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**Archaeological Investigations 1994-5**

**A Post-Excavation Assessment and Research Design**

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ARCHAEOLOGICAL INVESTIGATIONS 1994-5**

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# 25-26 LONG CAUSEWAY, PETERBOROUGH, CAMBRIDGESHIRE ARCHAEOLOGICAL INVESTIGATIONS 1994-5

## A Post-Excavation Assessment and Research Design

### 1.0: SUMMARY

The archaeological potential of 25-6 Long Causeway, Peterborough (hereinafter the study area) was tested by an archaeological evaluation involving a desk-top study and trial-trenching, undertaken in September 1994. A second evaluation was conducted in January 1995, followed by an area excavation, undertaken between January 1995 and March 1995. The investigations were carried out in advance of a retail development.

The deposits and features recorded belonged to four main phases of activity. The earliest phase of activity (1) dated from the 11th to the 13th-century, and comprised the excavation of a broad ditch, possibly defining the western boundary of the monastic precinct, and the construction of a stone-footed building to the west of the ditch. In Phase 2 (14th-15th centuries), the area adjoining the street frontage was occupied by further stone-footed buildings and rubbish-pits, and the western boundary of the monastic precinct was defined by further ditches and a wall. The ditch was infilled in Phase 3, and the area was levelled-up in the 16th-century, in preparation for the construction of further stone-built structures. In the fourth phase of activity (18th-century to present) further structures were constructed, including dwellings and shop premises.

This paper provides a post-excavation assessment, prepared in accordance with the requirements of 'The Management of Archaeology Projects' (English Heritage 1991), which is intended to bring the results of the project to publication. The previous papers prepared concerning this project comprise:

- (1) a brief (Sydes 1994a), and specification (Jones 1994a), for site evaluation;
- (2) a report describing the results of the first evaluation (Jones 1994b);
- (3) a brief (Sydes 1994b) and a specification (Jones 1994c), outlining proposals for excavation.

### 2.0: INTRODUCTION

This report provides an integrated description of the results of all stages of archaeological investigations undertaken at 25-26 Long Causeway, Peterborough, Cambridgeshire (Fig 1A-B). Birmingham University Field Archaeology Unit (hereinafter BUFAU) were commissioned to undertake the archaeological assessment by Milford Estates Limited, in accordance with the guidelines laid down in Planning Policy Guidance Note 16 (Department of the Environment, November 1990).

## **2.1: Aims**

The aims of the excavation were as follows:

- (1) To determine the chronology of the constructional sequence in the area adjoining the historic street frontage, including evidence for Saxon activity and agriculture.
- (2) To provide a detailed understanding of the form and sequence of the features and deposits associated with the western boundary of the monastic precinct.
- (3) To examine the potential of the back-plot areas of the medieval and post-medieval structures to contain evidence of rubbish disposal and industrial activity.
- (4) To achieve an understanding of the documentary sources for the study area in relation to the archaeological evidence, and to consider the relevance of the site for an understanding of Peterborough's overall status as a Fen-edge town.

## **2.2: Location**

The study area lies between the eastern side of Long Causeway and Wheel Yard (Fig 1A-B), within the modern shopping centre of Peterborough, and is located approximately 550m to the north of the River Nene. The study area comprises the former shop premises of 'Belfast Linen', and the associated concrete yards to the rear. The cathedral lies to the southeast of the study area, the eastern part of which was formerly incorporated within the monastic precinct.

## **2.3: Geology**

The solid geology of the area is Oolitic Limestone, laid down in the Jurassic period (Horton 1989, 8), masked by Kellaway Beds, comprising clay and sand deposited in the central zone of Peterborough. Observations in the area around Peterborough cathedral have identified Second River Terrace deposits of the River Nene, forming benches of limestone gravel, with some flint and other pebbles (*op cit.*, 19), overlying the Kellaway Beds.

## **3.0: METHODOLOGY (Fig 1C)**

As a first stage in the archaeological evaluation of the study area, a desk-top study was made of the relevant cartographic and published archaeological sources to provide information concerning past land use and the urban historic setting. The results of this desk-top study are described in full in the evaluation report (Jones 1994b).

The trial-trenching was undertaken in two stages. The first stage involved the examination of the concrete yards to the rear of the shop (Trenches 1-2). In the second stage, undertaken after demolition of the shop premises, two further trenches were excavated (Trenches 3-4), to test the archaeological potential of the street frontage, and to attempt to locate the line of the western boundary of the monastic precinct.

The subsequent area excavation (Trench 5: Plate 1) was positioned to examine the area of the street frontage, the boundary of the former monastic precinct, and the medieval/post-medieval backplot area. This trench was extended to the southwest to allow the examination of the zone immediately adjoining the historic street frontage. Modern overburden was removed by

machine from all trenches, prior to the hand-cleaning of the machined horizon, in preparation for the systematic hand excavation of features and deposits.

Soil samples, up to a maximum of 20 litres in volume, were collected for general biological analysis from a range of features and deposits which contained datable artifacts. Column samples were collected for pollen analysis. A particular priority of the environmental sampling programme was the detailed examination of waterlogged features and deposits.

Recording was by means of printed pro-forma recording sheets, supplemented by plans, sections and photographs, all held in the archive. Subject to consent from the landowner, it is proposed to deposit the paper and finds archive in the approved archive store of the County Archaeology Office, Cambridgeshire County Council.

#### **4.0: SITE NARRATIVE (Figs 2-4)**

The results of all investigations (Trenches 1-5) are here conflated to form a single, provisional sequence. This sequence is based upon selective spot-dating of the pottery, and the principles of archaeological stratigraphy, and is defined as follows:

- Phase 0: Prehistoric activity
- Phase 1: Early medieval activity
- Phase 2: Later medieval activity
- Phase 3: Late medieval/ early post-medieval activity
- Phase 4: Later post-medieval activity.

The main features and layers are described in summary below, according to phase. For ease of description, the archaeological sequence within the various distinct areas of the site is described in sub-sections within each phase, where appropriate.

The natural limestone cornbrash (5156), comprised soft fissured limestone bedrock which was interspersed with pockets of sand-clay, its weathering product. The surface of the bedrock lay at an average depth of approximately 1.5m below the modern ground surface. In the east of Trench 5 the original surface of the bedrock, sealed by Phase 3/4 deposits, was exposed at a depth of 1.4m below the modern surface. Towards the street frontage, in the west of Trench 5, the bedrock surface was cut by Phase 1-3 features.

#### **4.1: Phase 0; Prehistoric activity**

The earliest activity in the near vicinity of the site was represented by the recovery of a small number of worked flint artifacts, derived from Phase 1-4 contexts. This artifactual evidence was not associated with any contemporary structural remains. This group of flint artifacts may be dated to the early prehistoric period.

#### **4.2: Phase 1; Early medieval activity (Fig 2, Fig 4)**

The Phase 1 features and deposits were cut into, and overlay the natural bedrock (5156). This earliest phase of activity is represented by the excavation and infilling of a broad ditch (F579), and by evidence of a stone-footed structure (Structure 3), and a rubbish-pit (F560).

The main Phase 1 feature was a broad ditch (F579), aligned approximately north-south, parallel to the modern Long Causeway frontage. The ditch was cut into the bedrock (5156). It was flat-based with an irregular profile; its western edge sloped gently, while its eastern side was more steeply cut. The ditch measured a maximum of 1.8m in depth, and 9.5m in width. There is no documentary evidence to date its excavation, but the pottery recovered from its lowest datable fills, provides a *terminus* in the 11th-13th century for the ditch infilling, and an approximate *terminus ante quem* for its original cutting.

Although part of the original ditch has been disturbed by re-cutting, its fill sequence remains informative. The earliest fills of the ditch comprised shallow horizontal layers of waterlogged clay-silts which, notably, contained no artifacts (5266, 5268, 5284-6, 5290). The sequence and composition of these fills suggests that the ditch was gradually infilled. The environmental evidence is particularly informative. The beetle species present in the lower fills are indicative of a shallow, slow flowing watercourse, which contains cloudy and vegetated waters, although there is some evidence of deeper areas of water, and of the dumping of both domestic and town waste into the ditch. It is probable that the ditch remained partly open into Phase 2.

The remaining Phase 1 features were located to the west of ditch F579. Possibly the earliest structure (Structure 3) was recorded in the southwestern extension of Trench 5. It comprised two joining limestone walls of drystone construction (F566 and F567), which may have defined the western and southern walls of a building: the eastern wall of the structure may have been removed by later activity. A southward return of its southern wall (F566) was recorded just inside the southern baulk of Trench 5. The southern wall incorporated limestone ashlar blocks which may have derived from rebuilding of the cathedral. A hearth (F581) which was cut into the subsoil (5156), adjoining the inside face of wall F566 may have been associated with this structure. The hearth was filled with a deposit of black charcoal (5244). A deposit of grey charcoal-flecked clay (5220), which butted against walls F566 and F567, may be the remnant of a floor surface.

A large rubbish pit (F560) cut to the rear of Structure 3 may have been in contemporary use. The fills of this feature contained pottery with a *terminus* in the 11th-13th century, and leather shoe fragments.

The Phase 1 fills of ditch F579 were overlain by the uppermost, Phase 2 fills of this ditch, which was also cut by two Phase 2 ditches (F551, F578). Structure 3 was overlain by Phase 2 features and deposits. Pit F560 was cut by Phase 2 pits F563 and F573, and was overlain by Phase 2 floor deposits.

#### **4.3: Phase 2; Later medieval activity (Fig 2, Fig 4)**

Phase 2 is defined by the final infilling, and later re-cutting of ditch F579; the definition of a property boundary, aligned at a right-angle to the street frontage, formed by one wall of a building (Structure 4); and by the construction of further stone-footed structures and associated features, adjoining the street frontage.

The Phase 2 features and deposits were cut into, and overlay the natural bedrock (5156), and the features and deposits of Phase 1; some Phase 2 features were also cut into the upper Phase 2 fills of ditch F579.

## Ditch

It is probable that the Phase 1 ditch F579 remained open as a shallow watercourse at the commencement of Phase 2. The uppermost, Phase 2 fills of this feature comprised horizontally-lain deposits of waterlogged silts (5265, 5291, 5263, 5262, 5281, 5179, 5157), which contained pottery which provides a *terminus* in the 13-14th century for the final obliteration of this feature. These Phase 2 fills included a quantity of leather shoemaking waste, and a wooden bowl. The environmental evidence indicates that both domestic and town waste continued to be dumped into the ditch. The beetle species present in the Phase 2 ditch fills suggest that the ditch contained cloudy, slow-moving water, surrounded by patches of rushes and weeds. Although the majority of these fills were waterlain, it is possible that some of this later infilling of the ditch may have been deliberate backfilling, in preparation for the construction of the structures built later in Phase 2.

A re-cut (F578) was recorded along the eastern side of ditch F579, following the alignment of the earlier ditch. Although only part of this re-cut survived a further re-cutting in Phases 2/3 (F551), the Phase 2 ditch appeared to be of shallow, irregular profile. The fills of ditch F578 comprised layers of dark brown organic silt-clay (5289, 5287-8, 5282). These ditch fills contained no datable artifacts, but pottery from ditch F551 provides an approximate *terminus ante quem* for the infilling of ditch F578.

After ditch F578 was abandoned and infilled, its eastern edge was cut by a further ditch (F551: Plate 5), which followed a similar north-south alignment. Ditch F551 was of regular U-shaped profile, and measured a maximum of 2.7m in width, and 1.4m in depth. The dating evidence from the lower fills of ditch F551 provides an approximate *terminus ante quem* for its excavation later in Phase 2 (later 15th-century/ 16th-century). The pottery from the Phase 2 fills of this feature contains a good range of domestic tablewares.

Ditches F579, F578 and F551 may have successively defined the western boundary of the monastic precinct, which may also have been marked in Phases 2/3 by a mortared limestone wall (F515, F516), aligned north-south, parallel to the ditches, and positioned 3m to the east of the eastern edge of ditch F551. However, the construction of this wall cannot be clearly dated. Because only a short length of this wall was available for investigation it was not possible at excavation to determine if this wall was an original build, or a re-build. The wall was laid directly over a layer of brown silt-clay (5073), which may be interpreted as an undated former ground surface, possibly a cultivation horizon, immediately overlying the cornbrash bedrock (5156). The wall survived to a height of 1m, and measured 0.9m in width. Pottery from layers 5008 and 5001, which butted against the western elevation of the wall provides a *terminus ante quem* for its construction between the 15th-17th-century. The wall was extensively disturbed by a Phase 4 structure (F517).

A rubbish pit (F555) was cut into the cornbrash bedrock (5156), between ditch F578 and wall F515/6. The pit was backfilled with grey silt-clay (5175), which contained a large quantity of pottery providing a *terminus* in the 13th-14th century.



The remaining Phase 2 features comprise pits, post-holes and drystone walls. The area adjoining the street frontage was divided into two plots, defined by the northern wall (F550) of Structure 4a, which occupied the southern plot. The archaeology of the two plots is differentiated by differences in ground levels, and in the character of the features represented. The two plots are also distinguished by the degree of archaeological survival; the northern plot has suffered comparatively little truncation from later activity, while part of the southern plot has been disturbed by cellarage (Structure 1: Phase 3/4). The archaeological sequence in the two plots is described separately below.

#### Northern plot

The later Phase 2 sequence in the northern plot includes evidence for levelling-up, and the excavation of a number of features, including wells, hearths and post-holes. There was no clear evidence of any contemporary structures.

The next event was an extensive build-up of crushed limestone debris and sand (5254, 5212, 5240), recorded for a length of 4m. This layer overlay the bedrock (5156), and also extended eastwards, overlying the upper soft organic fills of ditches F578 and F579. This material may have been a construction deposit, and could also have been spread over the soft ditch fills as a sealing layer, or to counteract subsidence. Layer 5254 contained pottery providing a *terminus* in the late 13th century. This spread of stone debris may have been associated with a cut (F575/F580), of U-shaped profile, filled with crushed limestone fragments (5292). This feature was aligned north-south, and also cut the extreme western edge of ditch F579. Feature F575/F580 measured a maximum of 1.4m in width, and 0.6m in depth. This stony horizon was cut by two wells (F572, F565), a hearth (F570), and three post-holes (F569, F564, F568), described below.

A hearth or oven (F552), located in the northwest of Trench 5, was cut into the limestone cornbrash (5156). It was sub-circular in plan, with a bowl-shaped depression. The fills of the feature comprised lenses of soft black charcoal (5104), dark red sand-silt (5102), and shallow layers of grey silt (5103 and 5163) and contained pottery providing a *terminus* in the 13th-14th century. The quantity of charred plant remains recovered from this feature suggests it was an oven. A second, shallow flat-based hearth (F570) was recorded just inside the northern bank. It was filled with a deposit of red clay (5231) which had been burnt *in-situ*.

Two stone-packed post-holes (F568 and F569), cut into the subsoil (5156), may have defined part of a timber-framed construction. A third post-hole (F564) was cut into later 5212. Post-hole F569 contained pottery providing a *terminus* in the 14th-15th century.

Well F572 was lined with drystone limestone blocks, and was sub-circular in plan. It measured a maximum of 1.3m in depth and 1m in width. Its fills contained pottery providing a *terminus* in the 14th-15th century. This well was capped with stone after it went out of use. A second well (F565), to the east of the former, was similarly lined with stone. Well F565 (Plate 8) was sub-oval in plan, and measured a maximum of 1.2m in depth, and 1.3m in width. The parasite remains recovered from soil samples from the well suggests it was re-used as a latrine-pit. The well contained pottery which provides a *terminus* in the 14th-15th-century.

## Southern plot

The Phase 2 features in the southern plot were cut directly into the ditch (F579, F578) fills, or into the natural bedrock (5156); the contemporary ground level here was in places up to 0.5m lower than the Phase 2 ground-level recorded in the northern plot, possibly as a result of truncation caused by the Phase 4 Structure 1.

A number of post-holes and rubbish pits were cut within the south plot. Rubbish-pits F563 and F573 were cut into Phase 1 pit F560, and into the cornbrash (5156). The organic fills of these features contained pottery providing a *terminus* in the 14th-15th-century. To the east, three small pits (F559, F561, F562), were cut into the uppermost fills of ditch F579. Pit F559 contained an articulated dog skeleton. Further to the east two small pits or post-holes (F576, F577) were also cut into the uppermost fills of ditch F579. These features were sealed by Structure 4a floor deposits, described below, and by the Phase 4 Structure 1.

The southwestern corner of a stone-footed building (Structure 4) was recorded in the southwestern corner of Trench 5. The southern and western (F554) walls of the structure were formed by a rebuild of the Phase 1 Structure 3. The eastern (F537) and northern (F538) walls of Structure 4 were of drystone construction. Wall F537 incorporated a number of re-used limestone blocks, possibly derived from a rebuilding of the cathedral.

Within the interior of the building, deposits of clay-silt, mixed with mortar, tile and charcoal may be interpreted as floor horizons, which overlay the Phase 1 layer 5220. The Structure 4 floor horizons comprised a brown clay, mixed with mortar (5194), sealed by a layer of silt-clay (5056), overlain by a make-up deposit (5053). Layer 5056 was cut by a small hearth (F556), dug against the west elevation of wall F537. The hearth was backfilled with charcoal (5250), which also spread beyond the hollow of the feature, and contained pottery providing a *terminus* in the 14th-15th century.

A drystone wall (F558), recorded on a west-east alignment towards the eastern end of the trench had partially collapsed into the soft, underlying fills of ditch F578. This wall was cut by wall (F550), also aligned west-east, which formed an eastward continuation of the line of Structure 4 wall F538, and also defined the boundary between the two house-plots recorded at excavation. Wall F550 overlay the layer of crushed limestone debris (5212), described above. The lower build (5193) of wall F550 contained pottery providing a *terminus* in the 14th-15th-century.

Wall F536 (Plate 6), which formed the eastern boundary of the south plot, was aligned approximately north-south, and was cut by wall F550. It is possible that wall F536 was associated with wall F558, which was perpendicular, but no direct relationship could be observed because of later disturbance. The rebuild (F530) of wall F536 was bonded to wall F550. Walls F550 and F536 may have defined the northern and eastern limits respectively of an eastward extension to Structure 4, termed Structure 4a.

A sequence of possible floor deposits, recorded within the western corner of Structure 4a, sealed the Phase 2 pits and post-holes (F563, F573, F559). These deposits comprised clay-silts (5200, 5197, 5121), mixed with cress, overlain by a lens of charcoal (5177), and sealed by further layers of clay-silt (5119, 5120), sealed in turn by a brown silt-clay (5118), containing a

large quantity of charcoal. These floor deposits contained pottery which provided a *terminus* in the 13th-14th centuries.

The Phase 2 surfaces and structures were overlain by Phase 3-4 features and deposits.

#### **4.4: Phase 3; Late medieval/ early post-medieval activity (Figs 3-4, Plate 2)**

The features and deposits belonging to Phase 3 were cut into, or overlay the Phase 1-2 features and deposits.

This phase was initially characterised by infilling and abandonment of ditch F551, which was followed by the importation of a large quantity of soils to level-up the area. This earth build-up was in preparation for the construction of stone-footed structures along, and to the rear of, the street frontage.

One of the earliest events of this phase was the infilling and abandonment of ditch F551, which was partly infilled in Phase 2. The composition of the upper fills (5090, 5137), suggests that the remaining hollow of the feature was deliberately backfilled with a quantity of imported soils, when the boundary went out of use. The Phase 3 fills of ditch F551 contained a quantity of animal bone butchery waste.

In Phase 3 the western boundary of the monastic precinct continued to be defined by wall F515/6, constructed in Phase 2 or 3.

During this phase two small rubbish-pits were excavated in the area between ditch F551 and wall F515/6. Pit F541 was sub-circular in plan, and was backfilled with grey-green sand-clay (5113); deposits of parasite ova contained in the fill indicates that this feature was a latrine-pit. Pit F546 was sub-oval in shape, and was backfilled with grey-brown sand-silt-clay (5142). Both features contained pottery providing a *terminus* in the 15th-16th century.

After ditch F551 went out of use, a large circular stone-lined well (F529; Plate 4) was cut to the west of the ditch, clipping its extreme western edge. The well was investigated for a maximum depth of 1m, when excavation ceased for reasons of safety. The lower brown silt fill (5159A) of the well was sealed by disturbed layers of mortar and stone (5159B). The well was re-used in Phase 4.

The next event was the importation of a large quantity of soil, to artificially raise the ground-level of the area between the west wall of the monastery and extending towards the street frontage. This levelling-up deepened over the ditch, perhaps to counteract the effects of sinkage. These soils comprised dark brown silt clays (5024, 5048, 5200), which contained animal bone and fragments of roof tile. The pottery recovered from these layers provides a *terminus* in the early 16th-century for this event.

#### **North plot**

A number of stone-built structures were constructed in this phase, overlaying the soil build-up, horizons. The most complex of these structures lay in the northern plot, and defined a number of stone-footed buildings which probably continued in use into Phase 4.

The easternmost of these structures (Structure 2), overlying the soil build-up was recorded immediately to the west of infilled ditch F551. The southern wall (F512), and the southern ends of the western (F513) and eastern (F543) walls of this structure were defined within the trench. These walls were composed of angular limestone fragments set in soft yellow-orange mortar.

Structure 5 was located immediately to the west of Structure 2. The south wall (F535: Plate 3), and the southern ends of the western (F520), and eastern (F514) walls of this structure were recorded. The floor (F519) of this structure was formed of limestone flagstones. This structure overlay the earlier Phase 3 build-up of soils. Walls F520 and F535 of Structure 5 were truncated by the construction of walls F510 and F539, which may have defined the southern and eastern walls respectively of a western extension of the structure, termed Structure 5a, constructed in Phases 3 or 4. Wall F510 was constructed of coursed red bricks set in sandy mortar; wall F539 was limestone blocks, and included re-used architectural fragments.

A pit (F528), dug to the north of wall F539, and backfilled with lenses of stiff green clay, may have been associated with an industrial process.

After the partial demolition of wall F538, it was infilled with an irregular blocking drystone wall (F548: not illustrated), formed of limestone blocks, including re-used architectural fragments, which was built during Phases 3 or 4.

#### South plot

Phase 2 structure 4a may have continued in use into this phase. Its northern (F550) and eastern (F530) walls were partly demolished, in preparation for the construction of Structure 1 in late Phase 3, or early Phase 4.

Structure 1 was approximately square in plan. Its northern wall (F504) was formed by a rebuild of wall F550. The western (F503: Plate 7) and eastern (F505) walls, and part of the width of its southern wall (F506) were recorded. The walls were constructed of rectangular limestone blocks, set in a creamy white mortar. Wall F532 may have defined a sub-division between walls F504 and F530, within Structure 1. A pit (F544) dug within the interior of Structure 1 may be also be datable to Phases 3 or 4.

#### **4.5: Phase 4; Later post-medieval activity (Fig 3)**

The Phase 4 archaeological features and deposits may be dated from the 18th century to the present day. The features and deposits associated with this latest phase of activity comprise build-up horizons, and a sequence of stone and brick-built structures, constructed on the street frontage.

#### North plot

The Phase 3 Structure 5 may have been extended to the west in Phase 4 (Structure 5a). Only the southern half of this rebuild was recorded in the trench. Subsequently, a dividing wall (F527) was inserted to the north of wall F540. The western wall of this extension lay to the west of Trench 5.

## South plot

Structure 1 was also re-built in Phase 4. The walls (F502-6) of this rebuild were constructed of coursed brickwork, laid over the original Phase 3/4 build of the structure. The base of the structure was lined with plastic clay (5019), possibly to seal the underlying Phase 1/2 ditch fills (F579/F551). This clay was overlain by the floor of Structure 1, which was composed of three layers of mortared red bricks (5012). This feature was semi-subterranean, and may have been intended as a cellar. This interpretation is supported by the recovery of a large quantity of broken glass bottles from this feature. Wall F506 was extended westwards (as F545), and may have formed a contemporary property boundary.

To the rear of Structure 1 was constructed a stone-walled soakaway (Structure 6: F525, F533, F534). This structure incorporated a number of worked stone fragments, including a dog's gravestone, and fragments of masons' practice pieces.

## East zone of Trench 5

The excavation of Trench 1 (not illustrated, see Jones 1994b) identified a rubbish-pit (F100), and other features containing a large assemblage of pottery, providing a *terminus* in the late 17th-early 18th century.

A square, brick-lined feature (F571), recorded in the northern baulk of Trench 4/5 may have been an industrial feature of possible 19th-century date. A triangular brick-lined feature (F521/2), possibly intended for industrial use, was re-used as a rubbish-pit (F507) for the disposal of a very large quantity of pottery and glass, providing a *terminus* in the late 18th century for this dumping. This brick structure was later truncated by the construction of a massive concrete base (F517), which may be associated with a later use of the site.

Some of the more recent features and deposits associated with the latest use of the site as a shop unit were recorded only during the initial evaluation phase of the fieldwork; they were necessarily removed as a preliminary to the removal of the overburden in Trench 5.

## 4.6: Discussion

### Phase 0

The recovery of flint flakes from Phase 1-4 contexts suggests some level of prehistoric activity in the near vicinity of the site. However, too few artifacts were recovered to make inferences about the nature, or precise dating of the activity represented here.

### Phase 1

The earliest feature defined was probably the ditch (F579). Although this feature follows the position and orientation of the western monastic boundary, its extreme width could indicate that it also served as a main drainage channel for the town, or possibly as a fishpond. However, a ditch of similar form and dimensions was revealed during a watching brief at Long Causeway, to the south of the study area (I. Meadows, pers. comm.). The primary silts are undated; the first dating evidence derives from later fills which contain pottery which provides

a *terminus* in the 12th-13th century. This dating does not necessarily preclude a date in the late Saxon period for the original excavation of the ditch, contemporary with the original layout of the monastic precinct.

The relative paucity of finds from the ditch fills might indicate only limited activity in the vicinity in the early medieval period. Few contemporary features were found, and the stone-footed structure (Structure 3) may have been of a temporary nature, although this evidence of activity pre-dating the formal layout of Long Causeway in the 14th century is of particular importance.

The beetle species in the ditch lower fills indicate it was a shallow, slow-flowing watercourse, with areas of deeper, and shallower, cloudy water. The ditch was also used for the dumping of domestic and town waste.

## Phase 2

The Phase 1 ditch F579 continued to be used for the disposal of domestic and town waste, including shoemaking waste. Ditch F579 was replaced by a smaller ditch (F578), cut on the eastern edge of the former, which may indicate a pressure for space on the street frontage from the 14th century. The re-cut was in turn replaced by a ditch (F551) cut even further away from the street frontage. In Phases 2/3 the monastic boundary was also defined by a wall (F515-6).

To the west a stone-footed building (Structure 4) was constructed in the south of the excavated area. Its interior contained evidence of surviving floor surfaces, and a hearth (F556). This building was later extended to the east (Structure 4a), possibly after the ditched monastic boundary was re-cut to the east, and surviving floor levels within this building sealed earlier Phase 2 features, which included rubbish-pits and post-holes. In contrast, the area to the north of Structure 4a contained a number of wells, hearths and pits, but no structures. Two wells (F572 and F565) are recorded, both re-used as latrine pits. Two small ovens (F552, F570) were also recorded in this area.

## Phase 3

This phase is represented by the abandonment and deliberate backfilling of ditch F551, leaving wall F515-6 as the sole definition of the western boundary of the monastic precinct. The next event was the importation of soil to artificially raise the ground level, which may have been necessitated by drainage problems caused by the abandonment of the ditch. Alternatively, this soil build-up may have been part of a more general landscaping in the vicinity of the monastic precinct, resulting from the dissolution, a theory possibly supported by the dating evidence.

A third interpretation of the soil build-up is that it formed a preparation for re-construction of buildings on the street frontage. Phase 2 Structure 4/4a was rebuilt, and structures (2 and 5) were constructed in the north of the trench. One notable feature of the post-medieval structural sequence is the evidence for marked continuity in structural arrangements.

## Phase 4

Of particular interest are the large Phase 4 assemblages of pottery and vessel glass. The Phase 3/4 cellared building (Structure 1) may have been a wine cellar. Important closed assemblages of late 17th and early 18th century pottery were recovered from Phase 4 rubbish-pits (eg F100, Trench 1). The stone practice pieces incorporated into Structure 6 were probably associated with the occupation of the southern plot by stonemasons, also attested by documentary evidence.

## 5.0: ASSESSMENT

### 5.1: Quantification of data

**TABLE 1: Quantification of Paper Archive**

<i>Category</i>	<i>Eval 1994</i>	<i>Eval 1995 and Exc 1995</i>
Contexts	32	339
Features	5	88
Photographs:		
Monochrome	36	470
Colour slide	36	470
Colour print	-	144
Drawings (A1-A4)	5	118
General	1 file	1 file

**TABLE 2: Quantification of Finds Archive**

<i>Category</i>	<i>Eval 1994</i>	<i>Eval 1995 and Exc 1995</i>
Medieval pottery	6	1703
Post-medieval pottery	171	1214
Animal bone	100	1386
Tile	-	16
Brick	1	22
Fired clay	1	2
Stone	4	9
Stone tile	-	88
Mortar samples	-	13
Clay pipe	26	114
Iron objects	-	108
Copper alloy objects	-	19
Lead objects	-	6
Other metal objects	-	4
Glass	15	663
Flint	1	4
Shell	9	227
Charcoal	2	17
Wooden objects	-	39
Slag	4	223
Leather	-	124



## 5.2: Factual data and statement of potential

### 5.2.1: Stratigraphic/ structural data

#### Provenance/dating

The features and deposits recorded during the various investigations on site to date provide an extended chronological sequence spanning nine centuries, from the 11th century to the 19th century. The majority of the features and deposits contain datable pottery; some deposits also contain datable leather shoe fragments, glass and clay pipe fragments. It should be noted that the pottery has not been analysed in detail for the purposes of this assessment. However, it is noted in section 7.2.2 below that the majority of the pottery derives from closed primary groups.

#### Range/variety

A variety of archaeological features are represented at the Long Causeway site, and also within each phase. The quality and survival of the Phase 1-3 features and deposits in particular was extremely high, perhaps surprisingly high given the location of the site on a post-medieval street frontage, and the limited survival of medieval urban stratigraphy attested elsewhere in Peterborough. The range of features represented includes negative features (such as ditches, pits and post-holes), positive features (such as floor surfaces), and overall layers. The deposition of a deep build-up soil horizon in Phase 3 may have had the effect of sealing and preserving the underlying medieval stratigraphy in places. Of particular interest is the opportunity to examine adjacent street frontage and backplot areas, and to relate this to a sequence of structural activity, with the development of a complex and well-defined monastic precinct boundary.

Of particular importance is the evidence for early structural activity (Structure 3). The Phase 1 ditch (F579) contains a complex sequence of deposits.

The sequence of monastic ditch re-cuts is particularly well-defined. Of particular significance is the survival of well-stratified and complex floor deposits within the Phase 2 structures (Structures 4 and 4a). An unusual feature of the site is that many of the medieval deposits are waterlogged, and contain a rich variety of charred plant remains, pollen and insects. The remaining Phase 2 features, including wells, rubbish-pits and post-holes are also well preserved. Evidence of industrial activity is provided by the identification of the two ovens, or hearths, although these features could have functioned for domestic production.

The infilling of ditch F551 may reflect a more extensive remodelling of the monastic precinct after the dissolution. This remodelling may have included the rebuilding of structures adjoining the street frontage. The sequence of Phase 2-3 stone-footed structures is complex, and relatively well-preserved as a result of the repeated re-use of the partially demolished stone-footings of earlier buildings. The later post-medieval use of the southern plot as a stonemasons' yard is also of interest.

Although the medieval street frontage area could not be fully investigated, the excavation has provided the first opportunity to record a largely well-preserved and complex sequence

of medieval and post-medieval stratigraphy within Peterborough. It has also provided the first opportunity to examine the line of the western monastic boundary, which was previously only briefly recorded during a watching-brief (I. Meadows, pers. comm.).

It is important to emphasise that this project is the first major urban excavation to investigate a medieval/post-medieval street frontage within the historic urban core of Peterborough. Consequently, the potential of the results to add to our understanding of the development and growth of the urban morphology and economy is all the greater. The results of this excavation could be usefully compared to a subsequent excavation at The Still, which investigated a medieval backplot area (P. Spoerry, pers. comm.).

#### Other sources

The stratigraphic data may be usefully compared with the information provided by the finds and environmental data. The pottery, glass and clay pipes and leather finds provide evidence of dating. Analysis of the finds and environmental data provide evidence for the local environment, the standard of living of the inhabitants, and of industrial activity conducted on, or adjoining the site. A critical analysis of this combined database will help to pinpoint changes in the local economy, and in standard of living.

#### Documentation/data collection

The stratigraphic data was recorded on standard BUFAU pro-forma record cards. These are supported by drawn and photographic records, all held in the archive.

#### Statement of potential

Further analysis and definition of the stratigraphic sequence could contribute to the following research aims (Jones 1994b, Para. 5.2):

- (1) To provide evidence for Phase 1 early medieval activity (5.2 (1)), including details of the earliest monastic boundary, and the early medieval structures.
- (2) To elucidate evidence for plot divisions and to map the changes in these boundaries, from their initial layout (5.2 (2)).
- (3) To characterise the nature of activity in the individual house-plots (5.2 (3)).
- (4) To propose a model for the development of the urban zone, based on the structural sequence, the changes in layout, and the evidence for economy and the environment (5.2 (4)).
- (5) To comprehend the sequence and significance of the deposits and features associated with the western boundary of the monastic precinct (5.2 (6)).
- (6) To examine the evidence for change in site economy in the post-dissolution period (5.2 (8)).

In addition, the data has the potential to address the following general research aim, not defined previously:

The survival of a complex sequence of medieval and post-medieval stratigraphy suggests a potential for wider comparison of the results, at a regional level, with similar urban deposit sequences in East Anglia, such as Norwich.

## 5.2.2: Medieval and post-medieval pottery by Stephanie Ratkai

### Quantity

There were 3094 pottery sherds recovered from the excavation, and the preceding evaluations. The majority of these are medieval and medieval/early post-medieval in date. There were three large groups of post-medieval pottery from features F507 and F522 (Phase 4), which together contained 997 sherds.

### Provenance/ dating

The pottery was well stratified. Sherds were generally large and unabraded, not only from the negative features but also from layers. A brief inspection revealed that there seemed to be several vessels made up of cross joining sherds, that is, sherds from the same vessel came from more than one context. There also appeared to be a large number of contexts with little or no residual material.

Dating for some of the pottery, such as the calcareous wares, particularly the cooking pots, is broad (see McCarthy 1979 and Baker and Hassall 1979). Some of the shelly wares appear to be late Saxon or Saxo-Norman in date. Not surprisingly, this was the material most likely to be heavily abraded. Most of the pottery, over 70%, came from fairly local sources. Some of this pottery could be sourced eg Lyveden-Stanion ware and Stamford ware. There were examples of pottery from further afield eg Grimston Ware and Boarstall-Brill wares. Both of these are known from Bedford and the latter from Northampton. In addition to the above there was a selection of German stonewares eg Raeren, Siegburg, Cologne and Westerwald.

### Range/ variety

**TABLE 3: Pottery Fabrics Present**

Fabric 1	Medium to coarse shelly ware. Colour variable.
Fabric 2	Medium sand, fossil shell and ferruginous inclusions.
Fabric 2a	Fine to medium ooliths and sand.
Fabric 2b	Very fine sandy matrix, some small calcareous inclusions.
(All the above fabrics generally have oxidised surfaces and a reduced core).	
Fabric 2h	As Fabric 2 but hard fired and reduced.
Fabric 3a	Paste like fabric with sparse quartz grains and voids. Reduced.
Fabric 3b	Very fine sandy matrix, sparse quartz grains, sparse to moderate quartz grains. Reduced.
Fabric 4	Lyveden-Stanion ware.
Fabric 5	Abundant quartz, sparse to moderate ?haematite, sparse clay pellets, moderate calcareous inclusions. Oxidised.
Fabric 6	Grimston Ware.
Fabric 7	Medium orange sandy ware.
Fabric 7a	Paste-like orange matrix, sparse red quartz, sparse calcareous inclusions. Hard fired.

Fabric 8	Sparse to moderate small quartz grains, sparse ferruginous inclusions. Oxidised surfaces, grey core.
Fabric 8f	Very fine paste like matrix with minute sand grains, sparse calcareous inclusions. Oxidised surfaces, grey core.
Fabric 9	Abundant fine quartz, small sparse to moderate voids. Oxidised surfaces, multi coloured sandwich effect in core.
Fabric 10	Boarstall-Brill ware.
Fabric 10a	Buff sandy ware.
Fabric 10b	Fine sandy ware, sparse quartz grains, ferruginous inclusions and voids. Orange surfaces and light grey core.
Fabric 11	Fine sandy matrix, sparse elongated voids, sparse to moderate black slag like inclusions. Light grey or buff surfaces and core.
Fabric 12	?Stamford ware variant.
Fabric 13	Buff fabric with sparse pink quartz, sparse ferruginous inclusions and sparse voids.
Fabric 14	Sparse quartz and ferruginous inclusions. Mid grey with white outer surface and margin.
Fabric 14a	Sandy white ware.
Fabric 15	Sandy pink-orange ware, with abundant quartz, sparse ferruginous inclusions and very sparse sub-angular grainy white inclusions.
Fabric 16	Sandy matrix with sparse poorly sorted quartz grains and sparse calcareous inclusions. Dark grey or black surfaces, buff margins and dark grey core.

#### **Other fabrics present:**

Stamford Ware and Developed Stamford Ware.  
Tudor Green type ware.  
Raeren, Siegburg, Cologne and Westerwald Stonewares.  
Tin Glazed Earthenware.  
Midlands Yellow ware.  
Post-medieval Coarsewares.  
White salt glazed wares and Creamwares.  
Chinese porcelain.

The earliest pottery consisted of calcareous wares (clay containing fossil shell and limestone fragments). These fairly coarse wares are superseded by a variety of rather finer calcareous wares, some of which contain oolites or pottery whose clay contains a mixture of calcareous and quartz temper. During the 14th century these wares are replaced by sandy wares, such as orange sandy ware (Fabric 7). There is, however, a surviving calcareous fabric (Fabric 7a). This is hard fired, and red bodied with sparse calcareous inclusions. It often has a pale external slip. This is more apparent on glazed vessels where the slip is thicker and paler. The latter two fabrics form the bulk of the Phase 2-3 material.

In Phase 4 sandy orange wares with a tan or rich olive glaze and Blackwares predominate. These are primarily kitchen wares used for food preparation and storage, that is, bowls and jars and also utilitarian vessels, such as chamber pots. By the mid 18th century, table wares consisted mainly of White Salt Glazed wares, which in turn were superseded by Creamwares. The latter two wares represent mass produced 'industrial' wares, the former the products of the (fairly) local 'craft' potter.

Some of the pottery displayed interesting sooting patterns, wear marks and residues/deposits.

There were good closed groups from all periods. One very good group from the 16th century was found in Phase 2/3 ditch F551. It contained a good range of domestic and table wares, including the bottom section of a chafing dish. A pit (F100: Evaluation Trench 1) contained another good closed group of late 17th to early 18th century pottery. The Phase 4 pits were also interesting in that each fill was very similar to the others, containing a mixture of coarsewares, White Salt Glazed wares and early Creamwares. The coarsewares were all covered in a thick earthy, often ferruginous deposit, which in places had stuck several large sherds together. However, the remaining pottery from these groups was generally free of deposits, possibly because they were less porous than the coarsewares, making adhesion more difficult. It is also possible that the fills of these pits are derived from more than one source and that the coarsewares were connected with some industrial activity conducted elsewhere on the site, not otherwise recorded.

#### Other sources

The pottery dating may be usefully compared with the dating evidence provided by the leather and glass assemblages. The pottery, leather, other finds and environmental data will provide data concerning the standard of living of the inhabitants, which may be cross-compared.

#### Assessment methodology

The pottery was roughly sorted into broad fabric groups (Table 3) by eye.

#### Statement of potential

The pottery from the excavations has an enormous potential for further study. There are good closed groups with little residual pottery. There is a good sequence from the 12th-century onwards with evidence for earlier occupation, although the latter consists mainly of residual material.

Further analysis of the pottery assemblage could contribute to the following research aims (Jones 1994b, para. 5.2):

- (1) Provide dating evidence for the earliest exploitation of the area (5.2 (1)).
- (2) Provide a chronology for the development of the medieval use of the study area (5.2 (2)).
- (3) To compare and contrast the living conditions, way of life and relative prosperity of the inhabitants over several hundred years (5.2 (3)). Similar studies have been undertaken on post-medieval material with interesting results (eg Yentsch 1991). The ceramic evidence from the site can be further enhanced by incorporating other artifactual and environmental evidence, to produce a more complete picture of daily life.
- (4) To assist in the definition of functional changes within properties (5.2 (4)).
- (5) To consider the status of Peterborough within its Fen hinterland (5.2 (5)). There is a good possibility of sourcing some of the pottery which would help to throw light on

trading patterns, both direct and indirect, between Peterborough, its hinterland and the wider region. There is also a good body of evidence from other East Midlands sites, eg Northampton (McCarthy 1979), Bedford (Baker and Hassall 1979), Stamford (Kilmurry 1980, Mahany et al 1982), Ely (Ratkai 1994) and Lincoln which can be used as a framework into which evidence from Long Causeway could be slotted.

- (6) To contribute towards the definition of a chronology for the sequence of ditches forming the western boundary of the monastic precinct, from further analysis of the pottery (5.2 (6)).

In addition to the stated research aims, the following further research aims may be proposed:

- (1) To elucidate the evidence for industrial activity from analysis of the wear patterns, sooting and residues which may show the function of certain vessels. This is particularly important at this site, which may have industrial connections, since a normal 'domestic' cooking pot may have been used in an industrial capacity.
- (2) Definition of a ceramic assemblage for Peterborough. There is also the potential for comparanda between the Long Causeway site and the assemblage from the nearby site at The Still.

The good condition of the pottery and the large sherd size are helpful in several ways. It will enable a good form series to be drawn. However, the larger sherd size and more complete vessels, will also enable sooting and wear patterns to be studied in more detail. For example, the necessarily brief inspection of the pottery for this assessment has shown evidence for the use of a trivet and for one cooking pot being used within another over a fire. Although these may appear to be trivial details, it is this type of information which fleshes out the everyday life of ordinary people. Unusual or elaborate cooking methods can indirectly furnish details of houses, such as, was the cooking done on an open hearth, on a hearth with a chimney, or on a stove? More elaborate cooking methods, which can be shown by sooting patterns, or by specialised cooking vessels, tend to suggest higher status in the households using them.

It is proposed to limit further analysis of the pottery to the medieval material, that is pottery dating to pre-1600.

### 5.2.3: Animal bone by Stephanie Pinter-Bellows

#### Quantity, provenance and dating

Table 4 provides a count of the bones divided into jaws, loose teeth, and long-bone ends and other 'more useful bones', the number which could be measured are found in brackets, with a count of all other bones. The bones were divided into the four phases provisionally defined for the purposes of this assessment.

**Table 4 Quantification of Animal Bone**

Phases	1	1/2	2	3	4
<b>Cattle</b>					
Jaws	-	-	-	3	3
Loose teeth	1	-	-	5	1
L-b ends etc.	1(1M)	3(2M)	7(2M)	21(11M)	21(6M)
<b>Sheep</b>					
Jaws	-	-	-	-	-
Loose teeth	-	-	-	-	-
L-b ends etc.	-	-	5(5M)	28(26M)	17(15M)
<b>Sheep/goat</b>					
Jaws	-	1	3	11	6
Loose teeth	-	1	1	7	1
L-b ends etc.	1	3(2M)	4(2M)	20(8M)	30(11M)
<b>Pig</b>					
Jaws	-	-	1	1	-
Loose teeth	-	-	1	1	2
L-b ends etc.	1(1M)	3	2(2M)	12	10
<b>Horse</b> (not subdivided)	-	-	-	1	1
<b>Dog</b> (not subdivided)	-	-	-	11	1
<b>Cat</b> (not subdivided)	-	-	1	3	4
<b>Hare</b> (not subdivided)	-	-	-	-	3
<b>Chicken</b> (not subdivided)	1	-	2	8	6
<b>Goose</b> (not subdivided)	-	1	1	6	2
<b>Duck</b> (not subdivided)	-	-	-	-	2
<b>Unidentified Fish</b> (not subdivided)	2	2	9	6	1
<b>Total Informative</b>	7	14	37	144	111
<b>All Other Bones</b>	27	9	178	651	308

### Range/variety

The assessment shows that the assemblage contains the usual domesticates: sheep/goat (only sheep identified), cattle, pig and horse. Chicken and goose were also identified, plus duck and hare from Phase 4. The bones are in excellent condition. A small amount of burnt bone was found in Phases 2 to 4. From Phase 3, those bones found in ditch F551 (fills 5149 and 5154) were of a dark brown colour. Bones gnawed by dogs or swallowed were found in Phases 2 (layer 5192) and Phase 3 (layer 5054). Phase 4 (layer 5049) had some bones gnawed by rodents. Gnawing shows that at least some of the bones were left on the ground surface for some length of time. Signs of butchery or bone working were found in Phase 3 (layers 5077, 5090, 5145, 5154, 5160), and also in Phase 2 (layer 5163). One pathology was observed: a healed fracture on the rib of a dog (layer 5191).

### Other sources

The bone may be usefully compared with the other finds and the environmental evidence to provide data concerning standard of living.

### Assessment methodology

For the purposes of assessment, the bones were briefly scanned, divided by phase, and counted (Table 4).

### Statement of potential

At present, only Phase 3 has bones in numbers large enough to allow statistical inferences about species importance.

Further analysis of the animal bone assemblage will contribute to the following research aim (Jones 1994c, para 5.2):

To contribute towards an understanding of site economy (5.2 (3)).

5.2.4: Brick and tile by Lynne Bevan

### Quantity

A total of 23 fragments of brick and 16 fragments of tile were recovered.

### Range/variety

Only one fragment of medieval, green-glazed floor tile was identified (layer 5009), the remainder of the brick and tile is divided between roof tiles and decorated ceramic tiles of Edwardian and more recent origin. Interesting in the collection is part of a ceramic 'malting' brick with characteristic perforations (Phase 4, context 4006).



## Statement of potential

In view of the almost exclusive post-medieval date of this small collection no further work is recommended.

### 5.2.5: Stone by Lynne Bevan with Ron Ixer

#### Quantity

One hundred and one fragments of stone were recovered, of which 88 were fragments of roof tile in a micaceous siltstone.

#### Range/variety

Seventy-nine of these stone roof tile fragments came from context 5208, a possible demolition deposit. Of the remainder of the stone, 13 pieces in total, the majority were of oolitic limestone of various degrees of coarseness. Dressed building stone, for example building blocks and architectural fragments including carved window tracery (from wall F525), accounted for the majority of the collection. Of particular interest is a block carved with 'D' and 'G' (possibly 'dei gratia') and the date '1709'.

A quernstone (from Phase 3 floor F519), two fragmentary limestone mortars and three headstones were also found. The headstones were of a finer-grained oolitic limestone than that used for the building stone, quernstone and mortars. The first was a small rectangular block with a curved, slightly damaged, head enclosing a register of tooled decoration beneath which was the inscription 'Here lies poor Dutch' (from wall F534). It is possible that this stone may have been made to mark the grave of a pet dog. A cherub's face, with wings at either side, had been carved on the second headstone which survived as two conjoining fragments (from wall F506). The third headstone fragment (from wall F525) was an aborted version of the second, bearing the outline of a similar cherub's face on either side, and was abandoned after the stone had split below the face. The headstones came from a mason's workshop within the south part of the study area, functioning during the 17th-18th centuries. Evidence of such activity is also provided by the recovery of a chalk block (also from wall F525), of similar shape to the headstones, with surface traces of black and pink paint, which showed signs of being worked along one side, in the manner of a 'practice piece'.

#### Other sources

The evidence for stone working may be usefully studied in conjunction with information from documentary sources, which refer to the ownership of the property by stonemasons.

#### Assessment methodology

The worked stone fragments from all phases were briefly scanned.

### Statement of potential

Further analysis of the stone assemblage will contribute to the following research aims (Jones 1994c para 5.2):

- (1) To characterise the nature of industrial activity within the site (5.2 (3)).
- (2) To consider the evidence provided by the stone assemblage for the trading status of Peterborough as a Fen edge town (5.2 (5)).

In addition to the stated research aims, the following research aim may be proposed:  
To study the evidence for the re-use of stone from the monastic precinct.

#### 5.2.6: Metalwork by Lynne Bevan

##### Lead objects

###### Quantity/ range and variety

Six items of lead were recovered: a circular disc, three fragments of sheet and an unidentified lump.

###### Statement of potential

No further action is recommended on this small collection.

##### Copper alloy objects by Lynne Bevan

###### Quantity

A total of 19 items of copper alloy were recovered, three of which had retained their original colour.

###### Range/variety

The identifiable objects consisted of three pins and one pin head, a perforated disc, one hook, one thimble, five fragments of sheet, and one fragment of pierced sheet with three visible rivet holes. The riveted sheet (from context 5264), one of the pins (from context 5154) and the thimble (from context 5154,) have retained their original colour. The thimble has round indentations punched from the base to the top and a plain band around the base. It is very similar to an example from Colchester dated to the 16th-17th century (Crummy 1987, figure 32:1904, 28-29).

###### Statement of potential

No further work is proposed for this small collection.

## Iron Objects by Lynne Bevan

### Quantity

Iron objects were few in number and, due to a high incidence of corrosion and fragmentation, they were difficult to identify.

### Provenance/ dating

The identifiable iron finds from Phase 2 contexts include a chisel blade (from feature F551), building fittings (from context 5200), and fragments of iron strip (from context 5105, F551). Phase 3 contexts produced buckles (from contexts 5125 and 5176), a hook (from context 5166), and several fragments of iron strip (from contexts 5091 and 5058), some of which may be door furniture. Other iron fittings were found in Phase 4 contexts.

### Range and variety

Identifiable items include 69 nails, a two-pronged flesh hook or pot hook with a looped end for suspension, a horseshoe fragment, three buckles, a hook, a small chisel blade, fragments from a blade, three possible building fittings (one of which has a collar enclosing a central spike), and seven fragments of iron strip, some of which might have been door furniture.

### Other sources

The iron finds may be usefully studied in conjunction with the remainder of the finds.

### Statement of potential

No further work is proposed for this small collection.

## 5.2.7: Glass by Lynne Bevan

### Quantity

A total of 678 fragments of glass were recovered, of which 565 were from dark green coloured wine bottles, 65 were fragments from other vessels; 48 fragments of window glass were also recovered. The glass is generally well-preserved, with only a few examples appearing iridescent through weathering. The wine bottles are dark green in colour and other vessel fragments are mainly colourless with a few examples of very pale green glass. Window glass is generally pale blue-green in colour with an average thickness of 2mm.

**TABLE 5: Quantification of Glass**

<i>Context/Feature</i>	<i>Bottle rim/base/body</i>	<i>Other Vessel</i>	<i>Window</i>
1007	1/2/-	1	1
1008	-/-/2	-	-
1009	1/2/4	2	4
2009	-/-/-	1	-
4003	1/-/-	-	-
4005	1/-/-	-	-
5000	-/-/1	-	1
5003/F500	-/-/2	2	-
5005	-/-/2	-	-
5009	-/-/2	-	-
5011/F501	-/-/4	1	-
5012/F507	26/42/245	28	27
5028/F507	9/11/91	7	12
5049/F507	5/-/23	5	1
5050/F507	13/12/61	16	2
5098/F529	-/-/-	2	-
5123	-/-/1	-	-
5203/F573	-/-/1	-	-

#### Provenance/dating

None of the glass is medieval in date. The vast majority is of post-medieval (18th century) origin, with the exception of some obviously more recent pieces. In the absence of comprehensive literature on English glass, especially concerning wine bottle typology, the primary sources of reference used here are of American origin (Noel-Hume 1961 and 1969).

#### Range/variety

The greatest number of glass fragments came from fill layer 5012, within pit F507 (Phase 4), which also contained large quantities of late 18th-century pottery. Dark green glass fragments, 313 in total, represent the remains of at least 40 wine bottles. Bottles varied in base diameter from 60mm to 130mm, with the majority clustering between 90mm and 100mm. With the possible exception of six wide-based, squat, globular bottles dating to the earlier 18th century, the majority of bottles from this context emphasised the more practical cylindrical form which had become established by 1750 (Noel-Hume 1961), and a generally later 18th century date is proposed for this group, which accords well with the preliminary dating of the associated pottery. Some other vessels represented would appear broadly contemporary, for example rim and shoulder fragments from two clear glass pharmaceutical bottles which have a parallel dating to 1780 (Noel-Hume 1969, 73, fig 14). Fragments from wine glasses were also recovered, one of which has been dated to the late 18th-century. The bowl of this vessel is missing but the straight stem has been decorated with 'opaque white ribbon twist', a decorative technique originating during the 1750s in imitation of the Venetian 'latticino' technique in which the walls of vessels were decorated with opaque white threads to create a spiral and gauze design within the stem (Noel-Hume 1969, 191, fig XX11). This form of decoration was most popular between 1760 and 1775. This glass is probably an import, if not a good metropolitan copy.

Wine bottle fragments were also recovered from a number of other contexts, including an almost complete bottle from fill layer 5028 in feature F507. In contrast to the undatable fragments, this bottle has a close parallel in an example from Noel-Hume's typology, dated to 1733 (1969, 65). Other glass from this context included fragments of pharmaceutical bottles and the fragmentary base of a clear glass dish.

The body and base of a fairly squat wine bottle were recovered from layer 1009 (Trench 1). Closer examination revealed the initials 'J.W.' or 'S.W.', etched on to the body below the shoulder.

#### Other sources

The glass assemblage, in particular the material from feature F507, could be usefully compared with the pottery, to provide evidence of dating, and of standard of living.

#### Assessment methodology

The assemblage was briefly scanned and quantified.

#### Statement of potential

No further analysis is proposed for this collection. An edited version of this glass assessment report will be prepared for inclusion in the final report.

#### 5.2.8: Flint by Lynne Bevan

##### Quantity/range and variety

No datable material was present in this small collection of five pieces of worked flint, comprising a side scraper and four waste flakes. The raw material used was a light brown to grey flint, of small river pebble origin. A number of water-rolled unworked pebbles were also found on the site.

##### Statement of potential

While this collection attests to activity during the neolithic or Early Bronze Age somewhere in the vicinity, the flints are too few in number to warrant any further analysis.

### 5.2.9: Slag by Alex Jones

#### Quantity

**TABLE 6: Slag Quantified by Phase**

<i>Phase</i>	<i>Weight (gms.)</i>	<i>No. of frags.</i>
1 & 1/2	179	13
2	795	133
3	1300	61
4	2241	20

#### Provenance and dating

The majority of the slag derives from Phase 2 contexts. The largest slag assemblages of this phase derive from layers 5163 and 5176, and the backfills of features F556, F572, F576 and F577. These features comprise pits, wells, and post-holes. The nature of the backfills of these features, and the quantity and composition of these slag assemblages suggests that this material does not derive from ironworking *in-situ*. No ironworking features were defined at excavation. The largest assemblages of slag (27 and 44 fragments respectively), derived from post-holes F576 and F577, where the slag had been used as packing material. Few fragments of slag were recovered from Phase 1, and Phase 3-4 contexts, and the assemblages of slag generally amounted to no more than 5 fragments within each context or feature.

#### Range/ variety

A rapid scan of the material suggested that both tap slag and smelting slag was present. No fragments of hearth-bottom were recorded.

#### Assessment methodology

For the purposes of assessment the slag assemblage was briefly scanned and quantified.

#### Statement of potential

It is very unlikely that this material derives from ironworking *in-situ*. Although the incorporation of slag debris into the fills of disused features suggesting some ironworking activity in the near vicinity is of some interest, the assemblage is too small to merit further analysis or reporting.

### 5.2.10: Wooden objects by Lynne Bevan

#### Quantity

Seventeen pieces of worked wood were recovered from the site, six of which can be identified as being parts of stakes or pegs. Of the remaining 11 pieces, five are fragments of a bowl recovered from Phase 1 ditch F579 fill 5258.

### Provenance, range and variety

The largest fragment from fill 5258 shows the complete profile of the bowl, which has a rounded side and flat base. The outer surface of the bowl exhibits closely spaced, fine concentric ringmarks, and these are likely to be indicative of the lathe-turning process of manufacture rather than being decorative. The other fragments comprise a warped rim sherd and pieces of the base.

The precise function of the remainder of the worked wood is uncertain, although the flat, straight shape of the pieces might suggest they are fragments of fencing.

### Assessment methodology

The worked wood assemblage was briefly scanned for the purposes of assessment. Wood from Phase 4 contexts was not retained.

### Statement of potential

Further analysis of the wooden bowl is recommended. Although this conforms to the general description of many medieval/post-medieval bowls (eg. Morris 1993), the survival of a complete profile, and its general high standard of preservation render it worthy of full publication.

## 5.2.11: Leather objects by Quita Mould

### Quantity

The leather assemblage comprised 124 items.

### Provenance/dating

The leather was recovered from 13 individual contexts, the majority was derived from four main features (F560: Phase 1; F579: Phase 1/2; F551: Phase 3; F507: Phase 4). A basic description of the leather assemblage by phase and context is set down in the next subsection.

### Range and variety

The principal components of the leather assemblage are first summarised, and are later discussed below.

#### Phase 1

Two fragments likely to be torn from shoe uppers were found in rubbish pit F560; unfortunately they do not appear to have any significant diagnostic features.

## Phase 2

Two broad turnshoe soles and components of a one-piece turnshoe ankleboot were found in layer 5259. The shape of the soles and style of the upper with its decorated top band indicate an early medieval date, late 11th to early 12th-century, suggesting that the leather is residual. The heavy wear and repairs and the number of components recovered together suggest that the leather represents casual rubbish disposal.

The leather recovered from the Phase 1/2 ditch F579 comprised principally of shoemaking waste, which probably indicates the deliberate dumping of manufacturing debris. This waste leather was associated with a wide turnshoe sole suggesting an early medieval date for the group.

The primary fill (5154) of ditch F551 contained components of an ankleboot of turnshoe construction, fastening with laces, with a pair of matching quarters joined with a back seam, characteristic of the 15th century. The layer directly above (5149) contained two later Medieval turnshoe soles with pointed toes, and a fragment of welted shoe sole of post-medieval date.

## Phase 3

A large, broad turnshoe sole of early medieval date was found in fill 5183 of ditch F551.

## Phase 4

Pit F507 contained fragmentary components of shoes of welted construction, confirming the 18th-century date ascribed by the pottery.

The leather comprised principally of shoe components of turnshoe and welted constructions, with a small quantity of shoemaking waste and scrap fragments (with all edges torn and no diagnostic features).

**Table 7: Shoe Components**

<i>Item</i>	<i>Quantity</i>
Turnshoe construction	39
Welted construction	11
Waste leather:	
Primary	8
Secondary	57
Scrap	9
Total	124



## Other sources

Dating of the leather assemblage will provide additional information to complement the pottery dating. Any documentary references to leatherworking activity in the vicinity would be of interest.

## Assessment methodology

The assessment has been compiled following scanning the material at BUFAU.

## Statement of potential

Although the size of the leather assemblage is relatively small, it is nevertheless of considerable importance. It derives from the first significantly-sized, controlled excavation to be undertaken in Peterborough in recent years, and appears to be the first leather assemblage to be recovered from Peterborough in modern times. It derives from waterlogged deposits which are of great rarity in urban sites in Cambridgeshire. Indeed, a rapid scan of the literature suggests that, geographically, the small 10th century assemblage from Little Paxton, Cambridgeshire (Thornton in Addyman 1969, 91), the Roman assemblage from Godmanchester (Mould, in press) and the medieval assemblage from Oakham Castle, Rutland (Gathercole 1958, 17-38), seem to be its closest neighbours. The assemblage is, therefore, considered to be of both local and regional importance.

Further analysis of the leather assemblage will contribute to the following research aims (Jones 1994c para 5.2):

- (1) To contribute to the definition of a model of the development of the study area (5.2 (4)), by providing important dating evidence.
- (2) To provide evidence of industrial activity (5.2 (3)), in the form of the analysis of the leatherworking waste, which will contribute to the study of the economy of the Long Causeway site. The presence of hide edges and shoemaking waste from a Phase 1 fill (5258) of ditch F579, albeit in relatively small quantities, is indicative of shoemaking in the local vicinity, although the workshop debris may have been brought some distance for deliberate disposal in the ditch. The recovery of a turnshoe sole of early medieval type alongside the waste leather may provide an approximate date for the deposit. Any documentary references to shoemaking or cobbling in the medieval period would be of particular interest.

The manufacturing waste in context 5258 may represent the deliberate disposal of workshop debris, although the majority of the leather appears to represent the casual disposal of domestic rubbish.

The leather assemblage also has the potential to contribute to the study of the standard of living of the inhabitants. The decorative top band from the turnshoe ankleboot from layer 5259 shows that some ornament could be afforded by its early medieval owner. The leather assemblage is too small for wider inferences to be made. However, it was noticeable that the earlier turnshoe soles were heavily worn and repaired before being discarded, whilst the two turnshoe soles of later medieval type from layer 5149 in ditch F551 were neither heavily worn nor repaired.

(3) To provide an understanding of the sequence of ditches forming the western boundary of the monastic precinct (5.2 (6)).

#### 5.2.12: The clay pipes by Lynne Bevan

##### Quantity

The collection comprises one complete clay pipe and a total of 140 fragments of clay pipe, including 25 bowls.

##### Provenance/dating

The pipe morphology suggests a generally 18th-century date. The pipes derive from Phase 4 deposits.

##### Range/variety

While no maker's stamps have been identified, the pipe bowls, the majority of which are complete, include a number of datable forms, some exhibiting distinctive forms of decoration, notably from fill 5012 within feature F507.

##### Assessment methodology

The assemblage was briefly scanned and quantified for the purpose of this assessment.

##### Statement of potential

No further analysis of this relatively small assemblage will be undertaken.

5.2.13: Charred plant remains by Lisa Moffett

Quantity

Table 7 summarises the results of the assessment. It should be noted that not all waterlogged or dry samples taken have been processed for assessment.

**TABLE 7: The Charred Plant Remains**

Feature/Context	F574	F579	F579	L	L	F579	F579	F579	F579	F579	F579
L-Layer		5268	5268	5259	5271	5290	5266	5285	5286	5284	5283
<u>Cultivated plants</u>											
<i>Pisum sativum</i> L.								+			
<i>Linum usitatissimum</i> L. capsule frags.	+				-	+			-	+	
<i>Triticum dicoccum/turgidum/durum</i> rachises						+					
<i>Triticum aestivum</i> s.l. rachises						+			+		
<i>Triticum</i> sp. free-threshing rachises											+
<i>Triticum</i> sp. free-threshing rachises (ch)										+	
<i>Triticum</i> sp. grain (ch)				+		-				+	
<i>Secale cereale</i> L. rachises						-				-	+
<i>Secale cereale</i> L. grain (ch)								+			
<i>Hordeum vulgare</i> grain (ch)				+							
<u>Wild plants</u>											
? <i>Pteridium aquilinum</i> Gled. ex Scop.									+		
<i>Ranunculus</i> subgenus <i>Ranunculus</i>				+	+				+		-
<i>Ranunculus</i> subgenus <i>Batrachium</i> (DC.) A. Gray	-	+	+	+	+	+	+	+	+	+	+
<i>Papaver</i> cf. <i>dubium</i> L.											+
<i>Papaver</i> cf. <i>argemone</i> L.				+							+
<i>Urtica dioica</i> L.	+	-	+		+	-	+	+	+	+	+
<i>Myrica gale</i> L.				+	+						
<i>Corylus avellana</i> L.				+			+				+
<i>Chenopodium</i> sp.	+				+	+	+				
<i>Atriplex</i> sp.			+					+		+	
<i>Stellaria</i> cf. <i>media</i> (L.) Villars			+		+				+	+	
<i>Agrostemma githago</i> L. fragments			+		+	+		+	+		+
<i>Silene</i> sp.			+							+	
<i>Persicaria maculosa/lapathifolium</i>			+		+						
<i>Persicaria hydropiper</i> (L.) Spach					+	+		+	+		
<i>Polygonum aviculare</i> L.			+		+					+	+
<i>Rumex</i> sp.	+	+	+	+	+	+		+	+	+	
<i>Rumex</i> sp. (ch)						+					
BRASSICACEAE					+						
<i>Reseda luteola</i> L.					+	+					
<i>Lysimachia/Anagallis</i>				+							
<i>Rubus</i> sp.						+					
<i>Rosa</i> sp. thorns										+	
<i>Prunus/Crataegus</i> thorns (ch)						+					
<i>Hydrocotyle vulgaris</i> L.					+		+				
cf. <i>Scandix pecten-veneris</i> L.		+				+			+		
<i>Anthriscus caucalis</i> M. Bieb.			+								
<i>Oenanthe</i> cf. <i>fistulosa</i> L.											+
<i>Oenanthe aquatica</i> (L.) Poiret						+					
<i>Aethusa cynapium</i> L.											-
<i>Conium maculatum</i> L.			+	+							
APIACEAE						+					
<i>Solanum nigrum</i> L.		-									
<i>Solanum dulcamara</i> L.						+					
<i>Lamium</i> sp.		+						+			
<i>Lycopus europaeus</i> L.		+			+	+	+	+			+
<i>Galium</i> sp.				-							+
<i>Sambucus nigra</i> L.			+								+
<i>Carduus/Cirsium</i>			+		+	+					
<i>Centaurea</i>					<i>cyanus</i>						L.

Feature/Context	F574	F579	F579	L	L	F579	F579	F579	F579	F579	F579
L=Layer		5268	5268	5259	5271	5290	5266	5285	5286	5284	5283
<i>Sonchus asper</i> (L.) Hill								-	+	+	
<i>Anthemis cotula</i> L.	+	+		+	+		+				+
<i>Anthemis cotula</i> L. (sh)						+	-				
<i>Bidens</i> sp.	+				+	+		+	+		
<i>Potamogeton</i> sp.					+						
<i>Lemma</i> sp.						+					
<i>Juncus</i> sp.	+							-	-		+
<i>Eleocharis palustris/utiglumis</i>	+				+	+					+
<i>Cladium mariscus</i> (L.) Pohl	+			+	+	+		-			-
<i>Carex</i> sp.	+	+		+	+	+	+	-		+	+
<i>Cynosurus cristatus</i> L.				+							
<i>Glyceria</i> sp.								-			
<i>Phleum pratense</i> L.							+				
POACEAE	+					+	+	+	+	-	+
POACEAE culm nodes				+			+				
Mosses			+	+		+		-			

Sample number:	Wet samples							Dry samples				
	F551	F551	F563	F560	F572	F577	F541	F541	L	F563	F560	F565
L=Layer	5183	5234	5236	5216	5252	5261	5149	5152	5152	5236	5216	5224
<u>Cultivated plants</u>												
<i>Ficus carica</i> L.								+				
cf. <i>Beta vulgaris</i> L. fruit fragments												+
<i>Prunus</i> sp.								+				+
cf. <i>Lens culinaris</i> Medik. (ch)									+			
<i>Pisum sativum</i> L. (ch)								+				+
cf. <i>Pisum sativum</i> L. (ch)									+			
<i>Linum usitatissimum</i> L. capsule frags.			+			+						
<i>Linum usitatissimum</i> L. seeds				+								+
cf. <i>Foeniculum vulgare</i> Miller												+
<i>Triticum turgidum/durum</i> rachises (ch)									+			
<i>Triticum aestivum</i> s.l. rachises (ch)									+			+
<i>Triticum</i> sp. free-threshing rachises (ch)					+							
<i>Triticum</i> sp. grain (ch)					+	+	+	+	+			+
cf. <i>Triticum/Secale</i> bran fragments				+		+						+
<i>Secale cereale</i> L. rachises (ch)												+
<i>Secale cereale</i> L. grain (ch)									+			
<i>Secale/Hordeum</i> rachises			+									
<i>Hordeum vulgare</i> L. cf. 2-row rachises (ch)								+				
<i>Hordeum vulgare</i> L. rachises (ch)									+			
<i>Hordeum vulgare</i> L. hulled (ch)									+			+
<i>Avena</i> sp. grain (ch)									+			
cf. <i>Avena</i> sp. grain (ch)									+			
Cereal grain (ch)										+		+
Cereal coleoptiles (ch)									+			
<u>Wild plants</u>												
<i>Ranunculus</i> subgenus <i>Ranunculus</i>			+		+			+		+		+
<i>Ranunculus</i> subgenus <i>Batrachium</i> (DC.) A. Gray	+	+	+			+		+				
<i>Papaver</i> cf. <i>argemone</i> L.			+		+							
<i>Urtica dioica</i> L.	+	+				+		+				
<i>Corylus avellana</i> L.				+	+	+			+	+	+	+
<i>Chenopodium</i> sp.							+	+		+		+
<i>Atriplex</i> sp.				+								+
cf. <i>Atriplex</i> sp. (ch)												
<i>Scleranthus annuus</i> L.								+				
<i>Agrostemma githago</i> L. fragments		+	+	+		+						+
<i>Silene</i> ? <i>vulgaris</i> Garcke								+				
<i>Silene</i> cf. <i>dioica</i> (L.) Clairv.								+				
<i>Silene</i> sp.												+
<i>Persicaria maculosa/lapathifolium</i>								+		+		+
<i>Polygonum aviculare</i> L.						+						+
<i>Fallopia convolvulus</i> (L.) A. Love								+				
<i>Rumex acetosella</i> L.			+							+		+
<i>Rumex</i> sp.	+		+				+	+		+		+
<i>Rumex</i> sp. (ch)									+			
<i>Hypericum</i> sp.		+										
cf. <i>Rorippa</i> sp.	+											
<i>Brassica/Sinapis</i>						+	+	+		+	+	+
<i>Raphanus raphanistrum</i> L. pod fragments						+						
<i>Lysimachia/Anagallis</i>		+										
<i>Rubus</i> sp.										+		+
<i>Rosa</i> sp. thorns		+										
<i>Crataegus</i> cf. <i>monogyna</i> Jacq.												+
<i>Prunus/Crataegus</i> thorn												+
<i>Vicia</i> cf. <i>hirsuta</i> (L.) Gray												+
<i>Vicia/Lathyrus</i>									+			
<i>Melilotus/Medicago/Trifolium</i>									+			+
<i>Hydrocotyle vulgaris</i> L.			+									
cf. <i>Scandix pecten-veneris</i> L.		+										
<i>Conium maculatum</i> L.		+						+				
<i>Bupleurum rotundifolium</i> L.									+			
AMACBAE												
<i>Lithospermum arvense</i> L.									+			
<i>Stachys</i> sp.										+		
cf. <i>Lamium</i> sp.								+				

Sample number:	Wet samples						Dry samples					
	F551	F551	F563	F560	F572	F577	F541	F541	L	F563	F560	F565
L-Layer	5183	5234	5236	5216	5252	5261	5149	5152	5152	5236	5216	5224
<i>Galeopsis</i> cf. <i>segetum</i> Necher			+									
<i>Galeopsis</i> cf. <i>angustifolia</i> Ehrh. ex Hoffm.								+				
<i>Lycopus europaeus</i> L.		+	+			+		+				
LAMIACEAE												+
<i>Veronica hederifolia</i> L.									+			
<i>Galium</i> sp.			+						+			
<i>Sambucus nigra</i> L.						+		+	+	+		
<i>Valerianella locusta</i> (L.) Laterr.		+										
<i>Valerianella dentata</i> (L.) Pollich										+	+	
<i>Centaurea cyanus</i> L.						+						
<i>Lapsana communis</i> L.										+		
<i>Sonchus asper</i> (L.) Hill		+										
<i>Anthemis cotula</i> L.			+	+								
ASTERACEAE		+						+				+
<i>Lemna</i> sp.						+						
<i>Juncus</i> sp.			-	+								
<i>Eleocharis palustris/uniglumis</i>			+		+			+		+	+	
<i>Cladium mariscus</i> (L.) Pohl			+			+			+	+	+	
<i>Carax</i> sp(p).	+		+			+		+	+	+	+	+
cf. <i>Lolium temulentum</i> L.									+			
POACEAE		+							+			
POACEAE culm fragments/nodes		+						+			+	
Tree/shrub buds								+				
Mosses					+							
? burned daub with plant impressions									+			
? faecal concretions												
? bread												+

### Provenance/dating

Only two samples produced predominantly charred remains, regardless of whether they were wet or dry. These samples were from the Phase 2 hearth F552 and the Phase 2 stone-lined well F565. The other dry samples contained large amounts of organic material, indicating that these contexts had also been waterlogged. Much of the dry material was still identifiable, though some of the more delicate remains will not have been recognisable.

### Range/ variety

Remains of cultivated plants were present, though not in high concentrations. A small amount of charred rachis material of free-threshing wheats made it possible to determine that both bread wheat (*Triticum aestivum*) and rivet/macaroni wheat (*Triticum turgidum/durum*) were present. Other cereals included hulled barley and rye. It was not possible to tell if the few oat grains represented a crop or a weed. Charred peas (*Pisum sativum*) were present and a single charred seed of a possible lentil (cf. *Lens culinaris*). Fragments of flax capsule occurred in a number of samples with a few seeds. Fruit remains were represented by fig (*Ficus carica*) and a primitive type of plum resembling a bullace type or large sloe (*Prunus* sp.). A few fragments resembled the fruit tops of beet (cf. *Beta vulgaris*) but the identification is not secure.

The majority of seeds were from plants of wet ground and plants of disturbed ground. Many of the wet ground plants could have been growing in the ditch and other wet places near the site. The consistent presence of water-crowfoot (*Ranunculus* subgenus *Batrachium*) in the main ditch suggests standing water. Some of the wet ground plants, such as great fen sedge (*Cladium mariscus*), may have been brought to the site, perhaps for use as building material, for bedding or floor covering. Many of the disturbed ground plants could grow either as arable weeds, or in disturbed habitats around the site. A few plants such as hazel (*Corylus avellana*) and hawthorn (*Crataegus* cf. *monogyna*) may have grown in scrub areas or in hedgerows. One plant of interest, found so far only in a couple of samples from the main ditch, is bog myrtle (*Myrica gale*). This plant would have had to have been brought on to the site as it grows in bogs and wet moors. Bog myrtle was often used in the medieval period to flavour ale (Corran 1975).

Other than differences in the numbers of species, there was little clear distinction in character between the samples. Most of the samples, both wet and dry, produced some cultivated plants and all contained both disturbed ground plants and wet ground plants, though sedge (*Carex* sp.) and great fen sedge were the only wet ground plants in the two charred samples. It is possible that more detailed analysis of larger amounts of material would show some differences between the samples, but the assessment results suggest it is probable that the general character of the majority of samples may be broadly similar.

### Other sources

The information from analysis of the charred plant remains may be usefully compared to the pollen and beetle data.

## Assessment methodology

Because of limited resources only approximately 50% of the total of the general biological samples collected were processed by flotation. The samples processed were then sub-sampled for further analysis. The samples prioritised for analysis derived mainly from the fills of the re-cut ditch (F579, F578, F551), and from a selection of datable features from Phases 1-3.

Sub-samples of the waterlogged general biological samples were first processed by paraffin flotation for beetle remains (see Section 7.2.15 below). When the beetle remains had been assessed, the paraffin was washed out of the samples, and both the flots and the residues were available for assessment of the plant macro-remains. The beetle flots were small in volume and could be scanned in their entirety, but the organic fractions of the residues were too large and only about 15-20 ml. of the organic fraction from each residue could be scanned for the purposes of this assessment. These flots and residues were kept wet and were scanned while in ethanol. The results from flots and residues are combined in Table 7 above. One of the samples, from a stone-lined well (F565) contained only charred plant remains, and this sample is included with the dry samples, discussed below.

The samples for charred plant remains were processed by water flotation, collecting the flot on a 0.5mm sieve. In general only half of the sample was processed, for the purposes of this assessment. The bulk waterlogged samples were not processed. The flots were dried and scanned dry. These flots are identified in Table 7 as 'dry samples'. There were far too many samples for all the flots from dry samples to be included in this assessment. The fills of Phase 1 pit F560 and one Phase 2 pit F563 were selected for assessment, along with Phase 2 hearth (F552). One fill layer (5149) was also examined from Phase 3 ditch F551, from which there were also two waterlogged samples. A sub-sample of approximately 20 ml. of each flot selected for assessment was scanned. Charred items are indicated in the table.

The flots and residues were scanned under a binocular microscope at x10, and up to x25 magnification. The presence of items in the samples was noted, but no attempt was made at quantification and nothing was removed from the samples. Some identifications were made by comparison with modern reference specimens, but most were made at a glance from memory, without modern comparatives. It should be noted that this method is likely to increase the possibility of errors in identification and therefore the identifications should only be regarded as provisional.

## Statement of potential

It is important to analyse sufficient material to allow interpretation both in terms of the activities taking place on the site, and, in terms of the local environment. This is of particular interest here because there has been no previous archaeobotanical work from this period in Peterborough. The results should provide a useful comparison with the substantial body of work carried out by Murphy (1983, 1985, 1988) in Norwich.

The ditch fills and well fills, especially in ditch F579, are perhaps the most likely to show any changes in the local environment through time, although rubbish dumping may have occurred in all open features. Samples from fills near the top, the middle and the bottom of ditch F579 should be analysed. Samples from the bottom and the upper waterlogged fills of ditches F578 and F551 should also be analysed.



Further analysis of the charred plant remains could contribute to the following research aims (Jones 1994c para 5.2):

- (1) To provide information on the earliest exploitation of the area - in Phase 1 (5.2(1)).
- (2) To characterise the nature of activity within the individual house-plots (5.2.(3)), from analysis of the ecofactual data.
- (4) To provide data concerning the environment of the Long Causeway site, which will contribute to a model of the development of the study area (5.2 (4)).

In addition to the stated research aims, the following further research aim may be proposed: To contribute towards a database detailing the development of the medieval and post-medieval environment of medieval urban Peterborough.

#### 5.2.14: Pollen and parasite ova by James Greig

##### Quantity and provenance

Pollen is preserved in many of the samples (Tables 9-10), and shows that various kinds of rubbish and sewage had accumulated as secondary fills in wells, pits and ditches. These show something of life in the town. A walnut tree appears to have stood on the site. Human intestinal parasite remains were also recovered, and show the presence of sewage.

#### **TABLE 9: The Pollen Samples**

Note: all samples contained adequate pollen for assessment, except where stated otherwise.

<i>Feature/layer</i>	<i>Depth</i>	<i>Comment</i>
F579	0.0m	not counted
F579	0.4m	not counted
F579	0.8m	pollen
F579	1.0m	pollen
F579	1.2m	(base)-pollen
F563	0.96m	very little pollen
F560	1.0m	pollen
F572	1.11m	pollen
Layer 5254	1.13m	pollen
F577	-	very little pollen
F565	-	pollen

**TABLE 10: Plant List**

Names and order according to Stace (1994) and Bennett (1994).

Sample:	F551	F560	5220	F563	F560	5252	F577	F565	F565	F564
<i>Polypodium</i>	-	-	-	-	-	-	-	-	1	1
<i>Pteridium</i>	-	1	6	-	-	1	-	-	2	2
Filicales	-	-	-	-	-	-	-	-	-	1
<i>Pinus</i>	2	2	1	2	-	-	-	-	-	-
<i>Ranunculus-t.</i>	1	3	-	3	-	4	1	-	1	5
<i>Ulmus</i>	-	-	1	-	-	-	1	-	-	-
Caunabaccac	2	-	-	1	-	-	-	-	-	3
<i>Urtica</i>	-	-	-	-	-	-	1	-	-	-
<i>Juglans</i>	-	1	-	-	-	-	-	-	-	6
<i>Quercus</i>	4	3	7	4	-	3	5	-	1	6
<i>Betula</i>	1	-	-	-	-	-	-	-	-	-
<i>Alnus</i>	-	5	1	4	-	1	1	-	-	9
Coryloid	6	1	6	1	-	6	-	-	-	2
Chenopodiaceae	4	3	1	3	-	1	3	-	1	3
Caryophyllaceae	1	-	-	-	-	1	-	-	-	1
<i>Persicaria bistorta-t</i>	1	-	2	6	-	1	-	-	-	4
<i>Rumex</i>	-	2	-	-	-	-	-	-	-	-
<i>Salix</i>	-	-	-	-	-	-	-	-	-	4
Brassicaceae	5	5	2	17	-	9	1	-	4	3
<i>Crataegus-t</i>	-	-	-	1	-	-	-	-	-	-
<i>Potentilla-t</i>	-	1	-	-	-	-	-	-	-	-
Fabaceae	-	-	-	1	-	-	-	-	-	-
<i>Trifolium pratense-t</i>	1	1	-	-	-	-	-	-	-	2
<i>Lythrum salicaria-t</i>	-	-	-	-	-	1	-	-	-	-
<i>Hedera</i>	-	-	-	2	-	-	-	-	-	-
Apiaceae	-	-	-	-	-	2	-	-	-	-
<i>Convolvulus arvensis</i>	-	1	-	-	-	-	-	-	-	-
cf. <i>Menyanthes</i>	1	-	-	-	-	-	-	-	-	-
<i>Borago</i>	-	-	-	-	-	1	-	-	-	1
Lamiaceae	-	-	-	-	-	3	-	-	-	-
<i>Plantago lanceolata</i>	4	3	2	2	-	2	1	-	1	2
<i>Fraxinus</i>	-	-	1	-	-	-	-	-	-	6
<i>Rhinanthus-t</i>	-	-	1	-	-	-	-	-	-	-
Rubiaceae	-	1	-	-	-	1	-	-	-	-
<i>Sambucus nigra</i>	1	2	-	1	-	-	1	-	-	1
Dipsacaceae	-	1	-	-	-	-	-	-	-	-
<i>Cirsium-t</i>	1	1	-	-	-	2	-	-	-	-
<i>Centaurea cyanus</i>	1	10	4	4	-	5	1	-	-	1
<i>Centaurea nigra</i>	-	2	1	1	-	-	1	-	-	2
Lactuceae	12	10	12	23	-	15	3	-	11	8
<i>Artemisia</i>	3	1	-	-	-	-	-	-	-	1
<i>Solidago-t</i>	5	3	2	5	-	6	1	-	-	1
<i>Achillea-t</i>	4	17	6	12	-	-	-	-	-	2
Potamogetonaceae	-	-	1	-	-	-	-	-	-	-
Cyperaceae	10	24	4	7	-	8	2	-	3	4
Poaceae <40 am	35	37	43	28	-	20	20	-	5	35
Cerealia-t	32	43	10	38	++	7	10	-	2	18
<i>Secale-t</i>	-	2	3	2	-	1	2	-	-	1
non pollen										
diatoms	-	-	+	-	-	-	-	-	-	-
<i>Trichuris</i>	-	3	-	3	-	9	1	-	87	15
<i>Ascaris</i>	-	?1	-	-	-	1	-	-	7	5

### Range/variety

Most of the samples produced rather similar pollen spectra. They are discussed first under vegetation types.

#### Trees, shrubs, brushwood

Tree pollen was not abundant, consisting mainly of *Quercus* (oak), *Coryloid* (hazel, sweet gale) and *Alnus* (alder), which were present in most samples. A few other taxa such as *Ulmus* (elm), *Pinus* (pine), *Fraxinus* (ash), *Sambucus nigra* (elder) and *Salix* (willow) were present in a few samples. The tree and shrub pollen is probably from the background of pollen in the atmosphere, and has no especial significance to the site itself.

#### Crop plants and associated weeds

Cereal pollen was abundant in all the samples, some of which was identified as *Secale* (rye). Most of them also contained pollen of the characteristic traditional cornfield weed *Centaurea cyanus* (cornflower). Such pollen records from urban deposits are thought to arise from pollen trapped in plant materials that were deposited on the site. In this case, straw with weeds could be one likely source, animal dung from straw-fed stock another, and sewage a third. The likely presence of the latter is shown by the presence of parasite ova in some samples, especially from well F565 and pit F541. Such pollen spectra are well-known (Greig 1994)

Another crop plant with a fairly consistent presence is Cannabaceae (hemp or hops, but the former more likely) in three samples. *Cannabis sativa* (hemp) was grown for its fibre which provided cordage and canvas. Remains of hemp products, or more probably hemp processing waste are likely sources for hemp finds in towns. *Juglans* (walnut) pollen was present in ditch F579 and in feature F541, in quantity in the latter, so a walnut tree could have grown there.

#### Grasslands, hay

Although grass pollen was abundant it provides no clue as to which grasses and therefore habitat(s) are represented. Grassland herbs such as *Centaurea nigra* (knapweed) and *Trifolium pratense* (red clover) provide some sign that grassy material of a non-urban nature was present. This is likely to have been in the form of hay or its by-product, animal dung.

#### Wetland and aquatic vegetation

*Cyperaceae* (sedges) are a partial indicator of damp conditions, and the ditch provided a consistent record of these. Other indicators of damp conditions include *Persicaria bistorta*-type (bistorts etc), *Lythrum salicaria* (purple loosestrife), *Filipendula* (meadowsweet) and cf. *Menyanthes* (bogbean). Such plants may have grown in damp places near the ditch. Alternatively, some of them might have been brought in with hay from wet meadows. The only truly aquatic pollen record, indicating wet, as opposed to merely damp conditions, is a single pollen of *Potamogetonaceae* (pondweeds). Additionally, the lowest sample at 120 cm contained diatoms. Thus, there is some, but not much, evidence that the ditch was overgrown.

## Weeds, wayside and indeterminate plants

Many other pollen records are from herbaceous groups such as Lactuceae which cover many taxa, or from plants such as *Plantago lanceolata* (ribwort) which grow in a range of weedy and grassy habitats. Many taxa such as *Chenopodiaceae*, *Caryophyllaceae* and *Ranunculus-t* (buttercups) and *Achillea-t* (mayweeds etc.) were identified, including some common weeds.

## Features

Ditch F579 measured approximately 2m in depth. Although there were some records of wetland plants which may have come from a semi-natural vegetation along the ditch, the main impression is of rubbish, probably including both human and animal waste, having been dumped there. The macrofossils from a small sub-sample of material which was sieved confirmed this impression. The beetle evidence also suggests damp, dumped rubbish.

The wells and pits contained a similar assortment of pollen, with detailed differences. Pit F563 and well F572 contained large numbers of *Ascaris* and *Trichuris* parasite ova indicating a concentration of human faecal material. *Borago* (borage) pollen was also present, an edible plant which is commonly found in latrine fills (Greig 1994). This material has little to do with the original function of the well, and probably indicates its re-use as a latrine pit, and its backfilling with a range of rubbish, as is usually the case (Greig 1988). Well F565 contained even more parasite ova, although the pollen was not very well-preserved. Pit F541 also contained the usual signs of having been used as a latrine and rubbish pit; it also contained a large amount of *Juglans* (walnut) pollen. As walnuts are not themselves thought to retain pollen, this record may represent a walnut tree that grew on or close to the site. Occasional grains of walnut pollen have been found in such deposits, but this is a remarkable concentration.

## Other sources

Some samples such as those from well F565 and pit F541, contained useful amounts of pollen for further study, even though macrofossils were not preserved, so the pollen provides the sole environmental evidence. For other samples, the evidence provided by analysis for charred plant remains, pollen and beetles may be usefully cross-compared.

## Assessment methodology

Pollen preparation was done by disaggregating the material in 10% Sodium hydroxide and washing over the organic material, to separate it from stones and coarse sand. The slurry was sieved through a 70 micron mesh to remove coarser material. The remaining fine suspension was sieved on a 10 micron mesh. Mineral material was separated out by swirling the suspension on a 15 cm watchglass and pouring off the organic material. The material was sieved on a 10 micron mesh to remove clay, fine organic debris, etc. Acetolysis was done to remove cellulose and related material, and fine sieving was repeated. The remaining material was stained with safranin and mounted in glycerin jelly. Pollen, where present in reasonable quantities, was counted (ca. 100 grains) to form the basis of this assessment, and some other items such as diatoms and parasite ova were also noted.

Samples were collected for general biological analysis from a range of features, and from these small sub-samples for pollen analysis were collected from particular lumps which were cut apart to expose uncontaminated sediment. The material appeared heterogeneous. The ditched monastic boundary (F579, F578, F551) profile was sampled in 25x10x10 cm monolith boxes, and pollen sub-samples taken from these in the laboratory, initially at an interval of 10 cm. The main aim of the pollen analysis is to discover whether adequate pollen is preserved, and whether it can show some aspects of what the deposits contained, and how they were deposited.

#### Statement of potential

These results compare with those from Leicester, from where the contents of wells and pits contained very few macrofossils such as seeds or beetle remains, but the pollen floras provided at least some information about the nature of these fills (Greig 1995).

The results obtained so far show the potential for recovering useful information on the nature of the deposits and their contents, and, to some extent on the state of the surrounding environment of this zone within medieval Peterborough. Further work would probably add to the results so far obtained by completing the work on the present batch of samples, and also by analysing further samples, and doing some counts to determine the concentration of parasite ova, and therefore the relative amount of sewage.

Further analysis of the pollen and the parasite ova will contribute to the following research aims (Jones 1994c para 5.2)

- (1) To provide information on the earliest exploitation of the area - in Phase 1 (5.2 (1)).
- (2) To characterise the nature of activity within the individual house-plots (5.2 (3)), and analysis of the parasite ova will elucidate the nature of the infilling of the wells and pits, in particular.
- (3) To provide data concerning the environment of the Long Causeway site, which will contribute to a model of the development of the study area (5.2 (4)).
- (4) To provide data concerning the functions of Peterborough as a fen edge town (5.2 (5)).
- (5) To achieve an understanding of the ditches defining the western boundary of the monastic precinct (5.2 (6)).
- (6) To define changes in site environment (5.2 (9)).

In addition to the stated research aims, the following further research aim may be proposed:

To contribute towards a database detailing the broader development of the medieval and post-medieval environment of medieval urban Peterborough.

#### 5.2.15: The insect remains by David Smith

##### Quantity

Insect remains were present in the majority of the samples examined (Table 11).

**TABLE 11: Beetles**

<i>Sample No.</i>	<i>Context</i>	<i>Phase</i>	<i>Feature</i>	<i>Identification</i>	<i>Insects</i>
82	5183	3	F551	Upper ditch aligned north south	
88	5234	3	F551	Upper ditch aligned north south	X
96	5236	2	F563	Pit	X
100	5216	1	F560	Rubbish pit	Z
111	5252	2	F572	Stone lined well	Z
113	5254	2	F572	Stone lined well	Z
128	5261	2	F577	Post hole	X
129	5258	1/2	F579	Main ditch	X
131	5268	1/2	F579	Main ditch	
132	5268	1/2	F579	Main ditch	X
134	5259	2	F579?	Main ditch ?	X
137	5271	2	F579	Main ditch	X
145	5290	1/2	F579	Main ditch	X
149	5266	1/2	F579	Main ditch	X
152	5285	1/2	F579	Main ditch	X
155	5286	1/2	F579	Main ditch	Z
157	5284	1/2	F579	Main ditch	Z
160	5283	1/2	F579	Main ditch	X
	5226	2	F565	Stone lined well	
	5113	3	F541	Rubbish pit	
	5214	2	F565	Stone lined well	
	5225	2	F565	Stone lined well	

Z Few insects present

X Many insects present

In some samples considerable numbers of insects were encountered. The assessment shows that many samples contain insects which are derived from urban, possibly housing, deposits. These may have been in rubbish which had been dumped into the still, silty waters of the main ditch.

#### Provenance/dating

The majority of the samples which produced large faunas are from the two major ditches on site, that is both the lower ditch fills of the Phase 1/2 ditch F579, and the lower ditch fills of the Phase 2/3 ditch F551.

#### Range/variety

**TABLE 12: Details of the Insect Remains**

Sample numbers	32	88	96	100	111	113	128	129	134	137	145	149	152	155	157	160
<b>Carabidae</b>																
<i>Notiophilus? biguttatus</i> (F.)	*															
<i>Eliaphrus cupreus</i> Dufl.										*						
<i>Clivina fossor</i> (L.)														*		
<i>Trechus ?secalis</i> (Payk.)										*						
<i>Trechus</i> spp.											*					
<i>Bembidion</i> spp.	*	*				*						*		*		*
<i>Pterostichus ?vernalis</i> (Panz.)	*															
<i>Pterostichus madidus</i> (F.)			*													
<i>Calathus ?melanocephalus</i> (L.)		*														
<i>Dromius</i> spp.										*						
<b>Halipidae</b>																
<i>Halipus</i> spp.														*		
<b>Dytiscidae</b>																
<i>Hygrotus inaequalis</i> (F.)						*										
<i>H. decoratus</i> (Fyll.)		*														
<i>Colymbetes fuscus</i> (L.)		*								*			*			
<b>Hydraenidae</b>																
<i>Hydraena testacea</i> Curt.		*														
<i>Ochthebius minimus</i> (F.)	*	*			*	*					**					
<i>O.</i> spp.	***	***								**	**	**	**			
<i>Limnebius</i> spp.																
<i>Helophorus</i> spp.		*				*			*	**		**	*			
<b>Hydrophilidae</b>																
<i>Cercyon melanocephalus</i> (L.)									**		*					
<i>C. aquatic</i> spp.								*								
<i>C.</i> spp.	**	**						*	**			*	*		*	*
<i>Magasternum boletophagum</i> (Marsh.)		*							*							
<i>Cryptopleurum minutum</i> (F.)	*								*							
<i>Hydrobius fusipes</i> (L.)	*	*										*				
<i>Laccobius</i> spp.		*														
<i>Enochrus</i> spp.								*								
<b>Histeridae</b>																
Histeridae Gen. & spp indet.												*				
<i>Acritus</i> spp.												*				
<b>Orthoperidae</b>																
<i>Orthoperus</i> spp.										*		**		*		

	32	88	96	100	111	113	128	129	134	137	145	149	152	155	157	160
<b>Staphylinidae</b>																
<i>Megarhirus</i> spp.												*				*
<i>Omalius</i> spp.													*			
<i>Xylodromus concinnus</i> (Marsh.)													*			
<i>Iesteva</i> spp.												*		*		
<i>Trogophloeus bilineatus</i> (Steph.)		**	*						*	*			*			*
<i>T. fuliginosus</i> (Grav.)									*	*		*				
<i>T.</i> spp.	**	*					*	*	*	*		*				
<i>Oxytelus rugosus</i> (F.)	*	*														
<i>O. sculpturatus</i> Grav.			*					*					*			
<i>O. nitidulus</i> Grav.	*	*									*	*				
<i>O. tetracarinaus</i> (Block.)											*	*				
<i>O.</i> spp.	**		*						**	**	**	**	*			
<i>Platystethus arenarius</i> (Pouco.)									**	**	**	**	**	**		*
<i>P. ?cornutus</i> (Grav.)							*	*					*		*	
<i>Stenus</i> spp.		*						*	*			*		**		
<i>Paederus</i> spp.	*															
<i>Astemus</i> spp.						*										
<i>Lithocharis</i> spp.									*							
<i>Leptocinus</i> spp.													*			
<i>Xanthoimius</i> spp.			**				*	*					*		*	
<i>Neobisius</i> spp.			*						*	*			*			*
<i>Philonthus/Quedius</i> spp.				*				**								*
<i>Conosoma</i> spp.												*			*	
<i>Leucoparyphus silphoides</i> (L.)									*							
<b>Pselpalidae</b>			*													
Pselaphidae Gen. & spp indet.																
<b>Dryopidae</b>																
<i>Dryops</i> spp.		*														
<b>Heteroceridae</b>																
<i>Heterocerus</i> spp.										*						
<b>Dermestidae</b>																
<i>Anthrenus</i> spp.	*															
<b>Byrrhidae</b>																
<i>Byrrhus pilula</i> (L.)																
<b>Cucujidae</b>																
<i>Monotoma</i> spp.			*						*			*				
<b>Cryptophagidae</b>																
<i>Cyptophagus</i> spp.	*															



<i>Atomaria</i> spp.	**		*	*			*	*								*
	32	88	96	100	111	113	128	129	134	137	145	149	152	155	157	160
<b>Lathridiidae</b>																
<i>Enicmus mimtus</i> (Group)	*		*	*				**	**	*		*		*		*
<i>Corticaria/ corticarina</i> spp.	*		**					*	**			*				**
<b>Lyctidae</b>																
<i>Lyctus brunneus</i> (Steph.)	*															
<b>Anobiidae</b>																
<i>Anobium punctatum</i> (Geer)	*		***	*	*			*		**		*	*		*	
<b>Ptinidae</b>																
<i>Ptinus fur</i> (L.)	*	*	**		*											
<b>Scarabaeidae</b>																
<i>Oxyomus silvestris</i> (Scop.)	*															
<i>Aphodius</i> spp.		*					*			*		*	*	*		
<b>Bruchidae</b>																
<i>Bruchus</i> spp.									*							
<b>Chrysomelidae</b>																
<i>Donacia/ Plateumaris</i> spp.		*														
<i>Plateumaris sericea</i> (L.)		**														
<i>Prasocuris phellandri</i> (L.)		*														
<i>Phyllotreta</i> spp.	*								**	*						
<i>Chaetocnema concinna</i> (Marsh.)	*							*		*						
<i>C. spp.</i>															*	
<b>Cuculionidae</b>																
<i>Apion ?violaceum</i> Kirby	*															*
<i>A. stabidum</i> Germ.	*															
<i>A. spp.</i>												*				
<i>Sitona</i> spp.	**	*													*	
<i>Sitophilus granarius</i> (L.)	*															
<i>Ceutorhynchus ?erysini</i> (L.)	*											*				
<i>Rhinocus</i> spp.												*				
DIPTERA	**							*				*			**	*
TRICOPTERA		*														
Alder fly		*														

No. of individuals. \* 1 \*\* 2-5 \*\*\* 5-10

Many of the species of beetle present in ditches F579 and F551 are associated with slow flowing, cloudy and vegetated waters. In particular *Hydreana testacea*, *Ochthebius minimus*, *Hygrotus inaequalis* and *H. decoratus* are associated with these conditions. In addition, the presence of *Colymbetes fuscus* may suggest that ditch contained a depth of water with some open surface areas. Many of the Aquatic species of Hydrophilidae and the *Heteroterus* and *Dryops* species live in amongst mud and decaying vegetable matter on bank sides, as do some of the Carabidae ground beetles. Areas of rush or water reed along the banksides are suggested by the presence of the *Donacia* species which feed on these plants. Equally, *Plateumaris sericea* is particularly associated with the *Carex* or *Cladium* species of rush and *Prasocuris phellandri* feeds on waterside cow parsleys.

Other of the species present suggest the local environment that surrounded these ditches. The Carabidae 'ground beetles' might be able to indicate more of the nature of soil and ground conditions adjacent to the ditches if present in larger numbers. Species such as the Chrysomelid *Chaetocnema concinna*, and the *Apion* and *Sitona* weevils feed on weeds such as the crucifers and clovers which are distinctive of waste ground. However, it is possible that these species might have also been present in hay or used stable matter which could have been dumped into these ditches.

There are also many species which are indicative of domestic deposits. Many of these are part of a community of insects that Kenward (1990) has labelled the 'house fauna'. They appear to breed inside buildings and can be used, to some extent, to indicate internal environments and living conditions within settlements. Amongst these species are the non-aquatic Hydrophilidae and many of the Staphylinidae. These tend to be typical of squalid accumulations of plant matter and other waste deposits. Many species are associated with drier plant matter and organic matter, and are common around old, cold and damp domestic buildings and hay stores. Species particularly indicative of this situation are *Xylodromus concinnus*, the Cryptophagid and Lathriidid species present and the 'spider beetle' *Ptinus fur*. The 'woodworm' beetle *Anobium punctatum* and the 'powder post' beetle *Lyctus brunneus* both can cause considerable damage to structural timbers in urban situations. Many of these species are strongly dependant upon the presence of humans and tend to indicate long-lived settlement and structures.

Also present in some of these ditch faunas is the granary weevil *Sitophilus granarius*. This species breeds almost exclusively in spoiled grain. In this situation it may indicate that spoiled grain, or granary sweepings, have been dumped into this town ditch.

The insect faunas of these ditch deposits therefore appear to suggest that domestic and town waste matter were dumped into the open ditch.

The remainder of the waterlogged deposits examined in this assessment either produced few or no insect remains. Many of these were from the stone lined wells or the rubbish pits on site. Unfortunately, these are the deposits which are least likely to have been disturbed or mixed during their development and deposition. It is possible that the insect faunas from these archaeological features could have resulted from a single archaeological activity. As such, they can provide detailed information on the nature of pit fills and particular activities on site. Although in this assessment these samples produced small and relatively uninterpretable faunas, these contexts do warrant further palaeontomological investigation because of their obvious potential.

### Other sources

The results of beetle analysis could be usefully compared with the data from analysis of the pollen and charred plant remains.

### Assessment methodology

Two litres of material from each sample were paraffin floated using the method outlined in Kenward *et al.* (1980). The flots were then scanned under a microscope following the methods presented in Kenward *et al.* (1986).

The contexts examined are listed in Table 11. The insects present are tabulated in Table 12. The taxonomy in this table follows that of Lucht (1987). An estimate of the quantity of each species present is indicated.

### Statement of potential

At present few urban insect faunas from these periods, particularly from the later medieval and post medieval, have been examined, except for assemblages from medieval Norwich. No other insect analysis has been undertaken in East Anglia.

A further examination of a number of these ditch samples would allow a detailed reconstruction of the surrounding environment of the ditches and how this changed through time. Equally, information on the nature of the general urban and housing environments of Peterborough, and how this may have developed during the medieval period, should be recovered from an examination of the samples from these ditches.

Further analysis of the beetle assemblage would contribute towards the following research aims (Jones 1994c para 5.2)

- (1) To provide information on the earliest exploitation of the area - in Phase 1 (5.2 (1)).
- (2) To characterise the nature of activity within the individual house-plots (5.2 (3)).
- (3) To provide data concerning the environment of the Long Causeway site, which will contribute to a model of the development of the study area (5.2 (4)).
- (4) To provide data concerning the functions of Peterborough as a Fen edge town (5.2 (5)).
- (5) To achieve an understanding of the sequence of ditches defining the western boundary of the monastic precinct (5.2 (6)).
- (6) To define changes in the Long Causeway site environment (para. 5.2.(9)).

In addition to the stated research aims, the following further research aim may be proposed:

To extend and increase the range of the knowledge of the distribution and development of the urban insect fauna at a regional level. The assemblages of charred plant remains and pollen are similarly of regional importance.

## 5.2.16: The micromorphological samples by Charles French

### Quantity

Three series of samples were taken from three locations on the site for micromorphological analysis. In each case the deposits sampled were believed to be floor deposits within the interior of medieval structures.

### Assessment methodology

A total of 10 intact soil blocks were taken from four sections by members of the excavation team. After collection, they were air dried for two months, in preparation for impregnation with crystal resin (after Murphy 1986). Thin section slide preparation from the cured soil blocks (after Murphy 1986) and future analysis will follow using the conventions set out in Bullock *et. al.* (1986) and Fitzpatrick (1993).

### Statement of potential

One of the most important features of the site is that there are 100-200mm thicknesses of deposits apparently accumulating *in-situ* on house floors within the burgh plots. This is a rare occurrence anywhere, and certainly the first site with this type of preservation to be examined within Cambridgeshire, let alone in Peterborough. Only recently have similar deposits of 14th century date been unearthed at the site of Ely Forehill (M. Alexander, Cambridge Archaeology Unit, pers. comm.). Unfortunately, excavations carried out in the city centre of Peterborough in the 1970s and early 1980s by the Nene Valley Research Committee, especially at Bridge Street (O'Neill 1978), did not have micromorphological techniques available to them as a means of analysis.

Micromorphological studies of apparently similar 'dark earth' deposits by Macphail (1983), and Macphail and Courty (1985) in medieval and urban contexts of cities such as Exeter, London, Gloucester and Norwich have indicated their potential for micromorphological study. It enables a detailed compositional study to be made, as well as origins and modes of deposition and transformation to be deciphered. These types of information could add significantly to the micro-stratigraphic and archaeological interpretation of the site.

In addition, current research studies into occupation sequences in Near Eastern tell sites is currently being undertaken by Charles French and Dr W. Matthews *et. al.* 1995; Matthews and Postgate 1994). This is examining the identification of the use of space within structures, during use, and after abandonment in deeply-stratified tell sites using micromorphological and palaeobotanical techniques.

Obviously the within-structure floor deposits found at the Long Causeway site are not as extensive as either 'dark earth' or the stratified urban sequence of tell sites, but they provide an excellent opportunity to apply similar techniques in a medieval urban English context.

Further analysis of the micromorphological samples from the southern plot would contribute towards the following research aims (Jones 1994c para 5.2):

- (1) To characterise the nature of the activity within the southern house-plot (5.2 (3)).

(2) To propose a model of the development of the urban zone (5.2 (4)).

The full micromorphological analysis would hope to provide:

- (A) Detailed compositional analysis.
- (B) Inferences as to the mode of origin and deposition of deposits.
- (C) Any evidence of post-depositional transformation.
- (D) Possible inferences about the use of space and the life history of the site, to complement the existing stratigraphic information.

5.2.17: The primary documentary evidence by Don Mackreth

#### Range/variety

Three documents provide an official listing of the tenants of Long Causeway, and the surrounding area: the charter issued in 1214-1222 by Robert de Lindsey; a list of customary tenants dated 1561, and the documents associated with the Enclosure Award, dated 1811-1821. Information is also provided by leases, freehold title deeds, copyhold documents, and rentals. The Enclosure Award provides the only certain information concerning the legal status of properties in Peterborough, and also names a number of the tenants. In the medieval period the majority of property in the town was copyhold (67.2%), with little leasehold property (3.5%), and the remainder being freehold.

Other documents which could provide information concerning land ownership include rent rolls, jury verdicts, registrations, orders and complaints.

Another useful source of information is the Peterborough District Land Registry. One of the freeholders in the southern plot was Edward Bingham, who died in 1796. He is listed in Gunnis' Dictionary of British Sculptors, and his tenant may have been one Robert Reed. It is possible that both may have had their workshops in the excavated south plot on the grounds that the premises may have been suitable for their work, possibly including block and tackle suitable for lifting heavy loads. Bingham was probably working by 1750, and his last work is dated 1795.

#### Other sources

The information provided by primary documentary sources may usefully be compared with the excavated sequence. Cartographic sources are particularly informative concerning the 19th century history of the study area and its environs. Secondary historical and archaeological sources may also be usefully compared.

#### Assessment methodology

The available primary documentary sources in the Northamptonshire Record Office were briefly scanned. Some, very limited records have been located in the Peterborough Cathedral Library.

## Statement of potential

Examination of the Enclosure Award of 1821 indicates that the area excavated was represented by two properties (numbered 68, 69), which were both freehold. The surrounding properties were copyhold. Accordingly, it might be possible to trace the owners of the site through reference to the deeds of the surrounding properties, which often name the adjoining freeholders. Furthermore, the practice of naming three preceding tenants in 18th century registrations can permit the tracing of an unbroken line of ownership despite gaps in the sequence of records. However, it should be noted that in practice before 1862 it was only necessary to prove a title dating back 15 years, and this fact may limit the potential for tracing the past owners of the study area.

It is unlikely that property ownership records could be traced prior to 1561, although it is possible that the study area could be identified from the list of customary tenants, dated 1561, if all property owners could be traced back to that time. For the medieval period, the main source of information would be the manorial records and rent rolls, documents which have a poor survival rate. It is probable that there were no established tenements on the east side of Long Causeway (then called 'Chapel Row') before approximately AD 1300. Information concerning the trade or profession practised by the medieval or post-medieval occupiers may not be forthcoming.

Because of the need to prioritise limited resources it has been decided to limit further work on the post-medieval period. Since the bulk of the documentary evidence is likely to relate to the post-medieval period, it has been decided not to undertake any further documentary analysis. A more detailed summary of the information provided by the detailed assessment, not reproduced in full here, will be included in the final report.

### **7.3: Storage and curation**

The majority of the finds, including the bone, are stable and do not require conservation. The leather finds, and the wooden bowl, all presently stored at BUFAU would require conservation.

## **6.0: UPDATED PROJECT DESIGN**

### **6.1: General**

The excavated sequence provides an important opportunity for contributing to the understanding of medieval urbanism in Peterborough, and elsewhere in East Anglia. The assessment report has highlighted the exceptionally high quality of the stratigraphic, finds and environmental data, particularly for the medieval period. The value of this information is heightened by the comparative dearth of data for medieval Peterborough (see Welch 1994), and the limited undeveloped areas adjoining medieval street frontages which may be available for future archaeological investigation. The Long Causeway data may be usefully compared with the artifactual and structural data provided by another recent excavation at The Still. More widely, the Long Causeway data may be compared with data from excavation at other East Anglian towns, such as Ely (e.g. Jones 1994d), and Norwich (e.g. Ayers 1987, Atkin *et al.* 1985).

The Phase 1 data provides important information concerning land utilisation before the formal layout of Long Causeway. The survival of well-stratified deposits, including evidence for structures, associated with surviving floor deposits will allow the reconstruction of a detailed constructional sequence, dating from the 14th to the 19th centuries. The extensive waterlogging of medieval and post-medieval features allows for the recovery of a greater range of data concerning changes in the standard of living, and in the on-site economy, and will allow for the wider comparison of this data with information provided by excavations in Norwich (e.g. Murphy 1983 and 1985).

Finally, the proximity of the street frontage area to the the western ditched monastic boundary provides an important opportunity to study the relationship between the development and expansion of the secular activity on the street frontage, and the decline and contraction of the precinct boundary, prior to the post-dissolution re-landscaping of the former monastery. It may be possible to discern differences in the composition of the artifact assemblages between the rubbish pits associated with secular activity, and those associated with the religious establishment. Such difference may also be apparent from further analysis of the charred plant remains, pollen and insect assemblages.

### **6.2: Aims**

(1) The primary objectives are twofold:

- (a) To establish the sequence of activity on the site, from the Saxon to the post-medieval period.
- (b) To investigate the site economy.

(2) The detailed research priorities are as follows:

- (a) To provide an understanding of the earliest medieval use of the area, prior to the layout of individual house-plots.
- (b) To recover evidence of plot divisions and to identify and plan the historic changes in these boundaries, from their initial layout, using archaeological and cartographic sources.
- (c) To define the sequence of deposits associated with the re-cut monastic boundary ditch, and the evidence for post-dissolution landscaping.

(e) To propose a model of changes in site use and economy, based upon analysis of the stratigraphic sequence, the finds and environmental evidence.

(f) To consider the contribution of the site towards an understanding of the development of medieval urbanism in Peterborough and, more widely, within East Anglia.

## **7.0: PUBLICATION SYNOPSIS**

It is proposed to publish the report as a monograph in the East Anglian Archaeology series. This section was compiled following the 'Notes for the Guidance of Contributors to East Anglian Archaeology monograph and Occasional Paper Series', dated July 1995. The lengths of individual contributions are given in pages (= 1,200 words).

The provisional title is:

***'25-26 LONG CAUSEWAY, PETERBOROUGH, CAMBRIDGESHIRE:  
ARCHAEOLOGICAL INVESTIGATIONS 1994-5'***

by Alex Jones

illustrations by Richard Cuttler

with contributions by Lynne Bevan, Charles French, James Greig, Rob Ixer, Donald Mackreth, Quita Mould, Stephanie Pinter Bellows, Stephanie Ratkai and David Smith

### **TEXT**

Title page 1 page

Contents page 1 page

List of plates 1 page

List of Figures 0.5 page

List of Tables 0.5 page

List of contributors 0.5 page

Acknowledgements 0.5 page

Summary by Alex Jones

Scope of work and main results.

1 page

The site by Alex Jones

Aims and methodology. The site in its urban context.

2 pages, 1 figure, 2 maps.

Excavation methods by Alex Jones

1 page



Phasing summary by Alex Jones

0.5 page

Excavated features by Alex Jones

Phased sequence.

8 pages, 2 tables, 8 figures, 10 plates.

### **Finds**

Glass by Lynne Bevan

1 page, 1 figure.

Medieval pottery by Stephanie Ratkai

8 pages, 2 tables, 2 figures.

Stone by Lynne Bevan

0.5 page, 1 figure

Wooden objects by Lynne Bevan

0.25 page, 0.5 figure.

Leather objects by Quita Mould

3 pages, 1 figure.

### **Soil studies**

The micromopological samples by Charles French

1.5 pages, 1 table.

### **Zoological and botanical evidence**

Animal bone by Stephanie Pinter-Bellows

1 page, 1 table, 0 figures.

Insect remains by David Smith

6 pages, 2 tables.

Parasite ova by James Greig

0.5 page, 1 tables.

Charred plant remains by Angela Monckton

4 pages, 2 tables.

Pollen by James Greig

5.5 pages, 2 tables

Documentary evidence by Donald Mackreth

2 pages, 2 maps

### **Discussion**

Integrated summary of the environmental evidence by David Smith and James Greig.

2 pages

The site in its setting by Alex Jones.

5 pages, 1 table.

Conclusions by Alex Jones

The contribution of the results to an understanding of medieval and post-medieval Peterborough.

1 page

Bibliography

3 pages

Index

2 pages

### **ILLUSTRATIONS**

- 1 Location
- 2 Phase 1 plan
- 3 Main running section and perimeter sections
- 4 Phase 2 plan
- 5 Phase 2 wall elevations
- 6 Phase 1/2 sections (part page)
- 7 Phase 3 plan
- 8 Phase 4 plan
- 9 Phase 3/4 sections
- 10 Glass (13 items, part page)
- 11 Pottery
- 12 Pottery
- 13 Stone (7 items, part page)
- 14 Wooden object (3 fragments, part page)
- 15 Leather objects (5 fragments, part page)

Total 64 pages, 15 figures, 10 plates, 14 tables, 4 maps.

## **8.0: METHOD STATEMENTS**

The task numbers given in parentheses in the following methods statements refer to Tables 13 and 14 below.

### **(1) Stratigraphic analysis.**

The site records will be analysed to refine and revise the sequence of activity of the site. Particular attention will be paid to the data concerning early medieval activity on the site, and the deposits, such as floors, associated with the recorded structures. Preparation of notes for specialists, and revised matrix.

### **(2) Documentary research.**

A summary of the information provided by the documentary assessment would be prepared for inclusion in the publication text, in consultation with Donald Mackreth.

### **(3) Medieval pottery**

The key groups of medieval pottery will be examined in detail, to be recorded on BUFAU pro-forma pottery record sheets, and entered onto a database. Vessels chosen for illustration will define the range of forms present.

### **(4) Animal bone**

A report will be prepared describing the significance of the main faunal assemblages.

### **(5) Stone**

The worked stone assemblage will be catalogued and described, with particular reference to the evidence for stoneworking.

### **(6) Glass**

The main forms will be catalogued, and published parallels will be noted.

### **(7) Wooden objects**

The bowl will be described, along with published parallels.

### **(8) Leather objects**

The leather from contexts 5154, 5183, 5216, 5258, 5259, and 5264 will be catalogued, including matching of pieces from individual shoes, identifying the shoe styles, and leather species used, and refining the dating. A discussion will be provided on the shoe styles identified.

### **(9) Charred plant remains**

The ditch fills and well fills, especially the main ditch, are perhaps the most likely to show any changes in local environment through time, though rubbish dumping may have occurred in all open features. Samples from contexts near the top, the middle and the bottom of the main ditch (F579) will be analysed. Samples from the bottom and the upper waterlogged fills of ditches F578 and F551 should also be analysed, with a contingency for analysis of further samples, if significant changes were detected. A similar strategy should be used for the well fills, analysing samples from upper and lower waterlogged layers. Waterlogged layers from a selection of dated rubbish pits may also be treated by the same strategy.

The exact contexts should be chosen in consultation with the Project Director and the other environmental specialists, so that the environmental information can be integrated as much as possible. It is unlikely that it will be necessary to analyse all the samples in detail. Some samples can be scanned in sufficient detail to confirm that the character of the assemblage is similar to other samples already analysed in detail from similar contexts. It is not possible to be precise about how many samples should be analysed in detail and how many scanned, since this will have to be decided as the analysis progresses. It is estimated, however, that approximately 5-7 samples would need to be analysed in detail and that it may be possible to scan the rest, which would amount to approximately another 10-15 samples scanned.

Since it has not been possible to assess all of the dry samples, the potential of these remains unknown, although the majority are clearly derived from waterlogged contexts and will be covered by the strategy outlined above. Only the samples containing solely charred material are likely to differ significantly from the other samples, and these should be assessed. There are 22 samples which appear to have only charred plant material. Assuming, on the basis of past experience that approximately 10% of the charred samples will need further analysis this would mean that only 2-3 samples would need analysis.

Programme: Lisa Moffett and Angela Monckton

Analyse and scan waterlogged samples 18d (A Monckton)

Assess charred samples 4d (A Monckton)

Analyse charred samples 4d (A Monckton)

Report preparation 8d (A Monckton)

Supervision/editing 3d (L Moffett)

The results of the analysis will be described in two parts (1) a description of the charred plant remains, and (2) a contribution towards an integrated discussion of the results of environmental sampling.

### **(10) Pollen and parasite ova**

Further work would involve completing the analysis of the present batch of samples, analyse some more samples, and carryout counts to determine the concentration of parasite ova and therefore the relative amount of sewage present.

Programme: James Greig

Full counts on 8 samples already partly counted 2.5d

Count 2 samples prepared, but not counted 1d

Prepare and count 5 more samples 4d

Estimate concentrations/cc of parasite ova in 6 samples 1d

Write report 5d

The results of the analysis of pollen and parasite ova will be described in two parts (1) a description of the pollen and parasite ova, and (2) a contribution towards an integrated discussion of the results of environmental sampling.

### **(11) Insects**

The 16 samples processed warrant further investigation, to be undertaken in two parts:

(a) 10lt. of sample from all 16 contexts should be paraffin floated and the insect remains sorted. The resulting enlarged faunas will then be scanned following the scheme outlined by Kenward *et al.* 1983. This will allow the nature and value and interpretation potential of the individual faunas to be assessed. In addition, contexts that produce similar faunas and therefore repetitive or low level interpretation can be identified and excluded from the next stage of analysis.

(b) The insect faunas from a number of contexts identified at Stage (a) above as being particularly representative, or of interest, will be fully identified and quantified. It is estimated that this could be 6 faunas.

Programme: David Smith and Assistant

Sample preparation 5.5d (Assistant)

Sorting 10d (Assistant)

Scanning 2d (D Smith)

Full identification 6 faunas 10d (D Smith)

Report 3d (D Smith)

The results of analysis will be described in two parts (1) a description of the insect remains, and (2) a contribution towards an integrated discussion of the results of environmental sampling.

### **(12) Micromorphological samples**

Thin section preparation from the cured soil blocks (after Murphy 1986) and future analysis will use the conventions as set out in Bullock *et al.* (1986) and Fitzpatrick (1993).

Programme: Charles French

Thin section manufacture (3 samples, at £50/sample)

Analysis and report £240

The results of the analysis of the micromorphological samples will be described in two parts (1) a description of the micromorphological samples, and (2) a contribution towards a discussion of data concerning the medieval structures.

**PROPOSED MONITORING POINT 1: 17/6/96: Completion of specialists reports.**

- (13) Library research.**
- (14) Preparation of drawing roughs.**
- (15) Preparations of site and finds illustrations.**
- (16) Preparation of first draft of introduction and narrative text.**
- (17) Editing of specialists reports/corrections.**
- (18) Preparation of first draft of discussion.**
- (19) Editing of first draft (BUFAU).**
- (20) Corrections to first draft.**
- (21) Corrections to illustrations.**

**PROPOSED MONITORING POINT 2: Completion of first draft text 16/9/1996.**

- (22) Submission of text for external refereeing.**
- (23) Preparation of research and finds archive.**
- (24) Final corrections to text .**
- (25) Final corrections to illustrations.**
- (26) Deposition of archive.**

## **9.0: POST-EXCAVATION PROGRAMME**

The programme is timetabled to be undertaken in two stages (See Table 14). The first stage (tasks (1) to (12)) assumes a start date of 25 March 1996. The second stage (tasks (13) to (26)) is timetabled for the completion of all stages up to and including stage 21 by 16/12/1996.

**TABLE 13: Post-Excavation Programme**

No	Task	Inits	No. of days.
1	Stratigraphic analysis	AEJ	4
2	Documentary research	AEJ	1
3	Medieval pottery	SR	37
4	Animal bone	SPB	2
5	Stone	LB	2
6	Glass	LB	1
7	Wooden objects	LB	1
8	Leather objects	QM	5
9	Charred plant remains	AM/LM	34/3
10	Pollen and parasite ova	JG	13.5
11	Insect remains	DS/Asst	15/15.5
12	Micromorphological samples	CF	-
PROPOSED MONITORING POINT 1- COMPLETION OF SPECIALISTS REPORTS			
13	Library research	AEJ	3
14	Preparation of drawing roughs	AEJ	3
15	Preparation site/finds illustrations	RC	20
16	Draft introduction/ narrative text	AEJ	7.5
17	Edit specialists reports	AEJ	2
18	Draft discussion	AEJ	2
19	Edit text	PL	2
20	Corrections to first draft	AEJ	1
21	Corrections to illustrations/ mounting	RC	4
PROPOSED MONITORING POINT 2- COMPLETION OF FIRST DRAFT			
22	Submission for referring	AEJ	0.5
23	Preparation of archive	AEJ	1
24	Final corrections to text	AEJ	1
25	Final corrections to drawings	RC	1
26	Deposition of archive	AEJ	1

**KEY TO PERSONNEL**

AEJ=Alex Jones, PL=Peter Leach, RC=Richard Cuttler, SR= Stephanie Ratkai, SPB=Stephanie Pinter Bellows, QM=Quita Mould, LB=Lynne Bevan, LM=Lisa Moffett, DS=David Smith, JG=James Greig, CF=Charles French, AM=Angela Monckton

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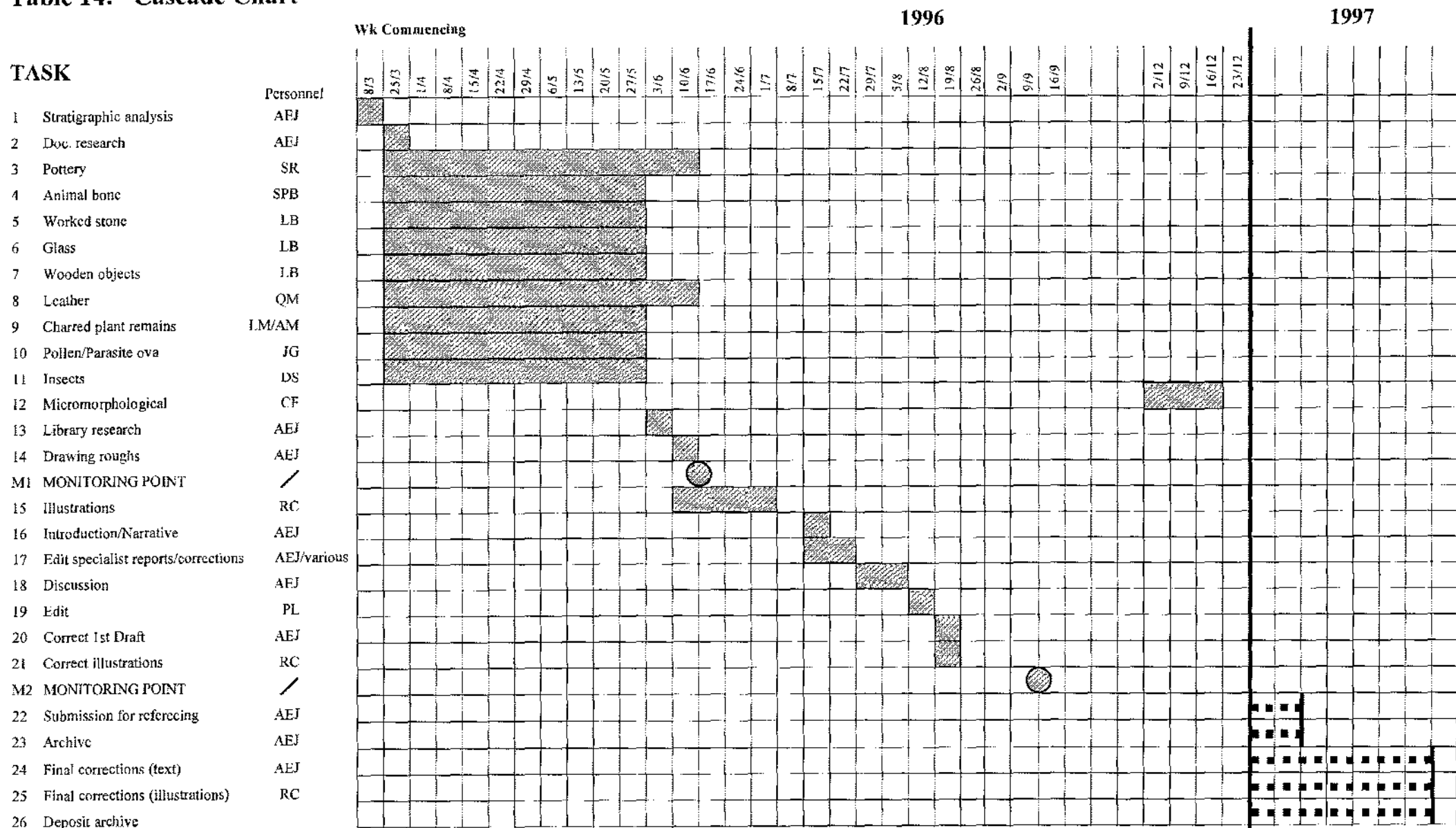
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## **11.0: ACKNOWLEDGEMENTS**

The project was commissioned by Milford Estates Limited. The project was directed by Alex Jones, assisted by Richard Cuttler and Edward Newton (Supervisors), Derek Moscrop, Bob Burrows, Kerry Allen, Tony Hanna, Mark Allen, Helen Fawbert and Jon Sterenberg. The project was monitored for BUFAU by Peter Leach, and by Bob Sydes for Cambridgeshire County Council. We thank the specialists for their reports. Finds processing was supervised by Lynne Bevan, and the illustrations were prepared by Richard Cuttler. This report was edited by Peter Leach and Simon Buteux.

**Table 14: Cascade Chart**



See Table 13 for key to personnel

Key Time allocated for work Period within which work may be completed Monitoring Point

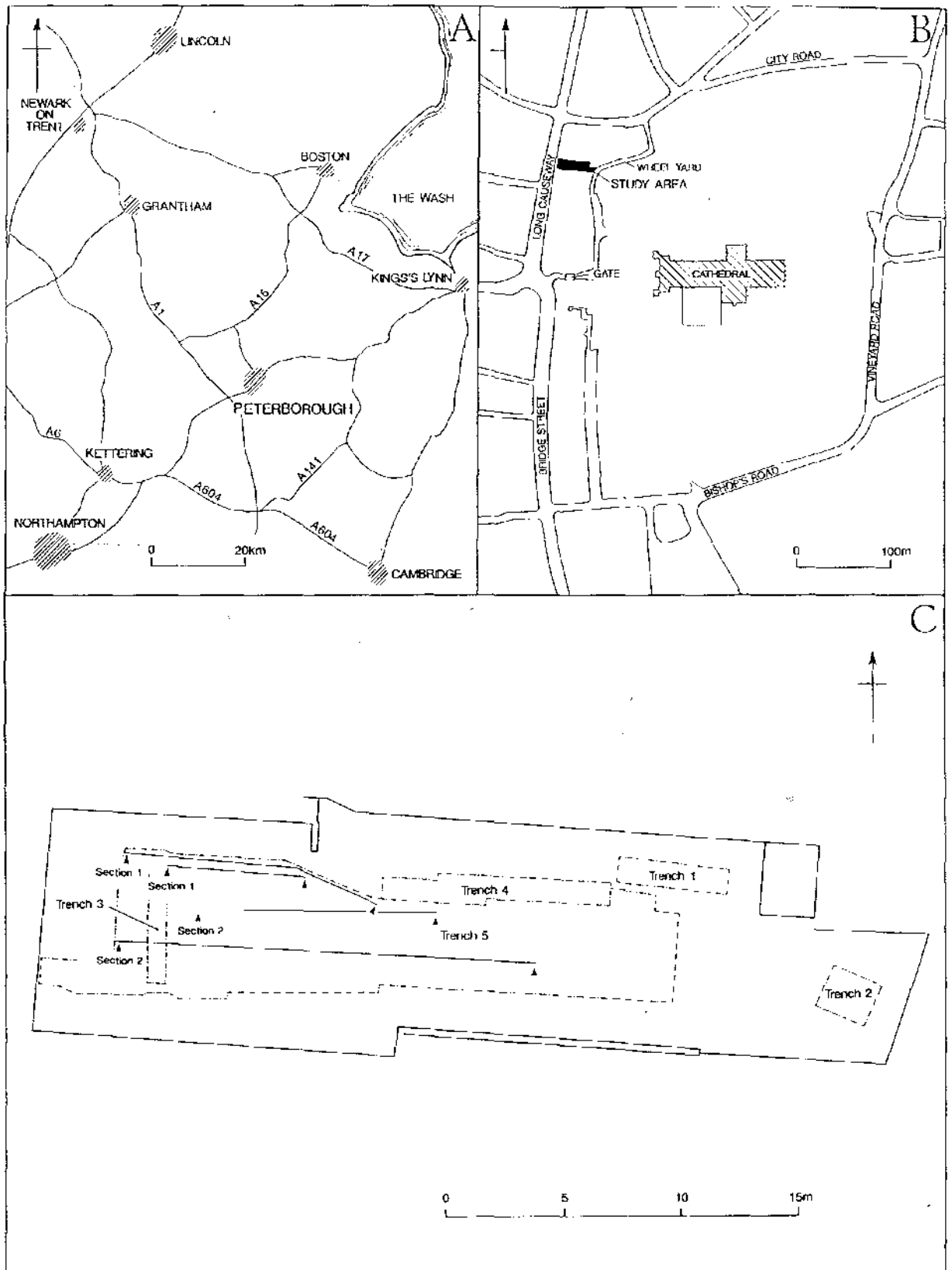
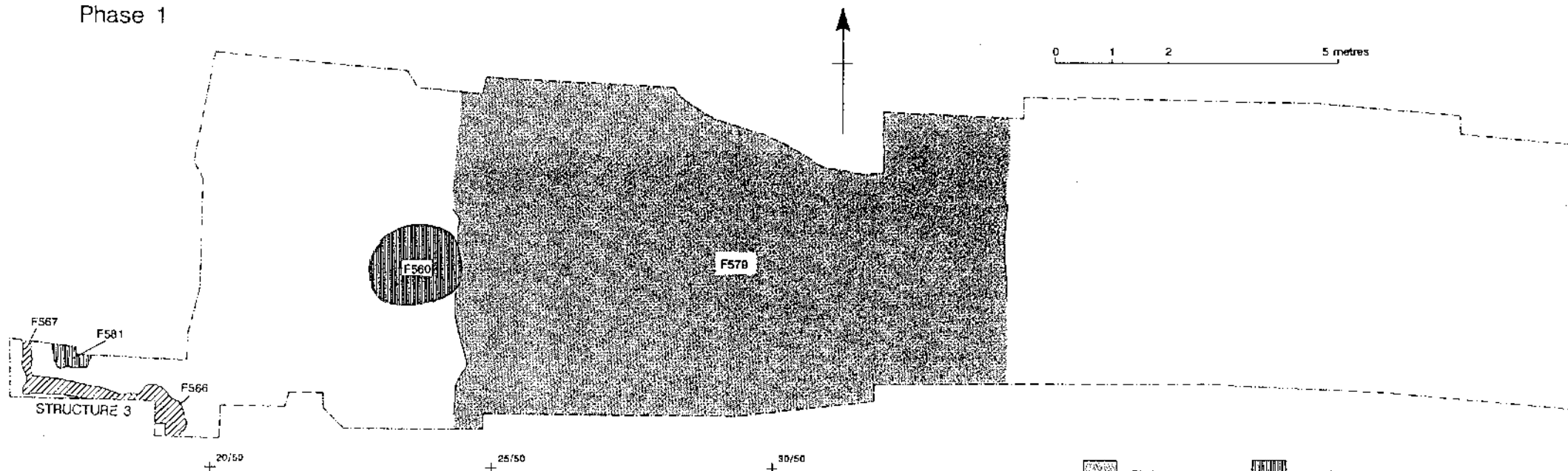


Fig 1

Phase 1



Phase 2

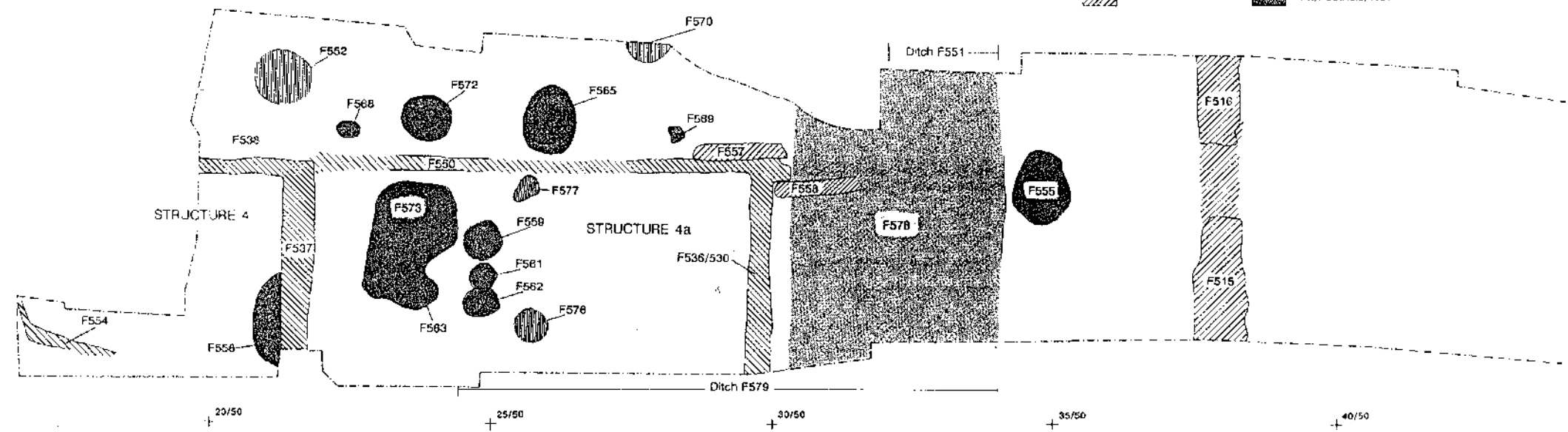


Fig 2

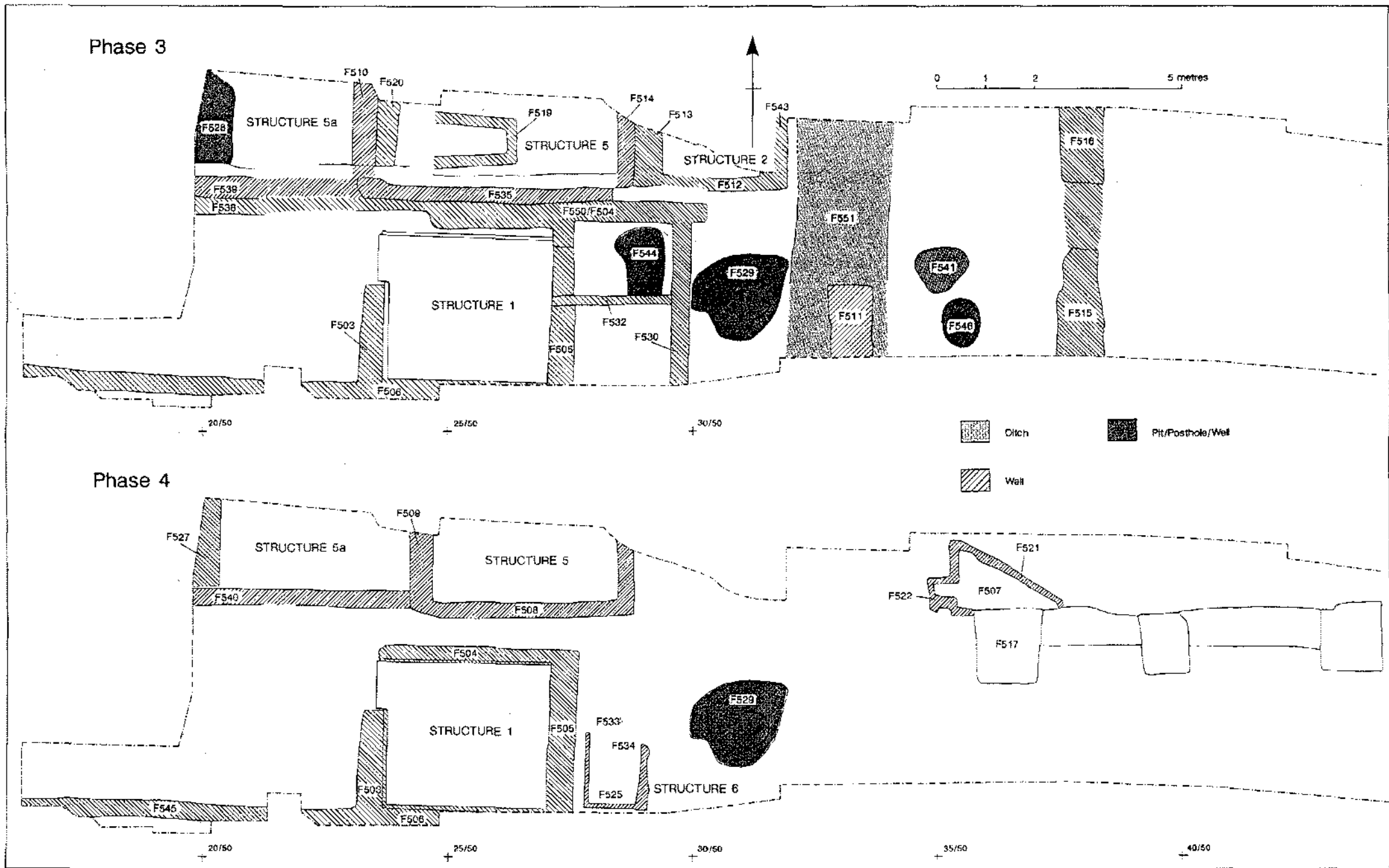


Fig 3

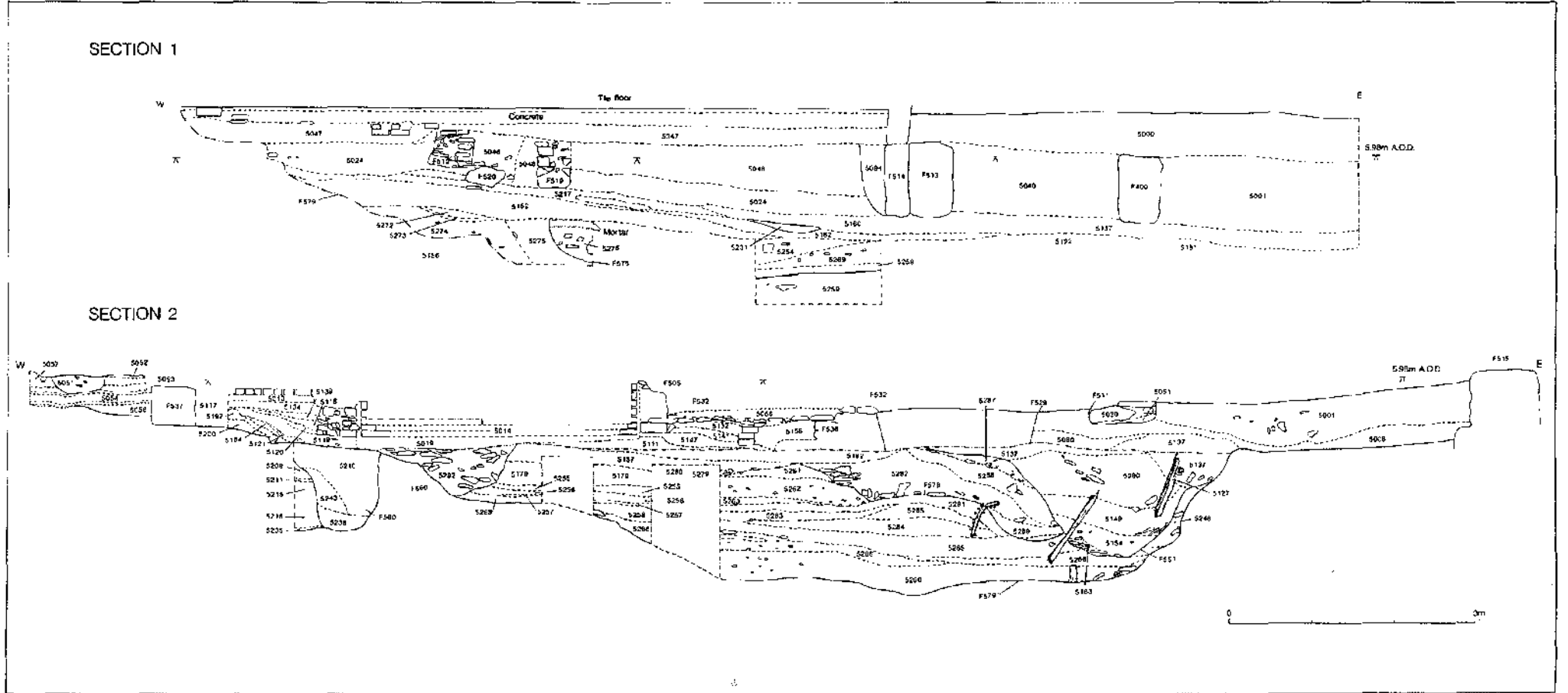


Fig 4



Plate 1



Plate 2





Plate 3

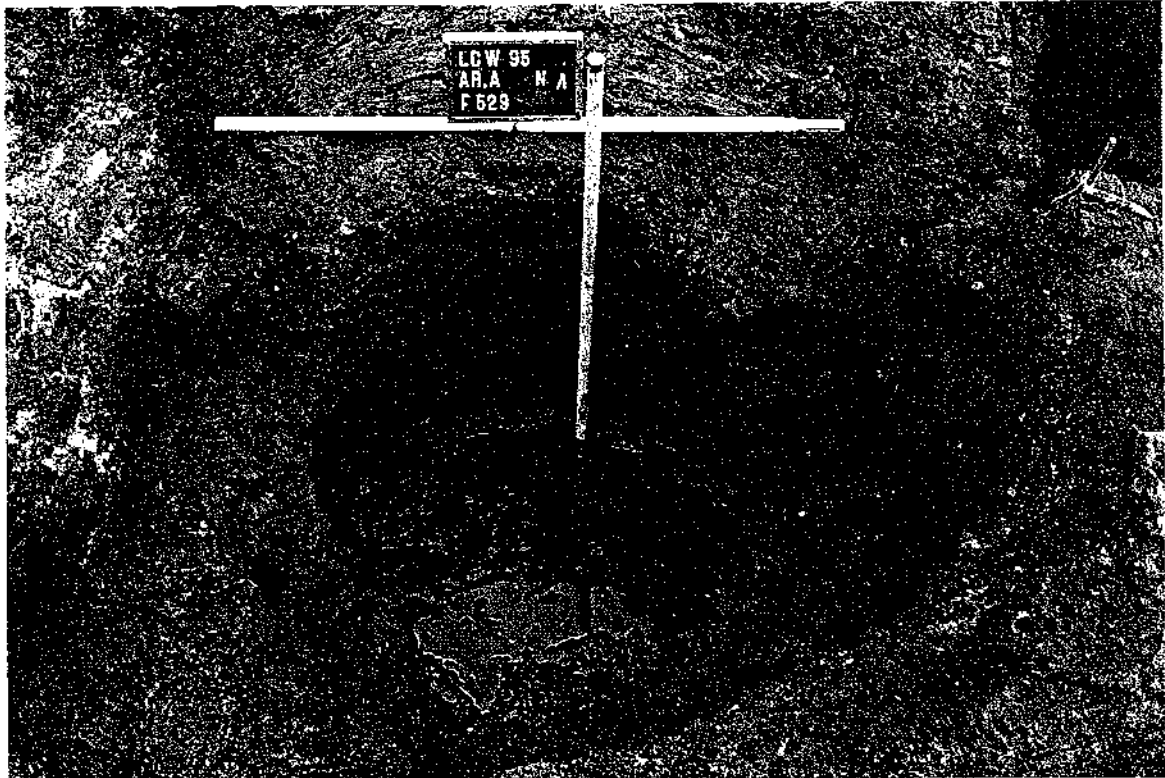


Plate 4

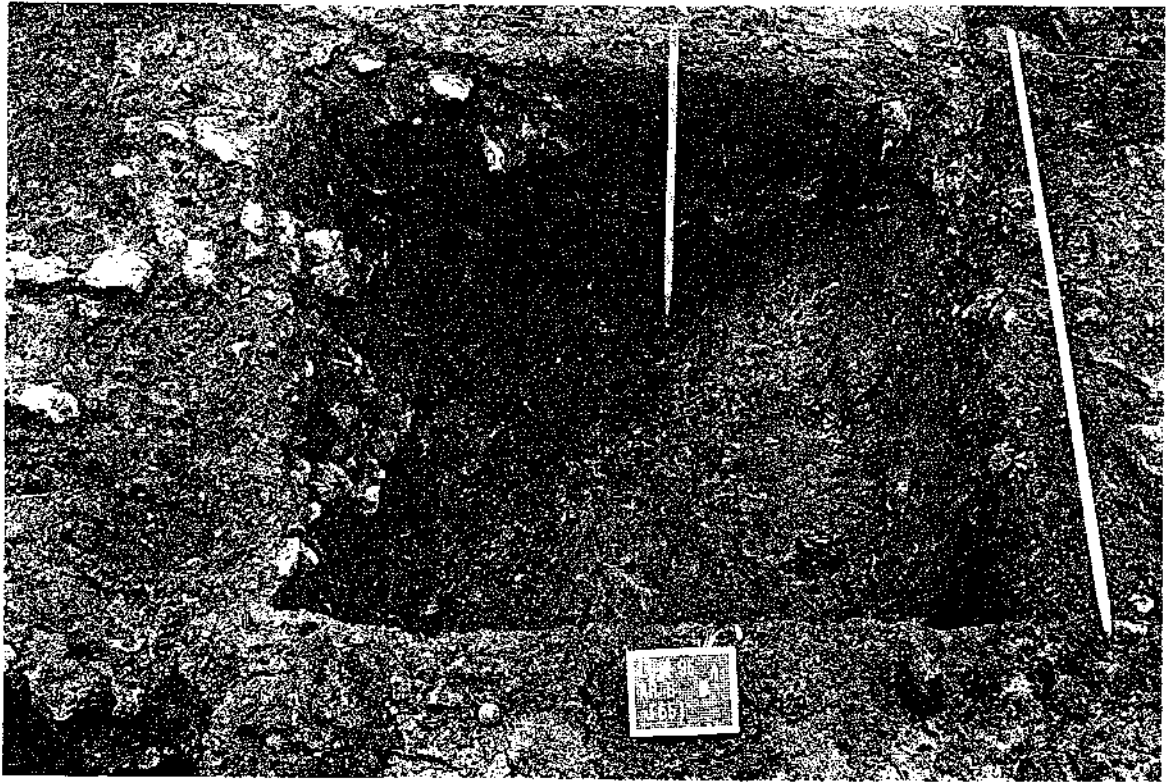


Plate 5



Plate 6

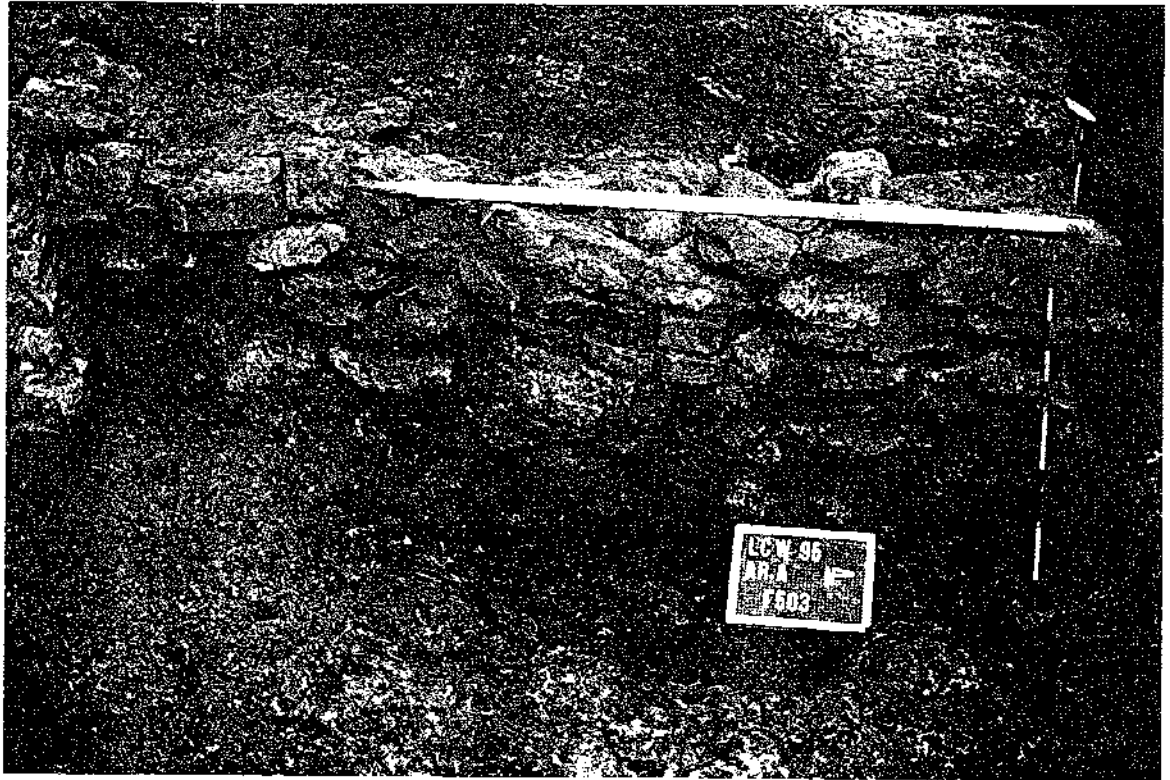


Plate 7

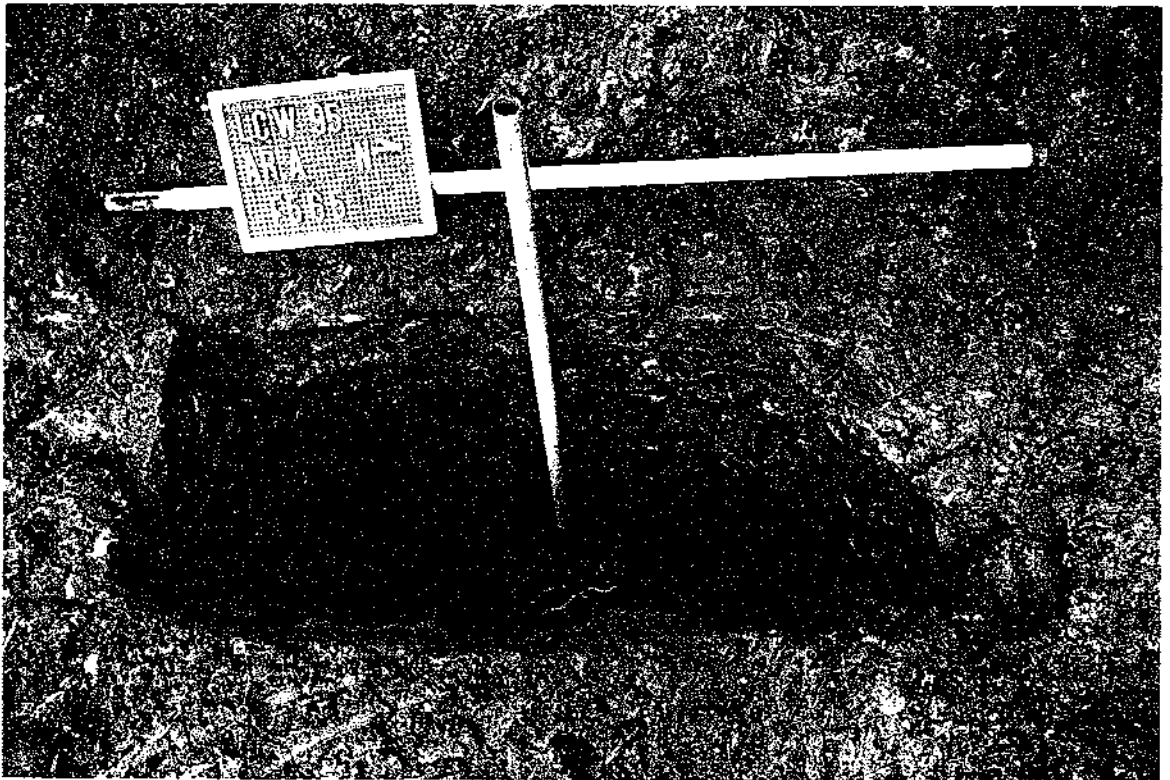


Plate 8