

**LAND AT RUSTON WAY,  
LINCOLN**

**ARCHAEOLOGICAL  
EVALUATION REPORT**

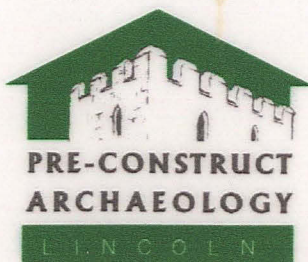
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Report prepared for Banks, Long & Co.  
(on behalf of Bournston Developments Ltd.)

by

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PRN 70407 Prehistoric

Roman

EVENT: L15560

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Fig. 1. Site location in Area highlighted in red is the development area, the blue square is that seen in fig. 2 (Scale 1:25000. OS copyright ref A 515 21 A0001)

## Summary

- A programme of trial excavation and environmental sampling was undertaken in advance of a development to provide student accommodation on land at Ruston Way, Lincoln.
- Two trenches and ten test-pits were investigated: one trench and seven pits in an area presently occupied by a stackyard, and one trench and three pits in an area used as a public car park. The test-pit locations were determined on the basis of the results of an auger survey; carried out as part of the environmental programme.
- Only one trench and one test-pit revealed features of archaeological significance. The trench contained a curvilinear gully and a pit/ditch, while the test-pit contained a post-hole. No firm evidence to date these features was recovered.
- It is concluded, based on the results of this investigation, that the general impact of the proposed development on archaeological resources will be limited. However, all of the auger holes, trenches and test-pits have proved significant in terms of mapping the buried landscape in this area of Lincoln.



**Fig. 1:** Site location. Area highlighted in red is the development area, the blue square is that seen in fig. 2. (Scale 1:25000; OS copyright ref AL 515 21 A0001)

## 1.0 Introduction

Pre-Construct Archaeology (Lincoln) was commissioned by Banks, Long & Co. (on behalf of Bournston Developments Ltd.) to carry out a programme of archaeological trial excavation and environmental sampling on land at Ruston Way, Lincoln.

The archaeological programme was undertaken to fulfil the objectives of a formal project brief issued by the Lincoln City Archaeologist, and a project specification prepared by Pre-Construct Archaeology (Lincoln). This approach is consistent with the recommendations of *Archaeology & Planning: Planning Policy Guidance Note 16* (Department of the Environment, 1990); *Management of Archaeological Projects* (English Heritage, 1991), *Standards and guidance for archaeological field evaluations* (IFA, 1999), and the Lincolnshire County Council document, *Lincolnshire Archaeological Handbook: a manual of archaeological practice* (LCC, 1998).

## 2.0 Location and description (Fig. 1, 2)

The site lies to the west of Brayford Way, south of the railway line and University of Lincoln Sports Hall and football pitches, and to the north of Green Lane. It is currently vacant and vegetated by trees, with open land and the remains of concrete stacking. The eastern part of the development site lies in the northern half of what is now Green Lane Car Park.

Broadly, the geology of the area comprises alluvium over Lower Lias clay, shale and rare limestone (BGS 1973).

The proposed development comprises of 10 new student accommodation buildings, between five and nine storeys high, representing 1300 bed spaces.

The site centres on NGR SK 9655 7112.

## 3.0 Planning background

Full planning permission is sought for the construction of ten new University buildings to the west of Brayford Way (Ref. 2004/0155/F), where there is a related application to construct an associated access, Ruston Way (2004/0157/F). Prior to the determination of this application, it was a recommendation of the City of Lincoln Council, Directorate of Development and Environmental Services that a programme of archaeological evaluation, sampling and reporting should be undertaken to determine the overall archaeological potential of the site, the potential threat that a redevelopment may have and, if necessary, to assist the formulation of a mitigation strategy to safeguard the interests of buried archaeological remains.

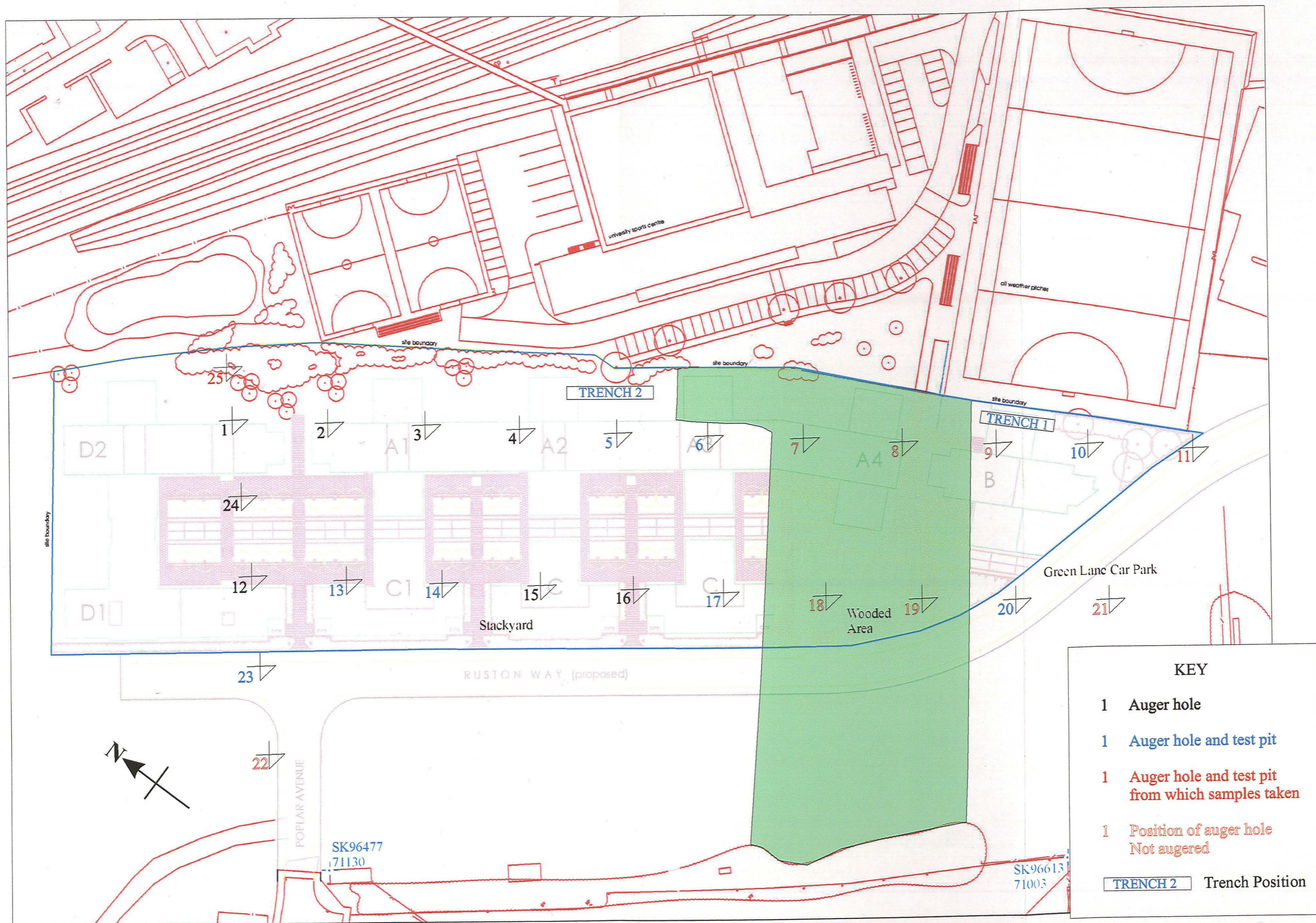


Fig. 2: Plan showing the development area (outlined in blue) and the location of the evaluation trenches, test-pits and auger positions. Scale 1:1000

#### 4.0 Archaeological and historical background

The city of Lincoln stands on the banks of the River Witham, at the point where the river cuts through the limestone ridge known as the Lincoln Edge. To the west of the Witham Gap lies the Brayford Pool, where the confluence of the Rivers Witham and Till is restricted in its further flow by the limestone ridge. The development site would have lain on or near the edge of the Brayford Pool prior to the canalisation of the Witham, resulting in boggy or waterlogged conditions here during much of the prehistory and early history of the city.

There is currently little evidence for pre-Roman settlement in the Lincoln area, although a Roman text from the early 2<sup>nd</sup> century AD refers to *Lindum* as being one of the two principal 'cities' of the local British tribe, the Corieltavi (JSAC, 1998), implying that there was a major settlement in this area before Roman forces made Lincoln their regional capital towards the end of the 1<sup>st</sup> century AD. In 1972, an excavation at Holmes Grain Warehouse to the east of the Brayford Pool exposed traces of an Iron Age circular hut, with pottery dating from the 1<sup>st</sup> century AD (*ibid.*). The present development area would then have been a series of sand islands rising out of peaty fenland.

A trial pit survey was carried out on the development site in 1994, which, in addition to archaeological recording, included an evaluation of biological remains by the Environmental Archaeology Unit at York University, (Wragg 1994, Hockley & Wragg 1994); another was carried out in 1988, but was abandoned due to extensive flooding (JSAC 1998). The 1994 survey established that the most prolific information regarding this area was to be obtained from environmental sampling and the study of organic peat and silt deposits: radiocarbon dates from 6390 BC to AD 1400 were obtained from peat samples in the study area. Several other field investigations have been carried out to the south of the Brayford Pool, the most recent beneath the Architecture and Media Building of the University in 2003. This indicated occupation over a possible island of Iron Age/Romano-British date, which may have extended into the north-eastern fringe of the current site (Wragg, 2003).

As Roman control in Britain was consolidated, the city of *Lindum Colonia* extended well beyond the sphere of the original fortress. By the late 2<sup>nd</sup> century AD, the city walls had expanded almost to the edge of the Brayford Pool, into which the canalised Fossdyke ran. Excavations in 1972 and 1982 discovered evidence of Roman wharfage along the east side of the Brayford Pool (JSAC, 1998). The city diminished after the withdrawal of Roman rule at the end of the 5<sup>th</sup> century AD, but had again become a thriving inland port and regional administrative centre at the time of the Norman Conquest. By the 13<sup>th</sup> century, the city wall had been extended to the edge of the Brayford Pool, terminating in the circular 'Lucy Tower' which was destroyed in the 19<sup>th</sup> century.

The silting up of the Fossdyke in the 14<sup>th</sup> century, in common with most of the inland waterways of this part of eastern England, caused a further economic decline. The canal was not fully opened for commercial use again until the beginning of the Industrial Revolution; the Brayford Pool was once again a thriving port by the 18<sup>th</sup> century, and in the 19<sup>th</sup> century, the Holmes Common area was drained for the construction of a railway, inevitably leading to further land reclamation for the siting

of industrial premises. The present development site then lay to the south of a railway siding track leading to Holmes Marshalling Yard. No significant structures have been identified from early OS maps of the area, but the remains of modern pathways, tracks or areas of dumping were anticipated.

## 5.0 Methodology

Two evaluation trenches were investigated: these were each 20m x 3m in area and were positioned towards the north-east boundary, on the fringe of the putative sand island (see fig. 2). An auger survey, comprising 18 auger holes was undertaken; ten of these locations were then further investigated in the form of test-pits. Two of these test-pits were used as the source for environmental samples.

Initial excavation of the trenches was carried out using a JCB 3CX excavator: the modern concrete/asphalt surface was penetrated with a rock-breaker attachment, and the underlying deposits removed with a 1.7m wide toothless ditching blade. Topsoil and subsoil deposits were removed in spits not exceeding 0.2m, until the first archaeological or natural horizon was exposed. The trenches and selected test-pits were initially excavated to a maximum safe working depth of 1.2m and, where further excavation was necessary, were stepped inwards in the interests of safety. Where archaeological deposits or features were observed, excavation was continued by hand. Trenches and test-pits were cleaned and recorded, and archaeological features were investigated to establish depths and profiles and, where possible, date and function. Features were recorded in plan and in section at appropriate scales (1:50 and 1:20), with associated context information. A photographic record was maintained throughout the project, and selected prints have been reproduced in this report.

The author directed the fieldwork, with the assistance of three experienced field archaeologists. The excavations took place over a period of nine days: Tuesday 31<sup>st</sup> August to Friday 10<sup>th</sup> September 2004.

Working conditions were extremely difficult throughout the project, due to the high local water table causing rapid flooding and the continual collapse of unstable, waterlogged sections. The silt-sand nature of the deposits encountered also had a detrimental effect on pumps: sludge pumps eventually filled both the exit hoses and the pump itself with silt, causing seal failure, while the abrasive nature of the fine sands caused excessive wear in centrifugal pumps. Five pumps were used during the project, and each eventually failed.

## 6.0 Results

### 6.1 Trench 1 (Fig. 3)

Trench 1 was located on the north-east side of the site, in the northwest corner of Green Lane Car Park. It was 20m in length, 3m wide and aligned northwest-southeast.

The modern ground surface, 100, consisted of a layer of asphalt, 0.08m – 0.1m in thickness, which sealed a mixed yellowish brown sandy make-up layer. This sealed a



0.75m thick layer of made ground, 101, which consisted of a mixed yellow/black sandy gravel containing frequent pockets of demolition rubble and in which tip-lines could be clearly discerned. Below this material lay a thin very dark grey/black silty buried soil horizon (102); this material appears to represent a compacted fibrous turf zone with contemporary vegetation – the ground surface onto which 101 was deposited. Layer 102 sealed a 0.2m thick layer of mid-grey medium silt (103), which in turn sealed a very dark grey/black humified silty peat horizon (104). Layer 104 was up to 0.08m in thickness, and was interpreted as a buried marsh surface. It sealed a brown coarse organic silt layer (105) – buried subsoil. Below layer 105 was a dark grey coarse sand, 106, which sealed a mottled yellow/buff natural sand (107). No finds were recovered from this sequence in Trench 1.

This sequence of events broadly reflects the basic stratigraphy recorded in all of the evaluation trenches / pits.

## 6.2 Trench 2 (Figs. 4,5,6)

Trench 2 was located towards the centre of the northeast side of the development area, in the concreted stackyard area occupying the western part of the site: it was 20m in length, 3m in width and was aligned northwest-southeast.

The modern ground surface, 200, consisted of a 0.18m thick layer of reinforced concrete – the modern stackyard surface. Below this, the same broad sequence (made ground (201), buried turf horizon (202), grey silt (203), humified peat (204), organic silt subsoil (205) and grey sand (206) over natural sand (207) as seen in Trench 1 was also exposed in Trench 2.

When the sand (205) was exposed in plan at the base of the trench, it was clear that a curvilinear gully was present at the SE end of the trench. This gully, 207, was filled by the same brown organic silt (206) as it was cut into, and only careful cleaning of the section revealed that it had been cut from the ground level represented by the humified peat (204).

Further cleaning, some 7m to the north-west, brought another feature to light (212), but the water levels, coupled with the increasingly wet nature of the ground prevented proper investigation of this feature. It was intended to clean this area of the trench when the JCB returned to backfill the site, however, pump problems prevented the water from being removed from the trench, and the JCB punctured a rear tyre, after which, insufficient time remained to investigate the feature. Despite careful cleaning of the sections in this area no trace of the cut of the feature could be identified, suggesting it to have been a pit.

No finds were recovered from Trench 2.

## 6.3 Test-pit 5 (Figs. 7, 8)

Test-pit 5 was located approximately 10m to the southwest of Trench 2. The trench was approximately 1.7m square and aligned northwest-southeast.

The stratigraphy exposed in Test-pit 5 was virtually identical to that seen in Trench 2, with the modern reinforced concrete stackyard surface (500) overlying a deep made ground layer (501), which sealed a thin buried turf horizon (502), which in turn sealed grey silt (503), humified peat (505), organic silt subsoil (503) and grey sand (508) over natural sand (506).

When the sand (508) was exposed in plan at the base of the trench, it was clear that a post-hole was present in the north-west side of the test-pit. This post-hole, [509], was filled by 510, a dark greyish-brown sandy silt very similar to 503 and it seems likely that, although this feature was not seen in section, it had been cut from the ground level represented by the humified peat, like gully [207] in Trench 2. This was the only test-pit in which an archaeological feature was identified: it was located closest to Trench 2, the only other area where archaeological features were present.

#### 6.4 Test-pit 6 (Fig. 9)

Test-pit 6 was located 25m southeast of Test-pit 5. It was 3.9m in length, 1.8m wide and aligned northwest-southeast. Only the SE 1.2m was excavated to full depth, as the JCB encountered some resistance, suspected to be buried services.

The stratigraphy exposed in Test-pit 6 was closely analogous to that seen in Trench 2, with the modern reinforced concrete stackyard surface (600) overlying a dark grey gravelly sand made ground layer (601), which sealed a thin buried turf horizon (602), which in turn sealed grey silt (603), humified peat (604), organic silt subsoil (605) and dark grey sand (606) over natural sand (607). No features of archaeological significance were seen within this test-pit.

#### 6.5 Test-pit 10 (Fig. 10)

Test-pit 10 was located on the NE side of Green Lane Car Park, approximately 10m south of the SE end of Trench 1. It measured 3.2m x 1.8m, and was aligned northwest-southeast.

In Test-pit 10, the modern asphalt car park surface (1000) stripped immediately onto a coarse yellow sand levelling layer (1001), which in turn sealed a coarse brown sand made ground layer (1002). This material overlay a thin buried turf horizon (1003), which in turn sealed a mid-grey coarse silt (1004), humified peat (1005), organic silt subsoil (1006) and dark grey sand (1007) over natural sand (1008). Apart from the sandier nature of the made ground, this sequence is identical to that recorded in Trench 1.

Two sherds of pottery were recovered from 1003; these indicate this layer to be of 18<sup>th</sup> to 20<sup>th</sup> century origin. No features of archaeological significance were seen within this test-pit.

### 6.6 Test-pit 11 (Fig. 11)

Test-pit 11 was located in the NE corner of Green Lane Car Park, 25m SE of Test-pit 10. It measured 2.7m x 1.8m and was aligned east-west.

Test-pit 11 revealed a similar sequence of deposition as that seen in Test-pit 10. The modern asphalt car park surface and underlying black sand make-up (1100) stripped immediately onto a compacted 'type 1' structural fill levelling layer (1101), which in turn sealed a coarse brown sand made ground layer (1104). This layer was heavily disturbed by modern activity (1105/6), which included a cut-feature [1103/2], the section of which showed it to be machine excavated. The made-ground layer (1104) overlay a thin buried turf horizon (1107), which in turn sealed a mid-grey coarse silt (1108), humified peat (1109), organic silt subsoil (1110) and dark grey sand (1111) over natural sand (1112). Apart from the disturbed nature of the made ground, probably attributable to the proximity of the recently constructed University all-weather sports pitches, this sequence is identical to that recorded in Test-pit 10.

One fragment of tile was recovered from 1110 - of mid/late 12<sup>th</sup> - 14<sup>th</sup> century date, but possibly not secure in this context. No features of archaeological significance were observed within this test-pit.

### 6.7 Test-pit 13 (Fig. 12)

Test-pit 13 was located at the north-west end of the site, in the southerly auger transect. It measured 2.9m x 1.55m and was aligned northwest-southeast. Only the SW 0.95m was excavated to full depth, as the JCB again encountered resistance, suspected to be buried services.

The stratigraphy exposed in Test-pit 13 was similar to that seen in Trench 2, however the modern reinforced concrete stackyard surface (1300) overlay a surface constructed of vertically set bricks (including some concrete) set in a grey sandy silt matrix (1301) which sealed a made ground layer (1302); here consisting of demolition rubble, predominantly chunks of reinforced concrete and occasional brick. This layer sealed a thin buried turf horizon (1303), which in turn sealed a mid-grey/yellow sand layer (1304). This appears to represent a buried turf horizon, more recent than that seen in the other trenches, as it overlay another buried turf (1305) and then a mid-grey coarse silt (1306); similar to layers seen in the other trenches. The buried subsoil (1306) then sealed a humified peat layer (1307), organic silt subsoil (1308), a thin lens of white sand (1309) over a dark grey coarse sand (1310), which sealed the natural sand (1311). No features of archaeological significance were seen within this test-pit.

### 6.8 Test-pit 14 (Fig. 13)

Test-pit 14 was located 25m southeast of Test-pit 5. It measured 3m x 1.75m and was aligned east-west.

This test pit presented several problems: it lay close to a large sewer, exposing the gravel fill around the sewer pipe on its north side, which appeared to be draining the

water out of the surrounding ground, and despite vigorous pumping could not be adequately emptied. As the sections also contained large quantities of loose rubble, it was considered too dangerous to enter. A sample section was recorded from outside the pit, but as no hand excavation took place, it does not go as far as the natural sand. The sequence of deposition revealed in Test-pit 14 was similar to that seen in the other test-pits; the modern reinforced concrete stackyard surface (1400), which here comprised two layers (the upper reinforced) overlying a loose brick and concrete rubble made ground layer (1401), which sealed a mid orange brown sandy silt layer (1402) over a thin buried turf horizon (1403), which in turn sealed grey silt (1404), humified peat (1405), over organic silt subsoil (1406). No features of archaeological significance were seen within this test-pit.

#### **6.9 Test-pit 17 (Fig. 14)**

Test-pit 17 was located on the south-western side of the stackyard, 75m southeast of Test-pit 14 and 40m southwest of Test-pit 6. The test-pit measured 2.7m x 2.5m, and was aligned northwest-southeast.

The sequence of deposition revealed mirrored that seen in Test-pits 5 and 6, with the modern reinforced concrete stackyard surface (1700) overlying a mixed yellow and black coarse sand and gravel made ground layer (1701), which sealed a thin buried turf horizon (1702), which in turn sealed grey silt (1703), humified peat (1704), organic silt subsoil (1705) and dark grey sand (1706) over natural sand (1707). The made ground (1701) displayed clear evidence of tip-lines, and the sands were well separated here, with the black sand slightly cemented. It seems likely that this material may represent casting sand, redeposited as waste material from the heavy industry formerly occupying this site.

No features of archaeological significance were seen within this test-pit.

#### **6.10 Test-pit 20 (Fig. 15)**

Test-pit 20 was located close to the centre of the north-west side of Green Lane car park, approximately 18m from the north-western boundary. It was the only test-pit in the southern auger transect to be within the limit of the development within this area. It measured 3m x 1.7m and was aligned northeast-southwest.

Similar problems to those encountered in Test-pit 14 were also present here: ground water flowed into the pit so quickly that it could not be completely pumped out, and the exposed sections consisted almost entirely of unstable brick and concrete rubble, overhanging in places. For these reasons, test-pit 20 was considered too dangerous to enter and only a sample section was recorded from outside the pit. As no hand excavation took place, this section does not go as far as the natural sand.

As far as it went, the stratigraphy revealed in Test-pit 20 mirrored that seen in the other trenches and test-pits in this area. The modern asphalt car park surface and associated make-up (2000) stripped onto a loose brick and concrete rubble made ground layer (2001). This material overlay a thin buried turf horizon (2002), which in

turn sealed a mid-grey coarse silt (2003) and humified peat (2004) over an organic silt subsoil (2005). Apart from the rubble which constitutes the made ground here, this sequence is identical to that recorded in Trench 1.

No features of archaeological significance were seen within this test-pit, and no datable material was recovered here.

#### 6.11 Test-pit 23 (Fig. 16)

Test-pit 23 was located approximately 30m to the west of Test-pit 13; it was opened at the position of the south-westernmost of the auger locations in the southwest-northeast transect. It measured 3.15m x 2.65m, although for safety reasons only a 1m square area was excavated to full depth within the pit. The test-pit was aligned northwest-southeast.

The stratigraphy exposed was similar to that seen generally in this area of the site. The modern reinforced concrete stackyard surface with associated levelling layers (2300) overlay a surface constructed of vertically set bricks (including some concrete) set in a grey sandy silt matrix (2308) similar to 1301 in Test-pit 13. The brick floor or yard surface sealed a yellow/black gravelly sand made ground layer (2301), over a thin buried turf horizon (2302), which in turn sealed grey silt (2303), mid-brown humified peat (2304), organic silt subsoil (2305) and mottled dark grey sand (2306) over natural sand (2307). No features of archaeological significance were seen within this test-pit.

#### 6.12 Test-pit 25 (Fig. 17)

Test-pit 25 was located in the north corner of the stackyard, on the southwest side, at the position of the north-easternmost of the auger locations in the southwest-northeast transect. As the augering in this area had revealed lower-lying stratigraphy, a 3m square area was excavated, with a deeper (1.5m wide) slot in the middle. This allowed a vertical face from which column samples could be recovered. The test-pit was aligned northwest-southeast.

The stratigraphy exposed was similar to that seen in the other trenches and test-pits in this area, with the modern reinforced concrete stackyard surface (2501) overlying a mid-brown gravelly sand made ground layer (2502), which sealed a thin buried turf horizon (2503), which sealed a mid blue/grey mottled alluvial silty clay (2504), humified peat (2506), organic silt subsoil (2507), a coarse dark brown silt (2508) and dark grey sand (2509) over natural sand (2510). Two thin lenses of grey silt (2505) were noted at the interface of the clay (2504) and the peat (2506).

This was the only test-pit which encountered clay, and this is perhaps indicative of the proximity of this pit to the former course of the River Till. A large oak branch was recovered from 2508, which may allow a dendrochronology date for this layer to be established. No further features of archaeological significance were seen within this test-pit.

### 6.13 Finds

The lack of artefactual dating is problematic, however, the environmental sampling will allow the radiocarbon dating of the peat and the underlying sand in the sequence, while the oak branch recovered from Test-pit 25 may have sufficient rings to date the silts here.

## 7.0 Discussion and Conclusions

Overall, the sedimentary sequence recorded across the whole site was remarkably consistent. When seen in relation to the levels of the underlying sands, it becomes clear that Trench 2 and Test-pit 5 were located on higher ground, not inundated until the Roman period or later. It was in these two locations that cut-features were identified, and although not directly datable, the radiocarbon dates for the overlying peat may well prove these to be of prehistoric date. Any activity of this period is of some significance, especially considering its marginal location.

Test-pit 11, the easternmost in the northern auger transect, also demonstrated sands at a slightly higher level, perhaps reflecting the periphery of the island recorded further east.

It is interesting to note that the only ancient timber recovered, from 2508 in Test-pit 25, was the only wood seen in any of the test-pits or trenches. All of the other pits etc showed signs of reeds, either as localised discoloration within the sands, or as surviving roots within the silts. This suggests that the environment was reed bed, and has never dried out sufficiently to establish scrub or alder carr, twigs or wood from which would certainly have survived in these conditions.

It is concluded, assuming that the new development will have piled foundations, that the archaeological resource will remain largely unaffected by the construction of the ten accommodation blocks, although the associated infrastructure, particularly any deep drainage, may intersect archaeological features; more probably in the area of Trench 2, towards the centre of the site, and perhaps in the access road to the east.

## 8.0 Effectiveness of Methodology

The methodology employed at the Ruston Way site has allowed a reasonably comprehensive understanding of the archaeological potential of the site to be established, and the potential threat that this development may present. The results of the evaluation and the environmental augering have added more detail to the existing topographic model for this area. Further augering, after the removal of the concrete and asphalt surfaces, may allow this model to be further refined. Two areas of the site could not be augered because of their inaccessibility for the JCB. These areas (a 45m wide strip at the north-western end of the site and a 30m wide strip of birch woodland

separating the stackyard from Green Lane car park) would obviously be accessible at a later stage of the construction process, when cleared.

## 9.0 Acknowledgements

Pre-Construct Archaeology (Lincoln) would like to thank Banks Long & Co. for commissioning this work. Thanks are due also to N Sambrooke, S Jackson and K Stone for their hard work on site, despite increasingly adverse ground conditions.

## 10.0 References

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## 11.0 Site archive

The documentary archive for the site is currently in the possession of Pre-Construct Archaeology (Lincoln). The paper and object archive will be deposited at Lincoln City and County Museum within six months. Access to the archive may be gained by quoting the global accession number, 2004. 204.

Copies of this report have been deposited with the commissioning body, the City Archaeologist, the County Sites and Monuments Record for Lincolnshire, and the City and County Museum, Lincoln, along with an ordered project archive for long-term storage and curation.

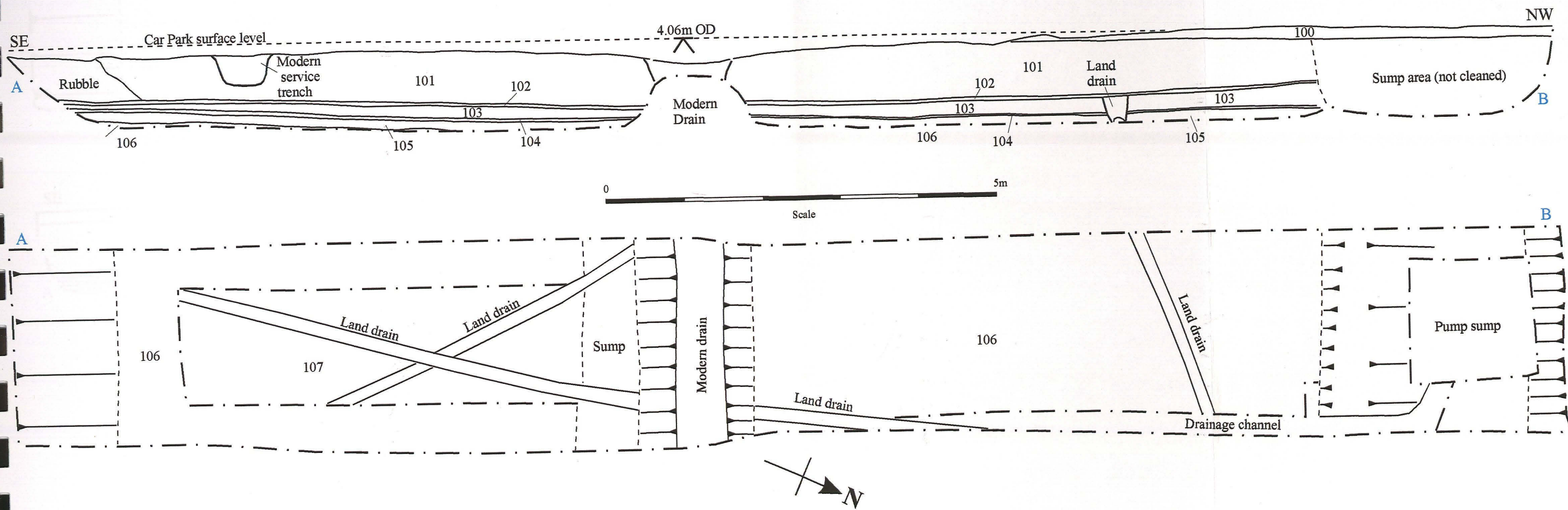


Fig. 3: North-east facing section and plan of Trench 1. Scale 1:50



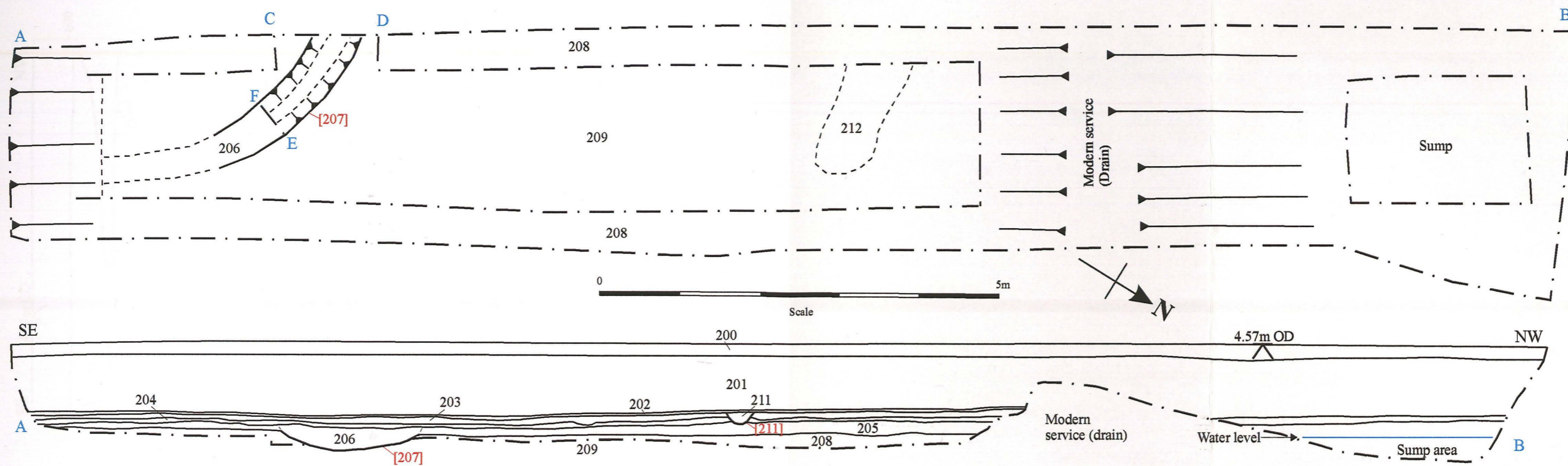


Fig. 4: North-east facing plan and section of Trench 2. Scale 1:50

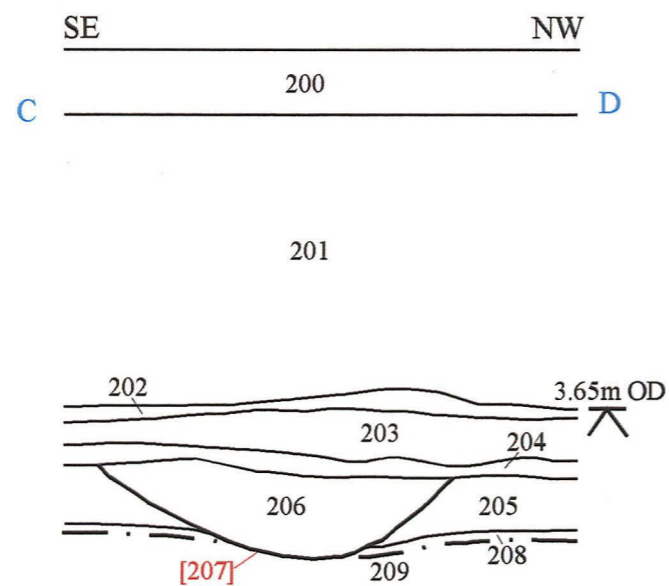


Fig. 5: North-east facing section of gully [207]. Scale 1:20

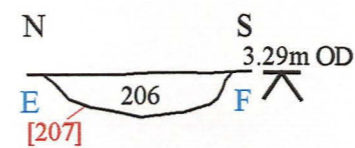


Fig. 6: West facing section of gully [207]. Scale 1:20

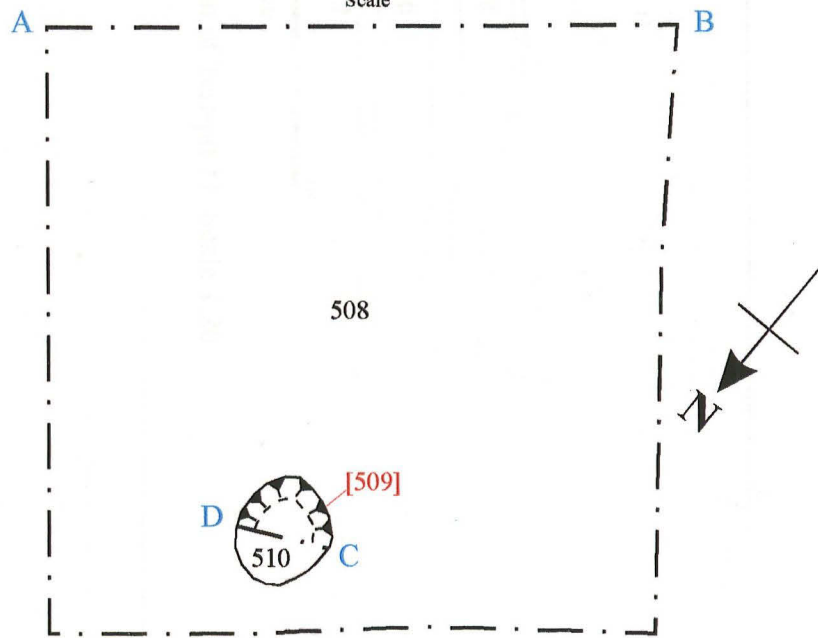
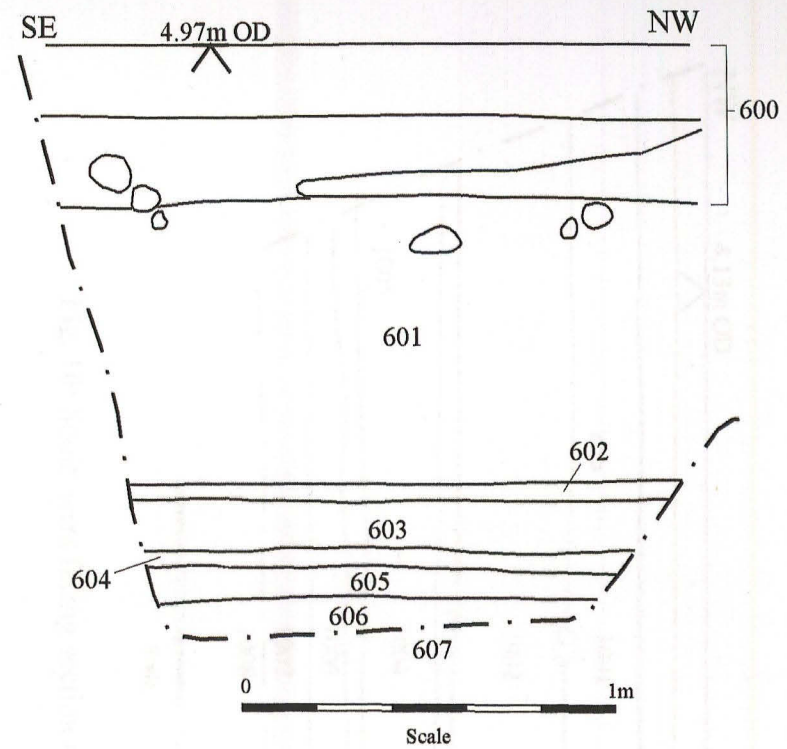
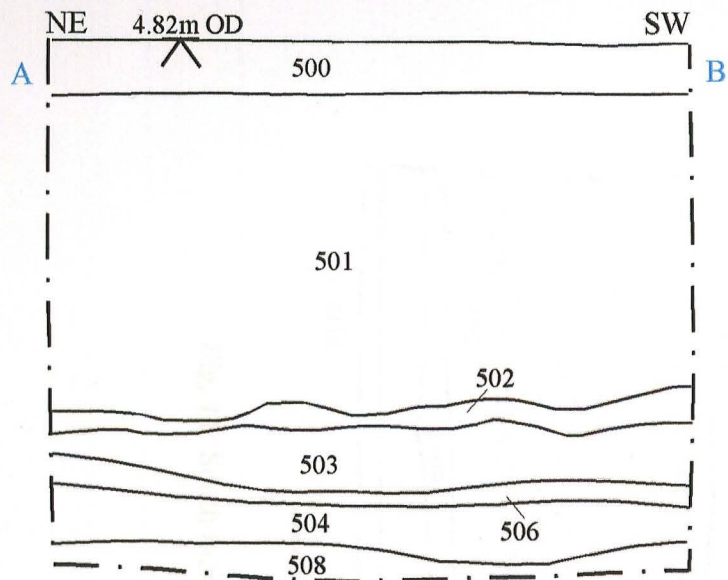
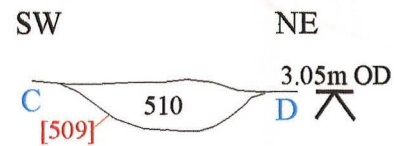


Fig. 7 (left): North-west facing section and plan of Test-pit 5. Scale 1:20  
 Fig. 8 (below): South-east facing section of posthole [509]. Scale 1:20  
 Fig. 9 (above): North-east facing section of Test-pit 6. Scale 1:20



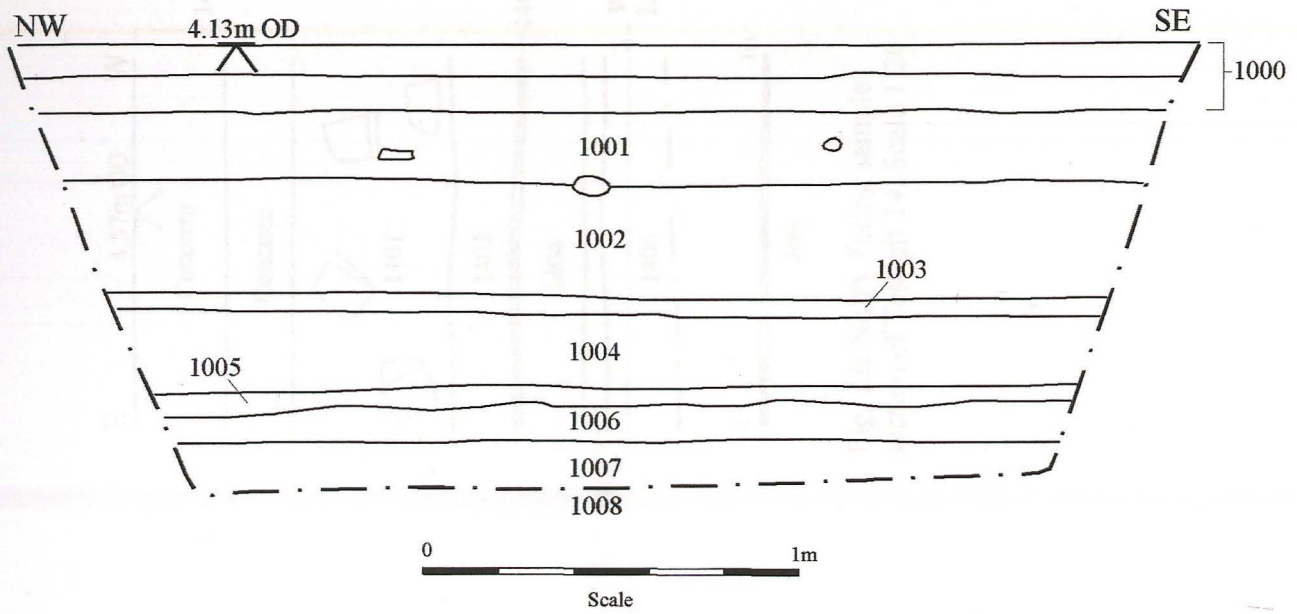


Fig. 10: South-west facing section of Test-pit 10. Scale 1:20

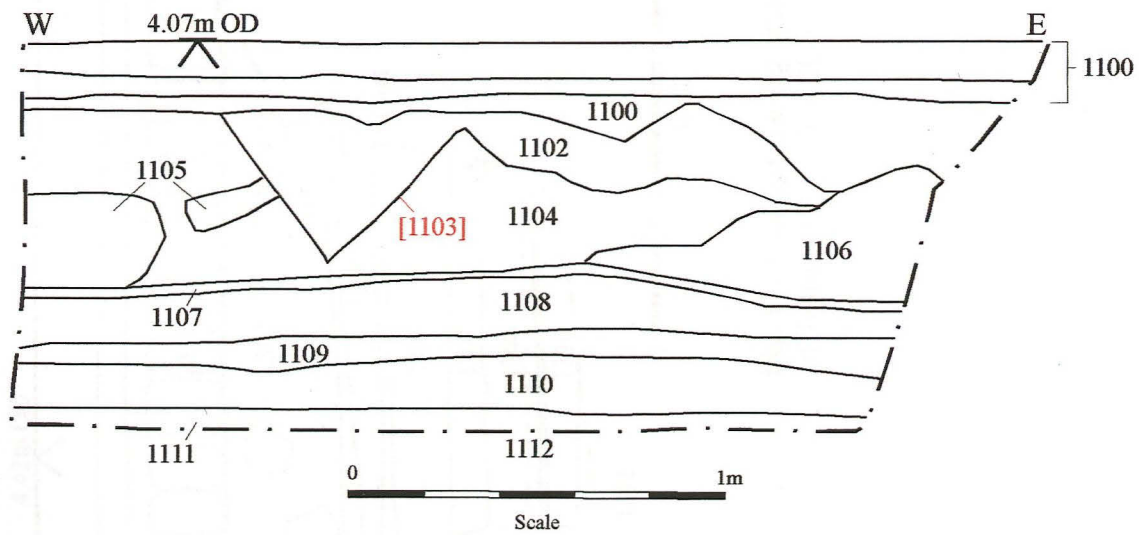
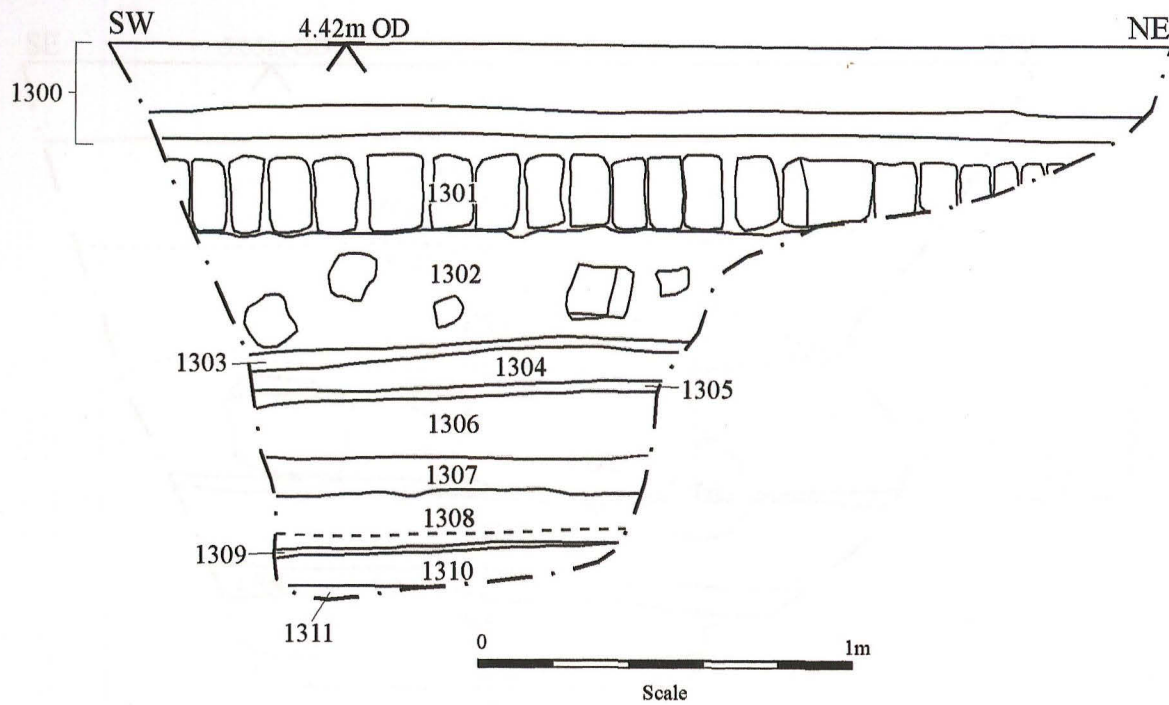
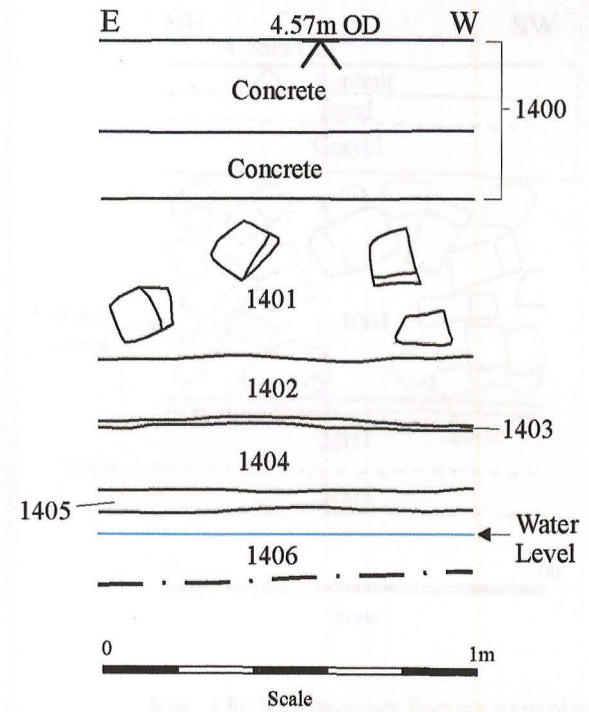


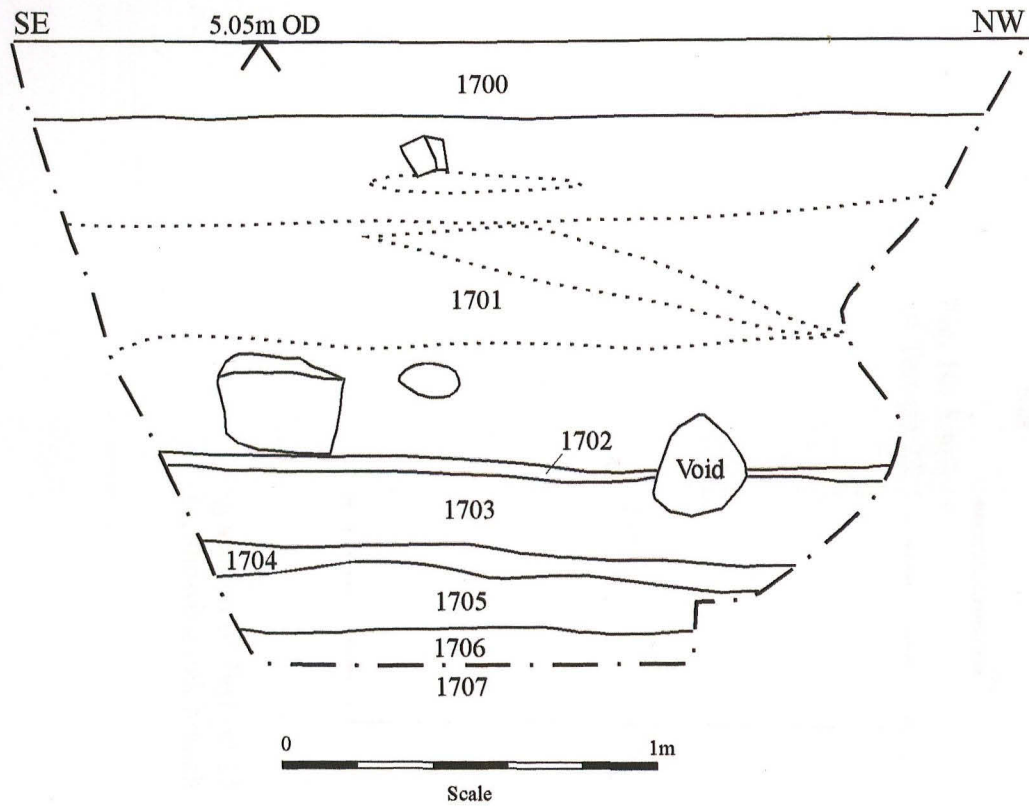
Fig. 11: South facing section of Test-pit 11. Scale 1:20



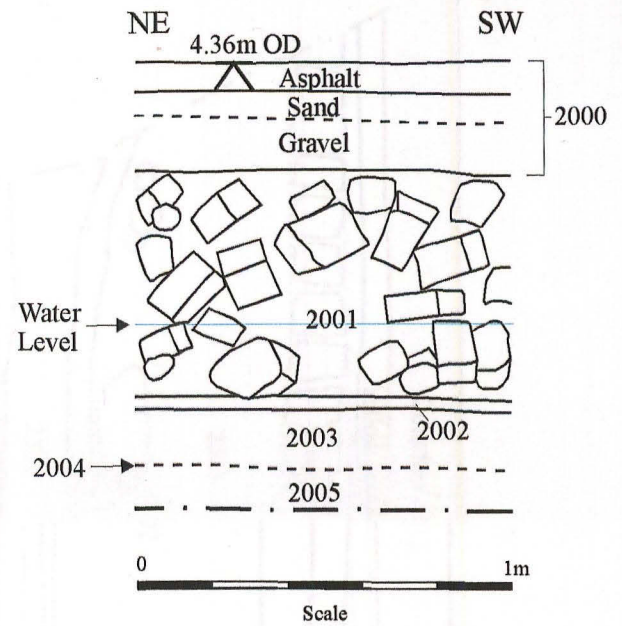
**Fig. 12:** Southeast facing section of Test-pit 13. Scale 1:20



**Fig. 13:** North facing sample section of Test-pit 14. Scale 1:20



**Fig. 14:** South-west facing section of Test-pit 17. Scale 1:20



**Fig. 15:** North-west facing sample section of Test-pit 20. Scale 1:20

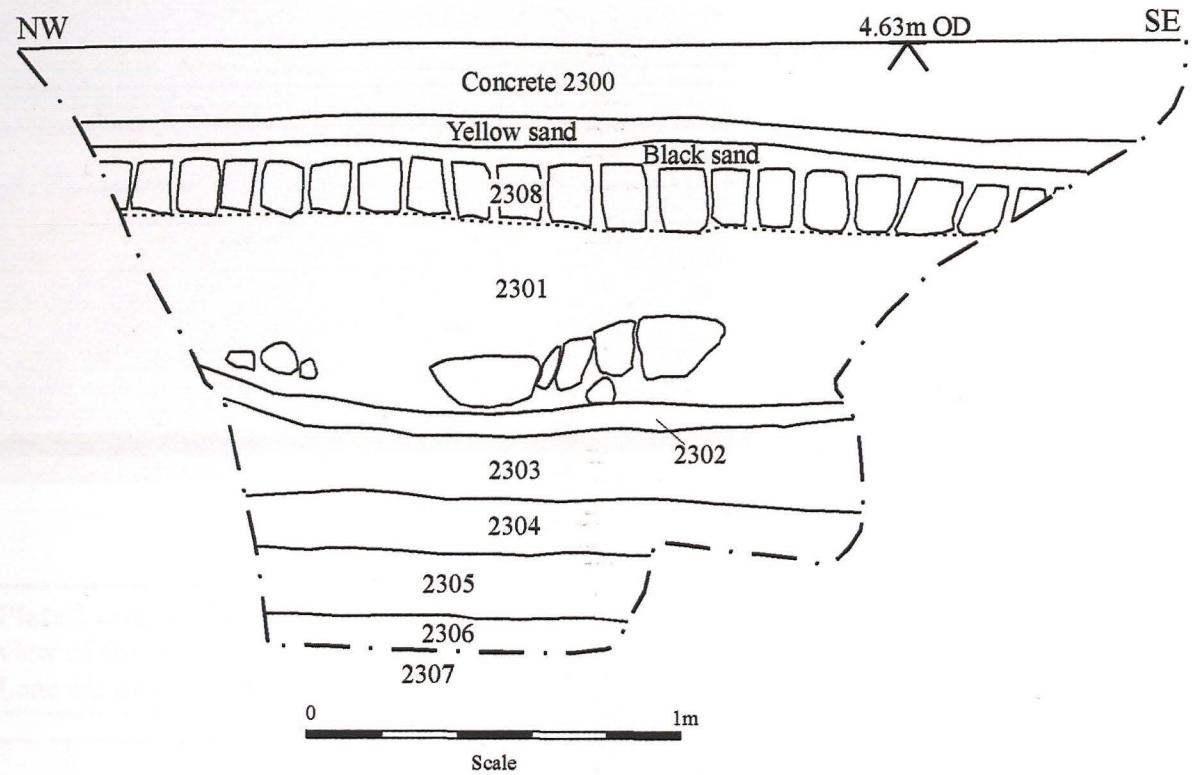


Fig. 16: South-west facing section of Test-pit 23. Scale 1:20

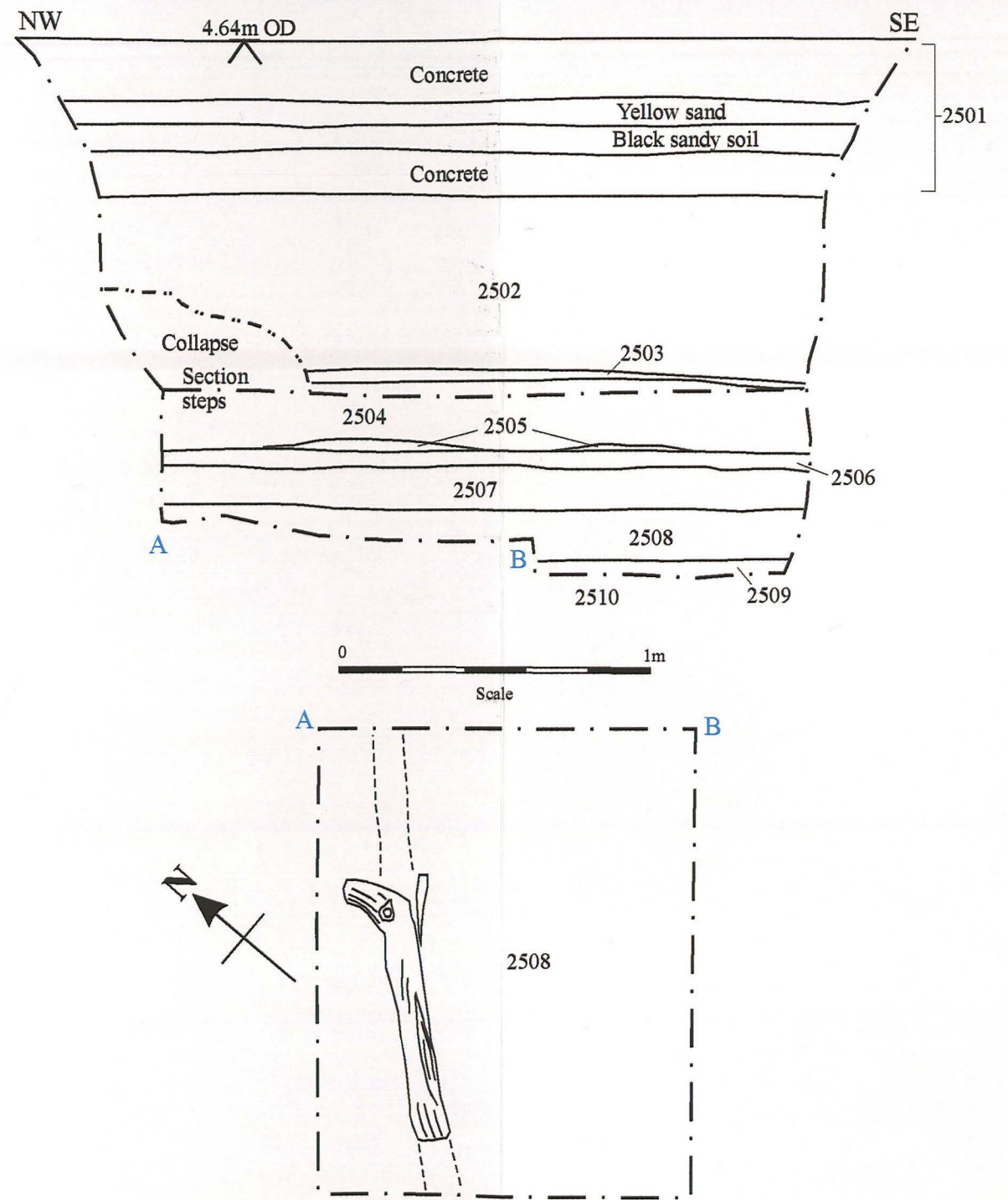


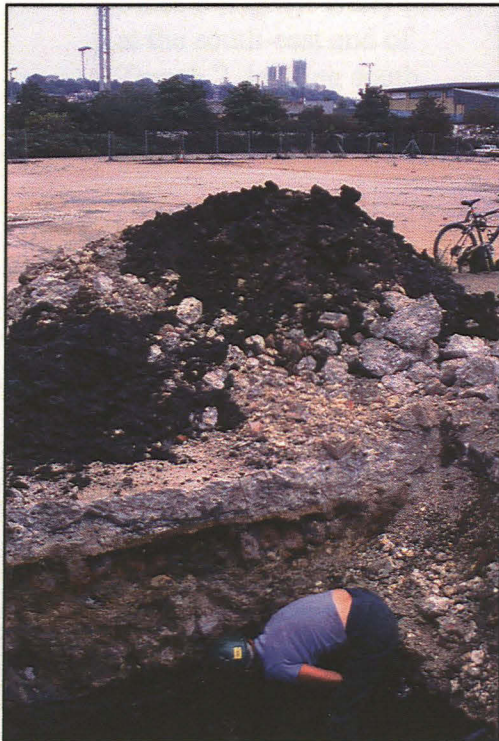
Fig. 17: South-west facing section of Test-pit 25 and partial plan of the base, showing oak branch. Scale 1:20

**Appendix 1: Colour Plates**



**Plate 1 (left):** General view, taken during machining at Trench 2, looking north-west.

**Plate 2 (right):** Post-excitation view of the north-east end of Green Lane car park, looking north.



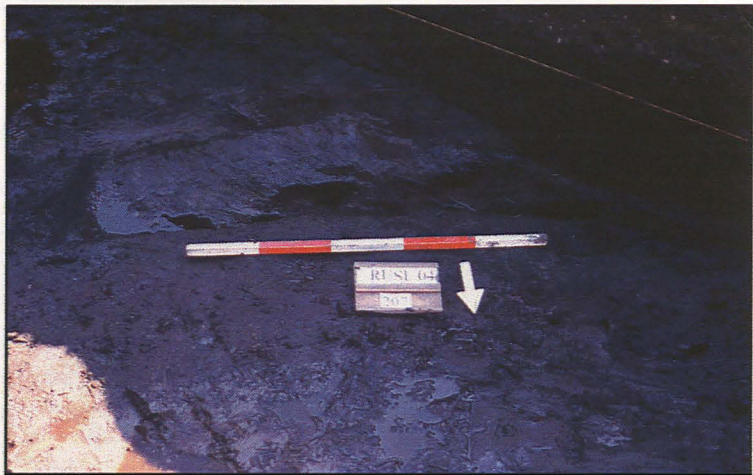
**Plate 3 (left):** Working shot, taken during cleaning of Test-pit 23 in the stackyard area, looking east.

**Plate 4 (right):** General view of Trench 1, looking south-east.





**Plate 5 (left):** General view of Trench 2, looking south.



**Plate 6 (right):** Gully [207], at the south-east end of Trench 2, looking south.



**Plate 7 (above):** Post-hole [509], in the base of Test-pit 5, looking north-west.  
**Plate 8 (right):** General view of Test-pit 6, looking south-west.







**Plate 9 (left):** General view of Test-pit 10, looking north-east.



**Plate 10 (right):** General view of Test-pit 11, looking north.



**Plate 11 (left):** General view of Test-pit 13, looking north-west.  
**Plate 12 (below):** General view of Test-pit 14, looking south-west.





**Plate 13 (left):** General view of Test-pit 17, looking southwest.

**Plate 14 (below):** General view of Trench 20, looking southeast.



**Plate 15 (left):** General view of Test-pit 23, looking northeast.

**Plate 16 (right):** General view of Test-pit 25, looking northeast.



## Appendix 2

### Auger survey, Ruston Way, Lincoln University

#### *Introduction*

An auger survey was conducted across the area of the proposed development of new accommodation blocks for the University. The site lies on the low ground south of the University Sports Hall and pitches on land to the south east of the confluence of the Rivers Till and Witham at the Brayford Pool. Previous work (Rackham 1999) has shown this area to be on the southern margins of an area of ground above 3.0m OD that was exposed and dry in the prehistoric period. Subsequent changes to the hydrology of the area led to a rise in the water table that produced an expansion of marsh and open water environments across much of the area south of the Brayford Pool and some development of fen woodland (Carrot *et al* 1994). These changes resulted in wet ground and marshy conditions across much of the University site up to an OD height of nearly 4.0m leading to the burial of the ancient ground surface. A Romano-British ground surface with 3<sup>rd</sup> century pottery was recorded at 4.0m OD beneath the Phase 6 Architecture building (Wragg 2003), while a radiocarbon date of 80BC to AD 150 was obtained from organic deposits taken at 3.10-3.15m OD in a Trench approximately 30 metres east from the top of a series of organic and waterlain sediments that were laid down over the previous thousand years or so (Rackham and Scaife 2003).

The survey at Ruston Way was designed to confirm and refine the underlying topography in this area, highlight areas of potential 'dry ground' archaeology that should be targeted in the evaluation and any further archaeological work at the site, and recover a series of samples from which the environmental history of the site and its chronology could be extracted.

#### *Methodology*

To these ends two west-east transects were laid out across the site (Savage, Fig. 2) with boreholes placed at 25m intervals, and additional boreholes placed to create a north-south transect at the west end of the site. The two transects were laid forty metres apart with the northern one approximately 20 metres south of the north boundary of the site. It was hoped to target the far north west corner of the site since this is the area in which the old course of the River Till (prior to the construction of the Fosdyke) may underlie the site. Unfortunately this area of the site was inaccessible without the removal of large dumps of hardcore, rubbish, etc, and the western 45m of the site could not be investigated. It is recommended that this north-western corner of the development is augered and sampled (subject to the results) after the site has been cleared of the tips that currently cover it.

A second area of the site was inaccessible during this evaluation owing to a cover of birch woodland (Savage, Fig. 2). Four of the proposed auger locations lay within this birch woodland and because of access restrictions for the JCB these were not augered.

Owing to a considerable overburden of concrete or tarmac, sand, gravel, brick rubble and other materials that had been used as fill to raise the ground and surface the area the ground at each borehole location had to be broken out by machine and then excavated to 'soft ground' to permit the use of a hand auger to record the deposits. One of these points (no. 3 on Savage, Fig. 2) had to be aborted because during excavation of the overlying concrete and fill foundations and drains were uncovered. Two other boreholes (21 and 22) were found to be outside the area of investigation and were not augered. A total of 18 boreholes were finally sunk and recorded and each is marked on Fig. 1.

The augering was conducted using a 1m long, 30mm diameter, hand operated gouge auger. Sediments were briefly described and their depth below the concrete surface and their thickness recorded. The underlying glacial sands were taken as the basal unit to record and augering was stopped when these sands had been penetrated and described. In several of the trenches the augering was undertaken with the test pit full of water and the upper part of the natural sedimentary sequence below the 'fill' was not recorded because it lay beneath the water level but above the floor of the test pit. A pump was not available during the survey to pump all pits prior to recording and only those auger locations subsequently opened up as test pits for archaeological recording and those that were dry after machining could be recorded through the whole sequence beneath the overburden. Where this has led to some doubt about the precise levels of a deposit they are shown as a dashed line on Figs 1 and 2.

### *Sedimentary sequence*

Apart from one or two boreholes the sedimentary sequence across the site was remarkably consistent. This basic sequence comprised:

1. The underlying sands, a fine or fine to medium sands, sometimes yellow, buff or grey and with occasional organics and evidence of root penetration, with occasional organic rich bands.
2. A sandy silt or silty sand overlay the sands and either represents the palaeosol or the initial stages of development of the wet ground and waterlain sediments.
3. A dark grey brown or dark brown humified organic silt, covered these deposits, sometimes with visible leaves, reeds and some root penetration.
4. Above this deposit was a dark brown humified peaty silt which appeared to reflect a possible old bog or marsh surface. This has not been separately illustrated in Figs 1 and 2 but can be seen in the archaeological sections (Savage, figs. 3-17).
5. Above this brown peaty band was a dark grey silt with some organic content and occasionally slightly clayey. In places this is oxidised and mottled.
6. In augers 1 and 25 the dark grey silt is covered by a grey clay deposit that probably represents flood sediments from the delph to the north west.
7. The silts and clays are capped by a thin very dark grey or black fibrous silt with numerous reed/rush roots and in places compacted surface vegetation. This horizon occurs across the whole site and represents the turf and vegetation layer present before the ground surface of the site was raised.
8. The upper fill sequence is variable, comprising rubble, sands, and sandy gravels but was not recorded in any detail during the auger survey.

### *Topography*

The underlying topography of the surface of the sands is reflected in the three section drawings that have been constructed for the auger data. The prehistoric ground surface lies between 2.6 and 3.5m OD. The two transects clearly show that there is a small ridge of sand, at least 50 and possibly 75m wide (its eastern margin cannot be determined because the auger points in this area lay within the wood) running north south across the centre of the site. Trench 2 lies on the top of this small ridge which rises some 50 centimetres above the ground to the east and west. The ridge is beginning to fall slightly southwards, but only by a few centimetres. This does appear to broadly reflect the pattern of the 3m contour on the previous topographic model (French and Rackham 2003, Fig. 3) for this area but should allow some refinement and correction. The sands drop eastwards to below 3m OD in both transects, but rise slightly in the easternmost auger hole (auger 11) in the northern transect to 3.14m OD. To the west the northern transect drops only to 3.05m OD in auger 1 indicating that this part

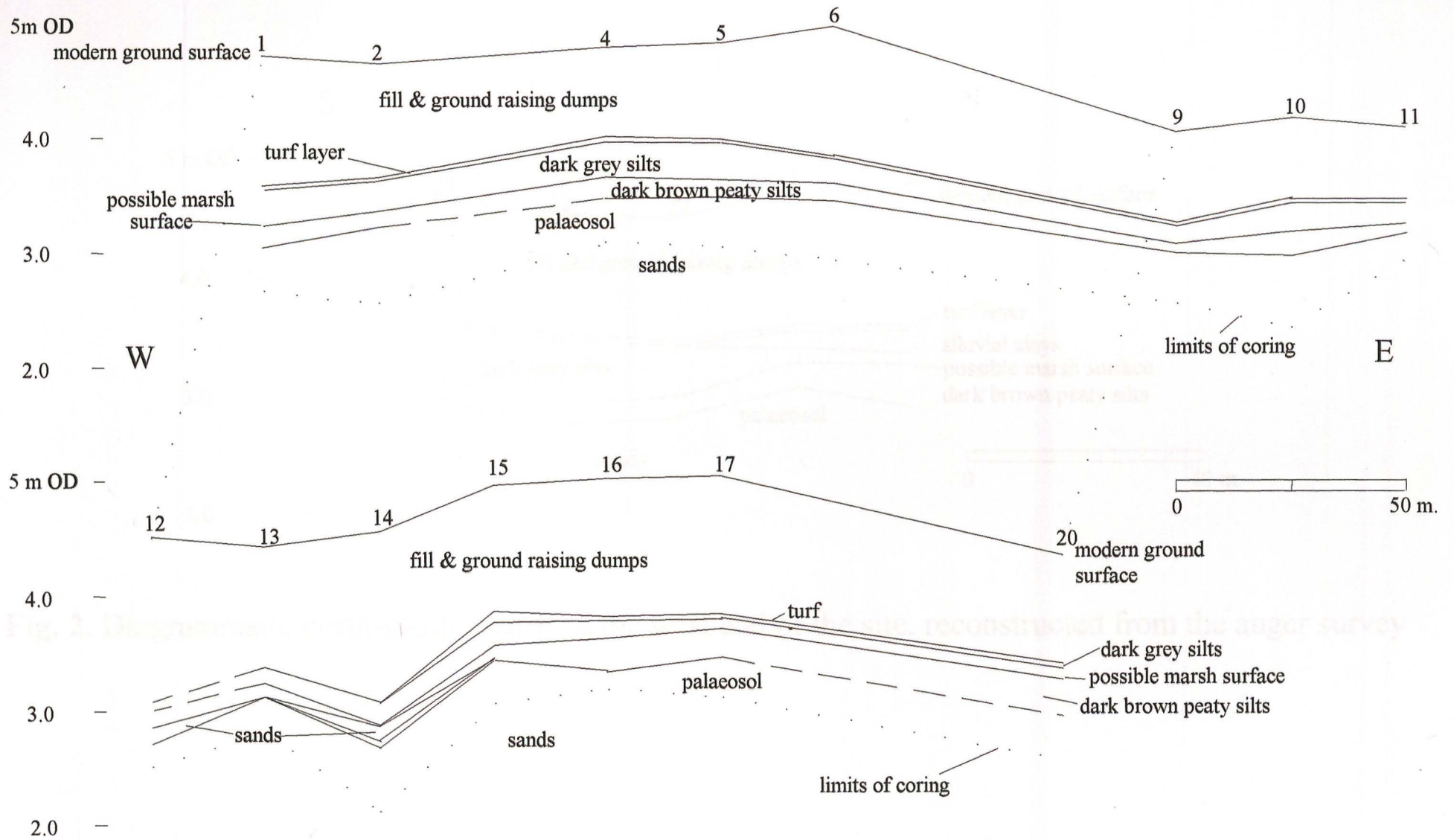


Fig. 1. Diagrammatic west-east sections reconstructed from the results of the auger survey

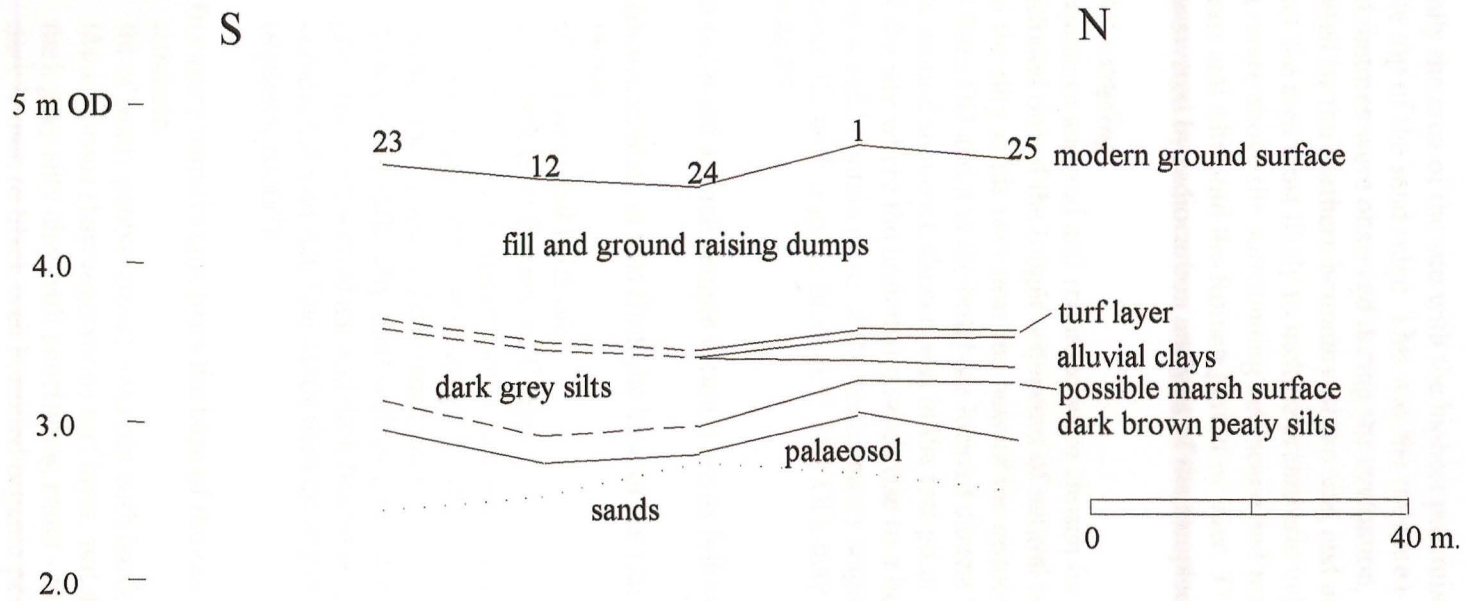


Fig. 2. Diagrammatic north-south section at the west end of the site, reconstructed from the auger survey

of the site is south of the suggested line of the old River Till channel, but in the southern transect the western augers show a drop to below the 3m contour although auger point 14 suggests a small channel in the surface of the sands. This might continue northwards but unfortunately borehole 3 could not be augered owing to obstructions and the extent of this small feature is not known.

Archaeologically the area of the site with the highest potential lies down its middle north to south along the top of the sand ridge. This was the only area where any possible archaeological features were observed during the evaluation, in the eastern half of Trench 2. An area delimited by the northern boundary of the site, and auger holes 4, 15, 18 and 7, probably reflect the area most likely to include prehistoric evidence since this area lies perhaps half a metre above the surrounding landscape and probably did not become wet and covered by peats and silts until the Roman period or later. The chronology for this will hopefully be answered by radiocarbon analysis of the sampled deposits.

### *Environmental sampling*

Two of the sequences augered and recorded were chosen for sampling. The test pit at Auger location 25 included one of the longer sequences of natural sediments, an oak 'branch' was found lying on the silty sands very near the base of the sequence, the upper surface of the sands lies at 2.89m OD and it is the borehole located closest to the south bank of the ancient River Till. The second sequence chosen was in the test pit at borehole 11 at the extreme eastern end of the site where the underlying sands rise to a height of 3.15m OD. These two sample sections should contain most of the sedimentary sequence represented at the site, although borehole 12, with organic sands at 2.71m OD, may include earlier sediments than those in borehole 25.

The sequences recorded at each sample location are as follows:

Borehole 11. (measurements in cms from the base of the test pit – ground surface 4.07m OD)

105-115	tarmac
56-105	fills of sand and hardcore
52-56	very dark grey fibrous 'turf' layer
30-52	dark grey silt – oxidised, some mottling and mineral replacement of roots
23-30	very dark grey silty sand/sandy silt with some evidence of preserved organic matter and occasional degraded wood
17-23	dark grey slightly silty sand with evidence for root penetration, damp-wet
5-17	grey fine sand with black and dark brown (organic?) patches
0-5	compacted iron rich fine sands with extensive dark brown patches (degraded organics, roots?)

Borehole 25. (measurements in cms from the base of the test pit – ground surface 4.64m OD)

175-193	concrete
84-175	fill of sandy pebble gravel, overlain with hardcore and bricks
80-84	black fibrous (hay/vegetation) turf layer, not decomposed – old ground surface
55-80	dark grey silty clay with penetrating roots - flood sediments?
47-55	dark brown to black well humified organic peaty silt – probable old bog or marsh surface
20-47	dark grey brown humified organic silt with leaves, reed leaves and some root penetration

- 10-20      disturbed dark grey and dark brown silty sands with lenses of siltier sediment-  
                 some root penetration
- 0-10        grey fine sands, wet, some root penetration

The following samples were collected from the sequences.

Test pit 25:    Two overlapping sediment monoliths at 0-50 and 40-90 cms  
                 Bulk samples (approx. 4 litres) from 20-30; 30-40; 40-50; 50-60; 69-79; 79-84  
                 cms  
                 Small roundwood sample from the surface of the sands at 10-20 cms for C14  
                 dating  
                 Large timber sample for possible dendrochronological dating.

Test pit 11:    Single sediment monolith at 0-50 cms  
                 Bulk samples (approx. 4 litres) from 10-20; 20-30; 30-40; 40-50; and 50-60  
                 cms.

### *Interim analysis*

Initially radiocarbon samples will be dispatched for analysis from the base and top of each sequence. This includes the roundwood sample from 10-20cm in Test pit 25 and organic material extracted from the processing of sub-samples from 10-20 and 50-60cms in Test pit 11 and 50-60cms in Test pit 25, the layer immediately below the clay in this sequence. The timber sample will be sawn and if more than 50 rings are present it will be submitted for dendrochronological study.

A decision on any further work will be determined after receipt of the radiocarbon and dendrochronology dates.

### *Acknowledgements*

I should like to thank Sean Jackson and Kath Stone for their assistance in the field, and Simon Savage for checking the levels.

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Appendix 3

# Pottery Archive RUSL04

Jane Young

29 September 2004

context	cname	full name	form type	sherds	weight	part	description	date
1003	NCBW	19th-century Buff ware	small bowl	1	16	rim		late 18th to 20th
1003	MISC	Unidentified types	?	1	1	BS	very abraded fine oxid calcareous poss BOU;? ID or Roman	15th to 16th or Roman

Appendix 4

# Tile Archive RUSL04

Jane Young

29 September 2004

context	cname	full name	fabric	frags	weight	description	date
1110	PNR	Peg, nib or ridge tile	Fabric 1/7	1	56	flat roofer; corner	mid/late 12th to 14th

## Appendix 5: Context Summary

### Trench 1

Context	Description
100	Modern Asphalt car park surface and sand levelling layer
101	Black/yellow sandy gravel – made ground
102	Very dark grey/black buried turf horizon
103	Mid grey silt
104	Very dark grey/black humified silty peat – buried marsh surface
105	Mid/dark brown organic silt – buried subsoil
106	Very dark grey coarse sand
107	Mid/ light brown/ buff fine sand

### Trench 2

Context	Description
200	Modern reinforced Concrete stackyard surface
201	Mid brown sandy gravel – made ground
202	Very dark grey/black buried turf horizon
203	Mid grey/brown silt
204	Very dark grey/black humified silty peat – buried marsh surface
205	Mid/dark brown organic silt – buried subsoil
206	Dark brown silty peat-fill of [207]
207	Curvilinear gully
208	Very dark grey coarse sand
209	Mid/ light brown/ buff fine sand
210	? pit – seen in section
211	Light brown silt – fill of [210]
212	Pit/ditch at west end of trench – not excavated

### Test-pit 5

Context	Description
500	Modern reinforced Concrete stackyard surface
501	Mid grey-brown sandy gravel – made ground
502	Very dark grey/black buried turf horizon
503	Mid grey silt
504	Mid/dark brown organic silt – buried subsoil
505	Very dark grey/black humified silty peat – buried marsh surface
506	Light grey/buff fine sand
507	***Not Used***
508	Very dark grey coarse sand
509	Post-hole cut
510	Dark greyish brown fine sandy silt, rare gravel-fill of [509]

### Test-pit 6

Context	Description
600	Modern reinforced Concrete stackyard surface and black silt/sand levelling layer
601	Very dark grey gravelly sand – made ground
602	Very dark grey/black buried turf horizon
603	Mid grey coarse silt
604	Mid brown humified silty peat – buried marsh surface
605	Dark grey/brown organic silt – buried subsoil
606	Very dark grey fine sand
607	Light brown mottled medium sand

### Test-pit 10

Context	Description
1000	Modern Asphalt car park surface and sand levelling layer
1001	Yellow coarse sand, small and medium pebbles, occ. Tile – levelling layer
1002	Coarse brown sand, occ. small rounded pebbles – made ground
1003	Very dark grey/black buried turf horizon
1004	Mid grey coarse silt
1005	Patchy dark brown/black humified silty peat – buried marsh surface
1006	Mid greyish brown organic silt – buried subsoil
1007	Very dark grey medium sand
1008	Mid grey brown fine sand

### Test-pit 11

Context	Description
1100	Modern Asphalt car park surface and sand levelling layer
1101	Modern 'Type 1' structural fill material
1102	Fill of 1102
1103	Modern cut feature
1104	Coarse brown sand, occ. small rounded pebbles – made ground
1105	Mid yellow/blue mottled clay
1106	Dark greyish brown sand and gravel
1107	Very dark grey/black buried turf horizon
1108	Mid grey coarse silt
1109	Patchy dark brown/black humified silty peat – buried marsh surface
1110	Mid greyish brown organic silt – buried subsoil
1111	Very dark grey medium sand
1112	Mid grey brown fine sand

### Test-pit 13

Context	Description
1300	Modern reinforced concrete stackyard surface and sharp sand levelling layer
1301	Brick floor/yard surface, set in a grey sandy silt, occ. concrete
1302	Demolition rubble – predominantly reinforced concrete, some brick in a grey gravelly sand matrix – made ground
1303	Very dark grey/black silty buried turf horizon
1304	Mid grey sand, yellower towards base
1305	Very dark grey/black sandy silt buried turf horizon
1306	Mid grey coarse silt
1307	Mid brown humified silty peat – buried marsh surface
1308	Dark grey/brown organic silt – buried subsoil
1309	Very thin layer of white fine sand
1310	Very dark grey coarse sand
1311	Light brown mottled fine sand

### Test-pit 14

Context	Description
1400	Modern concrete stackyard surface – 2 layers, upper reinforced
1401	Brick and concrete demolition rubble – made ground
1402	Mid orange/brown sandy silt, occ. rubble
1403	Very dark grey/black buried turf horizon
1404	Mid grey coarse silt
1405	Mid/dark brown humified silty peat – buried marsh surface
1406	Light brown organic silt – buried subsoil
***Silt and sands present below 2005, but pit not entered as too dangerous - section recorded from above***	

### Test-pit 17

Context	Description
1700	Modern reinforced concrete stackyard surface
1701	Mid yellow/black coarse sand, some gravel, occ. concrete and tile – made ground, possibly redeposited casting sand?
1702	Very dark grey/black buried turf horizon
1703	Mid grey coarse silt
1704	Mid brown humified silty peat – buried marsh surface
1705	Light brown organic silt – buried subsoil
1706	Dark greyish brown medium sand
1707	Light brown mottled fine sand

### Test-pit 20

Context	Description
2000	Modern Asphalt car park surface and sand/gravel levelling layers
2001	Loose brick and concrete demolition rubble – no matrix
2002	Very dark grey/black buried turf horizon
2003	Mid grey coarse silt
2004	Mid brown humified silty peat – buried marsh surface
2005	Light brown organic silt – buried subsoil
***Sand present below 2005, but pit not entered as too dangerous - section recorded from above***	

### Test-pit 23

Context	Description
2300	Modern reinforced Concrete stackyard surface and yellow/black sharp sand levelling layers
2301	Mid yellow/black coarse sand, some gravel, occ. concrete and tile – made ground, possibly redeposited casting sand?
2302	Very dark grey/black buried turf horizon
2303	Mid grey coarse silt
2304	Mid brown humified silty peat – buried marsh surface
2305	Light brown organic medium silt – buried subsoil
2306	Dark greyish brown mottled medium sand
2307	Light brown mottled fine sand
2308	Brick floor/yard surface, set in a grey sandy silt, occ. concrete

### Test-pit 25

Context	Description
2501	Modern concrete stackyard surface – 2 layers, upper reinforced, separated by a black sandy soil and a yellow sand make-up
2502	Mid brown gravely sand, occ. small rounded pebbles – made ground
2503	Very dark grey/brown silty buried turf horizon
2504	Mid blue/ grey mottled silty clay – alluvial layer
2505	Lenses of grey coarse silt
2506	Very dark grey/black humified silty peat – buried marsh surface
2507	Mottled grey brown slightly sandy organic silt – buried subsoil
2508	Dark brown coarse organic silt
2509	Dark grey medium sand
2510	Light grey/brown mottled fine sand