50° sloping edge, and was at least 2.05 m deep. The earliest excavated fill (321) was a light brownish-grey sandy silt, with occasional gravel. This fill lay below a loose dark-brown loam (319), including stones and pieces of limestone; pottery from the fill was dated from 1580-1700. Fill 318 above consisted of a mid-grey-brown loam including pottery of 17th-19th century date. Fill 318 was sealed by fill 302 that has been described above.

The upper fills of ditch/pit 315=325 were overlain by a layer of loose light brown clayey sand with stones (313) that appeared to lie partly within the limits of feature 315=325, but could be traced in the trench sections outside the edges of the feature. The layer therefore appears to be filling the hollow caused by the slumping of the fills of 315=325. Layer 313 was sealed throughout the trench by a general layer of grey-brown sandy clay (312) which underlay the construction layers (310/311) for the

present car park. A single modern service pipe was also observed in this trench (water pipe 341 in cut 342).

Interpretation of deposits in Trench 3 and 4

The earliest deposits in the north-south part of the trench contained post-medieval finds, and as in Trench 2, appear to represent the deliberate filling of the motte ditch at this time. The clay pipe evidence suggest that a date of *c.* 1650-1670 for the earliest excavated fills. Later, a large ditch (possibly the same feature that appears in Trench 7, see below) was cut through the fills of the motte ditch. The date of the finds from the ditch indicates that it was dug in the 17th century at the earliest, though a date anywhere up to the Victorian period is equally likely.

In the east-west part of the trench the deposits were less easy to interpret. At the base of the excavated trench possible occupation layers and/or fills of the motte ditch were revealed. The thick clay layers here appear to be filling a hollow, but these layers are of distinctly different character to those identified elsewhere (specifically in Trench 2) filling the motte ditch. A tentative interpretation is that these layers were deliberately dumped to act as a causeway across the motte ditch to the motte itself. The east edge of the late ditch/pit (315=325) was cut through the fills of a smaller ditch aligned east-west of unknown function, though it may be associated in some way with a phase of the motte ditch.

4.1.4 Trench 5 (Fig. 6)

Trench 5 was located adjacent to the Pratton Building. The trench measured 6 m by 1.85 m, and was excavated to a general depth of 1.4 m, and at its deepest point to a depth of 2.4 m, at 58.78 m OD.

The sequence of deposits within this trench was similar to that excavated in Trench 1. The earliest deposit excavated was a brownish grey silty clay (514) which tipped downwards to the north-east. A 0.4 m thick layer of quartzite rocks mixed with yellow-brown silty clay, patches of building mortar and gravel (512), overlay this deposit. This layer was overlain by a silty clay layer (513). Thereafter the sequence of deposits consisted of alternate layers of clay and silt, usually containing charcoal (511, 510, 517, 507, 516, 506, 515, 505, 518, 504). Clay pipes from 504 suggest a date anywhere between 1650-1880 for the deposition of the fills. All these deposits tipped downwards to the north-east, and contained pottery of post-medieval date, between 1650 and 1900. One of the middle fills in the sequence (507) produced sherds dated from 1740-1880, which gives the closest date range for the infilling activity. At the level of layer 504 was a distinctive layer of light yellow-brown silt (503) containing patches of mortar and several stone roof tiles. This deposit was sealed beneath a 0.4 m thick layer of dark grey-brown clay silt (508) apparently filling a deep hollow at the north end of the trench. This was overlain by layer 509, a grey-brown clay silt 0.4 m thick. Above layer 509 was a 0.6 m thick layer of grey-brown loam (501), which extended along the full length of the trench. Above lay a 0.3 m thick rubble deposit that acted as make-up material for the present concrete car park surface (500).

Interpretation of deposits in Trench 5

As in Trench 1, the succession of tipped layers, here of clay and silt, suggest the deliberate filling of another pre-existing feature or hollow, although the edges of the feature were not identified within the trench. The dating materials from the tipped layers suggest that the feature was in-filled sometime between the 17th and 19th centuries. Layer 501 corresponds to the thick loam layer in Trench 1, and is here also interpreted as the soil imported for the creation of the Governor's garden.

4.1.5 Trench 6 - not excavated

4.2 Area AII

4.2.1 Trench 7 (Fig. 7)

This trench was one of two opened within the gardens of the warders' houses adjacent to New Road. Trench 7 was 2.6 m long and 1.4 m wide. The reduced dimensions of the trench compared to those proposed in the WSI were due to the presence of a large tree and a thick concrete pathway. The trench was excavated to a general depth of 1.5 m, and within the shored box; excavation proceeded to a depth of 2.52 m, at 59.54 m OD.

At the base of the trench were six small to medium-sized ragstone blocks (739) mixed with patches of blue-grey clay and sandy gravel (738). The stones were not bonded and their irregular spacing suggest that they were not part of a structure. The stones were overlain by a tenacious blue-grey clay (737), which was 0.3 m thick. Above was a compact reddish-brown layer of gravel mixed with lenses of blue-grey clay (736), in turn sealed by a brown silty clay (735), which tipped downward from east to west. Above this layer was a dark grey-brown sandy silt with gravel inclusions (734), from which was recovered pieces of clay pipe dating to the 18th century (1700-1770) together with a residual sherd of early medieval pottery. A succession of clay and gravel layers superimposed on each other followed (733, 730, 732, 731, 729, 728, 727). All these layers tipped downwards from east to west, and contained no datable artefacts. At the level of layer 727 was a loose grey-brown sandy silt with 20% gravel (726), 0.18 m thick. Unlike the layers below this deposit had a level upper surface, possibly suggesting that it formed a turf line.

Layer 706 was overlain by a yellowish-grey gravel (721) that appeared to tip downwards to the east. Above lay a compact silty clay layer (720) in turn overlain by a yellowish-brown silty gravel deposit (719). Both layers tipped downwards to the south-east. A thick layer of clay (724) sealed the gravel, and the clay was overlain by a further clay layer (723) in the south-west part of the trench, and layer 718, on the north side. Layer 718 comprised a light grey-brown silty clay with 50% gravel inclusions.

Layers 724 and 718 were cut by a large feature (725), whose west edge sloped at 50°, before sloping to a concave profile. The feature is perhaps a continuation of the probable ditch seen in Trench 3. The main excavated fill (717) was a dark grey-brown silty clay with occasional charcoal flecks; pottery of medieval date together with 17th-19th century sherds was recovered from this deposit together with clay pipes dating

from 1700-1770. Above lay 715, a mid-dark yellow-brown sandy silt that contained no inclusions. Fill 714 above was a further clay deposit (pottery dated between 1550-1700) which was in turn overlain by 713, a compact yellow-brown clay that extended across the top of the ditch and therefore sealed all the deposits within it.

Layer 713 was overlain by 712, a compact dark-brown silty clay mixed with gravel, and also layer 710, a similar clay deposit. Over 712 lay a deposit of silty gravel (711) and a thin layer of sandy gravel (705); layer 710 was overlain by a silty clay layer (709). Further clay and gravel layers (708, 707) and 704 which overlay 705 had accumulated or been dumped. Layer 707 contained clay pipes dating from 1660-1700. At the level of layers 704 and 707 was a shallow concave feature (722 filled by 703), possibly the remains of a recent garden posthole. The remainder of the deposits in the Trench (702, 701, 706, 700) relate to the garden soils of the warders' houses and are probably of 20th century date.

Interpretation of deposits in Trench 7

The layer of ragstone rubble at the base of the Trench appears to have been dumped in a deep negative feature, and this is presumably the motte ditch where it runs around the north-east side of the castle mound. The layers above the rubble tip from east to west, suggesting that the hollow of the motte ditch was infilled from the east side of the feature, and was therefore not filled due to natural erosion from the adjacent castle mound into the ditch below. Layer 726, which rests level over layers 727-732 below may represent a 'turf line', that is, a possible time when the infilling of the motte ditch had ceased and the ground level remained stable. Thereafter there appears to have been a raising of the ground level represented by layers 721, 720, 719, 724 and 718, at which point the probable ditch 725 was cut. It is possible that this feature is a continuation of ditch 315=325 from Trench 3, and that it represents a re-cut along the line of the motte ditch. The reason for the excavation of such a feature is unclear. Finds from the fill of the ditch suggest that it was infilled in the 17th century at the earliest, though it could have been infilled in the Victorian period. This date range is broadly similar to that of the comparable feature in Trench 3. The layers above the ditch fill represent the deposits associated with the gardens of the prison phase, and latterly, the garden soils of the warders' garden here. The function of feature 722 remains unclear.

4.2.2 Trench 8 (Fig. 8)

Trench 8 was located in the garden adjacent to New Road. The trench was 3 m long and 2 m wide, and was excavated to a general depth of 1.4 m. Thereafter excavation proceeded within a shored box to a maximum depth of 2 m, at 59.8 m OD.

The earliest deposit at the base of the trench was a compact light yellow-grey mortar (810) containing brick rubble that was overlain by a compact layer of blue-grey clay (809) with occasional charcoal flecks, which produced pottery dated from 1550-1700. Above was a layer of yellow-grey silty sand (808) containing patches of mortar into which had been cut a small feature (811). The feature, perhaps a posthole, was 0.17 m deep and 0.28 m wide with vertical sides and a flat base. Its fill (807) was a dark grey silty clay that contained no finds. The posthole fill was sealed by a 0.56 m thick layer of dark-brown clay with gravel inclusions and charcoal flecks. Pottery of post-

medieval date (1650-1880) and clay pipes dated between 1640-1710 were recovered from layer 806, itself overlain by a further layer of dark brown silty clay (805). A further grey silty clay layer (803) and a localised deposit of sand (804) overlay layer 805. Layers 803 and 804 lay under a layer of mortar, limestone and brick rubble (802), with pottery dated 1800-1900, which was 0.35 m deep. Above this layer was 801, a layer of loose white mortar and plaster with some charcoal flecks, indicative of recent building work. Topsoil (800) sealed 801.

Interpretation of deposits in Trench 8

None of the deposits excavated produced finds earlier than the 17th century. The precise function of the layers beneath building rubble 801 remains unclear, although if as seems likely the feature/ditch observed in Trench 7 (725) continues into the area of Trench 8, then the excavated layers here are likely to be late fills of the hollow over the top of that feature. The function of the possible posthole is likewise unclear owing to the narrow confines of the excavated area; no other posthole features were observed with which it could be associated.

4.3 Area A III

4.3.1 Trench 9 (Fig. 8)

Trench 9 was located immediately east of the former Governor's House. The trench was 3 m long and 2 m wide. The trench was excavated to a general depth of 1.3 m, whereupon a shored box was installed and excavation proceeded to a depth of 1.89 m, at 58.64 m OD.

The earliest deposit at the base of the trench was a layer of dark-brown sandy silt (921) apparently tipping downward to the north. Pottery dated between 1550-1700 was recovered from this deposit, together with clay pipes dated from 1660-1700. The layer was sealed by 922, a dark brown layer of sand, and also layer 920, a sandy silt that tipped down to the north. These deposits contained pottery of post-medieval date, and layer/fill 922 contained sherds more closely datable to the period 1740-1880. At the west side of the trench above 920 was a layer of brown sandy silt (919), sealed beneath a further silt layer (913) from which clay pipes dated between 1610-1700 were recovered. Both 913 and 922 were overlain by a grey sandy silt layer (918) which included lenses of blue clay, and this was overlain by a layer of sandy gravel (917 beneath 912). Layer 913 was superseded by interspersed layers of sand and silt (916, 915, 914). All of these layers were evidently tipping downwards to the north, though the sharpness of slope had been reduced at the level of layer 912. These layers contained re-deposited medieval pottery.

Layer 912 was overlain by 911, a loose sand resting level upon the underlying deposits. Several layers of superimposed sand/gravel and silty clay followed (911, 910, 909, 908, 907, and then 906 beneath 905). All these deposits produced pottery sherds of medieval date, though these are redeposited. Layer/fill 906 produced clay pipes dated between 1660-1720 and layer 908 contained pottery sherds dated between 1760-1780. Above layer 905 was a yellowish-white layer of mortar and clay (904) to a maximum depth of 0.2 m. No finds were recovered from the deposit, which lay beneath a loose reddish-brown gravel with occasional stones (903). Above lay 902, a

compact yellow layer of silt and gravel 0.29 m thick, in turn overlain by the make-up (901) for the present car park surface (900).

Interpretation of deposits in Trench 9

As in Trenches 1 and 5, the succession of tipped layers towards the base of the trench suggests that these were in-filling a pre-existing feature or hollow, possibly a quarry. Again no edges of the ?feature were identified within the trench. The dating material from the tipped layers suggest that the feature was in-filled during the 17th-18th centuries at the earliest, and the pottery from deposit 908 is closely dated to between 1760-1780, which may suggest a more precise date for the infilling activity (see discussion section below). Layers 904 and 903 broadly correspond to the construction deposits observed in Trench 1 (Feature 8), while the layer of gravel above may have been make-up material for a surface in the Victorian period. There was no evidence of the garden soil as observed in Trenches 1 and 5.

4.3.2 Trench 10 (Fig. 9)

Trench 10 was located next to the main front entrance to the prison, and measured 3 m by 2 m. The trench was excavated to a maximum depth of 1.54 m and the top of the natural gravel was found 0.92 m below the surface level of the car park, at *c* 58.85 m OD. The earliest deposits within the trench were two 'islands' of natural sandy gravel subsoil (1060) that had been not been-truncated by intrusive features.

The natural gravel (1060) was cut by a sub-circular feature, probably a pit (1059). The feature had vertical sides and was at least 0.8 m deep with a diameter of 1.6 m. The earliest excavated fill was a friable dark-grey sandy silt (1058) that lay against the sides of the pit. Pottery of 11th-century date, was recovered from the fill together with pieces of animal bone. This fill was overlain by a loose reddish-brown sand and gravel (1057) that contained pottery dated between 1050-1250. Above lay 1056, a loose grey sandy silt mixed with gravel; no pottery was recovered from the fill though it produced some animal bone.

The upper fill of the pit (1056) was cut away to the south by feature 1055 and on its presumed north side by feature 1048. Feature 1055 was aligned north-west – south-east, extending parallel with the wall of the prison building. The feature, interpreted as the north side of the foundation trench of the prison wall, was at least 0.9 m deep and was 0.4 m wide within the limit of the trench. The foundation trench had a steep, near vertical edge, and following the construction of the prison wall the trench had been backfilled with a series of sandy silt deposits (1049 to 1054 inclusive). The full depth of the foundation trench was not established. Pottery from these fills was mostly within a date range of 1650-1880 but included redeposited medieval sherds, and clay pipes recovered date between 1700-1800.

Feature 1048 was cut through the natural gravel and the fills of pit 1059. The feature, a large pit, had a steep 80-85° sloping south edge that extended beyond the limits of the trench. The earliest fill excavated within the pit was a reddish-brown sandy silt (1047) that tipped downwards to the north-east. This was overlain by 1046, a dark-grey sandy silt. Pottery dated between 1740-1880 was recovered from fill 1047. Above lay a 0.04 m thick deposit of reddish-brown sand and gravel (1045) which was

compacted as if by trampling. Clay pipe stems dated between 1610-1700 were recovered from the deposit. Above lay a further deposit of sandy silt (1043, pottery dated 1740-1880), in turn sealed beneath a layer of greyish-brown sandy gravel (1042).

At the level of fill 1042 a patchy layer of compacted gravel (1041) lay beneath a thicker layer of greyish-brown sandy gravel (1039). This layer contained pottery sherds dated 1720-1770. Two undated deposits of whitish-yellow mortar (1033 and 1040), probably construction deposits, lay upon gravel 1039. Above the mortar deposits lay a 0.06-0.14 m thick spread of compacted grey silty sand including small limestones and patched of gravel (1017=1032). Above this layer several thin spreads of compacted gravel sandy silt accumulated or were deliberately laid, in ascending stratigraphic order these were 1016=1024=1031, then 1023=1030, 1014=1022=1029 and lastly 1021=1028. Above this sequence was a further layer 1012=1018=1025=1037. Cut in at the level of this layer were two modern service trenches (1009, 1011) aligned east-west, for services associated with the prison building. The fills of the service trenches were overlain by modern make-up (layers 1003 and 1001) for the present car-park tarmac (1000). A third service trench (1007) had been inserted at the level of layer 1001, and was of very recent date.

Interpretation of deposits in Trench 10

Trench 10 produced the only evidence of natural gravel in the area of the car park. The earliest pit in the stratified sequence can be dated to the 11th century or later by the pottery, and is one of the few instances of *in situ* medieval stratigraphy to be found in Area A. Finds from the later pit to the north indicate pitting activity of 18th-19th century date. It is possible that this represents the south side of one of the large 'quarry' pits that appear to be present across the site of Area A (see above, Trenches 1, 5 and 9). The presence towards the top of the 'quarry' pit of a trampled gravel surface suggests that this was a working surface formed at the time that the pit was being infilled; this action may have been broadly contemporary with the building phase of the prison.

Evidence for the construction phase of the prison buildings was seen in the form of the construction trench for the north wall, together with building debris and spreads of mortar. The series of gravel layers above these layers may have formed during the building process or at any time thereafter. They may have been laid down as rough surfaces, perhaps pathways. Modern services aligned east-west but not identified on the service plan of the site may account for the strong anomalies recorded here by the GPR survey.

4.4 Area C

4.4.1 Trench 11 (Fig. 10)

This trench was located within the lane that extends along the east side of C Wing, and adjacent to an extant boundary wall, with a view to assessing the survival of the south-east curtain wall of the castle. Due to the presence of a live service cable to the west side of the trench and the shallow footings of the boundary wall, the trench was not as wide as had been proposed. As a further consequence only limited excavation

was possible in the north part of the trench, as it was not possible to install safe shoring here. A shored box was constructed at the south end of the trench.

Trench 11 was 0.7 m wide at the north end and 2 m wide at the south end. Excavation proceeded to a depth of 1.5 m below ground level at the north end of the trench, to 58.58 m. The deepest point at the south end of the trench was 2 m below ground level, at 56.82 m OD, at which level water entered the trench.

At the north end of the trench the earliest excavated deposit was a layer/fill (1116) consisting of sticky reddish brown clay with limestone fragments and gravel. This material, clearly modern judging from the presence of modern glass within the deposit, appeared to fill a substantial cut feature (1117) that extended outside the narrow confines of the trench. No further investigation of the deposit or the feature was possible for safety reasons.

At the south end of the trench the earliest excavated deposit was a layer of dark grey-brown silty clay (1132) that sloped to the south. This layer was overlain by layer of similar colour (1131), but with a higher gravel content. Above lay a very dark-brown silty clay (1130) that was covered by a thin layer of grey-brown silty gravel (1114). This was in turn sealed by a layer of dark grey-brown silty clay (1113). None of these deposits produced dating evidence, and were notably free of charcoal or other indications that the soils had been disturbed. All of these deposits extended fully across the width of the trench, and all had a pronounced slope down to the south. It was not possible to trace their full extent to the north of the shored box for safety reasons.

A steep-sided trench (1129) was cut through the underlying deposits from the level of layer 1113. The trench had a vertical north edge that flattened gradually to a concave base and was at least 0.86 m deep. The trench was aligned north-west – south-east. The trench was filled with a structure (1109) consisting of rough courses of large irregularly-shaped ragstone blocks, bonded at the lower levels with a yellow sandy mortar with small gravel inclusions. A 2.2 m length of wall remained *in situ* to a height of 1.5 m with a width of 1.1 m. Nonetheless, stones found at the edge of the construction cut (1129) in the east facing trench section suggest that the wall was originally 1.9-2.0 m wide, comprising facing stones to the north with a rubble core of small limestone and ragstone pieces. The stonework had been damaged by the later construction of a brick building and associated drain, and by a large disused service run (see interpretation below).

Towards the base of the foundation trench, wall 1109 was abutted by a several layers of flat ragstone pieces (1128), which were overlain by 1127, a reddish-brown sandy silt with gravel. This fill was sealed by a clay silt deposit (1126) containing pottery of late 8th-early 9th century date, in turn covered with a brownish-grey sandy silt (1125). Further silty deposits accumulated or were dumped into the trench (1124, 1123, and 1122). Pottery of 10th-11th century date was recovered from fill 1123. Above 1122 lay a compact light grey deposit of mortar and small limestones (1121), suggestive of building or demolition work. This deposit was overlain by a sandy gravel (1120), in turn covered with a further deposits of sandy silt with gravel inclusions (1119 under 1118).

North of the construction cut for the wall, layer 1113, here with a distinct rounded upper surface profile, was overlain by a layer of dark grey-brown clay with gravel (1112). This deposit followed closely the rounded contour profile of the layer below. Above this layer lay 1111=1115, a distinctive deposit of reddish-brown sandy clay that could be traced northward in the trench to the point where it had been cut away by the late pit 1117 (see above). South of the wall was a layer of light-grey clay (1110) which abutted the stonework. No finds were recovered from this deposit.

Overlying pit fill 1116, layer 1111=1115 and the wall (1109) was a thick deposit of ragstone, mortar, sand, and sherds of ?19th century drainage pipe (1104=1108). There was a substantial quantity of this pipe material, suggesting that at one time a large ceramic pipe had been laid along the lane and in the area of the wall – the cut for this event presumably causing damage to the wall 1109.

At the level of the rubble deposit (1104=1108), a concrete raft (1106) had been built to support a brick building with an associated drain (1107) that had truncated part of the wall (1109). At the west side of the trench a modern electric cable covered with protective tiles had been inserted within a deep cut (1102, 1103) through the rubble deposit (1104=1108). A layer of make-up material (1105) sealed all underlying deposits and supported the present tarmac surface (1100) of the prison.

Interpretation of deposits in Trench 11

Natural gravel was not identified within this trench. Though relatively straightforward in terms of stratigraphic succession, the sequence of deposits here is complicated by the lack of dating evidence, particularly from the earliest deposits excavated within the shored box at the south end. Also problematic is the actual level from which the construction cut for wall 1109 was made. The construction of the modern concrete raft and recent service intrusions/rubble deposits mean that the foundation trench for the wall could have been cut from a higher level – this has some implications for the interpretation of layers 1112 and 1111=1115, as will be explained below.

The earliest layers at the base of the trench are difficult to interpret with any certainty. It is possible that they represent alluvial deposits forming near the edge of the former water courses that existed south of the castle. They may likewise represent marshland deposits formed by gradual flooding of this low lying area of Oxford; it is notable that during the excavation of the trench the water table was encountered at *c.* 56.8 m OD. Mean water level in the nearby Castle Mill Stream (Paradise Street) is at 56 m OD.

The upper level of the layer sequence north of the wall (1109) with the apparent rounded upper profile may indicate episodes of deliberate dumping for a rampart, with the convex upper surface of layer 1113 most important here. Crucially, however, the truncation of layers 1113 and 1111=1115 has completely removed the relationship between these deposits and the foundation trench for the wall.

The alignment of wall 1109 is interesting. It was aligned north-west - south-east, and if this limited extent is taken at face value, this makes it very unlikely that it represents the south-east curtain wall of the castle. There is a strong possibility that the wall is associated with the *City Wall;* this is discussed at length in the final part of this report. Unfortunately the only dating evidence from the construction trench are

two pottery sherds of late Saxon date. It is probable that these are redeposited, as the city wall defences are known to have been constructed in the 13th century. The extensive rubble deposits and probable pit (1117) are again interpreted as post-medieval/prison construction phase activities, presumably to raise the ground level.

4.4.2 Trench 12 (Figs 11 and 12)

Trench 12 was located in the area between the south end of the former B Wing and a large concrete base adjacent to the Former Governor's Office and Laundry Building. The trench was aligned east-west and measured 12 m by 2 m. The trench was excavated to a general depth of 0.9 m, but at the west end excavation proceeded in two areas to depths of 1.9 m and 1.3 m respectively. The areas were artificially divided by a modern electricity cable (1206) which was not removed during the excavation.

Natural gravel was revealed at the extreme west end of the trench 1.26 m below ground level, at *c* 59.65 m OD. The gravel was cut by four small features (1220, 1221, 1222 and 1223). Feature 1220 was an extended ovoid shape and extended beneath the north baulk of the trench. The feature had 60° sloping sides and a concave base, and measured 0.3 m wide and 0.2 m deep. The fill (1224) consisted of a reddish-brown clay silt with occasional gravel that produced no dating evidence.

Feature 1221 to the east of 1220 also extended under the north baulk of the trench. The feature was 0.15 m deep and had a radius of 0.3 m. The south-west side of the feature had an irregular stepped profile. The fill (1225) was a reddish-brown clay silt with small gravel that contained no finds. To the south-west of these features was feature1222, which was circular with irregular sides and an uneven base. The feature was 0.15 m deep and 0.3 m in diameter, and was filled with a reddish-brown clay silt (1226). Adjacent to 1222 was 1223, a roughly rectangular feature with a rounded east end. The feature measured 0.9 m in length and was 0.15 m deep, and had irregular sides and base. The fill of 1223 was a reddish-brown clay silt (1227); no finds were recovered from the fill.

The fills of the features were overlain by a 0.4 m thick layer of loose reddish-brown clay silt (1211) containing mixed stones and gravel, and also pottery dated to 925-1050 together with a probably intrusive sherd of post-medieval date. A small quantity of charred plant remains was noted during the excavation (see environmental report below). The layer was traced to the east for a distance of 1.95 m, where it extended under the baulk left because of the presence of the electricity cable. Layer 1211 was overlain by a dark reddish-brown silty loam (1210) containing charcoal, gravel, animal bone and pottery of late 8th-early 9th century and early 10th-mid 11th century date. The soil was evenly mixed and was 0.2 m in thickness.

Layer 1210 was overlain by a further layer of reddish-brown clay silt (1209) 0.15 m thick. The layer produced similar pottery to that in 1210 and a quantity of animal bone. This layer was cut by a possible pit (1234), whose profile and dimensions were unclear as it extended outside the limits of the trench. The feature was at least 0.5 m deep and 0.6 m wide. The lower fill (1235) was a loose brown-grey clay silt which was overlain by 1236, a reddish-brown silty clay; neither deposit contained dating evidence. Fill (1236) was sealed beneath a loose reddish-brown sandy silt (1208)

which contained pottery of post-medieval date. Layer 1208 was overlain by a thin spread of compacted sandy gravel (1237) that extended across the width of the trench, and which was cut at the extreme west of the trench by a feature of unknown function (1205 filled by 1207). Fill 1207 contained pottery dated 1650-1880.

Within the area opened to the east of the extant electricity cable (1206) the fills of a presumed deep negative feature (1242) were excavated to a depth of 1.9 m. The earliest excavated deposit was a sticky light brown clay silt with gravel (1229) that contained pottery dated 1650-1800, and clay pipes dated between 1610-1750. This deposit was sealed by a similar layer of clay silt (1228) containing pottery of post-medieval/Victorian date and clay pipes dated 1610-1750, which in turn was overlain by clay silt deposit 1217 with gravel and charcoal inclusions. Pottery dated between 1650-1880 was recovered from this layer together with clay pipes dated between 1610-1700. A possible feature (1213) of uncertain function seen in the north facing section of the trench cut layer 1217. At the same level and also seen in the section were a possible 'post-pipe' (1241) and a thin deposit of gravel (1216), possibly an eastward continuation of layer 1237. The latter contained clay pipes dated between 1660-1770.

All these deposits and features were overlain by a compact blue-brown clay silt (1243) which contained a small amount of modern building material, and was in turn sealed by a dark brown silt layer (1207). This produced pottery of post-medieval date and clay pipes dated between 1660-1770.

Layer 1207 was cut by a 50° sloping feature that was traced in plan extending to the north-east. The feature was not bottomed, and the only excavated fill was a dark grey-brown silty clay with gravel and modern building materials (1219). This material had been cut by the insertion of a modern service pipe (1238).

At the east end of the trench, excavation proceeded down to the level of a large structure (1200) whose north, south and west walls were exposed in plan. This was the second to end basement cell of the demolished B Wing building, which had been infilled with hardcore rubble and sealed beneath a layer of concrete. The building was abutted here by a ?square brick structure (1240)of unknown function with an associated ceramic pipe (1201). The structure appeared to have been built through the general make-up layer (1231) for the prison phase surface. The remainder of the contexts in Trench 12 were modern, including services 1206, 1203, 1204, 1232.

Interpretation of deposits in Trench 12

The earliest features at the west end of the trench were not convincing as structural features, given the irregular nature of their profiles, sides and bases. It is perhaps more likely that they represent either animal disturbance or other 'natural' features. The two distinct soil horizons above represent *in situ* strata dated by finds to the late-Saxon period. The soils were well sorted suggesting that they had been extensively worked, and may therefore have been used for agricultural/horticultural purposes. Feature 1234 cut into these soils might represent activity of broadly contemporary date. The fact that neither of the soil layers (or the natural gravel) was traced to the west, and that deeply stratified deposits of clay silt were excavated in the adjacent area, suggest that there is a deep cut feature here, the western edge of which lay beneath the baulk

carrying the electricity cable. It is most likely that this was the castle moat, which is known to have extended on its north-south alignment through this area of the prison grounds.

Of the remainder of the deposits in the trench, gravel and stones (1237) is likely to be the remains of a pathway that is depicted on Victorian Ordnance Survey maps of the prison. Other later deposits relate to the construction of B Wing and associated structures and drainage services.

4.4.3 Trench 13 (not illustrated)

Trench 13 was positioned west of an extant toilet block in the area of the former B Wing building. The trench measured 5 m by 1 m, and was excavated to a general depth of 1.2 m. The west wall of B Wing (1300) was revealed 0.6 m below the present ground surface (1300), beneath a layer of hardcore rubble (1302). The wall occupied most of the width of the trench, which could not be extended to the west owing to the location of services. No earlier archaeological features were revealed within the trench, and no pottery was recovered.

4.4.4 Trench 14 (Fig. 13)

This trench was located adjacent to the north wall of the prison, and measured 2 m by 2 m. At its deepest point the trench was 1.4 m deep. The west wall of B Wing (1401) was revealed 0.5 m below the tarmac surface (1400). Immediately west of the wall was a deep sunken brick-built feature (1402) filled with dark clay soils (1403, 1404), into which led three ceramic service pipes not indicated on the service plan of the site. Excavation did not proceed by hand, as the initial interpretation of the structure was that it was a 'cess' pit of relatively modern date. While archaeological deposits might have survived below the base of the structure it was felt that the degree of disturbance and health and safety hazards caused by it would not have justified a deep excavation.

4.4.5 Trench 15 (Fig. 13)

Trench 15 was located to the north-west of Trench 13, and measured 3.3 m by 3.8 m. The trench was excavated by machine to a depth of 3.23 m, at 57.36 m OD. The west wall of B Wing was revealed to a depth of 3.23 m below the present ground level. The wall (1500) was built upon a slightly offset footing that continued below the level of the excavation. A brick structure (1508) abutted 1500 at the south end of the trench and a further limestone-built structure (1501) abutted 1500 at the north end of the trench. This structure is known from plans of B Wing to be the south wall of the original staircase leading to the below ground levels.

At the base of the west side of the trench a north-south aligned brick structure (1503) was observed; the structure was not closely examined but appears to have been a culvert. The culvert was overlain by a 2.7 m thick layer of mixed clay and gravel (1502). This layer contained modern bricks and tile, and the layer abutted all of the structures visible within the Trench. Layer 1502 was cut by a modern service (1505) and sealed beneath a 0.3 m thick layer of hardcore rubble (1506) that covered all of the demolished structures. Tarmac (1507) sealed the Trench.

Interpretation of deposits in Trenches 13, 14 and 15

No archaeological features or deposits predating the construction of B Wing were observed in any of these trenches. The massive depth of the footings of B Wing and its associated structures indicate that archaeological strata may only survive at great depth in this part of the site i.e. at depths over 3.5 m. This would only apply to very deep negative features such as the castle moat. Medieval and earlier levels west of but adjacent to B wing are likely to have been completely removed here by the construction of the building. The disturbance associated with this extended further westwards than had been anticipated.

4.4.6 Trench 16 (Fig. 14)

This trench was excavated adjacent to the former wash house/laundry building and measured 2.9 m by 0.8 m, with a small extension to the trench to the south-west measuring 1.0 m by 0.6 m. The trench was excavated to a maximum depth of 1.3 m. Natural gravel was observed 1.08 m below the ground surface, at 59.62 m OD.

The earliest deposit within the trench was a layer of loose light brownish-yellow sandy gravel (1607), interpreted as the natural gravel. This layer was overlain by mixed deposit of loose reddish-brown sandy gravel (1617), which was in turn cut by a linear feature aligned north-west – south-east (1606) containing a wall 1605 and backfill (1619). The wall, was constructed of small and medium sized limestone blocks built in even courses and bonded with a yellow sandy mortar. The wall was 0.5 m wide and survived to a height of 0.95 m. It was abutted on its south-east face by a layer of compact grey-brown loam (1616) that lay below a layer of gravel (1615). This layer was sealed by a layer of yellow-brown sandy loam containing brick fragments (1614). The wall was overlain by a layer of reddish-brown loam (1604), through which had been cut a modern service trench (1603 filled by 1602, 1601). To the north-east of the wall all earlier strata above layer 1617 had been removed by an north-west – south-east aligned cut (1618) containing a modern brick-built drain structure 1613. The north-west extent of wall 1605 was truncated by a large brick and concrete manhole (1608), visible in the west side of the trench. The fills (1609, 1610) of service trench 1618 were cut by two modern cables, over which lay the make-up for the present tarmac surface.

Interpretation of deposits in Trench 16

The layer (1617) above the natural gravel may represent some of the original natural subsoil that has been disturbed by the construction of the limestone wall here. The wall is curiously aligned compared to the alignment of the other prison buildings. However, the late 19th century Ordnance Survey map indicates that Trench 16 falls within the area of the female exercising yards, which consisted of a 'fan' shape of walled pens, with the easterly of the walls aligned north-west – south-east. It is fairly certain therefore that the wall in Trench 16 belongs to this phase of the prison. The exercise pens appear to have been dismantled during this century. The remainder of the deposits and features relate to modern drain runs and services.

5 THE BOREHOLE SURVEY, based on information provided by R G Scaife and N Blake

5.1 Introduction

The principal aim of the field survey was to ascertain the position and depths of the (motte) ditch and moat fills and to describe and obtain sedimentary material for environmental analysis. This was achieved from six boreholes which were sunk using a Cobra mechanical/petrol power corer fitted with 1 metre long gouges of tapering diameter (5 and 3 inch diameter). Descriptions of the stratigraphy were made on site with colours classified using the Munsell Chart. Samples for pollen analysis were taken from the waterlogged fills of three of the profiles. Larger bulk samples for plant macrofossils and other environmental and archaeological materials were also taken from the ditch fills of all profiles. Brief summaries of the stratigraphic sequence are presented here; the complete profiles are described in Appendix 2 at the end of this report..

5.2 Results (Fig. 2)

5.2.1 Borehole 1

This borehole was sunk on the line of the motte ditch, between evaluation Trenches 1, 2 and 3. Ditch fills: depth 391-614 i.e. from a large quartzite boulder which rests on top of the grey silt/clay fills of the ditch to a distinct contact with the underlying Oxford Clay at 614 cm. The upper half of the ditch fill comprises largely heterogeneous domestic waste in a grey silty clay matrix. The lower half of the fills (550-614 cm) has an olive-green hue and appears 'cess' like, but could also be a freshwater deposit.

5.2.2 Borehole 2

Borehole 2 was sunk through the north end of evaluation Trench 1. Ditch fills: 287-338 cm. The top of the ditch fill appears to be at 287 cm where a building stone block rested on the top and possibly within a ?soil layer. The base of the ditch fill was less well defined, though it merged into a gravel sequence at 338 cm. This merged into a pure ferruginous ?Devensian gravel resting on Jurassic Oxford Clay. The main fill of the ditch, grey silt (287-338 cm) is thinner than in borehole 1; presumably as here the hole was sunk towards the eastern edge of the ditch.

5.2.3 Borehole 3

This was located due south of the round tower of C Wing. Ditch fills: 145 cm-334 cm. The top of the ditch fills were marked by a buff/olive silt which contained a Planorbid-freshwater mollusc. The bedrock Oxford Clay was not reached as there was an impenetrable object at 334 cm; suspected to be a very large stone. This is thought to rest directly on the bedrock or be firmly set within it.

5.2.4 Borehole 4

Borehole 4 was sunk due south of the end of evaluation Trench 12. Ditch fills 243-410 cm: these were typical grey silts with occasional bones, domestic refuse and organic material. The top of the ditch fill was marked by a dark grey/black anoxic horizon containing stones. There was a clear and well defined base to the ditch where it cut into the Oxford Clay.

5.2.5 Borehole 5

This was located due east of the south end of evaluation Trench 12. Ditch fills: 150-422 cm. This comprised a deep fill comprising largely grey, predominantly silts with sand and clay horizons/lenses. Towards the base of the ditch the grey silts became increasingly olive in colour, indicating ?cess-like material.

5.2.6 Borehole 6

This was drilled adjacent to the south-east prison wall. Ditch fills:191-508 cm. This hole revealed the deepest profile of the ditch fill, the top of which started at 191 cm where the silt fills were observed. The base of the ditch was at 508 cm and was extremely sharp and well defined, however below this lay a clearly natural organic deposit. This comprises a detrital organic mud or peat of an unknown earlier date. The depth of the Oxford Clay or gravel was not obtained.

5.3 Interpretation of borehole evidence

5.3.1 Boreholes 1-2

Boreholes 1 and 2 show that the motte ditch is at least 6.14 m deep below the present ground level, and given that there has been a build-up of just over 1 m of deposits on the site since the medieval period, the original motte ditch would have been *c.* 5 m deep when originally dug. The evidence from borehole 2 suggests that the motte ditch is present here, therefore the original ditch must have been at least 14 m wide, and in all probability wider than this.

5.3.2 Boreholes 3-6

Borehole 6 suggests that at the south-east side of the site the moat ditch is just over 5 m deep from below the present ground level. The results indicate that there may have been an earlier pond or channel on the site of the moat, though the date of this is uncertain.

6 SPECIALIST FINDS REPORTS

6.1 **The Pottery**, by Lucy Whittingham

6.1.1 *Introduction*

Nine hundred and thirteen sherds, weighing 15 kg have been examined and classified with reference to the Oxford fabric type series (Mellor 1994). The assemblage has been fully quantified recording sherd count, estimated vessel number, rim diameter, EVEs and other attributes such as vessel form, glaze and decoration. The details are recorded in an Excel spreadsheet and can be consulted in the site archive.

The total assemblage is summarised in Table 1 which shows the range of fabrics present, enabling comparison with other sites in Oxford to take place at a later stage of research. As the assemblage derives from the boreholes as well as the evaluation trenches, each collection of pottery per trench will be discussed as a separate group.

6.1.2 *Boreholes 1 to 6*

Borehole 1, sample 4, depth 430 cm, sunk into the fills of the motte ditch, produced three very small abraded sherds each 2 g in weight. These have been identified as early medieval Oxford Ware (OXAC) dated from the mid-11th century to second quarter of the 13th century, and a possible piece of Abingdon Ware of which ranges in date from the mid-11th to 14th-century.

Borehole 3, sample 7, depth ?, sunk into the castle moat at the south-east side of the castle, produced one sherd of mid-16th to mid/late 18th-century Brill red earthenware (OXDG).

Borehole 5, sample 6, depth 250 cm, sunk into the moat at the south-east side of the castle, produced three sherds of mid 16th to 18th-century Surrey/Hampshire Borderware (BORD) and Brill red earthenware(OXDG).

Borehole 6, sample 8, depth 465 cm, sunk into the moat at the south-east side of the castle, produced one sherd of mid 16th to 18th-century Brill red earthenware(OXDG).

6.1.3 *Trenches 1 to 12*

Trench 1

A small assemblage of thirty sherds, weighing 4 kg, was recovered from this trench. The assemblage includes wares of an early medieval date and early post-medieval 17th to early 18th-century date. At the base of the stratigraphic sequence, layer 29 contained a piece of Brill/Boarstall type red earthenware (OXDG) dated *c.*1650-1800. The quarry fills above this (9 to 20) contain a mixed sequence of late Saxon St Neots-type ware (OXR), early medieval wares (OXAC, OXY), medieval wares (OXAM, OXAX/AV) and early post- medieval wares (OXDG, BORDG/Y, PMBL. METS, STMO). These wares do not occur in a well-stratified sequence and are very mixed. At the base of the sequence are sherds of medieval OXAM, overlain by post-medieval BORDG, overlain again by medieval OXAC, OXY, OXR and capped by post-

medieval wares of 1700-1800 (STMO, OXDG and CHPO). The presence of earlier medieval wares in layers 12 to 15 which overlie post-medieval wares in layer 19, confirms that these layers are re-deposited. The presence of a ceramic ridge tile (OXAM) in layer 18 further confirms the re-deposited nature of this assemblage.

Trench 2

The one hundred and seventy four sherds in this trench are primarily of early post-medieval date. Layers 243 and 240, probably late fills of the motte ditch, contain sherds of a medieval East Wiltshire type ware (OXAQ), dating from the late 12th to early 15th century. The overlying layer 231 also contains a medieval sherd (OXY), but of an earlier date range; late 11th to mid 13th century. If this sherd of OXY is *in situ,* then the in-filling of the motte ditch must be considered to have taken place by the mid-13th century. However, this sherd could be residual as it occurs above those that could be as late as the early 15th-century in date. The first occupation layer (238) over the ditch and all of the remaining contexts with pottery in this trench contain very similar assemblages of a mid-16th to mid-18th-century date. These include Surrey/Hampshire Borderwares (BORDG) Brill/Boarstall red earthenwares (OXDG), imported Frechen stoneware (FREC), Tin glazed earthenware (TGW) and Staffordshire Slipwares and mottled wares (STSL, STMO).

Trenches 3 and 4

These trenches contain the largest assemblages from the evaluation. As in Trench 2, the earliest sequence of stratigraphy is a series of fills within the motte ditch. These layers (344 and 345) in the east-west part of the trench, like contexts 240 and 243 in Trench 2, contain medieval East Wiltshire type ware (OXAQ) dating from the late 12th to early 15th century and presumably represent the late medieval filling of the motte ditch. Stratified over these are layers, 336 and 337, which may have formed a causeway across the motte ditch. The pottery within layer 336 must be residual as it is of an earlier date than that below it in 337. The pottery in 337 is a distinctive type of highly decorated medieval Brill jug produced between 1230-1325. If these sherds are *in situ* and contemporary then the causeway over the motte ditch has to have been constructed by the mid-14th century.

In the north-south part of the trench the earliest deposits (316 to 331) contain early post-medieval assemblages of mid-16th to mid-18th-century date (BORDY, FREC, OXDG and PMBL), but the upper fills (316 and 317) must be re-deposited as they contain late Saxon and early medieval wares. The ditch cut 315/325 is filled by layers 329-300, again of a mixed nature. The lowest layer (329) contains mid to late 18th-century Staffordshire mottled wares (STMO), but is overlain by stratigraphy containing early medieval ware (OXY), which is therefore redeposited. Of the ditch fills, context 302 produced the most pottery, containing a considerable percentage of medieval material (OXY, OXAM, OXAW, OXAQ, CHEAM) but with mid-16th to mid-18th-century post medieval wares (BORDG, FREC, NOTS, PMBL, STMO, TGW). The re-deposited nature of these fills is further confirmed by one possible fine Roman sherd in this context; this sherd requires further identification. Ditch/cut 315/325 would appear to cut through layers containing mid-16th to mid 18th-century material and was infilled by deposits containing mid to late 18th-century material.

Layer 300, which seals these fills, contains redeposited early medieval wares together with early 17th-century Tin Glazed Earthenware.

Trench 5

The earliest excavated fills in 'quarry' 519 contain mid-13th to 15th-century Brill-type pottery, but the subsequent layers have a common occurrence of early post-medieval red earthenware (OXDG), together with residual medieval sherds. In the middle of this sequence, context 507 contains two small sherds of Creamware produced from 1740-1880. The fills of feature 519 are most likely, therefore, to date from either 1650 or even 1740. At the top of the sequence the make-up layer 509 must be primarily re-deposited material as its contents are 90% early medieval (OXY, OXAC, OXAM) but occur with one piece of late 17th/early 18th-century tin glazed earthenware.

Trench 7

The twenty seven sherds in this trench occur in small context assemblages of one or two sherds, the majority of which appear to be poorly stratified. Below the level of ditch 725 are two sherds, one a late Saxon piece of St Neots type ware (OXR), the other an early medieval ware (OXAC). Their validity for dating is, however, questioned by the presence of post-medieval clay pipe in the same context as the late Saxon ware and the subsequent stratification of the early medieval ware above the clay pipe. Feature 725 would appear to be post-medieval in date, dated by the mid 16th to 18th-century Surrey Hampshire Borderware and early post-medieval Brill/Boarstall red earthenware in its principal fill (717). It is feasibly of a similar date to feature 315/325 in Trench 3. The remaining material in Trench 7 is either residual or of mid-16th to 18th-century date.

Trench 8

The eighty five sherds in this trench fall into two groups; an earlier group of mid-16th to 18th-century wares (OXDG, FREC) stratified in the lower levels (806-805) and 19th-century material in the upper levels (801-803).

Trench 9

The majority of the pottery in this trench is early medieval but it is stratified above a sherd of mid 16th to 17th-century Frechen stoneware in one of the lowest levels (921). The infilling layers (912-920), above 921, contain only late Saxon and early medieval material but this must be redeposited. Interspersed with the early medieval sherds in the 'quarry'/tip fills 904-911 are late 16th to 18th century wares which suggest that the infilling in all contexts between 904 and 920 is post-medieval in date.

Trench 10

The forty eight sherds in this trench confirm the presence of late Saxon to early medieval stratigraphy in Area A. Pit 1059, which cuts the natural gravel, contained late Saxon shelly ware (OXB) and a common early medieval ware (OXY) dating between the late-11th and mid-13th centuries. Feature 1043 which cuts through pit

1059 contains some late Saxon material (OXR) and some medieval sherds (OXAC, OXAQ), but these were recovered together with late 18th and 19th-century pottery, and are therefore residual. The presence of these wares in the lowest fill of this pit suggests more than an intrusion by trampling. Pit 1056, which is the third feature containing pottery in this trench, contains residual medieval pottery (OXAC, OXY) stratified above mid-16th to mid 18th-century (OXDG) pottery in the lowest fill (1054).

Trench 11

Two contexts in this trench produced pottery. Both are very small abraded sherds weighing only 3 g. Layer 1123 contains a sherd of late Saxon St Neots-type ware and layer 1126 a possible mid to late Saxon hand-built sherd with quartz and flint temper. These sherds need further research to confirm their identification and date.

Trench 12

Three soil/silt layers 1209, 1210 and 1211 contain possible mid to late Saxon pottery together with late Saxon St Neots-type ware. Context 1211 contains very small abraded sherds, one of which might be a fine greyware of Roman date, but this needs further confirmation. The sherds in 1209 and 1210 are larger, hand-built sherds in a range of coarse wares tempered with grog, limestone, flint and quartz. A further silt layer 1208 contains an early medieval fabric (OXBF) but also a mid 16th to late 18th-century ware (OXDG). Features 1217,1228 and 1229 all contain 17th and 18th - century pottery and are sealed by layer 1207 containing pottery produced between c.1650 and 1790. The cut (1215) for 'B' wing contains late 18th and early 19th-century Pearlwares and Transfer Printed wares, and confirms the known date of the construction of this building.

6.1.4 *Discussion: general characteristics of the assemblage and potential*

In summary, Trenches 11 and 12 contain well-stratified late Saxon material, and Trench 10 has well-stratified medieval material. The material recovered from Trenches 1, 2, 3, 4, 5, 8, and 9 indicates post-medieval deposition. Trench 7 is poorly stratified and therefore has little potential either for stratigraphic analysis or ceramic research.

This assemblage comprises a small number of late Saxon fabrics (Trenches 11 and 12), small abraded medieval sherds (Trenches 1-10) and a larger number of early and late post-medieval wares in Trenches 1-10. Table 6.2 summarises the range of wares recovered from the trenches. Further comparison with other assemblages in Oxford is recommended, but an initial impression is that this post-medieval assemblage compares favourably with other central Oxford sites. In particular with sites previously excavated near to the castle at Tidmarsh Lane, at St Thomas Street and nearer to the commercial district of the medieval city. One noticeable characteristic of this assemblage is the presence of imported Frechen stoneware. The abundance of continental imports has been noted previously as a significant indicator of closeness to the commercial hub of the city, for example along St Aldates where a wider range of both regional and continental imports are present in various ceramic assemblages (Mellor 1980 and 1989). Within the medieval wares most of the fabrics are local (OXAC, OXY,

OXBK, OXAM, OXAW) with very few regionally imported wares such as OXAG. Cooking pots and a few tripod pitchers are primarily supplied in local fabric OXY and jugs and smaller bottles/conical jugs in Brill/Boarstall fabric OXAM. A typical suite of early post medieval vessels, i.e. flanged dishes, deep bowls, porringers, pancheons and handled jars/chamber pots are found in Surrey/Hampshire Borderwares (BORDB/Y/G) and the more locally produced Brill/Boarstall ware (OXDG). The assemblage as a whole is not particularly large and is represented by a poor selection of redeposited sherds. Vessel forms are rarely represented by anything larger than 10% of the rim diameter, showing a considerable degree of stratigraphical movement on the site. However, there is potential for further ceramic research in establishing how this assemblage compares with others from within the city zone of Oxford and in establishing any distribution patterns of pottery distribution within the castle precinct.

Table 1: Pottery assemblage summary

Fabric Name	Fabric Code	Date	Total No of sherds	Vessel form types	% of total assemblage
Late Saxon	LSAX	L8th-9thC	22		2
St Neots – type Ware	OXR	925-1050	27	bowl, cooking pot	3
Late Saxon Oxford ware	OXB	L8th/E9th-L11thC	1		0.1
Early medieval Oxford Ware	OXAC	1050-1230	62	cooking pots	7
South West Oxfordshire ware	OXBF	1050-1225	6	cooking pot	1
Shell tempered	OXBK	1175-1350	2	cooking pot	0.2
Medieval Oxford ware	OXY	1050-1250	87	cooking pot, tripod pitcher	10
Banbury type Ware	OX234	1075-1400	1		0.1
East Wiltshire Ware	OXAQ	1175-1425	20	cooking pots	2
Abingdon ware	OXAG	1070-1300	1		0.1
Brill/Boarstall ware	OXAM,OXAW	1250-1500	111	jug, conical jug, cooking pot	12
Late Medieval	OXAX/OXAV	1400-1500	12	jug, tripod pipkin	1
Cheam	CHEA	1350-1500	3		0.3
Coarse Border Ware	CBW	1350-1500	3	cooking pot	0.3
Saintonge Polychrome	SAIN	1280-1350	1	jug	0.1
Tudor Green Ware	TUDG	1380-1500	1		0.1
Raeren Stoneware	RAER	1480-1610	1	drinking jug	0.1
Brill red earthenwares	OXDG	1650-1800	189	flanged dish, deep bowl, cooking pot, dog dish, tripod pipkin, jar	21
Surrey/Hampshire Border ware	BORD/B/G/Y	1550-1700	107	porringer, flanged dish, chamber pot, deep bowls,tripod pipkins,mug	12
Frechen Stoneware	FREC	1550-1700	54	drinking jugs, bellarmines	6
Westerwald Stoneware	WEST	1590-1800	2		0.2
Slip dec redware	METS	1630-1700	3	flanged dish	0.3
Black glazed red earthenware	PMBL	1580-1700	21	bowl, tyg, mug,jar	2
Red Basalt	RBAS	1760-1780	1		0.1
Chinese Porcelain	CHPO	1650-1900	2		0.2
English Porcelain	ENPO	1745-1900	2		0.2
Creamware	CREA	1740-1880	22	plate, bowls, deep bowl, jar	2
Pearlware	PEAR	1770-1850	5	tea bowl, plate	0.5
English Stoneware	ENGS	1830-1900	16	ginger beer bottle, tankard	2
Nottingham Stoneware	NOTS	1700-1800	5	jar	0.5
Staffordshire mottled	STMO	1700-1800	8	tankard, mug	0.8
Staffordshire Slipware	STSL	1650-1750	2	plate, mug	0.2
Staffordshire Press Moulded	STPM	1650-1800	1	plate	0.1
Staffordshire White Salt Glazed Stoneware	SWSG	1720-1770	13	bowl, strainer,plate	1
Tin Glazed Ware	TGW	1570-1800	40	drug jar, plate, lid? pill slab, chamber pot	4
Mocha decorated Creamware	MOCHA	1780-1900	2		0.2
Midlands Purple	MPUR	1480-1750	1		0.1
Transfer Printed Ware	TPW	1780-1900	18	plate, tea bowl	2

Refined White Earthenware	REFW	1800-1900	19		2
Flower pot	FLP	1800-1900	10		1
Miscellaneous			8		0.8
Roman?			1		0.1
Totals			913		

Table 2: Pottery sherds per trench summary

Trench Number	No of Sherds	Weight (g)
1	30	390
2	174	4876
3	365	5150
4	2	14
5	63	1080
7	27	448
8	85	818
9	29	386
10	48	758
11	2	6
12	80	865
boreholes	8	23
	905	14814

6.2 **Clay Pipes**, by Dr David Higgins

6.2.1 Introduction

Clay pipes were recovered from ten of the evaluation trenches, and three of the six boreholes produced pipes. The context numbers allocated for each trench are arranged in blocks of 100, starting with the trench number, for example, the contexts in Trench 7 start with 700 while those from Trench 8 start with 800. The boreholes are numbered from 1 to 6 with individual soil samples from each borehole being identified within square brackets. The borehole numbers have been prefixed by BH in the report and catalogue to avoid confusion with context numbers 1-6.

6.2.2 Methodology

The pipe fragments have been individually examined and details of each fragment logged on an Excel worksheet. The layout of the worksheet has been based on the draft clay tobacco pipe recording system, which has been developed at the University of Liverpool (Higgins and Davey 1994). Copies of both the worksheet and the draft recording system have been provided for the site archive. A context summary has also been prepared on a similar Excel worksheet and this is included below as Appendix 1. This provides the overall numbers of fragments and date range for the pipes from each context. Bowl forms have been recorded with reference to the London typology established by Atkinson and Oswald (1969) although the dating has been modified according to the form and attributes of the individual fragments. Variants of the basic London shape illustrated in the typology have had the letter 'v' placed after the type number.

The pipes had not been marked with context numbers and so to facilitate comparison of the diagnostic pipe fragments the context number has been added to these pieces in pencil within a circle. In addition to the context number a unique reference letter (A, B,

C ... AA, AB, etc) has been added to provide a means of identifying individual fragments. These start from A within each context group.

An assessment of the likely date of the stem fragments has been provided. The stem dates should, however, be used with caution since they are much more general and less reliable than the dates which can be determined from bowl fragments. All of the pipes were recorded and dated before the context descriptions or site matrices were examined. This methodology avoids any pre-conceptions being formed as to the possible date or nature of the various pipe groups while they are being catalogued.

6.2.3 *The Clay Tobacco Pipes*

The 1999 excavations produced a total of 763 fragments of pipe, comprising 186 bowl, 564 stem and 13 mouthpiece fragments, from a total of 64 different contexts (Table 6.3).

Table 3: Breakdown of clay pipe components by trench

Trench Number	No. Contexts	Bowl	Stem	Mouthpiece	Total
1	10	4	28	1	33
2	15	92	295	7	394
3/4	14	80	181	3	264
5	3	0	5	0	5
6	4	2	5	0	7
8	3	2	13	1	16
9	3	0	4	0	4
10	3	0	3	0	3
12	6	3	25	1	29
BH 2	1	1	1	0	2
BH 4	1	1	0	0	1
BH 6	1	1	4	0	5
Total	(65)	186	564	13	763

These pipes are described and discussed collectively below. This is followed by a section dealing with their relevance to the dating and interpretation of the archaeological contexts from which they were recovered.

6.2.3.1 *The Bowl Forms*

The pipe bowls recovered from the trial trenching almost all date from between *c*1610 and 1770. Within this period there are about 130 bowls represented, which provide a fairly good indication of the forms which were being used in Oxford during the 17th and 18th centuries. In broad terms the pipes follow London styles fairly closely and the London bowl form typology (Atkinson and Oswald 1969) has been used in identifying them.

London and Oxford are linked by the River Thames and there would have been strong trading and cultural links between them. Despite this, there are a number of regional differences in the bowl forms which can be observed. The Oxford bowls include quite a large number of examples with heart-shaped heels; more so than would be found in London. These start very early in the 17th century and continue until around 1670. There are also few later 17th century spur forms with a distinctive angular form to the bowl (Oswald 1984, Type B) which likewise appears to be a local type.

In general terms, the 17th century pipes from Oxford comprise about one third spur types and two-thirds heel types. These differences appear to have been purely stylistic and dictated by fashion. There is some evidence, however, to suggest that the slightly rarer spur forms were better finished (see below). If this were the case they would have been more expensive and, therefore, may provide indicators of groups containing material of a higher social status.

During the 18th century there are some elegant spur forms of 'West Country' type amongst the Oxford material. This style does occur in London but, once again, in much smaller numbers that at Oxford. The principal 18th century form, however, was the London Type 25 which dominates all the assemblages from *c* 1700-1770. Although this is a typical London form, differences in fabric, mark and finish all differentiate the Oxford examples from their London models (see below).

The assemblage recovered from the trial excavations provides a sample of the styles which were being used in Oxford before *c* 1770. A good range of forms is present and these could be used to provide a local sequence with which future assemblages could be compared and contrasted.

6.2.3.2 *The Marked Pipes*

One of the notable features of the Oxford Castle assemblage is the small number of marked pipes present. During the 17th century pipemakers generally used stamped marks to identify their products although the frequency with which such marks were used exhibits strong regional variation. In London a relatively small percentage of pipes were stamped while in Shropshire, for example, almost all pipes were. Although some 70 17th century bowls were present in this sample, none of them were marked with a maker's stamp. There was, however, one stem which was decorated with a roll-stamped border (see decorated pipes below).

During the 18th century London makers changed over to using moulded initials on the sides of the heel and almost all their products were marked in this way. Despite copying this form in Oxford the local makers do not seem to have taken up the use of moulded

marks to any extent. Over 75 bowls dating from *c* 1700-1770 and in a typical London style (Type 25) were recovered and yet only one of these possibly had a maker's mark. This was an example from 237 with some very faint marks on the sides of the heel, the surname initial of which was possibly a G. This almost complete absence of 18th century moulded marks is in contrast to Reading where recent excavations on the waterfront sites (Hawkes and Fasham 1997) and at The Oracle have produced good groups of 18th century mould marked pipes.

There were, however, a few examples of stamped stem marks at Oxford Castle. During the 18th century there was a West Country tradition of placing incuse full name marks across the stem. Six examples stamped with the mark IO BARNS were recovered; four from context 229 and two from context 232. The bowl form for these pipes was a West Country spur type. This mark can be attributed to Joseph Barns of East Woodhay, in the north-west corner of Hampshire. Barns is recorded baptising and burying children between 1714 and 1722 (Cannon 1991), thus providing a good chronological framework for this maker.

There was just one later mark consisting of the moulded initials WT on the sides of a plain London Type 27 bowl. This bowl form was current from *c* 1780-1820 and the mark can be attributed to William Tuckwell of Wallingford, who was recorded working in 1796 (Oswald 1984, 262). Examples of similar pipes, in two different bowl sizes, were recovered from the excavations at St Ebbe's in Oxford (Oswald 1984, Figs 29a and 29b).

Although the small number of marked examples makes it hard to say anything meaningful about the source of pipes which were being used on the site it is still possible to make a few observations. First, there is very little evidence for the importation of outside pipes at any date. Apart from the Joseph Barns marks, which came from about 25 miles south of Oxford, all of the other forms appear to have been made locally. The excavations at St Ebbe's did produce pipes from London, Hampshire, Wiltshire, Chester and Broseley (Oswald 1984) but even then they formed a very small percentage of the total number of pipes recovered (Higgins 1987, 324). The impression from this group is that the local makers generally did not choose to mark their products and that they were able to provide almost all the pipes in everyday use throughout the 17th and 18th centuries.

6.2.3.3 *The Decorated Pipes*

Only three out of the 763 pipe fragments recovered were decorated in any way, all of them stems. There were two 17th century stems with milled or incised lines on them. The first came from context 303 and has part of a pattern of fairly neatly incised lines on it. These consist of a single line around the stem against which a series of diagonal, spiralling lines has been butted; this pattern is broken. The second piece, from context 803 has two parallel rings of milling around the stem just before a break. In both cases there appears to be a slight swelling in the stem at the break point and these may be manufacturing defects in the stem which the pipemaker attempted to disguise with a band of decoration.

The third decorated stem was recovered from Context 10 and is less usual. It probably dates from around 1650-1740 and has been decorated with a roll-stamped border made

up of milled and dog-tooth bands. The Dutch makers typically used this style of decoration, although the style was also copied in some British centres, such as Rainford in South Lancashire. Oswald (1984, 251) noted the absence of Dutch pipes from St Ebbe's and the Oxford Castle example lacks the regularity and fineness that might be expected from a Dutch example. It is known that some of the later 17th and early 18th century Oxford makers used roll-stamped borders (e.g. Oswald 1984, Figs 8 and 16) and so it may be that this example is another variety of local product.

6.2.3.4 *Fabric Types*

English clay pipes have always been made almost exclusively of white firing clays. It is now becoming apparent that, during the 17th and 18th centuries, many local sources of white firing clays were exploited. These are very hard to distinguish from their appearance alone but, in the case of the Oxford Castle pipes, a presumably local fabric can be identified. Many of the pipes dating from the late 17th through to the early 18th century have numerous fine sand (quartz) inclusions in them. These can just be discerned with the naked eye but the inclusions are particularly noticeable when a hand lens is used. Many of the plain London Type 25 pipes exhibit this fabric, but not the Joseph Barns pipes from East Woodhay. This suggests that the clay source was local to the Oxford area where it was exploited by the town's pipemakers. This appears to be the first time that this distinctive local fabric has been recognised.

6.2.3.5 *Manufacturing and Finishing Techniques*

In the detailed catalogue of the pipes various details of the manufacturing and finishing techniques have been noted. In general terms these follow national trends, for example, 17th century pipes are invariably milled and bottered (smoothed) at the rim while the 18th century ones are not. Likewise, the stem bores seem to exhibit a particularly standard decline in size during the 17th and 18th centuries. This decline is well known but, from the examples which can be dated by bowl form, it would appear to be particularly consistent amongst the Oxford products. This allows a reasonably accurate assessment of the date of a stem to be made from its bore size.

There are, however, some distinctive trends which appear to be particular to the Oxford region. Perhaps the most notable of these is in the use of burnishing to finish the surface of the pipe. The burnishing has been graded as poor (P), average (A), good (G) or fine (F) according to the spacing and consistency of the burnishing strokes on each pipe. Some pipes are not burnished (0) while others have an unusually glossy surface (*) but one which does not show any burnishing marks. These pipes may have been buffed or polished in some other way to give this glossy surface finish. The burnishing data for the identifiable bowls is given below in Table 6.4 together with the bowl form (using the London typology) and whether the form is a heel (H) or spur (S) type

Table 4: Clay pipes - burnishing by bowl type

Form	H/S	Date	0	P	A	G	F	*	Total
4v	H	1620-1640	2						2
8v	S	1610-1640	1						1
9v	S	1650-1670	3			2			5
9/15	S	1640-1670	5			1	2	2	10
10	H	1630-1660	7					1	8
10v	H	1620-1670	15						15
10/13	H	1650-1670	9						9
11	H	1640-1670						1	1
11v	H	1605-1650	5			1			6
13	H	1660-1680	1						1
13v	H	1650-1680	4						4
15	S	1650-1680	1	2					3
15v	S	1650-1700	2		1		1		4
15/19	S	1680-1710					1		1
18/21	H	1680-1710			1				1
22v	H	1680-1720		1					1
23	S	1710-1730				3			3
25	H	1690-1770	9	23	29	4			65
25v	H	1690-1720		2	6				8
25?	H	1700-1770		3	1				4
27	H	1780-1820	1						1
Total			**65**	**31**	**38**	**11**	**4**	**4**	**153**

From this table it can be seen that very few of the 17th century pipes are burnished and that, when they are, they are most frequently spur types. Spur types constitute only one third of the 17th century forms and so this association between spur pipes and burnishing is even more striking. In addition, it should be noted that the burnishing is always of good or fine quality on these pipes. This would have made them more expensive and it suggests that spur forms may have represented a more prestigious type of pipe than the heel forms.

The most striking change, however, occurs around 1700 when burnishing becomes almost universal on the London type 25 bowls. This seems particularly unusual since in London itself burnishing was occasionally used on 17th century pipes but almost never on the 18th century ones, particularly the Type 25 form. It seems that the Oxford style is a hybrid variety, taking the London bowl form but copying the burnished finish which was much more typical of products from places such as the West Country and Shropshire. Pipes from these other centres were certainly being traded to Oxford in small numbers and so could have influenced local styles. The quality of the burnish, however, is much poorer than would be found elsewhere. Many of the stems from the same contexts as the bowls have also been burnished. Where mouthpieces were recovered it appears that the burnishing sometimes extended almost to the tip and, in one case, the burnishing strokes actually extended the full length of the pipe.

There is one other regional characteristic which is combined with this use of burnishing. In London the use of a simple cut rim appears abruptly around 1700 with the

introduction of the new Type 25 form. In the Oxford examples the new form seems to evolve a little more gradually. The earliest examples, probably dating from the 1690s, are still rather forward leaning and with a bottered and sometimes milled rim. During the early 18th century milled and bottered or lightly wiped rims continued to be used for quite a time, only gradually being replaced by simple cut rims during the 1710s to 1730s. These later types also tend to have smaller diameter but longer heels and the rim is sometimes cut back towards the stem rather than being parallel to or tipping away from it.

A total of nine pipe fragments were noted with internal bowl crosses, i.e., relief moulded marks on the base of the interior of the bowl. These were formed by a cut in the stopper which formed the bowl cavity during the manufacturing process. These all occurred on Type 25 pipes from Trench 2 (Contexts 228, 229, 237 and 238) which came from a series of deposits dating from *c*1710-1730. In eight of these examples the cross is arranged as a '+' following the long axis of the pipe and in one case as an 'X'. These nine examples were recorded amongst a total of 77 Type 25 bowls, showing that internal crosses only occur on some 12% of these pipes. It is interesting to note that in one case two bowls were identified from the same mould, one of which had an internal cross, 237(A), while the other, 229(I), did not. This shows that either two different stoppers must have been used with the same mould or that the cross was added to an existing stopper during the course of its life.

Another interesting feature noted with regard to the pipes is the presence of a faint but clearly defined circular mark on the sides of some of the early 18th century bowls. Examples were noted on the left hand side of a bowl in 229(A) and on the right hand side of bowls from 229(I) and 238(A). These latter two pipes are from the same mould. Some 18th century pipes had moulded circular cartouches containing the pipemakers initials on the side of the bowl. This style of mark, however, would not be expected in Oxfordshire and the circular marks noted appear rather too small anyway, being only some 6 mm in diameter. These marks do not appear to serve any apparent function and so may be related to some part of the production process in making the patterns or casting the metal moulds from which the pipes were produced.

The final pieces of note are three fragments which may derive from production waste on a kiln site. The single stem from Context 245, the lowest excavated deposit from the moat fill in Trench 2, appears to be coated with smears of fired clay. This surface appearance is often found on pipes stems which have been built into a kiln muffle; the chamber in which pipes were fired. The stem appears to date from the later 17th or 18th century and could have found its way into the moat with general rubbish from the town. The other two pieces of are two bowl fragments of *c* 1640-70 from context 1229. These have been highly fired and discoloured and also have slight traces of fired clay adhering to them. These pieces may likewise derive from muffle waste. No pipe kiln waste has previously been identified from Oxfordshire.

6.2.4 *The pipes as archaeological evidence*

Clay pipes are particularly sensitive as dating indicators and can often provide a good framework for the phasing of post-medieval deposits. Subtle differences in the style and quality of pipes also enable them to be used as indicators of social status and trading patterns. The pipes are firstly considered in their trench and context groups. This is

followed by a general assessment of their relevance to the site as a whole. Pipe fragments were recovered from nine of the trial trenches and three of the boreholes as follows: -

Trench 1 This trench produced a total of 33 pipe fragments (4 bowl, 28 stem and one mouthpiece) from a total of 10 different contexts. The earliest excavated context (31) produced a single fragment of 17th century pipe stem showing that all of the other contexts must be of this date or later. The majority of the excavated deposits comprised a long sequence of successive layers of soil or sandy gravel (9-29), several of which produced a few fragments of pipe. Although these groups are all small, the stem fragments recovered were almost all considered to date from the 17th century. Furthermore, the four more closely datable bowl fragments follow in chronological sequence within these layers; there was a bowl of *c* 1640-60 in Context 14, two of *c* 1650-80 in Context 10 and one of *c* 1660-1700 in Context 9. If these bowls accurately reflect the contemporary deposition dates for the layers within which they were found then the upper sequence of these deposits would appear to have built up gradually during the second half of the 17th century.

Trench 2 This trench produced by far the largest assemblage of pipes from the excavations, a total of 394 pipe fragments (92 bowl, 295 stem and 7 mouthpieces) from 15 different contexts. The earliest deposits excavated (contexts 239-245) were interpreted as fills for the motte ditch. These deposits only produced a total of five pipe stems which are all of general 17th or 18th century types. The earliest of these moat deposits (245) produced one stem which was considered to date from after about 1680, although it could possibly date from earlier in the century. But it is certainly of 17th century or later date and, as such, it not only provides a *terminus post quem* for all the other excavated deposits in this trench but also the earliest possible date for the excavated moat fills in this area.

Some of the largest and most coherent groups of pipes from the excavations were excavated from layers which overlay this initial phase of moat fill. Contexts 238, 230, 237, 236, 232, 228 and 229 all produced reasonably large and very consistent groups of pipes. The contexts have been listed in chronological order, with the oldest first. These deposits included sand, gravel, mortar and rubble as well as evidence for burning. These deposits would appear to represent a significant phase of activity on the site, probably involving clearance and/or construction work.

One of the largest and perhaps the most significant group within this series of 18th century deposits is the stratigraphically latest one, context 229. This context contained 22 bowl, 70 stem and 3 mouthpiece fragments all of which formed a consistent and apparently 'fresh' deposit. Amongst the finds were four marked pipes, all of which were stamped with an incuse mark reading IO BARNS across the stem. This mark can be attributed to Joseph Barns of East Woodhay in Hampshire. Barns is recorded baptising and burying children in East Woodhay between 1714 and 1722 (Cannon 1991, 22) and so it is likely that these products can be closely dated to around 1710-1730. It is possible that Barns continued to work after the last recorded burial but, given that he was already married by 1714, he is unlikely to have been working after around 1750 at the latest. This places the deposition of the sand spread 229 firmly in the first half of the 18th century and shows that the principal filling of the moat must already have taken place before this time.

Two other Joseph Barns marks were present in context 232 while one of the plain bowls types in context 229 can be shown from mould flaws to have come from the same mould as an example in context 237. In addition, a cross join was found between a bowl in 229 and a stem in 232. This clearly demonstrates that this sequence of deposits (229-238) are all closely related and that they must have been laid down in quick succession during the first half of the 18th century, and probably around 1710-30. The large scale filling of the moat and the subsequent deposition of deposits containing sand, mortar, burning, gravel and rubble suggests a substantial remodelling of this part of the site during the early 18th century.

Most of the later deposits did not produce pipes or just contained small numbers of 17th and 18th century fragments. The notable exception is context 205 which contained 56 pipe fragments, including 15 bowls. The majority of the bowls dated from *c* 1690-1720 with no diagnostic pieces later than this. Context 205 has been interpreted as a 19th century garden soil, presumably on the basis of other dating evidence. If this is a 19th century deposit then it is unusual in that it does not contain any diagnostic pipe fragments datable to after *c* 1720. In addition, many of the pipes are relatively unbroken. This suggests, first, that the soil must have been brought in from an earlier deposit and, secondly, that it was not extensively cultivated having been redeposited.

Trenches 3/4 These conjoined trenches produced a total of 264 pipe fragments (80 bowl, 181 stem and 3 mouthpieces) from a total of 15 different contexts. As with Trench 2, this trench sampled a section across the fill of the motte moat. One of the lowest excavated moat fills was a silt deposit, context 330. This produced a reasonable group of pipes, 40 pieces, including 11 bowls. The bowls form a coherent and tightly dated group of *c* 1650-70 which suggests that this part of the moat was infilled directly after the Civil War.

The deposit overlying 330 was context 328. The five bowls from 328 had an overall date range of *c* 1640-1710 although four of them dated from *c* 1640-1680. These pieces form a reasonably consistent looking group which suggesting that fills within the moat continued to build up during the second half of the 17th century. The latest piece of *c* 1680-1710 provides a late 17th to early 18th century date for the upper moat fills in this area, as well as a *terminus post quem* for the cutting of the large pit/ditch (feature 315/352) which is stratigraphically later. Unfortunately none of the other moat fill deposits provide particularly good dating evidence, although the stem from the overlying context, 327, was considered to be of later 17th century date, i.e. *c* 1660-1700.

Feature 315/325 was a large pit or ditch cutting the late 17th century moat fills and all of the remaining pipes from this trench were recovered from deposits within it (contexts 300-308). The stratigraphically lowest diagnostic piece within this feature was an 18th century bowl fragment of *c* 1700-1770 from context 306. By far the largest group from this trench, 135 fragments including 47 bowls, was recovered from context 302. Since this is stratigraphically later than context 306 it must date from the 18th century or later. Despite this, 302 only contained a few fragments of 18th or 19th century date (they could all be 18th century) and the overwhelming majority of the bowls range in date from *c* 1605-1680. While this group provides an excellent sequence of 17th century bowl forms, including some of the earliest examples from the site, it must have been

redeposited from elsewhere. In this respect it mirrors the large and likewise redeposited group from Trench 2 (context 205).

Trench 5 This trench produced a total of 5 pipe fragments, all stems, from a total of 3 different contexts. Although this trench was similar to Trench 1 in that it produced a sequence of tipped deposits filling a pre-existing hollow, the nature of the pipe finds was very different. None of the lower layers of fill produced any pipe fragments, the first pieces only appearing in the uppermost deposits, contexts 503 and 504. These only produced three stems between them and they are hard to date precisely, being of a general 18th or 19th century style. The only other pipe find was a residual fragment of 17th century stem from context 509.

Trench 7 This trench produced a total of 7 pipe fragments (2 bowl and 5 stems) from a total of 4 different contexts. The stratigraphically earliest group consisted of three 17th century fragments, including one bowl, from context 734. This context lay well down in the excavated filling of the motte moat and the bowl can be dated to *c* 1640-60. This ties in well with the immediately post Civil War dating suggested for the moat fill in Trench 3/4. Just one piece of 18th century looking stem was recovered from context 717, the fill of a ditch cutting the moat deposits. This may be the same ditch as identified in Trench 3/4 where it was also dated to the 18th century or later. The remaining three pipe fragments appear to be residual in later contexts (713 and 707).

Trench 8 This trench produced a total of 16 pipe fragments (2 bowl, 13 stem and 1 mouthpiece) from a total of 3 different contexts. The stratigraphically earliest context was a clay/gravel layer containing pottery and charcoal (806). This context produced a single spur pipe fragment which is hard to date precisely since it lacks its bowl. It has been given a date range of *c* 1640-1710 but is most likely to date from the mid-17th century. Context 803 was a silty clay/soil layer which produced 14 fragments of pipe of mixed 17th to 19th century styles, including one bowl. The bowl fragment dates from *c* 1780-1820 and has the relief moulded initials WT on the sides of the heel, possibly for William Tuckwell of Wallingford, who was recorded working in 1796. This deposit may represent the late 18th or early 19th century levelling of a continuation of the ditch like feature recorded in Trench 7. There was a single residual late 17th or 18th century stem in Context 801.

Trench 9 This trench produced a total of 4 pipe fragments, all stems, from a total of 3 different contexts. These three contexts were all interpreted as fills within a larger hollow such as a quarry. The stratigraphically earliest pipe was a single stem from context 921, the lowest excavated level. This stem seems likely to date from the late 17th century, around 1660-1700. If this attribution is correct it provides a *terminus post quem* for all the subsequent tipped layers. There were two 17th century stems in context 913 and a late 17th or early 18th century stem in context 906. These stems would be consistent with the deposition of this sequence of deposits during the later 17th century. A similar sequence of later 17th century deposits was recorded in nearby Trench 1.

Trench 10 This trench produced a total of 3 pipe fragments, all stems, from 3 different contexts. One stem, of 17th century date, was found in a trampled sand and gravel layer filling a hollow or quarry pit (Context 1045). The other two stems, one of 17th century type and the other of 18th century type, were found in the filling layers of the construction trench for the prison wall (Contexts 1053 and 1054).

Trench 12 This trench produced a total of 29 pipe fragments (3 bowl, 25 stem and 1 mouthpiece) from a total of 6 different contexts. The stratigraphically earliest are three small groups from the successive fills of a large feature which has been interpreted as the bailey moat (1217, 1228 and 1229). A total of 23 fragments of generally 17th or 18th century type were recovered from these three contexts. The pipes from the earliest context excavated (1229) included two bowl fragments which can be dated to *c* 1640-1670. These two pieces are of particular interest as they have been highly fired and discoloured and appear to have traces of fired clay adhering to them. They seem likely to have come from a kiln site where they would have been used to reinforce the muffle chamber itself. The date of these two bowls, as with the samples recovered from the motte moat, would suggest that the principal filling of the bailey moat took place immediately following the Civil War. The presence of possible kiln waste might indicate that general waste from the town was being cleared and dumped to fill the castle's defences. This trench also produced a small bowl fragment of *c* 1660-1770 from context 1216 and a few residual 17th and 18th century stems from contexts 1207 and 1219.

Borehole 2 This borehole produced two fragments of pipe from sample <5>. These comprised a 17th century stem and a bowl fragment of *c* 1700-1770.

Borehole 4 This borehole produced a single spur bowl of *c* 1680-1710 from sample <9>.

Borehole 6 This borehole produced four stems of 17th or very early 18th century date from sample <8>.

6.2.5 *Summary and conclusions*

The pipe evidence recovered from the site includes examples dating from the very early 17th century, when smoking was just becoming fashionable, through to about 1770. There are virtually no pipe finds dating from after *c* 1770, perhaps reflecting the changed use of the area and deposition patterns after the late 18th century construction of the prison.

The earliest pipes all come from redeposited contexts but they still provide a useful record of the early styles which were being used in Oxford. No deposits directly relating to the Civil War were encountered although material of this date was present in redeposited contexts and may survive elsewhere on the site. There was, however, evidence for the substantial infilling of the motte and bailey moats immediately after the Civil War, presumably as part of the slighting process.

The evidence from Trenches 2 and 3/4 suggests that three broad phases of activity affected the moat all around the south-east side of the motte. Following the Civil War the motte ditch appears to have been extensively filled. This is best dated by the pipe group of *c* 1650-70 in Trench 3/4 (context 330). During the first part of the 18th century a rapid succession of fresh deposits were laid down on the upper fills of the moat in Trench 2. These suggest a renewed phase of activity, possibly including the demolition or construction of buildings nearby. In the third phase substantial earthmoving activities took place, including the cutting of large ditches or pits (feature 315/325) and the

subsequent redeposition of large quantities of 17th century material in Trenches 2 and 3/4 (contexts 205 and 302).

The pipes themselves are of interest in that they provide a good sequence of local forms from around 1605 through to about 1770. These show that local makers dominated the everyday market and that a number of local characteristics in bowl form and finish can be identified. In particular a local fabric type dating from the late 17th and early 18th century has been identified. The trial excavations also produced a few scraps of what appears to be production waste. This may have been dumped from the town during the post-Civil War filling of the moats and is important in providing the first kiln waste from the county.

6.2.6 *Other clay material*

Half of a medium sized hair curler made of white pipe clay was recovered from context 717, the primary fill within a large ditch in Trench 7 (Feature 725). These objects were used in curling hair for wigs which were particularly fashionable from the restoration in 1660 until the end of the 18th century (Le Cheminant 1982). The Oxford Castle example is of a good, symmetrical form with a simple cut end. The central section appears to have been given a good burnish (although now very abraded). There are very fine sandy inclusions in the fabric, which matches that used by the local pipemakers. This is likely to have been a local product, provided as a sideline by the town's pipemakers. The form of this example suggests an 18th century date, which is supported by the stratigraphic position of this layer and by the finding of an 18th century fragment of pipe stem in the same context.

6.3 **The Building Material**, by Kate Atherton

6.3.1 *Introduction and Methodology*

The evaluation produced an assemblage of 155 pieces of ceramic building material with a total weight of 12,855 g. In addition, 34 fragments of stone tile, 5 miscellaneous pieces of stone and 6 small fragments of slate were recovered. Each piece of ceramic building material was weighed and assigned to a broad category of type (flat roof tile and peg tile, ridge tile, floor tile and brick). Measurements were made where dimensions survived. Fragments with no surviving dimensions could not be further identified at this level. These were weighed and grouped together as miscellaneous fragments. Table 5 presents the quantification of ceramic building material by number and weight. Further data are presented in tabular form in Appendix 4.

Table 5: Quantification of ceramic building material

	No	Weight
Floor tile (ctx 12)	1	740
Flat roof	68	4942
Peg roof tile	11	928
Ridge tile	16	870
Brick	8	3553
Miscellaneous	51	1822
Total	155	12855

6.3.2 *Results*

The assemblage as a whole was in fairly poor condition. The average weight for each fragment is under 83 g and the majority of fragments are heavily abraded and clearly were not found *in situ*. The collection is also notable for its absence of floor tiles, with only one example found.

The fragment of floor tile (context 12) is one of the largest pieces in the assemblage. Its weight of 740 g accounts for 6% of the total weight of tile and brick. It is also the only tile with a surviving width. The only other two pieces of ceramic building material with widths were brick fragments. The floor tile was 136 mm wide and 32 mm thick but it was not glazed, merely smooth. The majority of the fragments are flat roof tile, with a total number of 79 pieces weighing 8870 g (69% of the total assemblage weight). Eleven of these fragments could be positively identified as peg tiles by their surviving holes. The holes were small and circular with a diameter of *c* 12 mm. The one exception was a sub-square hole. No tile had more than one hole surviving. The fragments varied in thickness from 10 to 17 mm with the majority measuring between 11 and 14 mm thick. Thirteen of the flat roof tiles, including the fragment with the sub-square peg hole, had patches of lead glaze remaining to varying degrees.

The sixteen fragments of ridge roof tile survive in a poor condition and have an average weight of under 55 g. Ten of the fragments are glazed with a light splatter of olive green, clear or light brown glaze. No ridge spurs survive.

Eight fragments of brick were recovered that had a combined weight of 3553 g which accounts for 28% of the total weight of the building material. The fragments vary in fabric type and are clearly not from one source. Two bricks had measurable dimensions and were both 100 mm wide. Two showed signs of scratches from the moulding process and one appeared to have marks from organic material, such as straw, from where it was left to dry.

6.3.3 *Conclusions*

The poor state of preservation indicates that the building material had been heavily disturbed from its original position. The relatively small assemblage, in addition to its poor quality, probably does not provide a clear indication of the structure or structures of which they were a part.

Flat roof tile remained unchanged in form throughout the medieval and post-medieval periods and small fragments cannot easily be dated. There are no examples of the earlier medieval ridge tiles, made from a coarse fabric littered with limestone and shell, so common in Oxford and the region from 13th and 14th century sites (Atherton forthcoming; Jope 1951, 86). The fabric is also absent from the miscellaneous fragments. The ridge tiles appear to be manufactured from a uniform fabric that is well-fired and it is likely, therefore, that these tiles date from the late 14th century at the earliest. Patches of glaze are commonly found on roof tiles in the medieval period and plain ridge tiles with no spurs can be found as late as the 16th century.

The collection of brick generally has more of a 'handmade' appearance than later post-medieval brick. The marks left on the bricks from moulding and from straw also supports a late medieval manufacturing date. The widths of two bricks (contexts 507 and 912), at 100 mm, may indicate a date in the latter part of the 15th century. Although the apparent range of brick fabrics indicates more than one origin for the brick it was not impossible for varied bricks to be used together if the widths were compatible, as they may be here. The bricks are unlikely to date from before the mid 15th century when bricks were still an expensive and uncommon building material (Platt 1978, 178).

The majority of the fragments were found in the fills of post-medieval quarry features and the source(s) of the fragments is unknown. However, viewed as a whole, the assemblage indicates at least one building of domestic function with a tiled roof and plain ridge, splashed with glaze, perhaps of late medieval date. The absence of floor tiles would suggest a relatively low-status structure. The limestone roof tiles are typical of medieval and early post-medieval buildings and may be from another structure. The degree of disturbance undergone by the assemblage is indicated by the relatively large quantity of miscellaneous fragments, accounting for 33% of the total number of ceramic building material fragments.

6.4 **The Glass**, by Cecily Cropper

A total of 130 sherds of glass was recovered from the evaluation. In general the assemblage is characteristic of a post-medieval period group. The majority of the material comprises fragments of bottle glass. A fragment of window glass of late medieval date (late 15th-early 16th century) was recovered from context 302, together with the base of a goblet of early post-medieval date (16th-early 17th century). The assemblage is summarised in table form below and has little potential for further analysis.

Table 6: Quantification of glass

Context	Number of fragments	Classification	Period	Date
9	1	Window (crown edge)	PMED	18 C +
9	1	Goblet base	PMED	17 C
9	1	Bottle body	PMED	19 C
9	2	Bottle body	PMED	18 C +
10	1	Window fragment	PMED	17 C +
205	5	Bottle base and body	PMED	18 C
228	2	Bottle rim and body	PMED	18 C +
228	3	Bottle base and body	PMED	18 C +
228	3	Bottle body	MOD	19/20 C
229	1	Bottle base (Onion)	PMED	L17/18 C
232	1	Bottle rim and neck (Onion)	PMED	L17/E18 C
234	1	Window fragment	MOD	20 C
234	1	Bottle body	PMED	18 C +
236	1	Bottle rim and	PMED	18 C

		neck		
236	2	Window fragments	PMED	19 C
236	1	Vessel base/rim	PMED	19 C
237	1	Bottle base	PMED	18/19 C
238	1	Goblet bowl	PMED	19 C
238	1	Phial base	PMED	18 C +
238	1	Bottle body	PMED	18 C +
238	1	Window fragment	PMED	19 C
300	1	Window fragment	PMED	18/19 C
300	1	Bottle body	PMED	18 C +
301	1	Goblet knop and stem	PMED	17/18 C +
302	3	Window fragments	PMED	16/17 C
302	2	Bottle base (Onion)	PMED	L17/E18 C
302	1	Vessel body	PMED	17 C +
302	1	Bottle body	PMED	L 17/18 C
302	1	Bottle body	MOD	19/20 C
302	1	Vessel rim	PMED	17 C +
302	1	Window fragment	L MED	15/16 C
302	2	Window fragments	PMED	16/17 C
302	1	Goblet base	E PMED	16/E17 C
302	1	Bottle rim	PMED	L17/18 C
302	2	Bottle base	PMED	18 C +
302	2	Window fragments	MOD	19/20 C
302	1	Bottle body	PMED	18 C
302	1	Bottle body	MOD	20 C
302	1	Decorated vessel body	PMED	18 C +
305	1	Bottle base	PMED	18 C
305	1	Bottle body	PMED	18 C
305	1	Bottle body	PMED	19 C
306	2	Bottle body	PMED	18 C +
306	2	Window fragments	PMED	18 C +
328	1	Bottle rim & neck	PMED	18 C +
328	1	Goblet knop	PMED	18 C +
328	1	Vessel base rim	PMED	18 C +
328	1	Vessel body	MOD	20 C
328	1	Window fragment	PMED	18 C +
504	1	Window fragment	PMED	17 C +
505	1	Window fragment	PMED	17 C +
509	1	Bottle body	PMED	L17 C +
707	2	Bottle body	PMED	18 C +
713	5	Bottle bases	PMED	18 C +
717	4	Bottle rim & body	PMED	L17 C +
800	1	Bottle base	PMED	19 C
801	2	Bottle body	PMED	18 C +
802	1	Bottle seal	PMED	18 C +
802	4	Bottle body	PMED	18 C +
803	3	Window fragments	PMED	18 C +
803	22	Bottle	PMED	L17 C +
808	7	Bottle body &	PMED	L17 C +

		base		
809	3	Bottle rim & body	PMED	18 C +
1207	1	Bottle base	PMED	L17 C +
1219	1	Window fragment	PMED	18 C +
1228	2	Phial base	PMED	18 C +
1229	1	Bottle body	PMED	L17 C +

6.5 **The Small Finds and Metal Objects**, by Leigh Allen

A small assemblage of metalwork was recovered from the archaeological investigations at Oxford Castle. The assemblage comprises 16 copper alloy objects, 25 iron objects and one lead object. The assemblage is unexceptional and is essentially post-medieval in date.

The 16 copper alloy objects consist of a token, 2 pins, 6 lace tags, fragments from 2 buttons, a possible vessel fragment, a cuff link, a coil of fine wire, a section of larger gauge wire and a miscellaneous fragment of sheet. The objects are in reasonable condition although some show evidence of recent bronze disease. The assemblage will require x-radiography.

The token, SF 2 from context 16, requires formal identification at the Ashmolean Museum. The 2 pins are of different forms, the example from context 6 is a small, fine drawn pin with a wire wound head, the second pin, from context 509 is a fragment from the shaft of a more robust dress pin, the head is missing. Drawn wire pins are known to have been in use as early as the 14th century but are more commonly found in large quantities in the 17th and 18th centuries. The 6 lace tags are from contexts 14, 205 and 302, they include two complete examples. SF 4 from context 302 is a particularly large example, it is 47 mm long (the average length tends to fall in the range 16-32 mm) and is in very good condition, a fragment of the original lace remains in situ at the upper end. Lace tags are known to have been in use in the 15th century, but are particularly common in the late medieval and post-medieval periods. The two buttons are both post-medieval in date and consist of a circular discoidal livery or blazer button (SF 6) from context 29, and a damaged fragment from a decorated composite or bone backed button (SF 10) from context 1217. The blazer button is plated on the upper surface and the attachment loop is incomplete. The decorated fragment is very badly damaged, however there is a small section of the outside edge that appears intact, it is semi-circular and slightly lipped. The decoration has been stamped from the under side and shows a square at the centre with a cross in it and around the square there is a floral design. The background is textured and gives the appearance of very fine woven cloth. An example of this type of button was recovered from Winchester (Biddle and Cooke 1991, fig.155, No.1724). The irregularly shaped object from context 319 is possibly a fragment from a vessel. It has a raised central spine and may have formed part of a cauldron leg (this object requires further work). The remaining copper alloy objects are a coil of fine wire from context 803, a section of wider gauge wire from context 717, a modern cuff link from context 302 and a triangular fragment of sheet from context 803.

The 25 iron objects are in poor condition and require x-radiography before they can be properly identified. There are 13 nails identifiable at this stage from the following contexts: 6, 14, 21, 238, 288, 302, 305, 511, 713, 803 and 1207.

There are two fragments of lead window came from context 302.

6.6 Miscellaneous Finds

A total of 75 pieces of shell was recovered from 19 contexts. The material comprises mostly oyster shells from post-medieval contexts. Four flint artefacts were found including a flint scraper from the spoil from Trench 9. Seven fragments of iron slag and a single piece of fired clay were recovered, though as a group little can be said about this material. Fragments of coal were recovered from two contexts.

6.7 The Human Bone by Angela Boyle

A small quantity of disarticulated human remains was recovered from four different contexts (240, 717, 729 and 732) during evaluation of Oxford Castle. Details of the material can be found in the table below.

Table 7: Summary of human remains

Context no.	Context type and date	Identification
240	Clay layer, deliberate infilling of motte ditch, post-medieval	Adult right femur, sex indeterminate
717	Fill of ditch cut into motte ditch, 18th/19th century	Adult frontal bone, ?male
729	Gravel layer, upper fill of motte ditch, post-medieval	Adolescent proximal tibial epiphysis
732	Clay layer, fill of motte ditch, post-medieval	Adult left talus Adult left distal fibula

The presence of human bone in layers which represent deliberate infilling of the motte ditch is likely to indicate disturbance of an earlier burial or cemetery in the immediate vicinity. Possible candidates include the early medieval cemetery of St Budoc, believed to be located outside the eastern entrance to the castle while St George's Tower is known to have a crypt and there must have been an associated medieval cemetery.

Human remains have been recovered on a number of occasions in the past. In 1682 a stone coffin was found opposite the entrance to the castle, probably from St Budoc's Church (Wood 1889, 208). A second stone coffin also probably related to St Budoc's was revealed in 1969 (Hassall 1976, 241-2). A well cleared inside the mound contained human remains and a large number of skeletons was found in association with the ruins of the church of St George in the castle (King 1796, 6-12, 17-19). An undated burial was sealed beneath the mound (Hassall 1976, 241-2).

6.8 The Animal Bone, by Bethan Charles

6.8.1 *Introduction and Quantification*

A total of 728 fragments of bone were retrieved by hand from the site. Some of the bones were re-assembled at the analysis stage, reducing the total to 643. From this number 63% were identified to element and species. A small amount of additional bone was retrieved from environmental sieving, all of which corresponded with the bones collected by hand. This material was scanned briefly and has not been included

in the tables and calculations below. The assemblage was recorded using a simple recording sheet. This enabled a quick calculation of totals to be made along with a rough estimation of the number of individuals in each context and in total. The most important aspects of the evidence are summarised in Tables 8-10, while further information is presented in tabular form in Appendix 5.

With regard to the Caprine sub-family an attempt was made to separate the sheep and goat bones, whose similarity often poses difficulties in identification. However, as no goat bones were positively identified all are recorded as sheep.

Ageing was based on tooth eruption and epiphyseal fusion, although the latter is less reliable. Tooth eruption and wear was measured using a combination of Payne (1973) and Grant's (1982) tables. Silver's (1969) tables and O'Connor's adaptation of these (1982) were used to give timing of epiphyseal closure for cattle, sheep and pigs (all epiphyseal closure tables are in Appendix 5).

6.8.2 *Condition of bone*

The majority of bone was in very good condition and only a few elements had bad attritional damage. Quite a number of the bones had fresh breaks as a result of excavation and processing. However, in the majority of cases the damage was minor.

Only five fragments of burnt bone were found in the assemblage. All were small unidentifiable fragments from different contexts. A larger number of bones had signs of gnaw damage which were probably the result of gnawing by dogs and possibly cats in the area. This may have affected the spatial distribution of many of the bones on the site. The majority of elements chewed were sheep and pig long bones.

6.8.3 *Species Representation*

It can be seen from table 6.8 that cattle and sheep dominate the assemblage in equal numbers with pig bones as the third most prominent animal. Although the number is probably a reasonable representation of the animals from the site it must be born in mind that retrieval and preservation of the smaller bones may have affected the number retrieved. This is more prevalent in pig bones which are more porous and fragile than those of cattle and sheep.

It is not surprising that there was only one horse bone since the material appeared to be mainly kitchen and butchery waste. Horses were rarely eaten in England during the medieval and post-medieval period other than in times of famine and hardship. The small number of deer bones is also not unusual, since deer tended to be eaten by the aristocracy and would not have been commonly eaten during the medieval and post - medieval period.

There were a small number of bones from domestic fowl in the assemblage as well as other bird not identified to species. This, as well as the small amount of fish, indicates a variety in the diet of the inhabitants.

Table 8 also shows that cats and dogs were kept in and around the site. It is unlikely that these animals were eaten as they were more likely to have been kept as working

animals or as pets. The fact that so few fragments were found may relate to the size and preservation of the bones.

Table 8: Number and percentage of identified animal bones

	Cattle	Sheep	Pig	Horse	Red Deer	Dog	Cat	D.Fowl	Bird	Fish	UnId
Total	172	171	38	1	5	1	1	11	5	2	236
% total ID	42.3	42	9.3	0.2	1.2	0.2	0.2	3	1.2	0.4	

The estimated age of the cattle from the epiphyseal fusion data as well as the tooth eruption and wear stages appears to vary from between 18 months or less to over 3.5 to 4 years. However, there were not many elements that clearly indicated animals over 3.5 to 4 years of age, owing to a lack of indicative elements. It is probable that a variety of cattle of different ages are represented within the assemblage.

The estimated age of the sheep from the epiphyseal data showed that very few individuals were killed under the age of two to two and a half years. The tooth wear stages shown in Tables 6.9 and 6.10 show that the majority of the sheep were between the ages of three to six years.

The epiphyseal fusion of the pig bones indicated that none of the elements from the site were over the age of 3.5 years, and some were less than a year old at death. Although there was only one partially complete mandible it can be seen in Table 6.9 that it was from a young individual. Pigs were commonly killed at a young age since they provided little more than meat and were expensive to keep once they had reached maturity. The fact that many of the pigs were young may have affected the numbers of bone retrieved from site since juvenile bones are more fragile and less likely to survive.

Table 9: Numbers of examples of tooth wear stages (TWS) of cattle, sheep and pig after Grant (1982)

TWS	16	19	20	30	32	34	35	36	37	38	40	47
Cattle	1	0	0	0	0	0	1	0	0	1	0	1
Sheep	0	0	1	1	1	3	1	3	1	2	1	0
Pig	0	1	0	0	0	0	0	0	0	0	0	0

Table 10: Tooth wear stages of sheep after Payne (1973)

Age	Number of Mandibles
3 - 4 years	6
4 - 6 years	7

Only a few of the animals were sexed due to lack of indicative elements. All the mammals were sexed by their pelvises. The sexes identified among the sheep were two males and one female. Only one cattle pelvis was complete enough to identify as female. In addition to this, one male domestic fowl tibia with a spur was found in context 805.

6.8.4 *Butchery*

Just under 40% of the bones on the site had clear signs of butchery damage. The majority of marks were chop marks across the long bone shafts. There were not many vertebra fragments in the collection. However, many of those present from cattle and sheep had signs of sagittal cleaving which was widely practised in England from the 11th century. This sagittal cutting of the vertebrae tended to occur when the carcass was split lengthways. As cited by O'Connor (1982), this splitting of the sides of the animals would necessitate the suspension of the animal from sturdy hooks in order to cut the animal from tail to head.

A significant number of partially complete sheep skulls were found within the assemblage, the majority of which were from context 236. All of the skulls had been cut along the sagittal plane which appears to indicate that skull meat was being eaten by the inhabitants of the site. There were also a few fragments from cattle skulls. However, the butchery marks were not as obvious. In addition to this few of the elements from the site had been sawn. One of these was part of a shed red deer antler. This was probably discarded whilst the rest of the antler may have been worked.

6.8.5 *Discussion*

Cattle and sheep were the main source of meat for the site. It has been suggested by Wilson (1989) that the majority of animals slaughtered in Oxford during the late medieval and post-medieval period were supplied by the dairy industry. However, it is probable that this assemblage represents a mixture of cattle bred specifically for their beef and also surplus animals from the dairy.

Nearly all the sheep were mature animals which indicates that its probable that milk and wool were the major products of sheep husbandry, with meat seen as more of a by-product. It would not have been profitable to keep the animals to an older age otherwise. Both horned and hornless skulls were found in the assemblage and may indicate two or more different breeds as well as different sexes. The size of the bones also varied and it is probable that some of the larger bones were from improved breeds from the post-medieval period and may have been introduced for better wool production and more meat.

It is clear that the pigs were being kept solely for their meat. The fact that there is no evidence of animals slaughtered after the age of two years may indicate that the breeding of pigs was not practised at the site.

There were small numbers of bird bone other than domestic fowl and it would be of value to have this bone examined and identified. In addition to this there were two elements of fish bone along with a few more fragments amongst the sieved material which should be identified. This material will remain in the archive for further analysis if required.

The majority of the bone from the site appears to be domestic refuse and it appears that most of the carcasses from the main domestic species were fully utilised for all their meat. It is probable that this assemblage is not one from a site of particularly high status during this period.

6.9 **The environmental evidence** by Ruth Pelling

6.9.1 *Introduction*

Samples were taken from occupation layers for the extraction of charred plant remains. In addition a series of boreholes were sunk through the fills of the castle moat and motte ditch from which sub-samples were taken for the extraction of both charred and waterlogged remains. Analysis of these samples was undertaken in order to establish if charred and waterlogged plant remains were present and to gain an impression of the density of remains and the state of preservation.

6.9.2 *Methodology*

Bulk samples were processed by bulk water flotation and the flots collected onto a 250μm mesh. The volume of deposit processed ranged from 34 to 46 litres. Borehole sub-samples of 0.63 to 2.45 kg were processed in the same way but where waterlogging was noticed flots were kept wet. Flots were scanned under a binocular microscope at magnification of x10 to x20. Waterlogged flots were scanned under water. Any seeds or chaff were provisionally identified. Dry charcoal was fractured and examined in transverse section. The results were entered into an Excel spreadsheet (quantities are estimates). Charred remains are shown in Appendix 6, Table 6.1. Borehole samples in which useful quantities of material were present are shown in Appendix 6, Table 6.2.

6.9.3 *Results*

Charred Flots

Three samples were taken from occupation layers recognised in the evaluation trenches. One sample (sample 1) was taken from the upper fill of the motte ditch (context 317). The flot was very small with three poorly preserved grains the only plant remains present. A wheat grain (*Triticum* sp.) and a barley grain (*Hordeum vulgare*) were identified.

Two further samples came from late Saxon/early medieval soils (contexts 1210, 1211). Flots were more productive although the numbers of grain and chaff were still quite low. Between 50 to 100 cereal grains were noted in each sample. Free-threshing wheat (*Triticum* sp.) was most frequently identified, while hulled wheat was also present. The hulled wheat is thought to be emmer (*Triticum* cf. *dicoccum*). Two glume bases of possible emmer support this. Also present were hulled barley grains (*Hordeum vulgare*), rye (*Secale cereale*) and oats (*Avena* sp.). No chaff was present other than the two glume bases. Flax (*Linum usitassimum*) and beans or peas (*Vicia/Pisum* sp.) are additional cultivated species represented while hazel (*Corylus avellana*) nut shell may also have derived from food remains. Weeds were present in moderate quantities.

Borehole Samples

Borehole 1: Thirteen samples were taken from depths of between 200 cm and 615 cm. Occasional waterlogged seeds were noted at 300-330 cm (*Hyoscyamus niger* and *Sambucus nigra*). Good waterlogged material was present from depths of 450 cm and below. Generally samples produced woody fragments and roots with occasional seeds of ruderal species. Two flots were bigger (shown in Appendix 6, Table 6.2), taken from depths of 545-565 cm and 565-595 cm. Species represented included ruderals such as *Reseda luteola* (dyer's rocket), *Conium maculatum* (hemlock), *Urtica dioica* (henbane), and semi-aquatic species such as *Ranunculus sceleratus* (celery-leaved crowfoot), which suggest the presence of muddy water in the moat.

Borehole 2: One sample was available from a depth of 287-338 cm. No waterlogged material was present. One charred indeterminate cereal grain was noted.

Borehole 3: One sample was analysed. Waterlogged remains were present (shown in Appendix 6, Table 6.2) including stones of *Prunus avium* (cherry) and shell fragments of *Corylus avellana* (hazel nut). Other remains include occasional ruderal species (*Urtica dioica*, *Sambucus nigra*) and semi-aquatic species (*Ranunculus sceleratus*).

Borehole 4: Three samples were analysed from depths of 250 to 315 cm. All samples produced waterlogged material but with a limited number and range of seeds. Plant species represented were mostly ruderals including *Rubus fruticosus*, *Sambucus nigra* and *Ballota nigra* (black horehound). Occasional insects were also noted.

Borehole 5: Six samples were available from depths of 160 to 390 cm. Waterlogged material was present but was in poor condition. Occasional ruderal species were noted including *Rubus fruticosus*, *Sambucus nigra* and *Urtica dioica*. The sample at 160-200 cm contained a slightly greater range of species and is shown in Appendix 6, Table 6.2, although ruderal species again dominate.

Borehole 6: Seven samples were analysed from 250 to 538 cm. Good waterlogged deposits were available from all samples except from between 507 cm to 538 cm, in which *Ranunculus sceleratus* and *Lycopus europeus* (gipsywort) were the only species present, both presumably growing on the muddy banks of the ditch. The remaining samples (see Table 24, Appendix 6) contain significant quantities of food debris, mostly fruits such as *Ficus carica* (fig), *Vitis vinifera* (grape), *Prunus avium* (cherry), *Fragaria vesca* (wild/alpine strawberry), but also *Brassica* sp. and even a pumpkin seed (*Cucurbita* sp.) a New World species. Ruderal species are also numerous including *Hyoscyamus nigra*, *Conium maculatum*, *Urtica dioica* and *Sambucus nigra*.

6.9.4 *Discussion*

Charred remains were fairly limited in the samples from the evaluation, but are clearly present on the site and in reasonable condition. Significant is the presence of emmer wheat which has recently been recovered from Saxon deposits at Dorney in Berkshire

and at Yarnton in Oxfordshire. Any future excavation should include sampling for charred plant remains. Sample sizes will need to be in the region of 40 to 50 litres.

The castle moat clearly contains waterlogged remains in good condition although in varied concentrations. For the most part the remains are dominated by ruderal species which were presumably growing within the vicinity of the ditch, and occasional species which were growing on the muddy banks and into the water of the ditch. In addition there is clearly a build up of food debris in the vicinity of Borehole 6. This was dominated by fruit remains and may have derived from human sewage or from dumped rubbish. Insects and molluscs were present in several samples but were not quantified. Any future excavation within the castle moat should include a systematic sampling strategy for waterlogged plant remains, insects and molluscs. It is recommended that a site visit is made by a specialist prior to sampling.

7 FINAL DISCUSSION AND CONCLUSIONS

7.1 General summary (Fig. 15)

The natural subsoil was identified in a few limited locations, and probable natural watercourse deposits were located at the southern extremity of the site. Evidence for medieval activity was limited, with *in situ* medieval deposits and features located by excavation only in Trenches 10, 11 and 12 and perhaps in Trench 3. The only significant medieval structure found, in Trench 11 at the southern end of the site, was part of a large wall which may represent a link to the City wall rather than being part of the curtain wall of the castle. *In situ* deposits of medieval date appear to survive in both the main moat and in the motte ditch. The latter seems to have been a very substantial feature, probably at least 15 m across. The upper fill of the motte ditch was partly recut by a substantial linear feature of post-medieval date. East and south of the motte ditch there was no trace of any features associated with the medieval Shire Hall and the location of the latter may have been completely removed by extensive gravel quarrying, probably of later 18th century date.

On the eastern side of the site there was similarly no evidence for the location of the east gate of the castle, the likely location of which was partly disturbed by prison buildings. The construction of B Wing of the former prison had caused extensive intrusion into deposits lying west of the main footprint of the building. Other 19th century prison features were identified. Installation of services for successive phases of the prison had also caused considerable disturbance, particularly in the southern part of the site.

7.2 Area A

No *in situ* medieval deposits or features were certainly identified in the evaluation trenches in this area, with the exception of a single pit in Trench 10 at the southern end of Area AIII. This was also the only place where the top of the natural gravel terrace was located at a level which suggested that it was not significantly truncated (*c* 58.85 m OD). Elsewhere in this area the natural gravel and underlying Oxford Clay were only recorded in Boreholes 1 and 2. The evidence therefore gives little help in reconstructing the original profile of the gravel terrace across this part of the site.

The motte ditch

The evidence from the excavations and the borehole survey here confirm that the ditch located by Jope in the 1950s (the motte ditch) continues its course around the base of the mound. The borehole results indicate that this feature was at least 6 m deep (from modern ground level). Neither edge of the ditch was certainly located, but on the assumption that the inner edge lay close to the present retaining wall at the base of the motte the borehole evidence suggests that the ditch was over 14 m wide. The depth of ditch fill deposit located in Borehole 2 suggests that this lay fairly close to the outer lip of the ditch. At this point the top of the ditch fill sequence lay at least 2.30 m below the modern ground surface, overlain by post-medieval deposits (see below). The full width of the ditch could perhaps have been as much as 20 m. In this respect the early layout of the castle was of characteristic motte and bailey type, with the two elements separated by a substantial ditch. There is no evidence to indicate

where and how this would have been bridged, though the tentative interpretation of deposits in Trench 3 is that there may have been a clay-built causeway over part of the ditch at this point.

The upper part of the ditch fill sequence – that encountered in Trenches 2, 3, 7 and presumably also 8 – seemed to be entirely of post-medieval date. Some of these were seen to be fills of a relatively late recut (725/315) of the motte ditch. This was up to 6 m wide and at least 2 m deep with steeply sloping sides. The alignment of the ditch is slightly unclear. Both edges were identified in Trench 3 and the west edge was located in Trench 7, however, it was clearly absent in Trench 1. Deposits of equivalent depth in Trench 2, though rather different in character from those in Trench 3, may have lain within the upper part of this feature, in which case it may best be seen as some sort of recut of the motte ditch, but an event which took place after this had been almost entirely levelled. This may have taken place at the time of the Civil War, but the dating evidence is insufficiently precise for this to be certain. It seems unlikely, however, that ditch 725/315 is itself of the Civil War period, since the material in its fill appears to be too late in date. De Gomme's depiction of the Civil War defences of Oxford gives no indication that the castle mound was surrounded by a ditch, and by 1794 King notes that ground here was more or less level, that is, he appears to have had no knowledge of an earlier ditch surrounding the mound.

In summary, the motte ditch appears to have been infilled and levelled in the early post-medieval period and subsequently recut by an apparently short-lived feature of unknown extent and purpose. It is unlikely that this was intended to be defensive and it is not known if it extended right round the motte or was much more localised.

No evidence for the reported sprung arch carrying the northern curtain wall of the castle across the motte ditch, was recovered in Trenches 7 or 8. Rubble encountered at the bottom of the excavated sequence in Trench 7 might have related to demolition of such a feature, but the limited nature of the investigation here precludes very specific interpretation. The stonework was clearly redeposited, however, and does not represent an *in situ* structure. Excavation in both Trenches 7 and 8 extended below the level of New Road, which is known to have been built in part over the line of the north defences of the castle. Any surviving medieval features in this part of the site are likely to lie well in excess of 2 m below the ground level of the gardens here. These are higher by *c* 1 m than the levels in the car park to the south. It is possible that the raised levels here resulted from the construction of the warden's houses and gardens upon the remains of the earthworks erected at the time of the Civil War. The cutting of the ditch (725) appears to have removed any evidence of such a features from trenches 7 and 8, while the soil above the ditch fills represents recent garden activity.

Shire Hall and the area east of the motte ditch

Almost the entirety of Area A east and south-east of the motte ditch produced evidence for extensive and deep disturbance by large features of post-medieval date, such evidence being located in Trenches 1, 5, 9 and 10. At the southern end of this area a single medieval pit survived in Trench 10, truncated to the north by one of these features. There was no evidence for the medieval Shire Hall, thought to have lain in this part of the site.

Taylor's map of 1750 is the last to depict Shire Hall, where it is situated in apparently open ground due south-east of the castle mound surrounded by trees. There is a reference to the building still standing in 1769, but by 1789 (Faden's Map) it had gone. If Taylor's and Faden's maps can be relied upon, the new prison entrance building was constructed on, or just south-west of the site of the hall. The new road or trackway leading to the entrance passed over or very close to the site of the hall. The excavation of extensive and deep features across this area could have resulted in the wholesale removal of the hall building, including its foundations, had it stood here. The map evidence would suggest that this may have occurred after 1769 but before 1789. A logical context for the operation could be the start of the construction of the new prison which began in 1785, but work in connection with the construction of New Road in the 1770s is also possible. Additionally it is known that materials from the hall were removed from the site throughout the 18th century.

The likely interpretation of the large features is that they were gravel quarries. This is consistent with specific documentary references to gravel extraction on the site. Edward King's work of 1796, in reporting the archaeological work at the site by the Prison Governor Harris wrote that "in digging, in the year 1794, for gravel, *near the entrance of the castle* there was found a capital..." (King 1796, 21). While the exact location of the work referred to is uncertain, it is clear that the castle grounds were being exploited for raw materials at this time. Further references abound in King – "that in digging a little beyond the modern entrance to the castle, there were discovered foundations of a round tower; which seems to have been one of the barbicans...". King may well have been referring here to excavations in advance of construction of the lodge depicted at the side of New Road on Davis' map of 1797 (which notably is not represented on Faden's map of 1789).

The pottery recovered from the quarry fills gives a broad date range for the infilling process, though closely dateable material from Trench 9 (dated 1760-1780) accords well with the documentary evidence above. The area of interpreted disturbance by this activity is depicted on Fig. 15 at the end of this report.

7.3 Area C

Natural gravel was identified in both Trench 12 and Trench 16, at around 56.65 m OD in both cases, and slight traces of an early subsoil were also present in Trench 12. At the extreme southern end of the site, in Borehole 6, a natural peat deposit lay beneath the basal fill of the medieval castle ditch. This presumably represents the fill of a natural pond or watercourse of pre-medieval, but otherwise unknown, date.

At the south end of Trench 11 a series of silty and gravelly clays were cut by the foundation trench for a substantial wall of medieval date. These deposits might have been natural, but it is more likely that they relate to the early phase of the castle, predating stone constructions. It is indeed possible that they formed part of the rampart for the bailey of the 11th century castle, but if so, this feature had been largely removed by later disturbances encountered further north in the trench.

No certain evidence for the curtain wall of the castle was located in any of the evaluation trenches, as the wall in Trench 11 is thought more likely to relate to the

City defences (see further below). The absence of evidence for the curtain wall at the north end of Trench 11 may indicate that this feature lay even further north than this point. If so, this would suggest that the wall was set at some little distance from the inner edge of the main castle moat. Such a suggestion may be consistent with the evidence recovered in Trenches 12 and 16. Here, particularly in Trench 12, the natural gravel was encountered extending at least 5 m west of the likely inner edge of the castle moat, as indicated by the presence of deep clay deposits in the centre of the trench, which seem certain to represent fills of the moat, albeit probably of post-medieval date at this point. There was no indication of the existence of the curtain wall between the moat edge and the west end of Trench 12. It is possible that the wall (which probably only had a shallow foundation on the basis of evidence from Tidmarsh Lane) had been completely truncated, but it is perhaps more likely that it lay slightly further to the west, in an area which was not readily accessible for evaluation, implying a berm of at least 5 m between the edge of the moat and the wall line itself. The surviving natural gravel base of this berm was overlain by soil layers which contained small amounts of late Saxon pottery, potentially indicating the survival of general deposits of this period. Rather more puzzling, however, is the absence here of evidence comparable to that from the south end of Trench 11 indicating the likely presence of the pre-stone castle bailey bank.

The moat fill deposits in the north-eastern part of Area C were heavily disturbed by the 19th century B Wing of the prison (the female prison), as was known from previous work in the area. The evidence from Trench 15, where the footings of B Wing are at least 3.5 m deep, indicates that the construction was set very largely within the infilled castle moat. The main west wall of the wing lay up to 4-5 m east of the inner lip of the moat, but much of the intervening area was disturbed if not completely destroyed (as for example in Trench 15) by features associated with the prison building. Cartographic evidence consistently depicts B Wing directly over the site and line of the south-east bridged entrance to the castle, though this does not necessarily imply that the gatehouse itself has been removed by B Wing. While the construction would certainly have been deep enough to have removed all traces of the east bridge and bridge abutment to the castle, it is less certain that these would have lain so close to the western side of B Wing. While the construction of both the wing itself and of ancillary structures, as seen in Trenches 12-15, was immensely destructive, it is still possible that evidence for the curtain wall and the east gate may survive a little further west, perhaps under the Laundry building, particularly in view of the evidence from the west end of Trench 12 suggesting that the curtain wall lay further west than there. As far as the castle moat itself is concerned, all but the very lowest of the moat fills are likely to have been removed or disturbed in the course of work for the construction work of B Wing.

The alignment of the moat was traced in 1972 (Hassall's Trench II) outside (north of) the prison, and it was reported that there was no visible trace of the curtain wall adjacent to it. This lends further support for to the suggestion that there was a wide berm between ditch edge and curtain wall. In the 1972 trench this area was shown to contain Saxon features and, as in the present Trench 12, there was again no evidence for the early castle bailey bank, though it was suggested that this could have been thrown down into the ditch (Hassall 1976, 247).

Together the negative evidence of Trenches 11 and 12 and the 1972 Trench II suggests a berm some 10 m wide (see Fig. 15). Evidence from Trench 11 suggests that the line of the curtain wall may have lain within the line of the original bailey bank, but this is less certain and receives no direct support from elsewhere.

Trench 11 - An instance of the City Wall

The wall excavated at the south end of Trench 11 was aligned south-east to north-west, so is it is almost certainly not part of the curtain wall circuit of the castle since this alignment takes it directly to the edge of the moat. On analogy with the existing documentary and pictorial evidence for the bridge crossing the moat at the east gate of the castle, and for the castle curtain wall adjacent to the motte on its north-east side, such a wall may likewise have been carried across the line of the moat, perhaps on arches. The most likely explanation is that this wall formed part of the City Wall extending from the round tower at the south-east corner of the castle to the west gate of the city, which is known to have been situated in the Paradise Street area just south of the castle (see Fig. 15). Such an alignment would have completed the circuit of the southern town defences from the site of the Greyfriars. The West Gate is depicted on the Christchurch map of 1615, though the wall is not, so it can be suggested that it had been removed before this time.

Apart from the fragmentary evidence, much of it negative, for the medieval layout of the castle, all the remaining features and deposits encountered in Area C seem to have related to the late 18th-20th century phases of the prison, with no surviving indication of early post-medieval activity.

7.4 Deposit survival

The results from this evaluation have added to our knowledge of the castle, though on a site as complex as this one, the areas investigated may not be typical of the site as a whole. The development of the site through time means that survival of archaeological deposits is likely to be variable. Even occurrences of the natural gravel subsoil across the examined areas were uneven, though the profile of the underlying gravel terrace which they suggest is consistent with that already established for the castle site as a whole (OAU 1996, fig. 25). There is no doubt that there is potential for areas of the castle to remain undisturbed, as Jope showed in 1952, but the effect that the construction of the prison had on the underlying castle site appears from these results to have been considerable.

Potentially *in situ* late Saxon deposits were located only at the west end of Trench 12. There seems to be no chance of survival of such deposits across most of Area A (where in any case quantities of redeposited late Saxon material were very small) and their survival in Area C is likely to have been patchy. Moreover, the location of Trench 12 was some distance south of the putative east-west Saxon street identified in 1972 and may have lain beyond the limit of plots aligned on that street. In this part of Oxford significant Saxon features may only have concentrated in the vicinity if the

street, in which case the southern end of the castle site is unlikely to have contained such features.

The survival of medieval deposits is also very variable. Medieval fills with good preservation of waterlogged plant remains survive in the lower part of the motte ditch of the castle, but elsewhere across Area A medieval features appear to have been completely truncated by post-medieval activity, probably gravel digging. This activity may have been responsible for the total removal of vestiges of the Shire Hall, known to have survived somewhere in this area at least up to the middle of the 18th century. The southern limit of the large scale post-medieval pitting seems to have lain just north of the present main entrance to the prison. Here, in Trench 10, a medieval pit partly survived, cut away to the north by a later feature. It is very unlikely that any medieval features apart from the motte ditch can have survived in the main part of Area A, with the possible exception of very deep pits or wells, the bases of which might have penetrated beneath the level of the post-medieval activity.

Survival of medieval deposits in Area C is less predictable. Individual prison structures will have caused significant local damage or, in some cases, total destruction, and the impact of service trenches has also been severe. Between these impacts, however, there is still the potential for significant features and deposits to survive. Much of the evidence relating to the defensive sequence on the eastern side of the area was negative, but it seems that it is still possible that parts of the curtain wall and, in particular, the east gate of the castle, could survive beyond (i.e. west of) the limits of Area C, though such survival is likely to be only patchy. The survival of a probable spur of the City wall at the south end of Trench 11 was unexpected and is an important addition to the understanding of the topography of the castle. Adjacent fills of the medieval castle moat again contain well-preserved organic material, though further north-east the moat sequence has been very heavily disturbed by the construction of B Wing of the prison.

There was very little evidence for early post-medieval activity across the site, except for that associated with the later infill sequences of the motte ditch in Area A. There were no traces of features or structures relating to the castle/prison in this period. However, such features would have been confined within the (un-located) curtain wall of the castle west of Area C, and in Area A would have been completely removed by the later post-medieval quarrying activity already discussed.

7.5 Correlation of evaluation results with the Ground Probing Radar survey

The GPR survey played a significant part in informing the layout of the evaluation trenches. In the event, however, the results of the evaluation tend to indicate that the archaeological interpretation of the GPR survey was slightly over-ambitious in places. The general lack of well-defined archaeological features located in the evaluation helps to explain the equivalent lack of such features revealed by the survey.

In Area AI confident identification of features in the GPR survey was hampered by the effects of the modern paved surfaces. One feature in this area (F12) was tentatively identified as being of archaeological significance, but no corresponding feature was located in evaluation Trench 4. In Area AIII an extensive feature was suggested to relate either to the construction of the late 18th century prison or perhaps

to the Shire Hall. Sampling of this area in evaluation Trench 10 indicated that the former interpretation was broadly correct. In addition, the trench showed the existence of more service pipes and related features than were identified on the service plan of the site, and some of these may also have contributed to the GPR feature 10. Overall, in view of the archaeological evidence for very extensive post-medieval disturbance across Area A, it is unsurprising that the GPR survey produced for the most part only undifferentiated responses.

In Area C the GPR survey was confined to traverses rather than a full gridded survey. At the south end of the site the survey did successfully locate the feature subsequently excavated as wall 1109 in Trench 11 of the evaluation. This feature, F34 in the GPR survey report, was at the time interpreted as the curtain wall of the castle rather than, as now, as a spur of the city wall. On the basis of this interpretation the significance of a similar radar response further north, F35, was uncertain, but it can now be suggested that this may represent the line of the curtain wall, in view of the arguments about the probable alignment of this feature presented above. This feature should perhaps have been located at the north end of Trench 11, but excavation here was problematic (see above) and the feature could in any case perhaps have lain just beyond the end of the trench. Further north-east, in the vicinity of B Wing, only one GPR feature (F38) was seen as being of potential archaeological significance, and was tentatively associated with the south-east gate of the castle. This feature can now be seen as relating to the structure of B Wing itself, as revealed in evaluation Trenches 13 and 15.

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Additional comments J Munby

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APPENDICES

Appendix 1 Table 11: Table of Context Data

Trench	Context	Type	Depth	Width	Length	Date	Comments
1	1	Layer	0.17 m	-	-	C20	Concrete surface
1	2	Layer	0.09 m	-	-	C20	Tarmac
1	3	Layer	0.23-0.05 m	-	-	C20	Surface make-up for 1
1	4	Layer	0.23-0.04 m	-	-	C20	Surface make-up
1	5	Layer	0.3-0.45 m	-	-	C19	Garden soil, Governor's garden
1	6	Layer/fill	0.16 m	-	2 m	C19	Building debris, 1850
1	7	Layer fill	0.18-0.05 m	-	2 m	C19	Building debris, 1850
1	8	Cut	0.18 m	-	2 m	C19	Construction cut/activity, 1850
1	9	Layer/fill	0.8 m+	-	-		Last quarry fill of 32
1	10	Layer/fill	0.25 m	-	-		Quarry fill
1	11	Layer/fill	0.12 m	-	-		Quarry fill
1	12	Layer/fill	0.22 m	-	-		Quarry fill
1	13	Layer/fill	0.14 m	-	-		Quarry fill
1	14	Layer/fill	0.13 m	-	-		Quarry fill
1	15	Layer/fill	0.44 m	-	-		Quarry fill
1	16	Layer/fill	0.52 m	-	-		Quarry fill
1	17	Layer/fill	0.25 m	-	-		Quarry fill
1	18	Layer/fill	0.5 m	-	-		Quarry fill
1	19	Layer/fill	0.07 m	-	-		Quarry fill
1	20	Layer/fill	0.3 m	-	-		Quarry fill
1	21	Layer/fill	0.5 m	-	-		Quarry fill
1	22	Cut	0.9 m+	0.4 m	2 m+	C20	Service trench
1	23	Fill	0.9 m+	-	-	C20	Infill of 22
1	24	Service pipe	-	-	-	C20	Ceramic drainpipe
1	25	Layer/fill	0.12 m	-	-		Quarry fill
1	26	Service pipe	-	-	-	C20	Electric cable
1	27	Service pipe	-	-	-	C20	Electric cable
1	28	Layer/fill	0.12 m	-	-		Quarry fill
1	29	Layer/fill	0.14 m	-	-		Quarry fill

1	30	Layer/fill	0.12 m	-	-		Quarry fill
1	31	Layer/fill	0.05 m+	-	-		Quarry fill
1	32	Cut	1.5 m+	-	-		Probable quarry pit
2	200	Layer	0.06 m	-	-	C20	Tarmac
2	201	Layer	0.04 m	-	-	C20	Make-up for tarmac
2	202	Layer	0.12 m	-	-	C20	Make-up for tarmac
2	203	Layer	0.15 m	-	-	C20	Make-up for tarmac
2	204	Layer	0.05 m	-	-	C19/20	Garden soil
2	205	Layer	0.5 m	-	-	C19	Garden soil
2	206	Cut	0.25 m	0.45 m	2 m+	C20	Service trench
2	207	Fill	0.25 m	-	-	C20	Fill of 206
2	208	Service pipe	-	-	-	C20	Service pipe
2	209	Cut	-	0.2 m	-	C20	Service trench
2	210	Fill	0.2 m	-	-	C20	Fill of 209
2	211	Fill	0.03 m	-	-	C20	Fill of 209
2	212	Layer	0.2 m	-	-	C20	Make-up for tarmac
2	213	Layer	0.1 m	-	-	C20	Make-up for tarmac
2	214	Layer	0.04 m	-	-	C19/20	Gravel layer ?surface
2	215	Service pipe	-	-	-	C20	Lead water pipe
2	216	Cut	0.08 m	0.2 m	-	C20	Plant hole disturbance
2	217	Cut	0.19 m	0.2 m	1.25 m	C19/20	Plant disturbance
2	218	Cut	0.05 m	0.25 m	0.5 m	C19/20	Flower bed
2	219	Cut	0.1 m	0.1 m	-	C19/20	Plant disturbance
2	220	Layer	0.1 m	-	-	C19	Construction debris
2	221	Layer	0.1 m	-	-	C19/20	Gravel layer ?surface
2	222	Layer	0.1 m	-	-	C19	Construction debris
2	223	Layer	0.05 m	-	-	C19	Construction debris
2	224	Layer	0.05 m	-	-	C19	Clay layer
2	225	Layer	0.02 m	-	-		Soil layer
2	226	Layer	0.08 m	-	-		Clay layer
2	227	Layer	0.03 m	-	-		Gravel layer ?surface
2	228	Layer	0.15 m	-	-		Midden deposit
2	229	Layer	0.1 m	-	-		Rubble layer
2	230	Layer	0.08 m	-	-		Mortar surface
2	231	Layer	0.3 m	-	-		Clay layer

2	232	Layer	0.05 m	-	-	Midden deposit
2	233	Cut	0.45 m	0.4 m	0.5 m	Post-hole
2	234	Fill	0.45 m	-	-	Fill of 233
2	235	Layer	0.02 m	-	-	Silt layer
2	236	Layer	0.08 m	-	-	Clay layer
2	237	Layer	0.15 m	-	-	Clay layer
2	238	Layer	0.03 m	-	-	Burnt layer
2	239	Fill	0.3 m	-	-	Motte ditch backfill
2	240	Fill	0.6 m	-	-	Motte ditch backfill
2	241	Fill	0.4 m	-	-	Motte ditch backfill
2	242	Fill	0.4 m	-	-	Motte ditch backfill
2	243	Fill	0.3 m	-	-	Motte ditch backfill
2	244	Fill	0.1 m	-	-	Motte ditch backfill
2	245	Fill	-	-	-	Motte ditch backfill
2	246	Cut	2 m+	6 m+	-	Cut for motte ditch
3	300	Fill	0.3 m	-	-	Fill of ditch 315=325
3	301	Fill	0.4 m	-	-	Fill of ditch 315=325
3	302	Fill	0.8 m	-	-	Fill of ditch 315=325
3	303	Fill	0.1 m	-	-	Fill of ditch 315=325
3	304	Fill	0.2 m	-	-	Fill of ditch 315=325
3	305	Fill	0.25 m	-	-	Fill of ditch 315=325
3	306	Fill	0.2 m	-	-	Fill of ditch 315=325
3	307	Fill	0.28 m	-	-	Fill of ditch 315=325
3	308	Fill	0.15 m	-	-	Fill of ditch 315=325
3	309	Layer	0.06 m	-	-	Tarmac
3	310	Layer	0.06-0.2 m	-	-	Make-up for tarmac
3	311	Layer	0.06 m	-	-	Make-up for tarmac
3	312	Layer	0.3 m	-	-	Soil layer
3	313	Fill	0.5 m	-	-	Upper fill of 315=325
3	314	unused				
3	315	Cut	2 m+	6 m+	2.5 m+	Late post medieval ditch, ?same as 725
3	316	Layer	1.0 m	-	-	Motte ditch backfill
3	317	Layer	0.5 m	-	-	Motte ditch backfill
3	318	Fill	0.3 m	-	-	Fill of ditch 315=325
3	319	Fill	0.4 m+	-	-	Fill of ditch 315=325

3	320	Layer	0.2 m	-	-		Layer of clay and limestones
3	321	Fill	0.15 m	-	-		Fill of ditch 315=325
3	322	Layer	0.2 m	-	-		Clay layer
3	323	Layer	0.15 m	-	-		Gravel layer
3	324	Layer	0.2 m	-	-		Mixed clay and gravel layer
3	325	Cut	-	-			Same as 315
3	326	Layer	0.22 m	-	-		Motte ditch backfill
3	327	Layer	0.2 m	-	-		Motte ditch backfill
3	328	Layer	0.12 m	-	-		?Turf line in hollow over motte ditch
3	329	Fill	0.3 m	-	-		Fill of ditch 315=325
3	330	Layer	0.1 m	-	-		Motte ditch backfill
3	331	Layer	-	-	-		Motte ditch backfill
3	332	Fill	0.6 m	-	-		Fill of feature 333
3	333	Cut	0.6 m	0.5 m	1.0 m+		Ditch/deep gully/garden feature
3	334	Layer	0.16 m	-	-		?Levelling layer
3	335	Layer	0.22 m	-	-		Layer of gravel
3	336	Layer	0.22 m	-	-		Layer of gravel
3	337	Layer	0.2 m	-	-		Clay layer
3	338	Layer	0.22 m	-	-		Clay layer
3	339	Layer	0.1 m	-	-		Gravel layer
3	340	Layer	0.1 m+	-	-		Clay layer
3	341	Fill	0.3 m	-	-	C20	Fill of 342
3	342	Cut	-	-	-	C20	C20 service trench
3	343	Layer	0.2 m	-	-		Sandy layer
3	344	Layer	0.2 m	-	-		Silty sand layer
3	345	Layer	0.12 m	-	-		Limestone rubble deposit
3	346	Layer	0.2 m	-	-		Silt layer
3	347	Layer	0.08 m+	-	-		Limestone rubble deposit
3	348	Cut	-	-	-		Motte ditch
5	500	Layer	0.06 m	-	-	C20	Tarmac
5	501	Layer	0.6 m	-	-	C19/C20	Garden soil
5	502	Fill	0.6 m	-	-		Quarry Fill
5	503	Fill	0.29 m	-	-		Quarry Fill
5	504	Fill	0.4 m	-	-		Quarry Fill

5	505	Fill	0.18 m	-	-		Quarry Fill
5	506	Fill	1.38 m	-	-		Quarry Fill
5	507	Fill	0.2 m	-	-		Quarry Fill
5	508	Fill	0.4 m	-	-		Quarry Fill
5	509	Fill	0.4 m	-	-		Quarry Fill
5	510	Fill	0.2 m	-	-		Quarry Fill
5	511	Fill	0.2 m	-	-		Quarry Fill
5	512	Fill	0.4 m	-	-		Quarry Fill
5	513	Fill	0.05 m	-	-		Quarry Fill
5	514	Fill	0.15 m	-	-		Quarry Fill
5	515	Fill	0.05 m	-	-		Quarry Fill
5	516	Fill	0.05 m	-	-		Quarry Fill
5	517	Fill	0.05 m	-	-		Quarry Fill
5	518	Fill	0.05 m	-	-		Quarry Fill
5	519	Cut	2.3 m+	-	-		Quarry
7	700	Layer	0.36 m	-	-	C20	Garden soil
7	701	Layer	0.25 m	-	-	C20	Demol/building debris
7	702	Layer	1.4 m	-	-	C20	Soil layer
7	703	Fill	0.6 m	-	-	C20	Fill of posthole 722
7	704	Layer	0.05 m	-	-		Gravel layer
7	705	Layer	0.05 m	-	-		Gravel layer
7	706	Layer	0.24 m	-	-		Ground levelling
7	707	Layer	0.26 m	-	-		Ground levelling
7	708	Layer	0.28 m	-	-		Ground levelling
7	709	Layer	0.14 M	-	-		Ground levelling
7	710	Layer	0.12 m	-	-		Ground levelling
7	711	Layer	0.18 m	-	-		Ground levelling
7	712	Layer	0.28 m	-	-		Ground levelling
7	713	Layer	0.26 m	-	-		Ground levelling
7	714	Layer	0.24 m	-	-		Clay layer
7	715	Layer	0.16 m	-	-		Sandy silt layer
7	716	Layer	0.34 m	-	-		Silty clay layer
7	717	Fill	0.6 m	-	-		Fill of ditch 725
7	718	Layer	0.55 m	-	-		Silty clay layer
7	719	Layer	0.06 m	-	-		Gravel layer

7	720	Layer	0.7 m	-	-		Clay layer
7	721	Layer	0.26 m	-	-		Gravel layer
7	722	Cut	0.12 m	0.6 m	-		?Posthole
7	723	Layer	0.39 m	-	-		Clay layer
7	724	Layer	0.6 m	-	-		Clay layer
7	725	Cut	1.3 m+	1.7 m+	2 m+		Cut/ditch, possibly same as 315 =325
7	726	Layer	0.18 m	-	-		Gravel layer
7	727	Layer	0.08 m	-	-		Gravel layer
7	728	Layer	0.07 m	-	-		Clay layer
7	729	Layer	0.05 m	-	-		Gravel layer
7	730	Layer	0.18 m	-	-		Clay layer
7	731	Layer	0.05 m	-	-		Gravel layer
7	732	Layer	0.12 m	-	-		Clay layer
7	733	Layer	0.12 m	-	-		Gravel layer
7	734	Layer	0.12-0.2 m	-	-		Silty layer, contained clay pipe
7	735	Layer	0.2 m	-	-		Clay layer
7	736	Layer	0.2 m	-	-		Clay/gravel layer
7	737	Layer	0.3 m	-	-		Clay layer
7	738	Layer	-	-	-		Clay mixed with rubble739
7	739	Deposit	0.3 m	-	-		Limestones mixed with clay 738
7	740	Cut	2.5 m+	3 m+	?		Context assigned for Motte ditch
8	800	Layer	0.33 m	-	-	C20	Topsoil
8	801	Layer	0.25 m	-	-	C20	Rubble deposit
8	802	Layer	0.35 m	-	-	C20	Clay layer
8	803	Layer	0.22 m	-	-	C20	Garden soil
8	804	Fill	0.15 m	-	-	C20	?drain/animal burrow fill
8	805	Layer	0.5 m	-	-		garden soil
8	806	Layer	0.56 m	-	-		Clay layer
8	807	Layer	0.25 m	-	-		Fill of posthole 811
8	808	Fill	0.11 m	-	-		Demolition/construction deposit
8	809	Layer	0.2 m	-	-		Silty clay layer
8	810	Layer	0.12 m	-	-		Compacted mortar deposit
8	811	Cut	0.17 m	0.28 m	-		?Posthole

9	900	Layer	0.03 m	-	-	C20	Tarmac
9	901	Layer	0.08 m	-	-	C20	Make-up for 900
9	902	Layer	0.29 m	-	-	C20	Gravel layer
9	903	Layer	0.24 m	-	-	C19	Gravel layer with stones
9	904	Layer	0.21 m	-	-		Mortar layer
9	905	Layer	0.22 m	-	-		Quarry fill
9	906	Layer	0.5 m	-	-		Quarry fill
9	907	Layer	0.29 m	-	-		Quarry fill
9	908	Layer	0.4 m	-	-		Quarry fill
9	909	Layer	0.09 m	-	-		Quarry fill
9	910	Layer	0.22 m	-	-		Quarry fill
9	911	Layer	0.12 m	-	-		Quarry fill
9	912	Layer	0.25 m	-	-		Quarry fill
9	913	Layer	0.15 m	-	-		Quarry fill
9	914	Layer	0.1 m	-	-		Quarry fill
9	915	Layer	0.1 m	-	-		Quarry fill
9	916	Layer	0.15 m	-	-		Quarry fill
9	917	Layer	0.2 m	-	-		Quarry fill
9	918	Layer	0.12 m	-	-		Quarry fill
9	919	Layer	0.15 m	-	-		Quarry fill
9	920	Layer	0.12 m	-	-		Quarry fill
9	921	Layer	0.3 m+	-	-		Quarry fill
9	922	Layer	0.35 m	-	-		Quarry fill
9	923	Cut	-	-	-		Pit
10	1000	Layer	0.08-0.15 m	-	-	C20	Tarmac
10	1001	Layer	0.1 m	-	-	C20	Make-up for 1000
10	1002	Layer	0.12 m	-	-	C20	Gravel layer
10	1003	Layer	0.1 m	-	-	C20	Brick rubble layer
10	1004	Fill	0.1 m	-	-	C20	Brick rubble layer
10	1005	Fill	-	-	-	C20	Fill of 1007
10	1006	Fill	-	-	-	C20	Fill of 1007
10	1007	Cut	0.6 m	0.7 m	-	C20	Modern service trench
10	1008	Fill	-	-	-	C20	Fill of 1009
10	1009	Cut	0.5 m	0.3 m	-	C20	Service trench

10	1010	Fill	-	-	-	C20	Fill of 1011
10	1011	Cut	0.5 m	0.3 m	-	C20	Service trench
10	1012	Layer	0.1 m	-	-		Sandy silt layer
10	1013	Layer	0.08 m	-	-		Gravel, same as 1021, 1028
10	1014	Layer	0.15 m	-	-		Make-up layer
10	1015	Layer	0.07 m	-	-		Construction deposit
10	1016	Layer	0.08 m	-	-		Mortar surface
10	1017	Layer	0.12 m	-	-		Rubble layer
10	1018	Layer	0.12 m	-	-		Gravel layer
10	1019	Layer	0.02 m	-	-		Gravel layer
10	1020	Layer	0.03 m	-	-		Sandy silt layer
10	1021	Layer	-	-	-		Same as 1013
10	1022	Layer	0.08 m	-	-		Sandy silt layer
10	1023	Layer	0.03 m	-	-		?Gravel surface
10	1024	Layer	0.1 m	-	-		Same as 1016,1031
10	1025	Layer	-	-	-		Same as 1018, 1037
10	1026	Layer	-	-	-		Same as 1019
10	1027	Layer	-	-	-		Same as 1020
10	1028	Layer	-	-	-		Same as 1013
10	1029	Layer	-	-	-		same as 1022
10	1030	Layer	-	-	-		Same as 1023
10	1031	Layer	-	-	-		Same as 1016, 1024
10	1032	Layer	0.14 m	-	-		Levelling for 1031
10	1033	Layer	0.05 m	-	-		Mortar layer
10	1034	Fill	-	-	-		Fill of trench 1035
10	1035	Cut	0.3 m	0.4 m	-	-	Mod. Service trench
10	1036	Layer	-	-	-		Same as 1003
10	1037	Layer	-	-	-		Same as 1018
10	1038	Layer	-	-	-		Same as 1020
10	1039	Layer	0.15 m	-	-		Gravel layer
10	1040	Layer	0.10 m	-	-		Limestone layer
10	1041	Layer	0.25 m	-	-		Gravel layer
10	1042	Layer	0.15 m	-	-		Levelling layer
10	1043	Fill	0.2 m	-	-		Fill of 1048
10	1044	Fill	0.2 m	-			Fill of 1048
10	1045	Fill	0.05 m	-	-		Fill of 1048

10	1046	Fill	0.2 m	-	-		Fill of 1048
10	1047	Fill	0.25 m	-	-		Fill of 1048
10	1048	Cut	1 m+	2 m+	-		Pit, ?gravel quarry
10	1049	Fill	0.15 m	-	-		Fill of 1055
10	1050	Fill	0.15 m	-	-		Fill of 1055
10	1051	Fill	0.18 m	-	-		Fill of 1055
10	1052	Fill	0.08 m	-	-		Fill of 1055
10	1053	Fill	0.15 m	-	-		Fill of 1055
10	1054	Fill	0.22 m	-	-		Fill of 1055
10	1055	Cut	0.9 m	0.6 m	2.0 m+		Foundation trench for prison wall
10	1056	Fill	0.15 m	-	-		Fill of 1059
10	1057	Fill	0.6 m	-	-		Fill of 1059
10	1058	Fill	0.12 m	-	-		Fill of 1059
10	1059	Cut	0.8 m	1.6 m	-		Pit, medieval
10	1060	Layer	-	-	-		Natural gravel
11	1100	Layer	0.04 m	-	-	C20	Tarmac
11	1101	Fill	0.6 m	-	-	C20	Service trench fill
11	1102	Service	-	-	-	C20	Electrics
11	1103	Cut	0.6 m	-	-	C20	Service trench
11	1104	Layer	0.3 m	-	-		Demolition rubble
11	1105	Layer	0.5 m	-	-	C20	Make-up for 1100
11	1106	Structure	0.4 m	-	-	C19/20	Modern building, demolished
11	1107	Service	-	-	-	C19/20	Brick drain
11	1108	Layer	0.3 m	-	-		Same as 1104
11	1109	Structure	1.7 m	1.0 m	2m		Wall, ?city wall to Westgate
11	1110	Layer	-	-	-		?Moat fill
11	1111	Layer	0.24 m	-	-		Clay layer
11	1112	Layer	0.08 m	-	-		Clay layer
11	1113	Layer	0.24 m	-	-		Clay layer
11	1114	Layer	0.06 m	-	-		Gravel layer
11	1115	Layer	-	-	-		same as 1111
11	1116	Fill	0.6 m +	-	-		Fill of modern pit 1117
11	1117	Cut	0.6 m+	-	-		?Modern pit
11	1118	Fill	0.45 m	-	-		Fill of trench 1129

11	1119	Fill	0.25 m	-	-		Fill of trench 1129
11	1120	Fill	0.1 m	-	-		Fill of trench 1129
11	1121	Fill	0.08 m	-	-		Fill of trench 1129
11	1122	Fill	0.12 m	-	-		Fill of trench 1129
11	1123	Fill	0.12 m	-	-		Fill of trench 1129
11	1124	Fill	0.1 m	-	-		Fill of trench 1129
11	1125	Fill	0.15 m	-	-		Fill of trench 1129
11	1126	Fill	0.1 m	-	-		Fill of trench 1129
11	1127	Fill	0.1 m	-	-		Fill of trench 1129
11	1128	Fill	0.25 m	-	-		Fill of trench 1129
11	1129	Cut	1.2 m	1.0 m+	-		Foundation trench for wall 1009
11	1130	Layer	0.23 m	-	-		Silty clay layer
11	1131	Layer	0.11 m	-	-		Silty clay layer
11	1132	Layer	0.09 m	-	-		Silty clay layer
12	1200	Structure	1.5 m	2 m	-	C19	End cell of B Wing
12	1201	Service	-	-	-	C19/20	Service pipe
12	1202	Layer	-	-	-		Backfill against 1200
12	1203	Structure	-	-	-		Modern manhole
12	1204	Service	-	-	-		Modern drain
12	1205	Cut	0.6 m	2. 0 m	-		?ditch, pit
12	1206	Service	-	-	-		Electrics
12	1207	Fill	0.6 m	-	-		Fill of 1205
12	1208	Layer	0.3 m	-	-		Make-up layer
12	1209	Layer	0.15 m	-	-		Layer
12	1210	Layer	0.2 m	-	-		Medieval soil
12	1211	Layer	0.4 m	-	-		Medieval soil
12	1212	Layer	-	-	-		Natural gravel
12	1213	Cut	0.1 m	0.2 m	-		?pit
12	1214	Fill	0.1 m	-	-		Fill of 1213
12	1215	Cut	1.0 m+	0.7 m+	-		Construction cut for B Wing
12	1216	Layer	0.1 m	-	-		?fill of 1242
12	1217	Layer	0.3 m	-	-		?fill of 1242
12	1218	Layer	-	-	-		?fill of 1242
12	1219	Fill	-	-	-		Fill of 1215
12	1220	Cut	0.2 m	0.3 m	-		Plant/animal hole

12	1221	Cut	0.3 m	0.15 m	-		Plant/animal hole
12	1222	Cut	0.15 m	0.3 m	-		Plant/animal hole
12	1223	Cut	0.15 m	0.3 m	0.9 m		Plant/animal hole
12	1224	Fill	-	-	-		Fill of 1220
12	1225	Fill	-	-	-		Fill of 1221
12	1226	Fill	-	-	-	-	Fill of 1222
12	1227	Fill	-	-	-		Fill of 1223
12	1228	Layer	0.28 m	-	-		?fill of 1242
12	1229	Layer	-	-	-		?fill of 1242
12	1230	Layer	0.4 m	-	-		Tarmac/make-up
12	1231	Layer	0.3 m	-	-		Layer
12	1232	Cut	0.2 m	0.4 m			Bore hole
12	1233	Fill	1.3 m	-	-		fill of 1232
12	1234	Cut	0.5 m	0.6 m	-		Pit or ?ditch
12	1235	Fill	0.25 m	-	-		Fill of 1234
12	1236	Fill	0.25 m	-	-		Pit/ditch fill
12	1237	Layer	0.04 m	-	-		Gravel surface/pathway
12	1238	Service	-	-	-		C20 service trench/pipe
12	1239	Layer	0.6 m	-	-		Backfill against wall 1200
12	1240	Structure	-	-	-		Brick building against 1200
12	1241	Cut	0.18 m	0.12 m	-		Postpipe
12	1242	Cut	-	-	-		?Moat
12	1243	Layer	0.11 m	-	-		Layer
13	1300	Layer	1.14 m			C20	Tarmac and rubble below against 1301
13	1301	Structure	1.4 m	0.9 m	-	C20	Wall of B Wing
13	1302	Layer	-	-	-	C20	demolition rubble and hardcore
13	1303	Layer	2.4 m+	-	-	C20	Mixed soil over 1301
14	1400	Layer	2 m	-	-	C20	tarmac/make-up
14	1401	Structure	2 m+	1 m +	2 m+	C19	Wall of B Wing
14	1402	Service	2 m+	1.7 m	-	C19/20	Cess pit
14	1403	Layer	1 m+	-	-	C20	Cess pit fill
15	1500	Structure	2.5 m+	0.5 m+	3.45 m+	C19	B Wing wall

15	1501	Structure	2.5 m+	1.5 m+	-	C19	B Wing wall
15	1502	Layer	2.7 m +	-	-	C19	Backfill against B Wing
15	1503	Structure	-	-	-	C19	Culvert
15	1504	Fill	0.6 m+	-	-		Backfill over pipe 1505
15	1505	service	-	-	-	C20	Iron pipe
15	1506	Layer	0.3 m	-	-	C20	Hardcore covering B Wing
15	1507	Layer	0.06 m	-	-	C20	Tarmac
15	1508	Structure	2.7 m+	-	-	C19	Brick building against B Wing
16	1600	Layer	0.24 m	-	-	C20	Tarmac / make-up
16	1601	Fill	0.26 m	-	-	C20	Fill of 1603
16	1602	Service	-	-	-	C20	Service pipe in 1603
16	1603	Cut	0.26 m	0.4 m	-	C20	Service trench
16	1604	Layer	0.12 m	-	-	C20	Demolition layer over wall 1605
16	1605	Structure	0.95 m	0.5 m	0.5 m+	C19	Wall, exercise yard dividing wall
16	1606	Cut	0.15 m	0.6 m	-	C19	Cut for wall 1605
16	1607	Layer	0.2 m	-	-		Natural gravel
16	1608	Structure	1.8 m+	1.4 m+	-	C20	Manhole
16	1609	Layer	0.4 m	-	-	C20	Fill of 1618
16	1610	Layer	0.41 m	-	-	C20	Service trench fill in 1618
16	1611	Service	-	-	-	C20	C20 electrics
16	1612	Service	-	-	-	C20	C20 cable
16	1613	Service	-	-	-	C19/20	Modern ceramic drain
16	1614	Layer	0.28 m	-	-	C19	Layer abutting 1605
16	1615	Layer	0.28 m	-	-	C19	Layer abutting 1605
16	1616	Layer	0.22 m+	-	-	C19	Layer abutting 1605
16	1617	Layer	0.12 m	-	-		?Natural subsoil
16	1618	Cut	0.75 m+	1.1 m+	-	C19/20	Cut for 1613
16	1619	Fill	-	-	-	C19	Backfill of1606

Appendix 2 Table 12: Detailed Table of Borehole Stratigraphy

Borehole No.	Depths cm below modern ground level	Detail of stratigraphy
1	0-7	Tarmac
1	7-16	Sand
1	16-27	Gravel
1	27-43	Brown soil (10YR 3/2)
1	43-52	Yellow sand/gravel
1	52-75	Grey silty clay with pebbles
1	75-123	Coarse heterogeneous grey/brown silty clay with building debris and charcoal. More orange/brown with rounded pebbles and coarse sand to base of deposit
1	123-131	Grey clay lens
1	131-254	Orange/brown gravel, coarse sand and gravel
1	254-319	Coarse sand and gravel, clay lens 266-8 cm
1	319-339	Grey clay (10YR 4/1)
1	339-377	Grey silt gravel and sand (2.5YR 4/2)
1	377-382	Compacted grey clay lens (10YR 4/1)
1	382-391	Gravel
1	391-400	Large quartzite/pebble boulder
1	400-425	Grey silt, heterogeneous mix of domestic debris including red brick, building stone and quartzite pebbles
1	425-538	Grey wet silt (10YR 4/1) at 430 pottery, 452 building stone, 453 bone, 485, bone
1	538-549	Yellow sand and gravel
1	549-614	Grey silt/clay, mottles olive grey (10YR 4/1) and charcoal
1	614	Basal Oxford Blue clay
2	0-158	Evaluation Trench 1 backfill
2	158-167	Cement block, base of fill
2	167-228	195 clay pipe, yellow sand/gravel, pebbles
2	228-238	Red-brown soil and charcoal, (7.5YR to 10YR 5/8)
2	238-281	256-266 quartzite block
2	281-287	Rich red/brown soil
2	287-338	Limestone block
2	338-362	Grey silt (10YR 4/1)
2	362-409	Red/black ferruginous gravels (7.5Y 5/6 and 7.5Y 5/8)
2	409-	Bedrock, Oxford Clay
2	436	Bottom of core
3	0-12	Tarmac
3	12-54	Building rubble and red brick
3	54-145	Sand/gravel, siltier towards base
3	145-185	Buff/olive yellow silt and fine sand (2.5Y 6/2). Mollusc-cf. Planorbid and charcoal fragments 179 – charcoal in mottled silt
3	185-220	Dark olive grey-black sandy silt, pebbles, coarse gritty layer at 195-200. Organic with occasional. Rootlets (2.5 Y2/0 or 2.5Y 3/0)
3	220-263	Mottled pale and dark-grey silty clay
3	263-273	Pale grey grit/sandy silt, 265 bone
3	273-278	Dark grey black oxidised humic silts, vegetation rootlets and occasional twigs
3	278-334	Building stone
3	334	Unable to penetrate with corer – large stone block resting on bedrock

4	0-10	Tarmac
4	10-39	Building rubble and redbrick
4	39-243	Buff silt sand/gravel (10YR 5/4). Some large pebbles/blocks – made ground
4	243-253	Very dark grey/black anoxic silt containing ?burnt stones
4	253-326	Very dark grey ditch fill with charcoal (10YR 3/1 to 10YR 4/1), 280 charcoal, 310-320 bone
4	326-341	Buff grey silt and clay mottled orange and olive (2.5Y 4/4)
4	341-349	Grey silt (10YR 4/1) with pebbles
4	349-362	Grey buff silty clay (2.5 Y5/2), 362 building stone
4	362-366	Organic layer with wood and molluscs: trichia hispida
4	366-390	Dark grey silt (2.5Y4/4)
4	390-410	Very dark grey
4	410	Basal Oxford Blue Clay with fossils
5	0-8	Tarmac
5	8-57	Brown soil/silt with gravel and building rubble
5	57-108	Coarse building stone, limestone and mortar
5	108-112	Sand
5	112-134	Sand with grey silt lenses
5	134-145	Grey silt (10YR 4/2)
5	145-150	Compact grey clay silt
5	150-174	Dark grey silt (10YR 3/1)
5	174-260	Dark grey silt (10YR 3/1, olive tint towards base. 208 clay pipe, 240 mollusc, 250 pot
5	260-332	Darker grey silts/sand with olive tint. 318 bone, 330 mollusc
5	332-391	Dark grey/olive green mottled (5Y 4/2 to 5Y 3/2). 336 molluscs, 380 large pebble
5	391-400	Homogeneous olive grey silt/clay
5	400-422	Grey/green silty clay
5	422	Transition to Oxford clay
6	0-12	Tarmac
6	12-65	Made ground and building rubble. 40 service pipe
6	65-71	Black ?tarmac
6	71-129	Grey silt fine sand, red brick, charcoal. 76 clay pipe, 124 building stone
6	129-191	Sand/gravel. grey-brown, pebbles (10YR 5/4)
6	191-265	Grey silt, top ditch fill, water table at c. 2 m. 243 building stone
6	265-267	Grey clay lens
6	267-336	Grey sandy silt (10YR 3/1). 280 clay pipe,284 wood, 315 bone scapula
6	336-395	Dark grey organic sand (10YR ¾). 350 red brick, 365 bones, 374 building stone, 390 red brick
6	395-450	Dark grey humic silt (2.5Y 3/0). 445 twig
6	450-457	Coarse angular gravel
6	457-498	Dark grey humic silt. 465 glazed pot.470 bone
6	498-508	Coarse dark grey grit
6	508	Very sharp boundary between lower pure peat and overlying grit –base of ditch
6	508-540	Brown detrital PEAT or organic mud, with Phragmites roots and horizontally bedded leaves. Some contained mollusc fragments. Natural peat deposit
6	540	Base of peat filled channel or pond?

Appendix 3 Clay Pipes Context Summary

This appendix provides an indication of the overall date range represented by the clay tobacco pipe fragments recovered from each context (Cxt). It also shows how many fragments of bowl (B), stem (S) or mouthpiece (M) this date range is based on as well as the total number marked (Mkd) and decorated (Dec) pieces from each context. Bowl fragments, especially if they are marked or decorated, are much more closely datable than stem fragments. For this reason, the number and type of fragments present should be taken into account when assessing the reliance that can be placed on any particular date range.

Table 13: Clay pipes summary by context

Cxt	B	S	M	Date	Mkd	Dec	Comments
BH 2	1	1		1610-1770			
BH 4	1			1680-1710			
BH 6	1	4		1610-1720			
9	1	3		1660-1700			
10	2	7		1610-1740		1	Diagnostic pieces could all be c1650-1680; roll stamped stem of c1650-1740
13		1		1610-1700			
14	1	6		1640-1800			Mainly C17 material; just one C18 looking stem
17		1		1650-1700			
18		2		1610-1700			
19		1		1610-1700			
25		1		1650-1700			
29		5	1	1610-1700			
31		1		1610-1700			
205	15	40	1	1640-1770			The majority of diagnostic pieces are c1690-1720; nothing later.
207	1	1		1610-1770			Bowl is c1700-1770
223		4		1640-1750			
225		3		1610-1780			
226		1		1640-1720			
228	11	30		1710-1770			Good consistent looking group.
229	22	70	3	1710-1730	4		4 pieces marked IO BARNS. Good, consistent group (dated by marks).
230	7	19		1700-1750			All but 1 residual stem appear to date from c1700-1750.
232	4	12		1710-1730	2		2 pieces marked IO BARNS. Other pieces all appear contemporary.
234	1	4		1700-1770			Consistent group.
236	8	13		1710-1770			1 stem possibly C17 residual; all other pieces appear contemporary.
237	3	6		1700-1770	1		1 x C18 bowl with illegible moulded initials.
240		4		1610-1770			
245		1		1680-1770			
300	1	6		1610-1770			Bowl dates from c1680-1740
301	3	7		1630-1770			Bowl dates range from 1630-1720
302	47	86	2	1605-1900			Only 2 x C18 bowls (?intrusive); all the rest range from c1605-1680.
303		5		1610-1880		1	1 x C17 stem with incised line dec; mixed context.
304	2	10		1610-1700			Both bowls date from c1620-1640.
305	1	7		1610-1770			Bowl dates from c1650-80
306	2	5		1610-1770			
307		4		1610-1700			

308		1		1640-1700			
318	2	15		1650-1670			Only one C18 stem; all rest C17 and bowls date from c1640-1680.
319	5	1		1625-1650			Bowl date range is 1625-1670; could all date from the 1650's.
327		1		1660-1700			
328	6	5		1610-1670			Bowls range from 1640-1710; all but one are 1640-1680.
238	20	87	3	1610-1770			5 stems possibly C17 residual; all other material consistently 1700-1770.
330	11	28	1	1610-1700			All the bowls suggest a tightly dated group of c1650-1670.
503		1		1760-1850			
504		2		1700-1880			
509		2		1610-1700			
707	1			1660-1700			
713		2		1670-1720			
717		1		1700-1770			
734	1	2		1610-1700			Bowl dates from c1640-1660.
801		1		1680-1770			
803	1	12	1	1610-1850	1	1	Mixed group incl 1 x 1780-1820 bowl marked WT & 1 x C17 stem with milled bands
806	1			1640-1710			Spur frag only; hard to date precisely
906		1		1660-1720			
913		2		1610-1700			
921		1		1660-1700			
1045		1		1610-1700			
1053		1		1700-1800			
1054		1		1610-1700			
1207		2		1660-1770			
1216	1			1660-1770			
1217		4		1610-1700			
1219		4		1660-1770			
1228		6		1610-1750			
1229	2	9	1	1610-1750			Bowls date from c1640-1670.

Appendix 4 Building Material Quantification

Table 14: Quantification of flat roof tile by context

Context	*No*	*Weight (g)*
4	2	75
11	1	50
12	4	461
14	1	20
15	1	27
19	1	124
20	3	334
21	3	234
25	3	153
31	3	88
302	8	571
303	1	31
304	1	167
305	2	53
306	1	11
307	1	61
318	1	64
326	1	21
336	1	97
337	1	73
344	1	11
345	1	213
503	2	294
504	2	132
507	4	445
509	2	63
511	1	26
512	2	142
713	1	23
717	3	423
801	1	45
803	3	156
805	2	98
806	2	102
1207	1	54
Total	68	4942

Table 15: Quantification of peg tile by context

Context	*No*	*Weight (g)*
12	1	105
25	1	27
28	1	99
300	1	39
306	1	85
307	1	109
317	1	31
505	1	79
507	1	254
509	1	74
512	1	26
Total	11	928

Table 16: Quantification of ridge tile by context

Context	*No*	*Weight (g)*
4	1	82
13	1	28
21	1	81
302	5	298
303	1	37
304	1	65
306	2	72
330	3	129
803	1	78
Total	16	870

Table 17: Quantification of brick by context

Context	No	Weight (g)	Thickness (mm)	Width (mm)
21	1	193		
220	1	352	70	
229	1	112	45	
230	1	127		
503	1	181		
507	1	1057	50	100
805	1	225	55	
912	1	1306	60	100
Total	8	3553		

Table 18: Quantification of stone tiles by context

Context	*No of fragments*
503	19
504	6
506	1
507	2
509	2
717	3
805	1
Total	34

Appendix 5 Animal Bone Quantification Tables

Table 19: Number of animals by context

Context	Cattle	Sheep	Pig	Horse	Red Deer	Dog	Cat	D.Fowl	Bird	Fish	Unidentified
9	0	1	0	0	0	0	0	0	0	0	0
10	1	0	0	0	0	0	0	0	0	1	1
11	0	1	0	0	0	0	0	0	0	0	1
12	0	1	1	0	0	0	0	0	0	1	0
12	0	0	1	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	2
15	0	0	0	0	0	0	0	0	0	0	1
16	0	2	0	0	0	0	0	0	0	0	1
17	0	0	0	0	0	0	1	0	0	0	1
18	0	3	0	0	0	0	0	0	0	0	2
21	1	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	1
29	0	1	0	0	0	0	0	0	0	0	0
205	0	2	0	0	0	0	0	0	0	0	1
207	0	0	0	0	0	0	0	1	0	0	0
210	1	0	0	0	0	0	0	0	0	0	0
226	0	0	0	0	0	0	0	0	0	0	1
228	2	1	0	0	0	0	0	0	0	0	1
229	6	3	2	0	0	0	0	0	0	0	5
230	6	3	0	0	0	0	0	0	0	0	14
231	2	2	0	0	0	0	0	0	0	0	0
232	1	1	0	0	0	0	0	0	0	0	0
234	1	1	0	0	0	0	0	0	0	0	1
236	1	0	0	0	0	0	0	0	0	0	0
236	4	9	2	0	0	0	0	0	1	0	12
237	6	3	0	0	0	0	0	0	0	0	6
238	8	3	0	0	1	0	0	0	0	0	6
238	11	4	0	0	1	0	0	2	1	0	15
240	1	0	0	0	0	0	0	0	0	0	2
240	0	1	0	0	0	0	0	0	0	0	2
243	0	1	0	0	0	0	0	0	0	0	0
245	0	1	0	0	0	0	0	0	0	0	1
300	0	4	0	0	0	0	0	0	0	0	0
301	1	1	0	0	0	0	0	0	0	0	0
302	3	5	0	0	0	0	0	0	0	0	7
302	10	10	3	0	0	0	0	1	0	0	16
302	2	0	0	0	0	0	0	0	0	0	0
302	0	0	0	0	0	0	0	0	0	0	3
303	1	0	0	0	0	0	0	0	0	0	0
304	2	2	0	0	0	0	0	0	0	0	4
305	3	1	0	0	0	0	0	0	0	0	1
305	0	0	0	0	0	0	0	0	0	0	1
306	5	3	1	0	0	0	0	0	0	0	10
307	5	1	0	0	0	1	0	0	0	0	4
308	3	1	1	0	0	0	0	0	0	0	4
316	0	0	0	0	0	0	0	0	0	0	1
316	0	2	0	0	0	0	0	0	0	0	0
317	1	0	0	0	0	0	0	0	0	0	0

317	0	0	2	0	0	0	0	0	0	0	3
318	4	2	0	0	0	0	0	0	0	0	3
319	2	0	0	0	0	0	0	0	0	0	0
320	0	0	0	0	0	0	0	0	0	0	2
322	0	0	0	0	0	0	0	0	0	0	1
326	0	1	0	0	0	0	0	0	0	0	2
328	0	2	1	0	0	0	0	1	0	0	2
330	1	1	0	0	0	0	0	0	1	0	1
336	1	0	1	0	0	0	0	0	0	0	1
337	0	0	0	0	0	0	0	0	0	0	1
344	0	0	0	0	0	0	0	0	0	0	1
504	0	0	1	0	0	0	0	0	0	0	1
504	0	0	0	0	0	0	0	0	0	0	1
506	1	0	0	0	0	0	0	0	0	0	0
507	1	1	0	0	0	0	0	0	0	0	2
509	8	10	3	1	0	0	0	2	0	0	10
510	0	0	1	0	1	0	0	0	0	0	0
511	4	0	0	0	0	0	0	0	0	0	0
512	0	0	0	0	0	0	0	0	0	0	1
707	3	0	0	0	0	0	0	0	0	0	0
713	2	0	0	0	0	0	0	0	0	0	2
717	0	2	0	0	0	0	0	0	1	0	1
733	0	2	0	0	0	0	0	0	0	0	0
735	1	0	0	0	0	0	0	0	0	0	0
735	0	0	1	0	0	0	0	0	0	0	0
800	0	0	0	0	0	0	0	0	0	0	1
801	1	1	0	0	0	0	0	0	0	0	3
802	3	2	0	0	0	0	0	0	0	0	3
803	5	10	0	0	0	0	0	0	0	0	8
805	0	2	1	0	0	0	0	0	0	0	2
806	1	0	0	0	0	0	0	0	0	0	0
906	1	0	0	0	0	0	0	0	0	0	2
908	0	0	0	0	0	0	0	1	0	0	0
910	0	0	0	0	0	0	0	0	0	0	2
910	1	2	0	0	0	0	0	0	0	0	2
911	0	1	0	0	0	0	0	0	0	0	0
912	1	1	0	0	0	0	0	0	0	0	1
912	4	3	2	0	0	0	0	0	0	0	1
913	1	0	0	0	0	0	0	0	0	0	1
914	0	1	1	0	0	0	0	0	0	0	3
916	4	1	2	0	0	0	0	0	0	0	0
917	0	2	0	0	0	0	0	0	0	0	0
921	0	1	0	0	1	0	0	0	0	0	0
922	0	0	0	0	0	0	0	0	0	0	1
1039	3	1	0	0	0	0	0	0	0	0	2
1043	3	1	0	0	0	0	0	0	0	0	0
1044	3	7	0	0	0	0	0	0	0	0	3
1045	0	8	0	0	0	0	0	0	0	0	5
1046	3	4	0	0	0	0	0	0	0	0	2
1046	1	0	0	0	0	0	0	0	0	0	0
1047	5	1	0	0	0	0	0	0	0	0	1
1050	1	1	0	0	0	0	0	0	0	0	2
1051	1	0	0	0	0	0	0	0	0	0	0

1053	2	0	0	0	0	0	0	1	0	0	2
1054	1	0	0	0	0	0	0	1	0	0	3
1056	0	4	3	0	0	0	0	0	0	0	1
1057	2	3	1	0	0	0	0	0	0	0	2
1058	0	1	1	0	0	0	0	0	0	0	1
1116	0	0	0	0	0	0	0	0	0	0	3
1123	0	0	0	0	0	0	0	0	0	0	3
1126	1	1	0	0	0	0	0	0	0	0	0
1207	0	2	1	0	0	0	0	0	0	0	0
1208	0	1	0	0	0	0	0	0	0	0	1
1209	1	5	0	0	0	0	0	0	0	0	2
1210	2	8	1	0	0	0	0	0	1	0	2
1211	2	1	2	0	0	0	0	0	0	0	0
1216	0	0	0	0	0	0	0	0	0	0	1
1217	1	0	0	0	0	0	0	0	0	0	0
1219	0	0	1	0	1	0	0	0	0	0	0
1228	1	0	0	0	0	0	0	1	0	0	2
1229	1	0	1	0	0	0	0	0	0	0	5
TOTAL	172	171	38	1	5	1	1	11	5	2	236

Table 20: Epiphyseal fusion in cattle bones after Silver 1969 and O'Connor 1982

Age at fusion	Element		
		F	UF
9-18 mo.	Humerus D	6	0
	Radius P	8	1
	Scapula D	3	0
2 - 3 yr.	Tibia D	4	0
	Metacarpal D	7	0
	Metatarsal D	5	1
3.5 – 4 yr.	Radius D	3	4
	Femur P	1	1
	Femur D	1	2
	Humerus P	0	0
	Tibia P	3	0

Table 21: Epiphyseal fusion in sheep bones after Silver 1969 and O'Connor 1982

Age at fusion	Element		
		F	UF
6-12 mo.	Scapula D	2	0
	Humerus D	4	1
	Radius P	2	0
1-2 yr.	Metacarpal D	1	0
1.5-2 yr.	Tibia D	4	1
1-2.5 yr.	Metatarsal D	5	1
2.5-3 yr.	Femur P	1	0
3-3.5 yr.	Humerus P	0	0
	Radius D	0	0
	Ulna P	0	0
	Femur D	0	0
	Tibia P	1	2

F = fused: number of examples of specified age or older
UF = unfused: number of examples of specified age or younger

Table 22: Epiphyseal fusion in pig bones after Silver 1969

Age at fusion	Element		
		F	UF
1 yr.	Scapula D	4	0
	Humerus D	1	2
	Radius P	0	0
2 yr.	Tibia D	2	0
	Metacarpal D	0	0
2.25 yr.	Metatarsal D	0	0
3.5 yr.	Humerus P	0	1
	Radius D	0	0
	Femur P	0	0
	Tibia P	0	1

Appendix 6 Plant remains

Table 23: Charred Plant Remains

		Sample	1	2	3
		Context	317	1210	1211
		Context type	layer	layer	layer
		Volume (l)	34	46	40
Triticum sp.	Wheat, free-threshing grain		-	++	-
Triticum dicoccum/spelta	Emmer/Spelt wheat grain		-	+	-
Triticum cf. *Dicoccum*	cf. Emmer wheat grain		-	-	+
Triticum cf. *Dicoccum*	cf. Emmer wheat glume bases		-	-	+
Triticum sp.	Wheat grain		+	-	-
Hordeum vulgare	Barley grain		+	++	++
Secale cereale	Rye grain		-	+	-
Avena sp.	Oat grain		-	+	++
Indet	Indeterminate grain		+	-	-
Linum usitassimum	Flax seed		-	+	-
Corylus avellana	Hazel nut shell fragments		-	+	-
Vicia/Pisum sp.	Bean/Vetch/Pea		-	+	-
Weeds			-	+++	++
Quercus sp.	oak charcoal		-	+++	-

Table 24: Waterlogged Plant Remains

		Sample	8	8	8	8	8
		Borehole number	6	6	6	6	6
		Depth	450-500	250-300	300-350	350-400	400-450
		Weight (kg)					
Edible Plants							
Ficus carica	Fig		+	-	++	++	-
Prunus avium	Cherry		-	-	+	-	-
Corylus avellana	Hazel Nut shell frags		-	-	-	-	+
Vitis vinifera	Grape		-	-	+	-	+
Fragaria vesca	Wild/Alpine Strawberry		-	-	+	+	+
Cucurbita sp.	Pumpkin		-	-	-	-	+
Rubus fruticosus agg	Bramble/Blackberry		+	+	+	+	-
Weed/Wild Species							
Ranunculus acris/repens/bulbosus	Buttercup		-	-	+	-	+
Ranunculus sceleratus	Celery-leaved Crowfoot		-	+	++	+	+
Fumaria sp.	Fumitory		-	-	-	-	+
Brassica/Sinapis sp.	Brassica		+	-	-	-	-
Reseda luteola	Dyer's Rocket, Weld		-	-	-	-	-
Stellaria media agg	Chickweed		-	-	-	-	+
Chenopodiaceae			-	-	-	-	-
Chenopodium album	Fat Hen		-	-	+	-	+
Atriplex sp.	Orache		-	-	-	-	-
Conium maculatum	Hemlock		+	-	-	-	-
Apium nodiflorum	Fool's Watercress		-	+	-	-	-
Aesthusa cynapium	Fool's Parsley		-	+	-	-	-
Rumex sp.	Docks		+	-	-	-	-
Polygonum aviculare	Knotgrass		+	-	-	-	-
Polygonum persicaria/lapathifolium	Persicaria		+	-	-	-	-
Urtica dioica	Stinging/Common Nettle		-	+	+	-	+
Urtica urens	Dead Nettle		-	-	-	-	-
Solanum sp.	Nightshade		+	+	-	+++	-
Hyoscyamus niger	Henbane		-	-	-	+	-
Labiate			-	-	-	-	-
Ballota nigra	Black Horehound		+	+	-	+	-

Galeopsis sp.	Hemp-nettle	-	-	+	-	-
Sambucus nigra	Elder	++	+	+	+	+
Sonchus asper	Spiny Milk- or Sow- Thistle	-	+	-	-	-
Sonchus oleraceus	Milk- or Sow-thistle	-	+	-	-	+
Eleocharis palustris	Common Spike-rush	-	-	-	-	+
Carex sp.	Sedges	+	-	+	+	+

Table 24 continued

	Sample	7	6	4	4
	Borehole number	3	5	1	1
	Depth		160-200	545-565	565-595
	Weight (kg)				
Edible Plants					
Ficus carica	Fig	-	-	-	-
Prunus avium	Cherry	+	-	-	-
Corylus avellana	Hazel Nut shell frags	+	-	-	-
Vitis vinifera	Grape	-	-	-	-
Fragaria vesca	Wild/Alpine Strawberry	-	-	-	-
Cucurbita sp.	Pumpkin	-	-	-	-
Rubus fruticosus agg	Bramble/Blackberry	-	+	-	-
Weed/Wild Species					
Ranunculus acris/repens/bulbosus	Buttercup	-	-	-	-
Ranunculus sceleratus	Celery-leaved Crowfoot	+	+	+	+
Fumaria sp.	Fumitory	-	-	-	-
Brassica/Sinapis sp.	Brassica	-	-	-	-
Reseda luteola	Dyer's Rocket, Weld	-	-	+	+
Stellaria media agg	Chickweed	-	-	-	-
Chenopodiaceae		-	-	-	-
Chenopodium album	Fat Hen	-	+	-	-
Atriplex sp.	Orache	-	+	-	-
Conium maculatum	Hemlock	-	-	+	+
Apium nodiflorum	Fool's Watercress	-	-	+	-
Aesthusa cynapium	Fool's Parsley	-	+	-	-
Rumex sp.	Docks	-	-	-	-
Polygonum aviculare	Knotgrass	-	-	-	-
Polygonum persicaria/lapathifolium	Persicaria	+	-	+	-
Urtica dioica	Stinging/Common Nettle	+	++	+	+
Urtica urens	Dead Nettle	-	-	-	+
Solanum sp.	Nightshade	-	-	-	-
Hyoscyamus niger	Henbane	-	-	+	-
Labiate		-	+	-	+
Ballota nigra	Black Horehound	-	-	+	+
Galeopsis sp.	Hemp-nettle	-	-	+	-
Sambucus nigra	Elder	+	++	-	-
Sonchus asper	Spiny Milk- or Sow- Thistle	-	-	-	-
Sonchus oleraceus	Milk- or Sow-thistle	-	-	+	-
Eleocharis palustris	Common Spike-rush	-	-	-	-
Carex sp.	Sedges	-	-	-	-

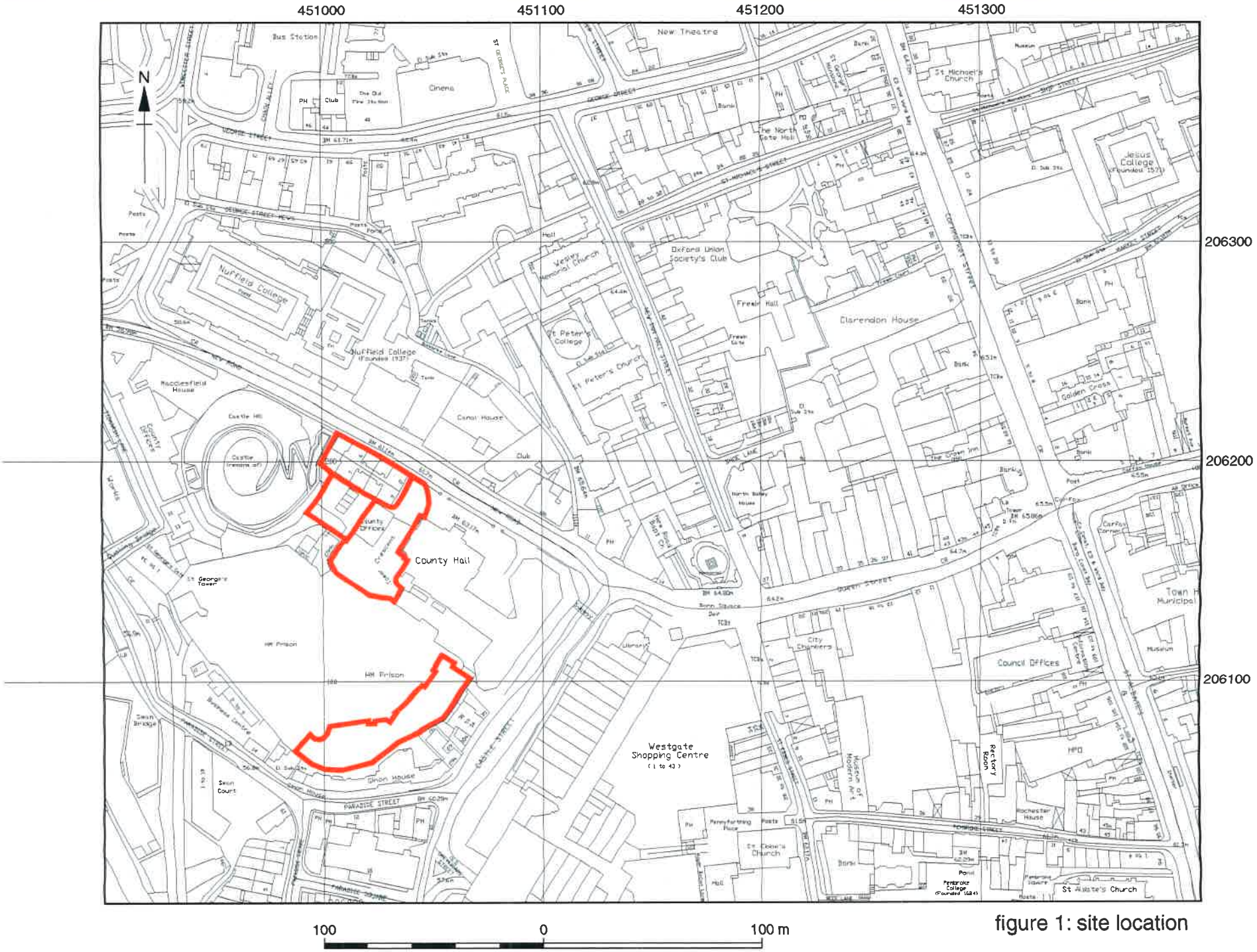
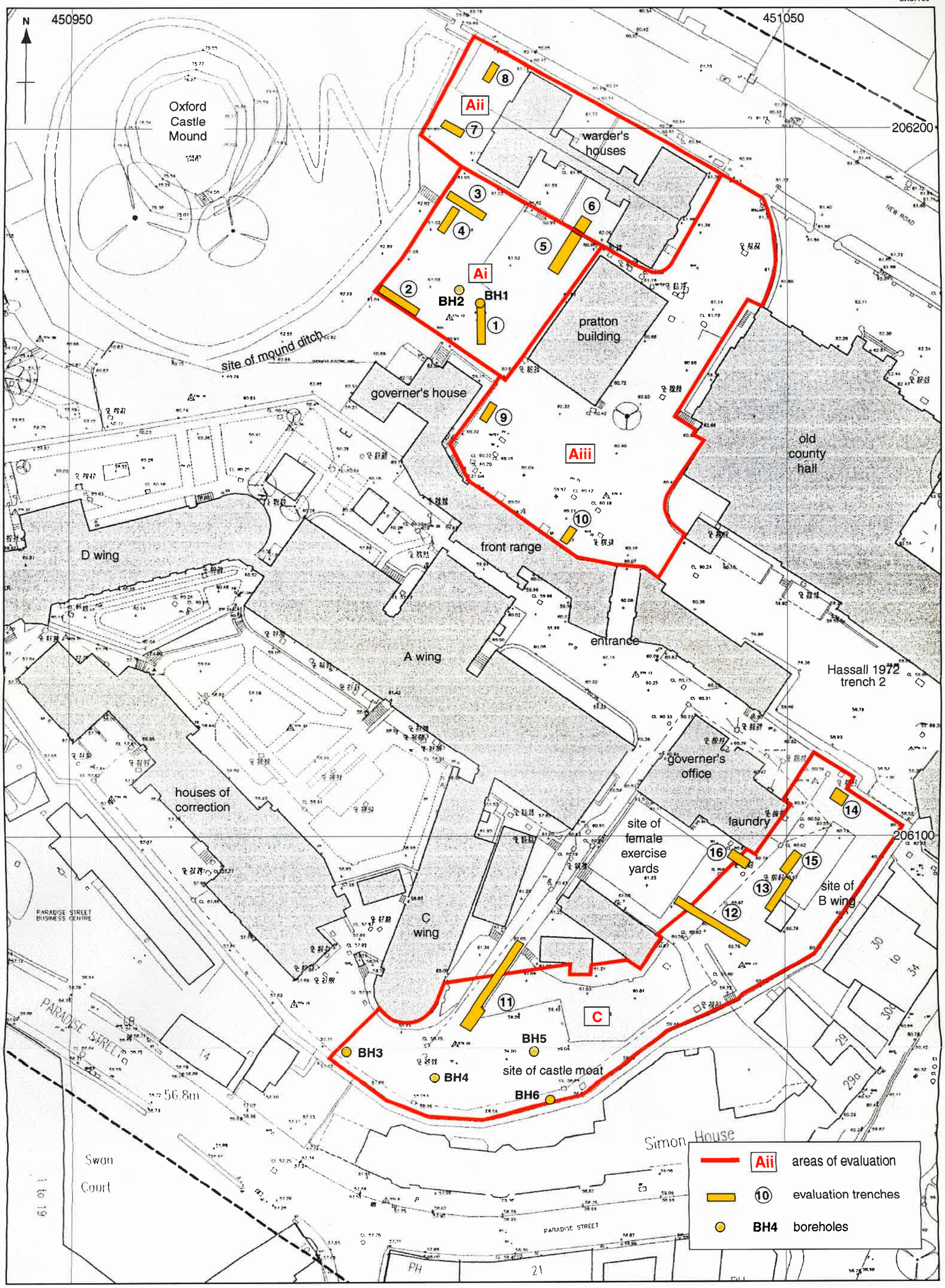


figure 1: site location



scale 1:500

figure 2: trench locations, based on W.S. Atkins site survey, 1998

section 11

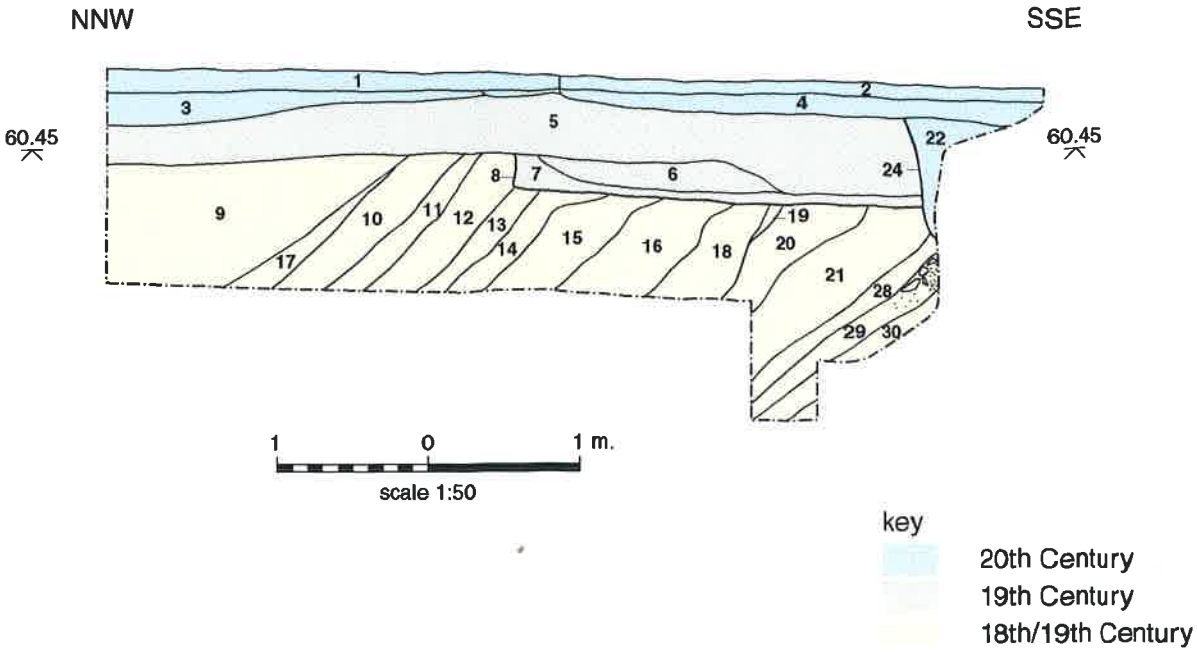
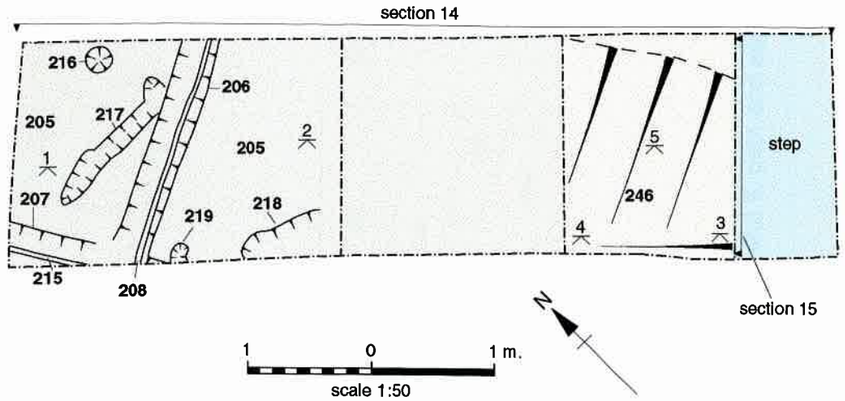


figure 3: trench 1, section

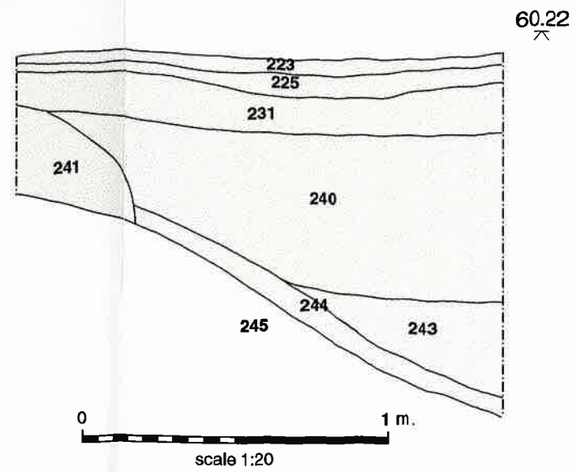
plan of trench 2



levels
1 60.56
2 60.56
3 58.94
4 58.75
5 59.06

key
- 20th Century
- 19th Century
- Late Medieval / Post-Medieval
- Stone

NE section 15 SW



SE

NW section 14

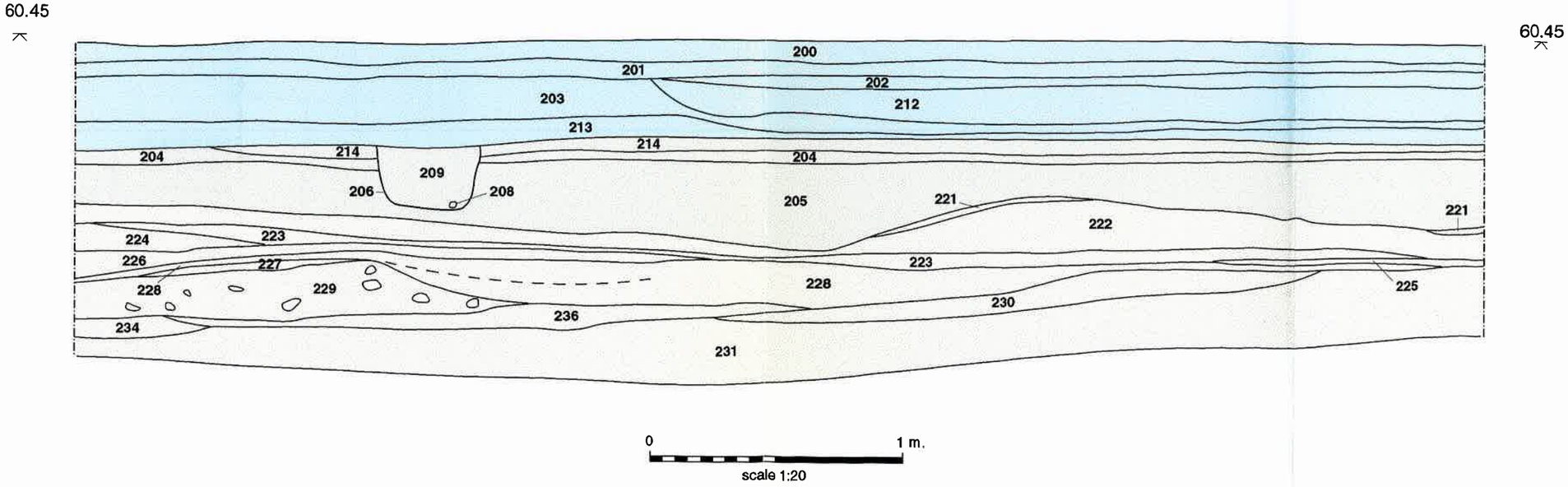
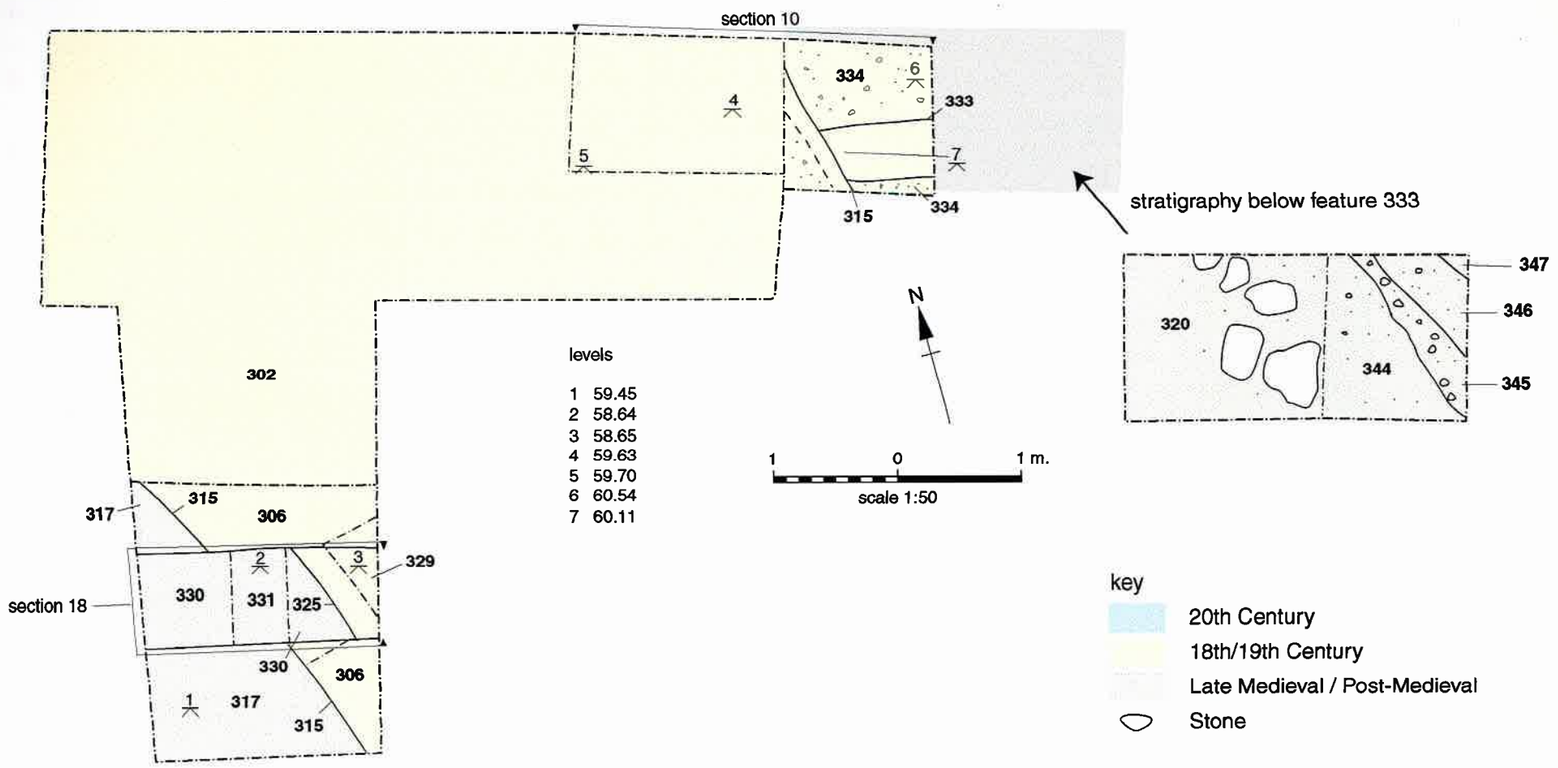
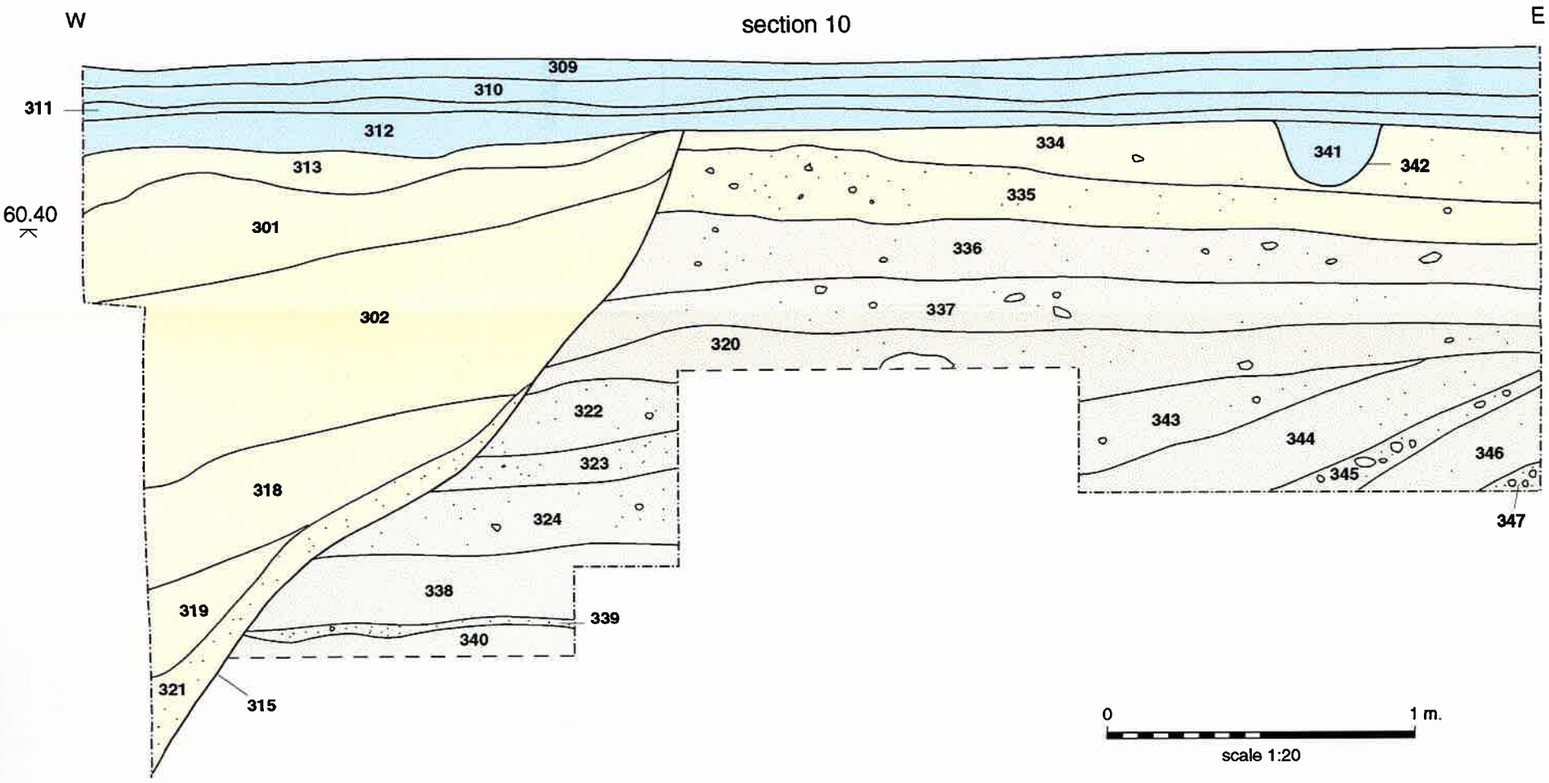


figure 4: trench 2, plan and sections

plan of trenches 3 and 4





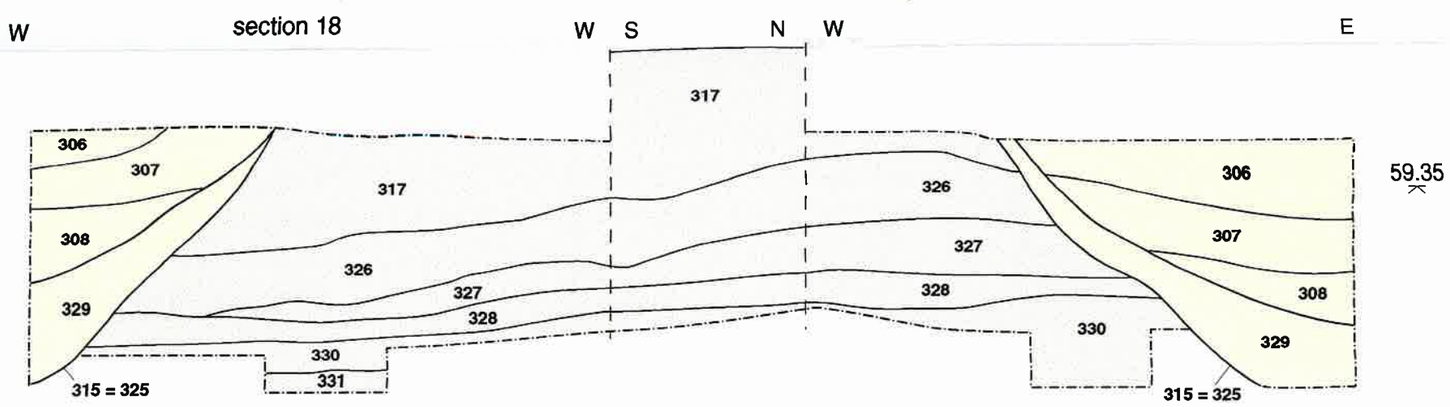


figure 5: trenches 3 and 4, plan and sections

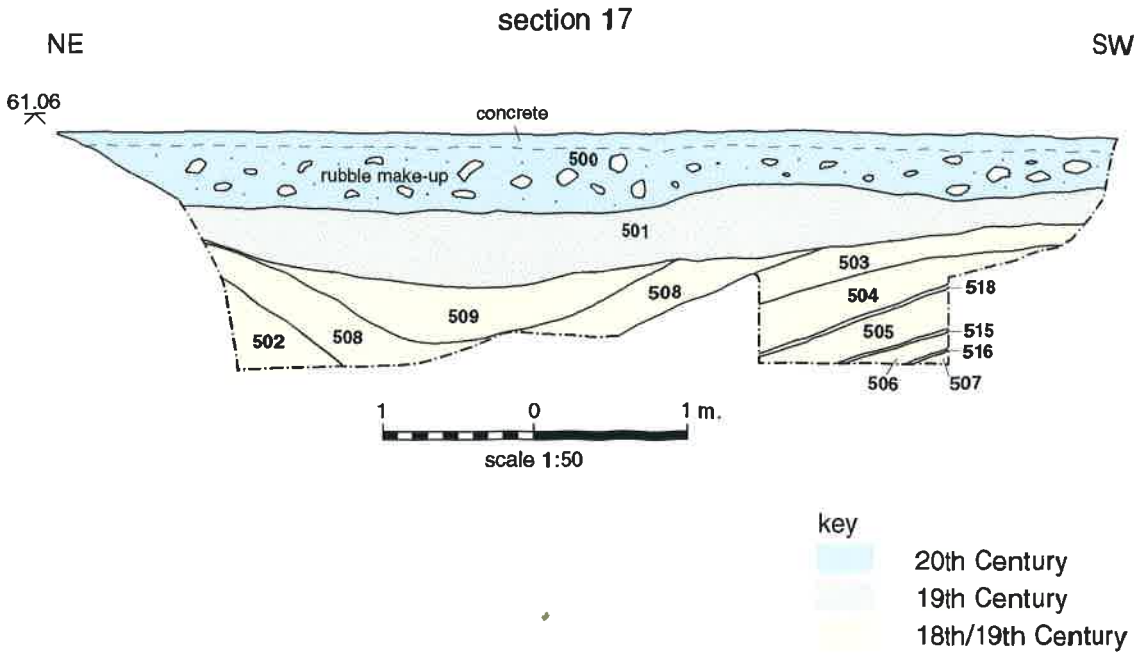
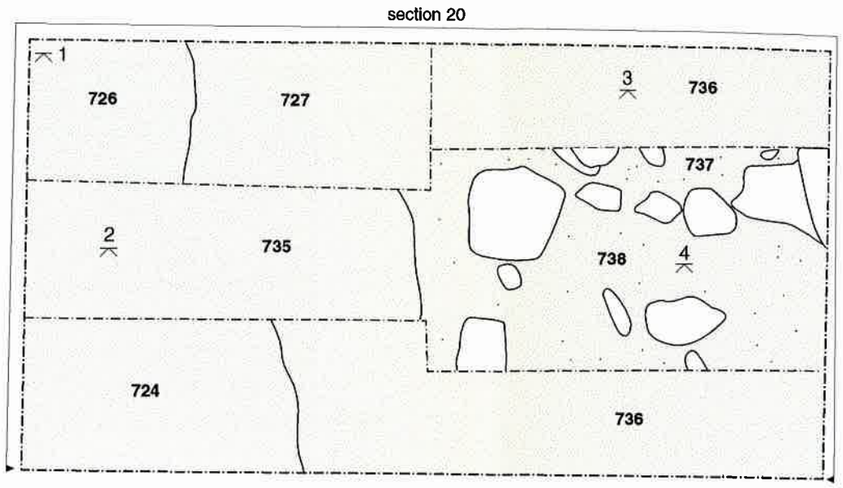


figure 6: trench 5, section

plan of trench 7



key

- 20th Century
- 19th Century
- 18th/19th Century
- Late Medieval / Post Medieval
- Stone

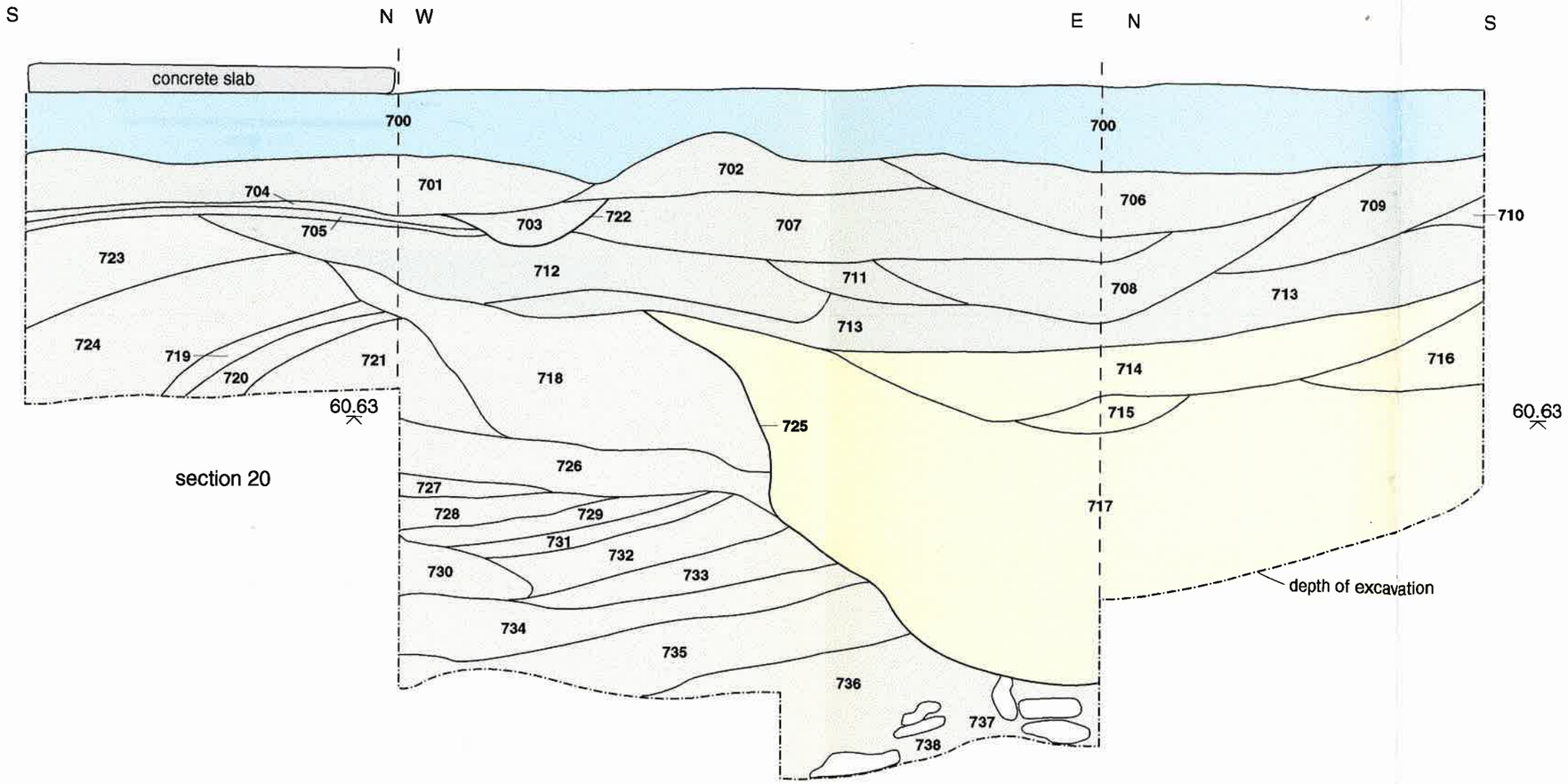


figure 7: trench 7, plan and section

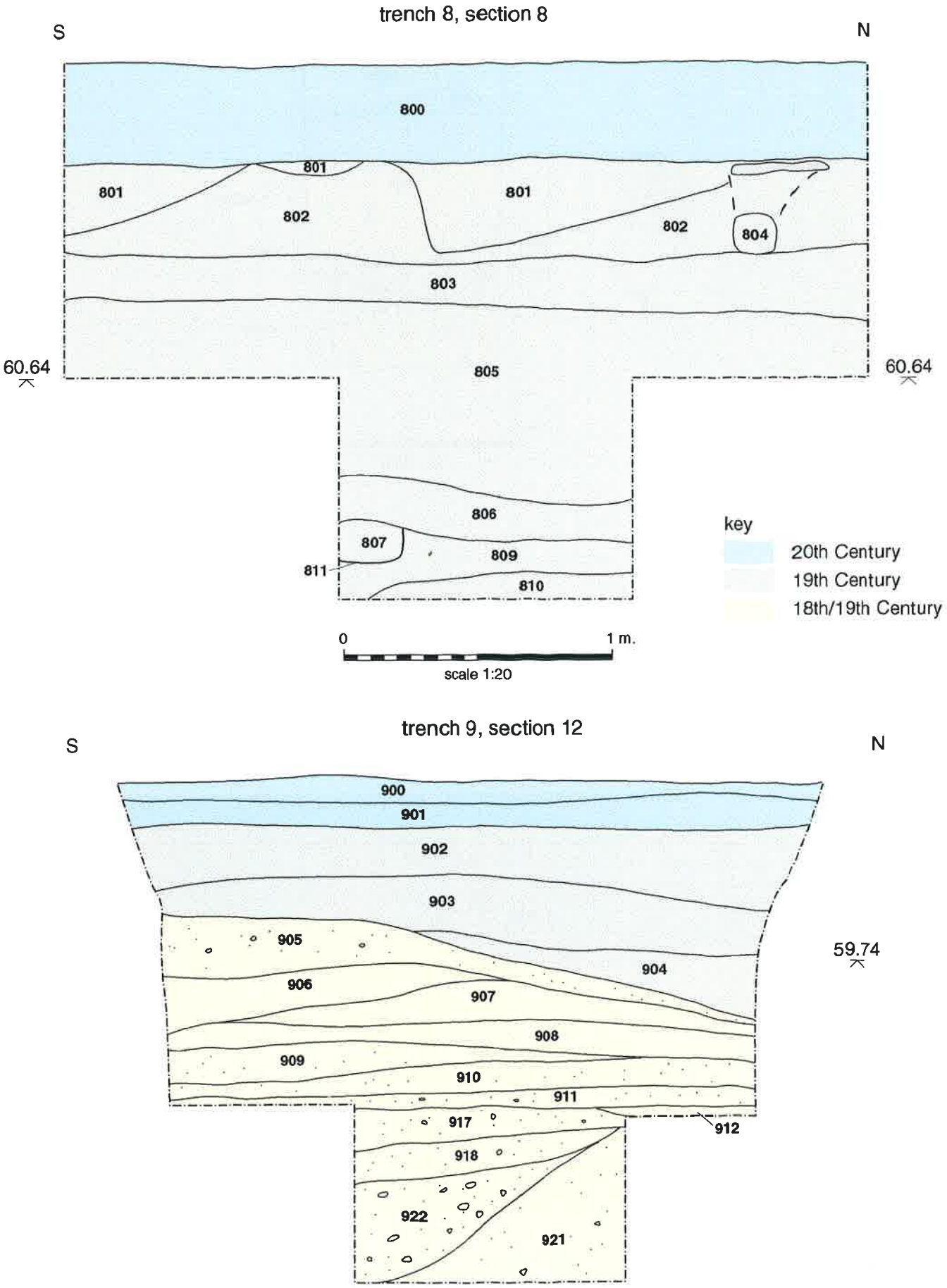
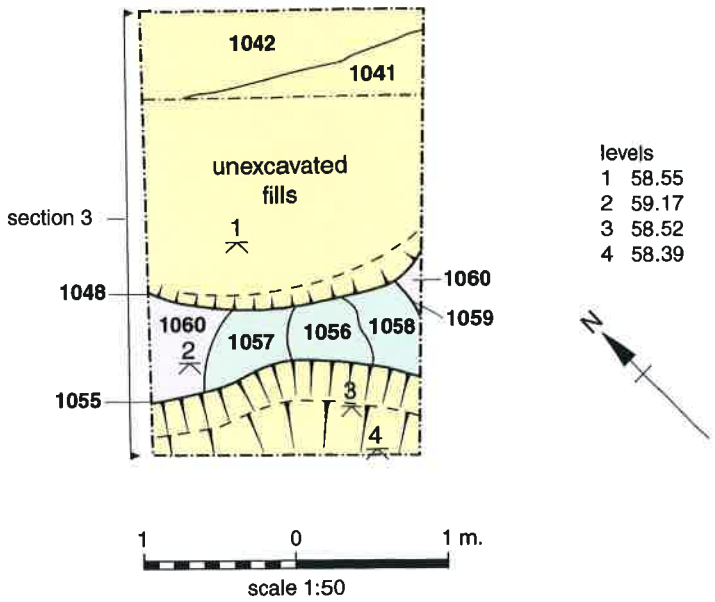


figure 8: trenches 8 and 9, sections

plan of trench 10



key

- 20th Century
- 19th Century
- 18th/19th Century
- Late Medieval / Post Medieval
- Early Medieval
- Natural

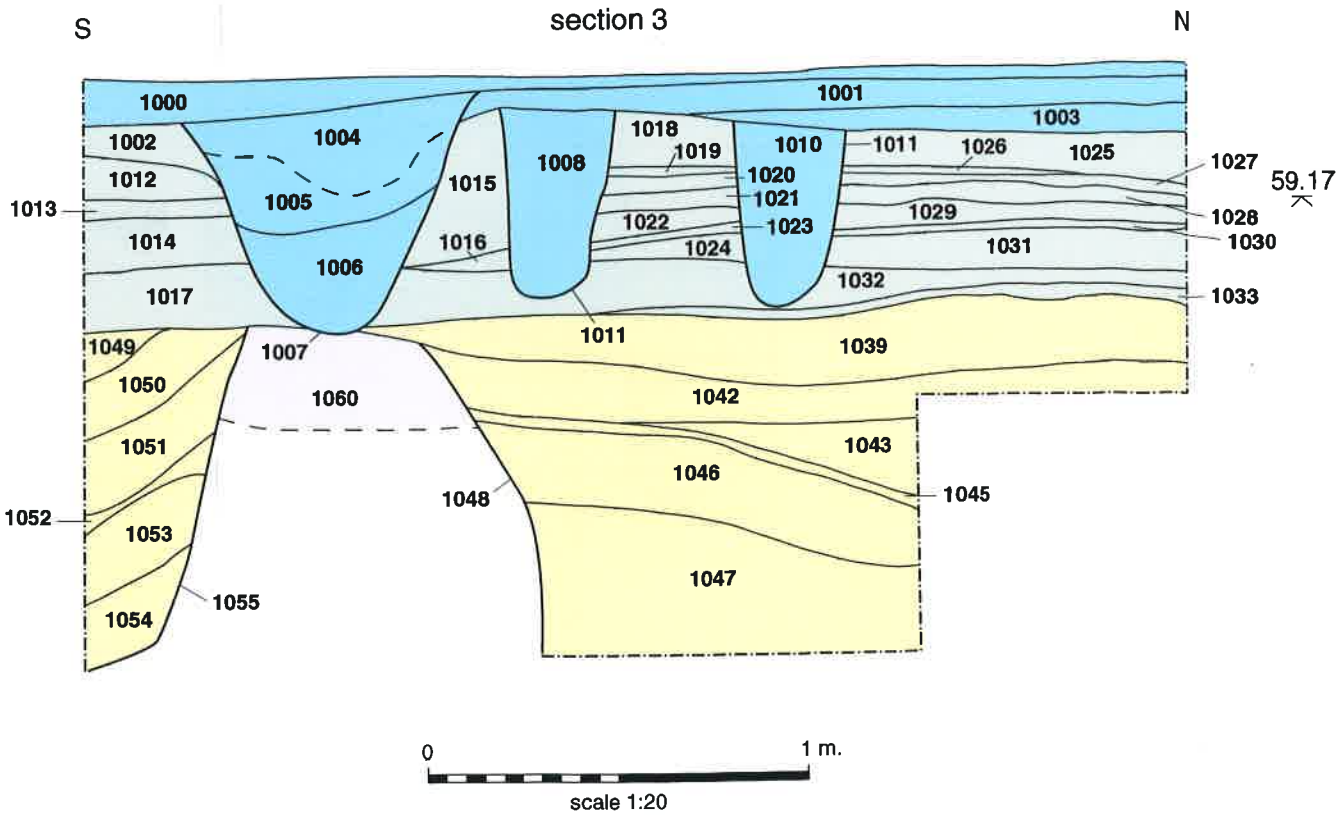
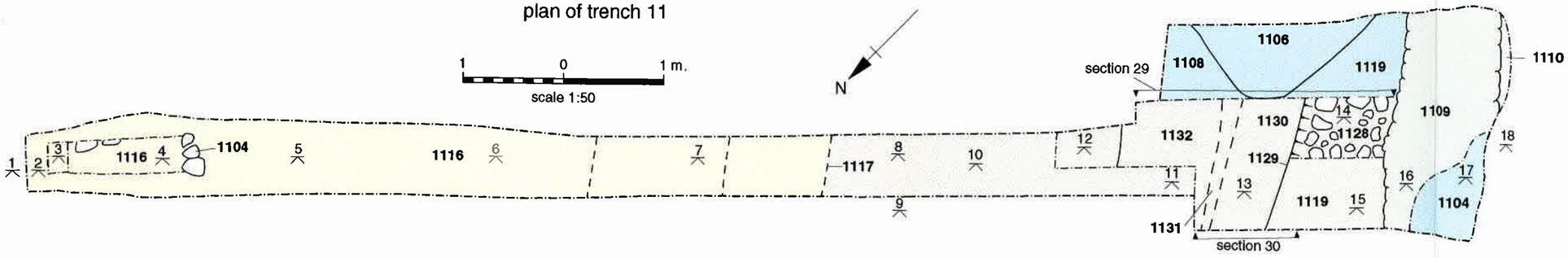


figure 9: trench 10, plan and section

plan of trench 11



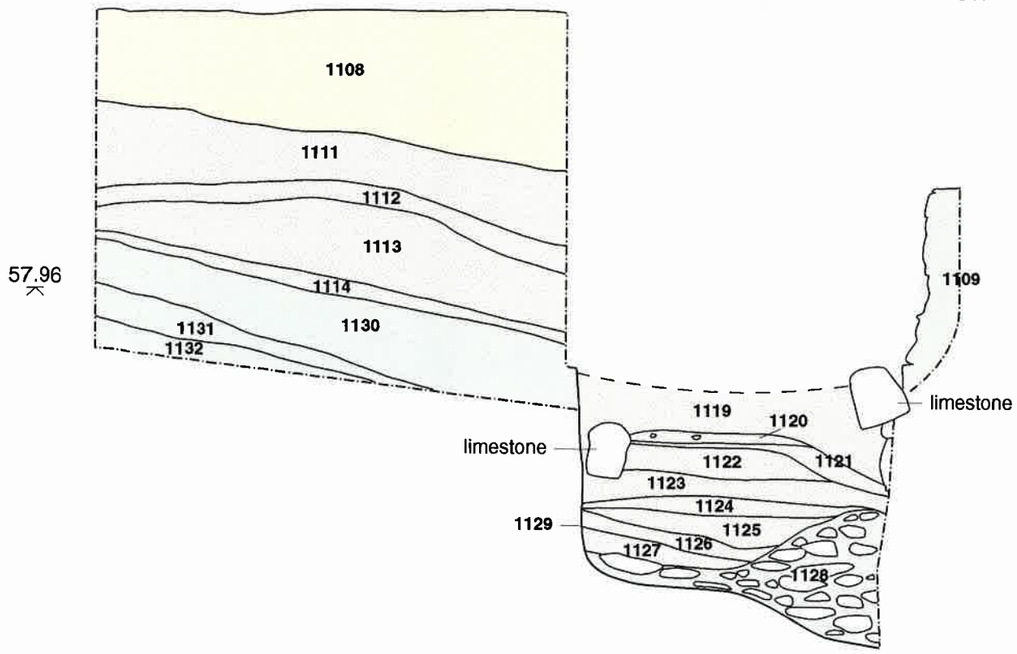
levels

1	60.11
2	59.24
3	58.95
4	58.61
5	59.01
6	58.92
7	58.83
8	58.67
9	59.57
10	58.55
11	58.21
12	57.80
13	57.71
14	57.04
15	57.61
16	58.49
17	58.76
18	59.15

key

- 20th Century
- 18th/19th Century
- Late Medieval / Post Medieval
- Early Medieval
- Stone

section 29



section 30

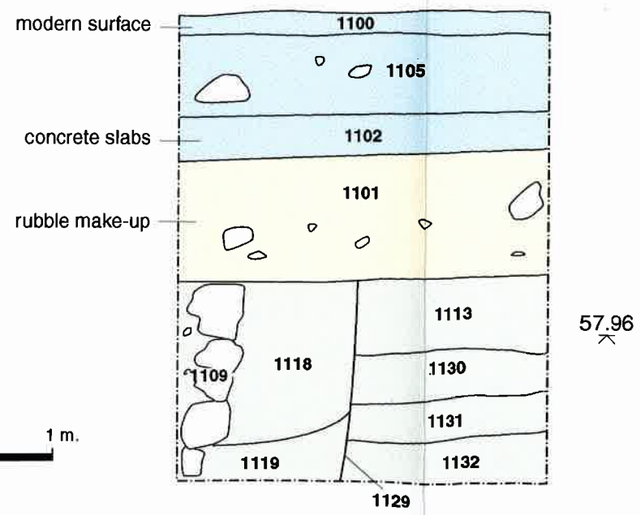
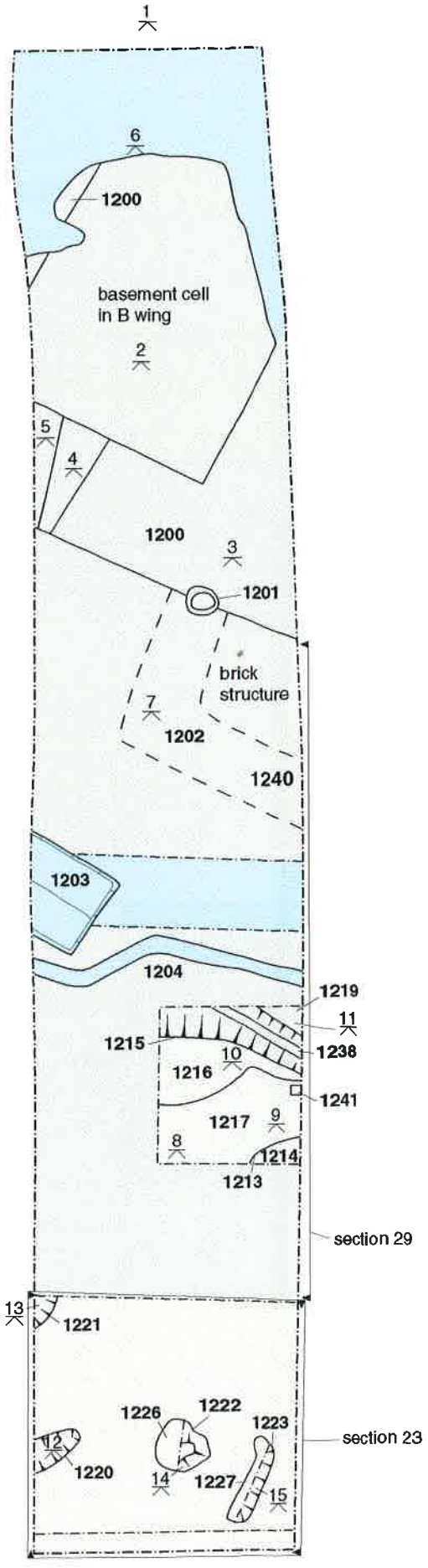
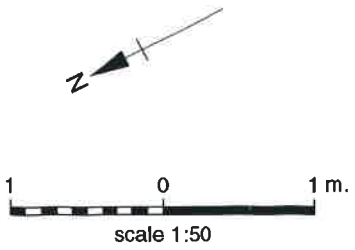


figure 10: trench 11, plan and sections

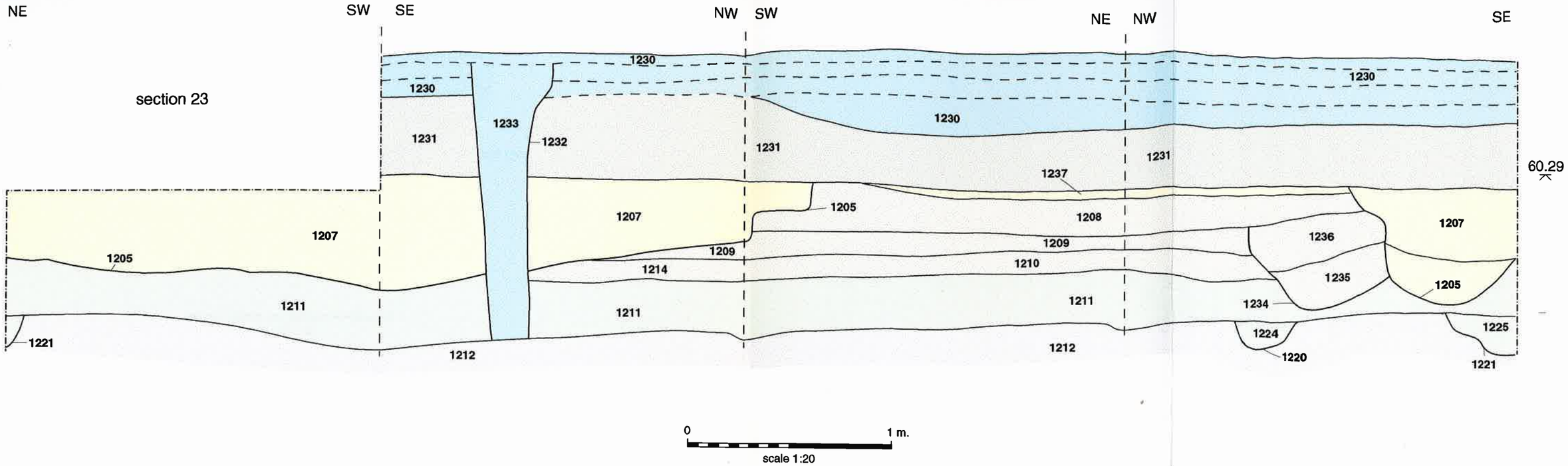


levels
1 60.79
2 58.53
3 60.00
4 59.81
5 60.27
6 60.25
7 59.74
8 59.76
9 59.81
10 59.73
11 59.41
12 59.47
13 59.47
14 59.45
15 59.37



key
20th Century
19th Century
Late Medieval / Post Medieval

figure 11: trench 12, plan



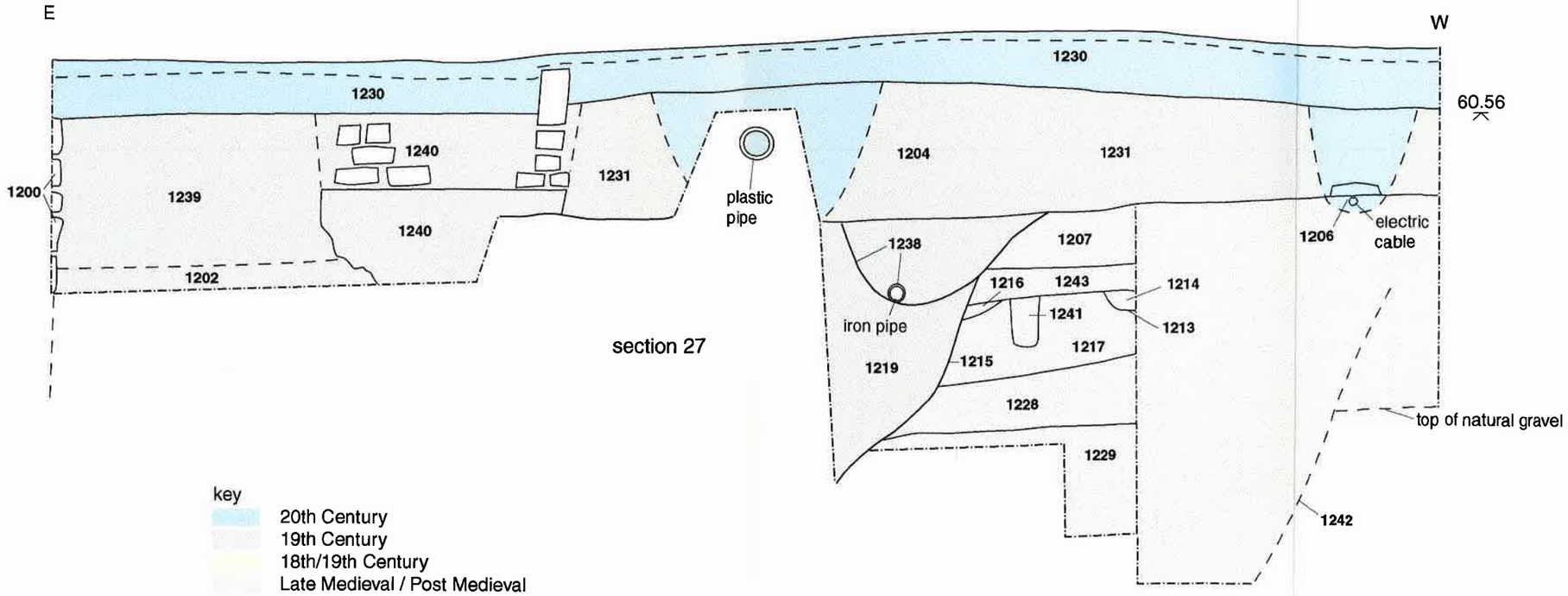


figure 12: trench 12, sections

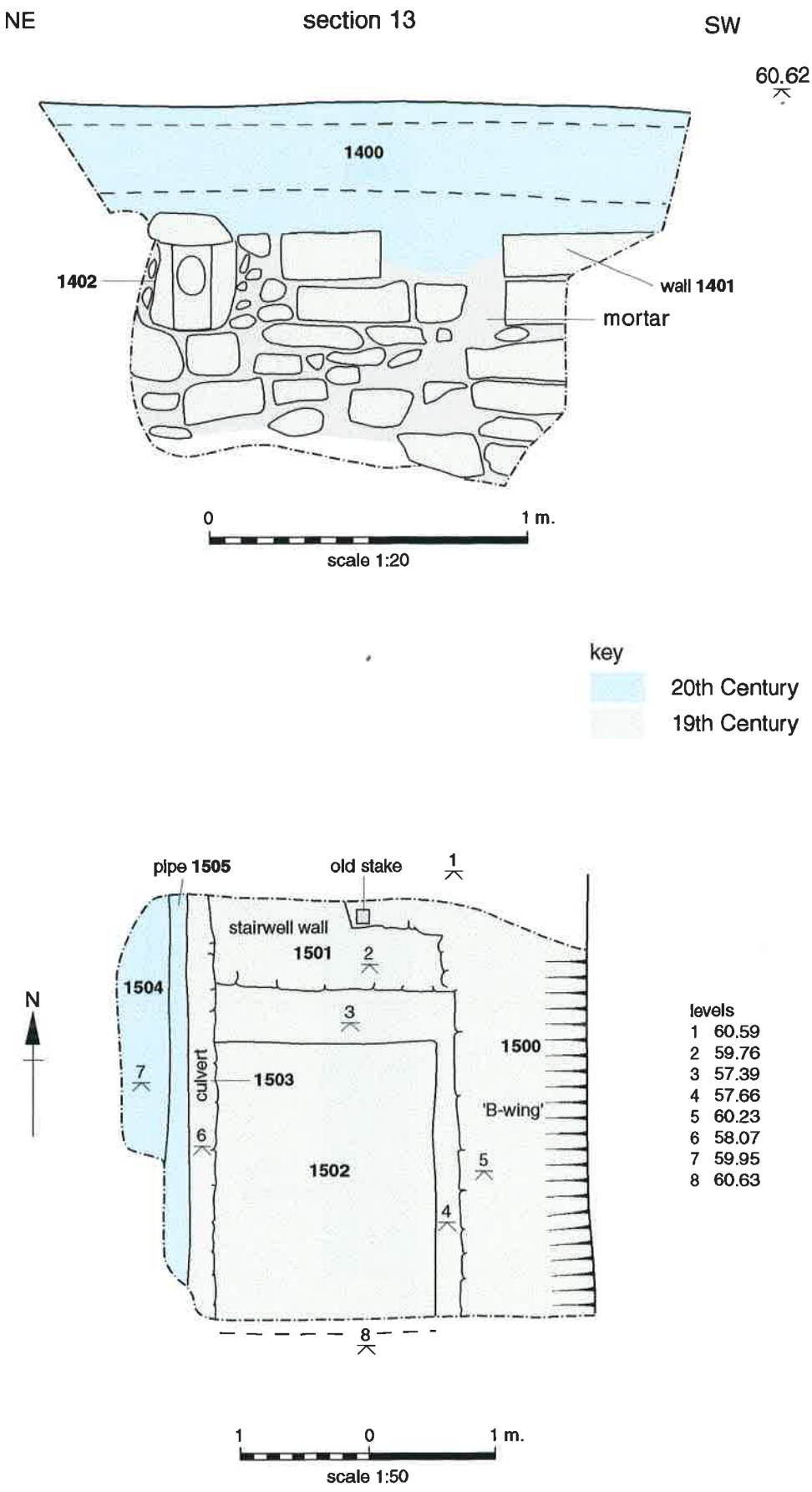
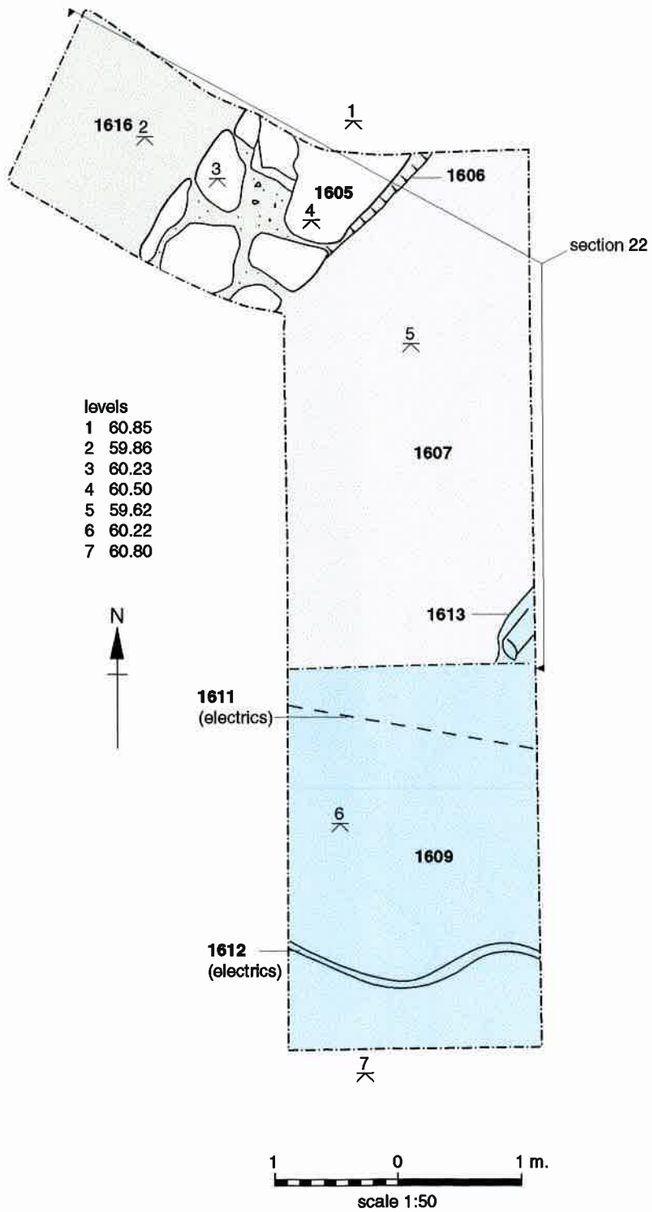


figure 13: trenches 14 and 15, section and plan

plan of trench 16



key

- 20th Century
- 19th Century
- Natural
- Brick
- Stone

section 22

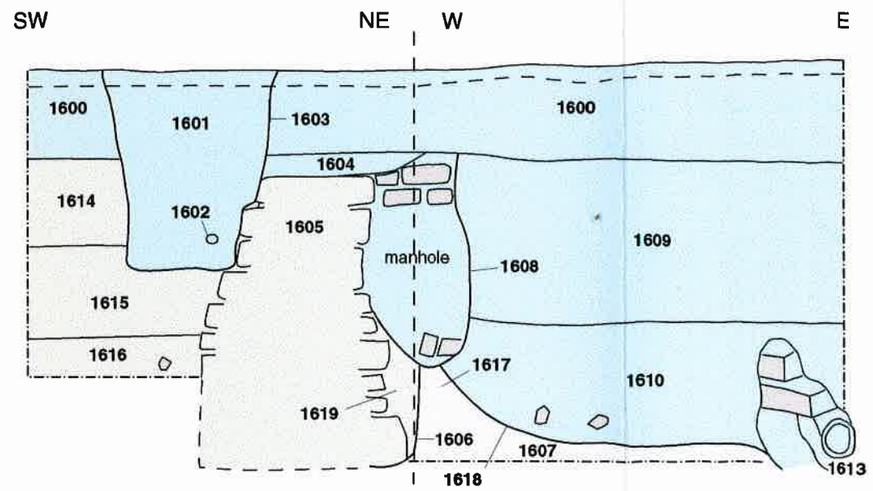
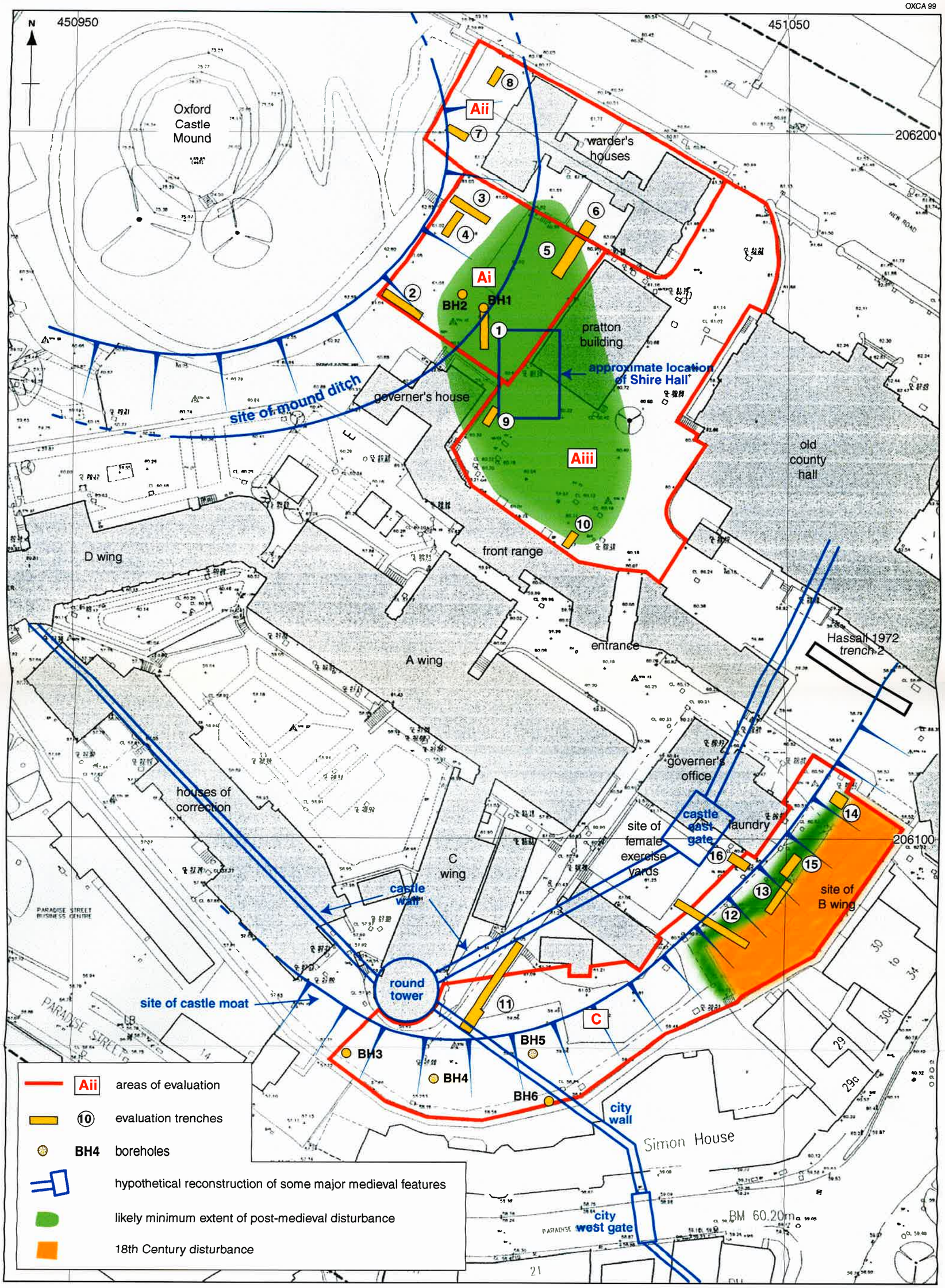


figure 14: trench 16, plan and section



scale 1:500

figure 15: post-medieval disturbance and reconstruction of major features

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