ARCHAEOLOGICAL SERVICE

Land to the South of Croft Street, Ipswich (IPS 468), Record of an Archaeological Evaluation

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Test-Box 1: Buried Soil Horizon

Stuart Boulter
Field Team
Suffolk C.C. Archaeological Service

Lucy Robinson, County Director of Environment and Transport
Endeavour House, Russel Road, Ipswich, IP1 2BX
Tel. (01473) 264384

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Summary

Ipswich, Land at Croft Street (TM 1630 4320; IPS 468) Prior to the determination of a planning application for a proposed housing development on a *c*.4.6 hectares tract of land to the south of Croft Street, Ipswich, an archaeological evaluation was undertaken with its primary aim to assess the extent and character of a Pleistocene bone bed which, in light of previous discoveries, may have survived within the development area.

The excavation of sixteen test-pits and three larger boxes failed to identify the bone bed. Results suggest that the layer did originally extend at least some way into the survey area but had been truncated by the major excavations undertaken in the mid 19th century associated with the construction of a rail tunnel and the first Ipswich Station. A few fragments of bone were recovered from the backfill of a large pit, this feature almost certainly the result of aggregate extraction associated with the railway construction works.

Geological strata encountered in the test-excavations were recorded and sampled for future specialist study with a view to identifying the climatic conditions under which they were deposited and thereby linking them with the known geological sequence in the vicinity of the site.

In addition, results from two of the test-holes proved that while the majority of the site had suffered truncation during the railway excavations, there was on its south-east side an area which had been built up with a buried soil horizon preserved at a depth of *c*.0.8 metres. As a consequence, there is in this area a potential for incised archaeological features of later prehistoric to post-medieval date to be preserved.
(Stuart Boulter for Suffolk County Council & Abbey New Homes)

Introduction

1.1 Planning, Historical & Archaeological Background

A *c*.4.6 hectares site to the south of Croft Street, Ipswich, centred on TM 1630 4320, has been proposed for development by Abbey New Homes (Fig. 1).

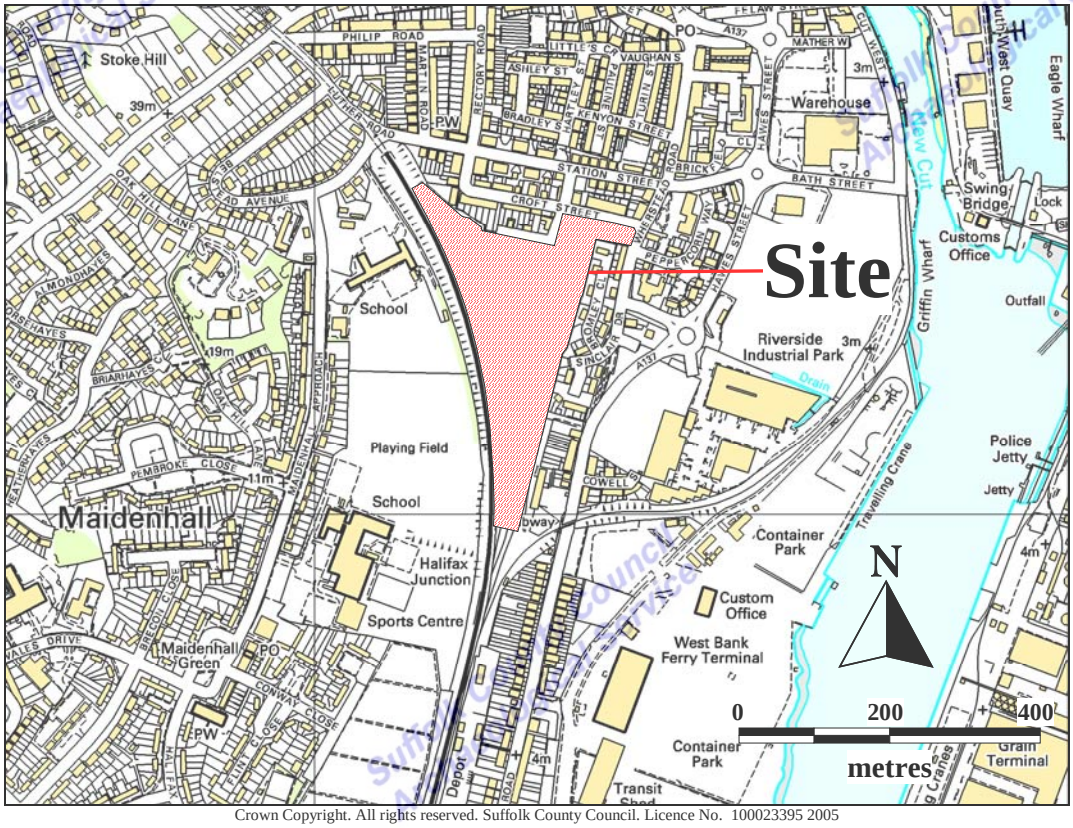


Fig. 1 1:10,000 scale OS map extract showing the location of the site

The present character of the site is primarily the result of major railway construction works dating to the 19th century when the area was landscaped into the hillside to accommodate the original Ipswich Station. Subsequently a tunnel was excavated through the hill to the site of the present station and the proposed development area became a railway yard with engine sheds. During the later 19th and 20th centuries the site continued to be occupied the railway yard with a series of new buildings and additions to the original structures.

While it was thought likely that the extensive truncation and ground disturbance associated with the railway would have destroyed any surface archaeology, discoveries of Pleistocene faunal and floral remains from a discrete layer (bone bed) encountered during the construction of the tunnel and later engineering projects (Hawkins, 2004, p.6) indicate a potential for material of this period to survive on the site. An area covering the known extent of the bone bed has already been designated as an SSSI (Site of Special Scientific Interest).

Suffolk County Council's Archaeological Service Conservation Team (hereafter SCCASCT), who act as archaeological advisors to the local planning authority, advised that they would like to see an archaeological evaluation of the site prior to the determination of any development plan.

Subsequently an Archaeological Desk Based Assessment was undertaken by CgMs (Hawkins, 2004) and Suffolk County Council's Archaeological Service Field Projects Team (hereafter SCCASCT) were commissioned, provided they produce an acceptable Method Statement (see Appendix I of this document), to undertake a field evaluation.

In this instance, the most appropriate method of evaluation was deemed to involve the excavation of a series of sixteen test-pits which themselves would be used to inform the location of three further, larger test-boxes. The fieldwork was undertaken during the last two weeks of January, 2005.

1.2 Topographical Setting & Drift Geology

The site is situated on the western side of the valley of the River Orwell and is underlain by Pleistocene fluviatile River Terrace Deposits overlying London Clay and Reading beds which, in turn, overlie the Cretaceous chalk bedrock.

Major landscaping during the 19th century resulted in the present, relatively flat character of the site with a variation of only 1 metre in ground level between *c*.8.4 metres OD, to the south, and *c*.9.4 metres OD towards the north-west.

2. Methodologies

2.1 Fieldwork

Positions of the initial sixteen test-pits (all measuring *c*.2 metres by *c*.2 metres) were agreed with both the developer (Abbey New Homes), to avoid the proposed location of buildings, and SCCASCT with a view to providing a good sample of the site while also targeting the area of highest potential. The actual locations of some of the excavated test-pits, those shown on Figure 2, were moved in the field due to obstructions on the site. A further three *c*.4 metres by *c*.4 metres boxes were then excavated, their position informed by the results of the initial sixteen test-pits.

Concrete slab was fragmented over the area of the test-pits using a JCB mechanical excavator equipped with a hydraulic breaker. The test-pits themselves were opened using a JCB mechanical excavator with a toothless ditching bucket to provide a good clean cut.

Site levels were related to Ordnance Datum from a temporary benchmark at 10.06 metres OD that had been transferred to the site from a benchmark at 18.29 metres OD located on a church on the corner of Luther Road and Rectory Road.

Depths, thickness and a basic description of the layers encountered in each trench were recorded and are presented in Tables 1 to 19.

A photographic record (monochrome prints, colour slides & digital) was made when appropriate.

One face of each of the *c*.4 metres by *c*.4 metres boxes was recorded as a 1:20 drawn section in pencil on plastic drafting film.

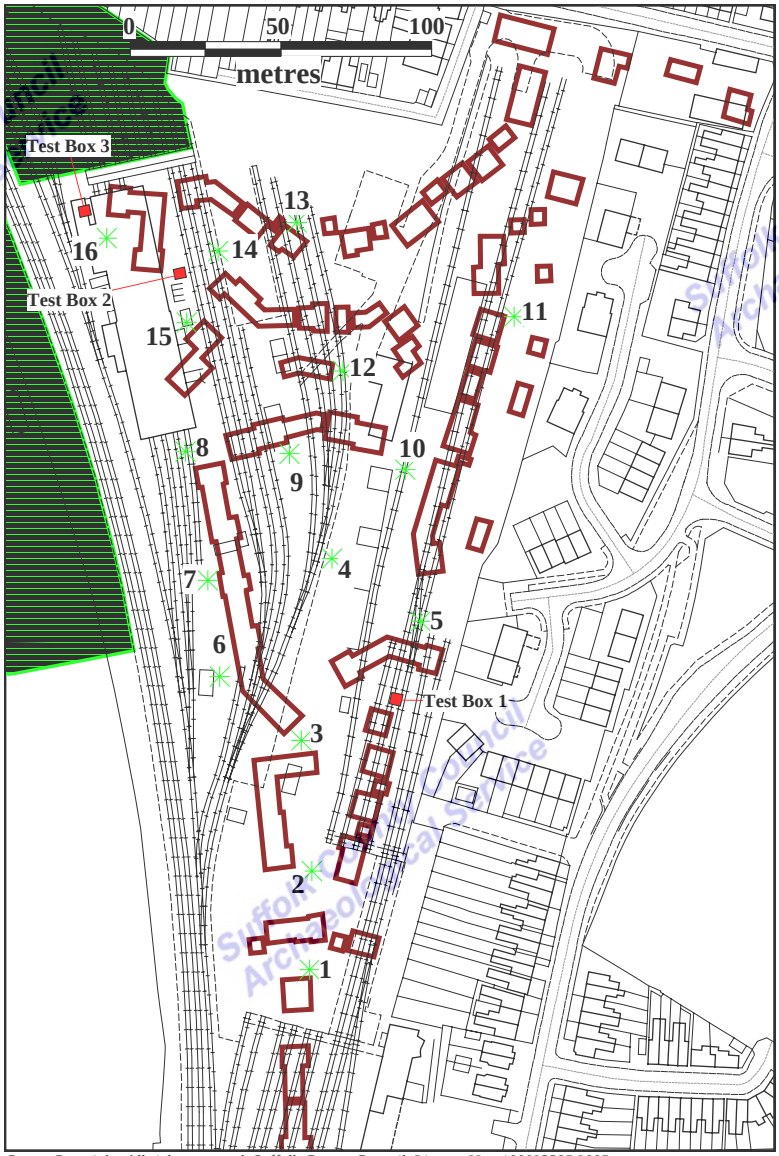


Fig. 2 1:2500 scale OS map extract showing the location of the test-pits & test-boxes in relation to the proposed development

Layers and features recorded in the three test-boxes were allocated OP (Observed Phenomena) numbers within a unique continuous numbering sequence under the Sites and Monuments Record (SMR) code IPS 468.

Bulk samples were retained from each discrete stratigraphic geological unit identified within the three test-boxes along with a single column sample (Test-Box 3).

On site geological advice was provided by local geologists (Bob Markham & Peter Allen) and Chris Green from Royal Holloway College, London.

2.2 Post-Excavation

Details of the project and a copy of this report have been submitted to the Oasis project (Online Access to the Index of Archaeological Investigations), a requirement of archaeological projects undertaken in Suffolk.

Context information was input onto a Microsoft Access97 database (Appendix II).

Section drawings were inked and reproduced in this report at a scale of 1:50 (Figs. 3, 4 & 5).

Measured details (depths, thickness etc.) within the individual pits and boxes have been tabulated and appear in this report as Tables 1 to 19.

Photographs have been added to the Suffolk County Council's Archaeological Service Photographic Archive which is held in Shire Hall, Bury St. Edmunds.

3. Results

The locations of the test-pits and test-boxes are shown on Figure 2, along with the proposed housing development (in brown) and the existing SSSI (in green).

Test-Pit 1 (TM 1627 4308)

Test-Pt 1 was located towards the centre of the southern end of the site (Fig. 2).

Metres OD	Depth	Thickness	Description
8.96 metres	0.00 metres		Surface of site
7.76 metres	1.20 metres	1.20 metres	Mixed clay and rubble
			Concrete base (bottom of trench)

Table 1: Details of Test-Pit 1

After the removal of 1.2 metres of mixed clay and rubble, a concrete slab was encountered at a level of 7.76 metres OD. This pit was abandoned at this stage with no natural geological layers observed.

Test-Pit 2 (TM 1627 4311)

Test-Pit 2 was located towards the centre of the southern end of the site, *c*.30 metres north of Test-Pit 1 (Fig. 2).

Metres OD	Depth	Thickness	Description
8.96 metres	0.00 metres		Surface of site
8.76 metres	0.20 metres	0.20 metres	Concrete slab
7.21 metres	1.75 metres	1.55 metres	Mixed rubble sand & gravel, had ceramic pipe towards base
6.36 metres	2.60 metres	0.85 metres	Orange gravel & sand
6.06 metres	2.90 metres	0.30 metres	Layer of brown very silty sand
5.86 metres	3.10 metres	0.20 metres +	Fine grained yellow sand, continues beyond base of trench
			Bottom of trench

Table 2: Details of Test-Pit 2

At this juncture, a *c*.0.2 metre thickness of concrete slab was recorded overlying *c*.1.55 metres of mixed rubble, sand and gravel. Rather than a laterally persistent layer, this was thought to represent the fill of a trench at the base of which lay a

ceramic drainpipe. Naturally occurring geological layers may have occurred at a higher level immediately adjacent to the excavated trench.

Naturally occurring geological layers were encountered at a depth of 1.75 metres (7.21 metres OD) (see Table 2). Here, a 0.85 metre thickness of orange gravel and sand was found to overlie 0.3 metres of brown, very silty sand which, in turn overlay fine grained yellow sand that continued on down beyond the bottom of the trench at a depth of 3.1 metres (5.86 metres OD).

Test-Pit 3 (TM 1627 4315)
Test-Pit 3 was located relatively central to the site *c*.40 metres north of Test-Pit 2, *c*.10 metres north of one of the few remaining standing buildings (Fig. 2).

Metres OD	Depth	Thickness	Description
8.91 metres	0.00 metres		Surface of site
8.61 metres	0.30 metres	0.30 metres	Concrete slab
8.46 metres	0.45 metres	0.15 metres	Rubble/hardcore
7.91 metres	1.00 metre	0.55 metres	Orange sand with very common inclusions of gravel/stones
7.71 metres	1.20 metres	0.20 metres	Orange silty sand
7.01 metres	1.90 metres	0.70 metres +	Coarse grained sand with gravel-pebble sized clasts, continues beyond bottom of trench
			Bottom of trench

Table 3: Details of Test-Pit 3

A 0.3 metre thick slab of concrete was found to overlie a 0.15 metres thick layer of rubble/hardcore with naturally occurring geology encountered at a depth of 0.45 metres (8.46 metres OD). Here, 0.55 metres of stony/gravelly sand was found to overlie 0.2 metres of orange silty sand over a coarse grained sand with gravel to pebble sized clasts which continued down beyond the bottom of the trench at a depth of 1.9 metres (7.01 metres OD).

Test-Pit 4 (TM 1628 4321)
Test-Pit 4 was located towards the centre of the site approximately 60 metres north of Test-Pit 3 (Fig. 2).

Metres OD	Depth	Thickness	Description
8.86 metres	0.00 metres		Surface of site
8.56 metres	0:30 metres	0.30 metres	Concrete slab
8.31 metres	0.55 metres	0.25 metres	Rubble/hardcore
7.26 metres	1.60 metres	1.05 metres	Silty sandy layers with brick, made ground or pit fill
7.06 metres	1.80 metres	0.20 metres	Orange sand & gravel
6.76 metres	2.10 metres	0.30 metres +	Clean yellow/orange fairly fine grained sand, continues beyond bottom of trench
			Bottom of trench

Table 4: Details of Test-Pit 4

A 0.3 metres thick slab of concrete was found to overlie 0.25 metres of rubble/hardcore which itself overlay 1.05 metres of stratified silt and sand with brick inclusions. With no obvious edges visible in the trench, it was impossible to tell whether the latter represented made ground or pit fill. Natural geological layers were encountered at a depth of 1.6 metres (7.26 metres OD). Here, 0.2 metres of orange sand and gravel overlay a yellow/orange fine-grained sand, which continued on below the bottom of the trench at a depth of 2.1 metres (6.76 metres OD).

Test-Pit 5 (TM 1631 4319)

Test-Pit 5 was located towards the eastern edge of the site approximately 35 metres to the south-east of Test-pit 4 (Fig. 2).

Metres OD	Depth	Thickness	Description
8.61 metres	0.00 metres		Surface of site
8.31 metres	0.30 metres	0.30 metres	Clinker
7.77 metres	0.84 metres	0.54 metres	Mixed compact sand, silt, gravel & pebbles. Made ground
7.26 metres	1.35 metres	0.51 metres	Homogenous brown silty sand with occasional stones (buried soil)
6.86 metres	1.75 metres	0.40 metres	Coarse grained yellow/orange sand with gravel, continues beyond bottom of trench
			Bottom of trench

Table 5: Details of Test-Pit 5

Plate 1: West Side of Test-Pit 5

At this juncture, 0.3 metres of clinker was found to overlie a 0.54 metre thickness of compact, mixed silt, gravel and pebble-sized stones which, in turn, overlay 0.51 metres of homogenous brown silty sand with occasional stones (Plate 1). The latter was interpreted as a buried soil with natural geology encountered at its base at a depth of 1.35 metres (7.26 metres OD).

The natural geology comprised coarse-grained yellow/orange sand and gravels that continued on beyond the base of the trench at a depth of 1.75 metres (6.86 metres OD). A linear feature cutting across the base of the pit, initially thought to be a ditch, was on excavation found to have ill-defined edges and was probably natural in origin.

Test-Pit 6 (TM 1624 4317)

Test-Pit 6 was located towards the western edge of the site *c*.35 metres north-west of Test-pit 3 and only *c*.15 metres to the east of the working railway lines (Fig. 2).

Here, a 0.55 metres thickness of clinker was found to overlie 0.3 metres of grey/green clayey sand which in turn overlay 1.85 metres of mixed sand and clay with chalk lumps in its top 0.5 metres. These layers were clearly not natural in origin and must represent pit fill.

Metres OD	Depth	Thickness	Description
8.99 metres	0.00 metres		Surface of site
8.44 metres	0.55 metres	0.55 metres	Clinker
8.14 metres	0.85 metres	0.30 metres	Grey/green clayey sand, made ground
6.29 metres	2.70 metres	1.85 metres	Mixed sand & clay with chalk lumps in top 0.5 metres, made ground or pit fill
6.19 metres	2.80 metres	0.10 metres +	Mixed clay & gravel/pebbles, possibly natural deposit, continues beyond bottom of trench
			Bottom of trench

Table 6: Details of Test-Pit 6

A layer of mixed clay with gravel and pebble-sized stones, encountered at a depth of 2.7 metres (6.29 metres OD), continued on beyond the bottom of the trench at a depth of 2.8 metres (6.19 metres OD). It was unclear whether this basal layer was natural in origin or a continuation of the overlying made ground/pit fill.

Test-Pit 7 (TM 1624 4321)

Test-Pit 7 was located towards the western edge of the site *c*.35 metres north of Test-Pit 6 and approximately 20 metres from the working railway lines (Fig. 2).

Metres OD	Depth	Thickness	Description
8.91 metres	0.00 metres		Surface of site
8.36 metres	0.55 metres	0.55 metres	Clinker
8.21 metres	0.70 metres	0.15 metres	Gritty orange sand
8.06 metres	0.85 metres	0.15 metres	Light brown clay
8.01 metres	0.90 metres	0.05 metres	Metalled surface?
7.26 metres	1.65 metres	0.75 metres	Sticky, light brown silty clay
6.51 metres	2.40 metres	0.75 metres +	Orange gravel & sand with some clay lenses, continues beyond bottom of trench
			Bottom of trench

Table 7: Details of Test-Pit 7

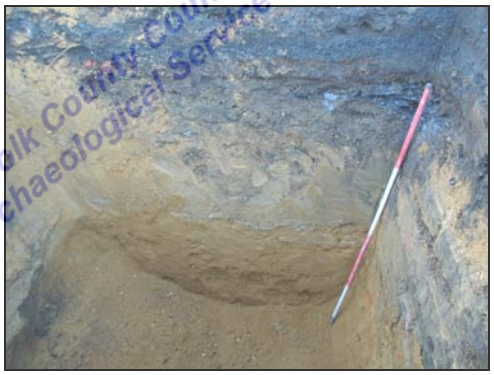


Plate 2: West Side of Test-Pit 7

At this juncture, 0.55 metres of clinker overlay 0.15 metres of gritty orange sand over a 0.15 metre thickness of light brown clay which, in turn, overlay a 0.05 metres thick layer of compacted gravel, the latter interpreted as a metalled surface.

Natural geology was encountered at a depth of 0.9 metres (8.01 metres OD), comprising a 0.75 metres thick layer of sticky, light brown silty clay which, itself overlay a stratified deposit of sand, gravel and clay that continued

on beyond the base of the trench at a depth of 2.4 metres (6.51 metres OD).

Test-Pit 8 (TM 1623 4325)
Test-Pit 8 was located towards the western side of the site *c*.45 metres north of Test-Pit 7 and approximately 25 metres from the working railway lines (Fig. 2).

Metres OD	Depth	Thickness	Description
8.95 metres	0.00 metres		Surface of site
8.55 metres	0.40 metres	0.40 metres	Compact mixed gravel, sand & clay. Made ground
7.45 metres	1.50 metres	1.10 metres	Mixed orange sand and gravel with some horizontal banding
6.75 metres	2.20 metres	0.70 metres	Gravelly sand, becoming coarser with pebbles towards base
5.55 metres	3.40 metres	1.20 metres	Light brown silty clay, gravel towards base, continues beyond bottom of pit
			Bottom of trench

Table 8: Details of Test-Pit 8

A 0.4 metres thick layer of compacted, mixed gravel, sand and clay was recorded lying directly on natural geology at 8.55 metres OD.

1.1 metres of horizontally banded sand and gravel was recorded down to a depth of 1.5 metres (7.45 metres OD) overlying a 0.7 metres thick coarser component with more pebbles towards its base at 6.75 metres OD. From this point down to the bottom of the trench at a depth of 3.4 metres (5.55 metres OD), a light brown silty clay was recorded, becoming gravelly towards its base.

Test-Pit 9 (TM 1626 4325)
Test-Pit 9 was located towards the centre of the site approximately 35 metres to the east of Test-Pit 8 (Fig. 2).

Metres OD	Depth	Thickness	Description
9.14 metres	0.00 metres		Surface of site
8.94 metres	0.20 metres	0.20 metres	Clinker
8.24 metres	0.90 metres	0.70 metres	Mixed sand, clinker & brick. Made ground
5.44 metres	3.70 metres	2.80 metres +	Orange sand & gravel, lighter component towards base, continues beyond bottom of trench
			Bottom of trench

Table 9: Details of Test-Pit 9

At this juncture 0.2 metres of clinker was found to overlie 0.7 metres of mixed sand, clinker and brick with the natural geology encountered at the base of this layer at a depth of 0.9 metres (8.24 metres OD).

From the bottom of the made ground to the base of the trench at a depth of 3.7 metres (5.44 metres OD), the natural geology comprised a thickness of 2.8 metres of orange sand and gravel with a lighter component towards its base.

Test-Pit 10 (TM 1630 4324)

Test-Pit 10 was located towards the eastern side of the site approximately 37 metres to the east of Test-Pit 9 (Fig. 2).

Metres OD	Depth	Thickness	Description
9.14 metres	0:00 metres		Surface of site
8.84 metres	0.30 metres	0.30 metres	Mixed clinker & sand
7.44 metres	1.70 metres	1.40 metres	Orange sand with *c*.80% gravel to cobble-sized stones
7.04 metres	2.10 metres	0.40 metres +	Yellow/orange sand with some gravel to pebble-sized inclusions, continues beyond bottom of trench
			Bottom of trench

Table 10: Details of Test-Pit 10

Plate 3: West Side of Test-Pit 10

The trench was positioned in a clear area beside an existing concrete slab where a 0.3 metres thick layer of mixed clinker and sand was found to lie directly on natural geology at 8.84 metres OD.

Here, a 1.4 metre thick deposit of gravel to cobble sized stones in a silty sand matrix was recorded overlying yellow/orange sand which continued on beyond the base of the trench at a depth of 2.1 metres (7.04 metres OD) (Plate 3).

One feature, a drain-trench was recorded cut into the surface of the natural geology to a depth of *c*.0.5 metres.

Test-Pit 11 (TM 1634 4329)

Test-Pit 11 was located towards the eastern side of the site approximately 50 metres to the north-east of Test-Pit 10 (Fig. 2).

Metres OD	Depth	Thickness	Description
8.70 metres	0.00 metres		Surface of site
8.55 metres	0.50 metres	0.50 metres	Clinker
6.90 metres	1.80 metres	1.30 metres	Orange sand with *c*.80% gravel to cobble-sized stones
6.70 metres	2.00 metres	0.20 metres +	Orange clayey sand with occasional gravel/pebble-sized inclusions, continues beyond bottom of trench
			Bottom of trench

Table 11: Details of Test-Pit 11

At this juncture, 0.15 metres of clinker was recorded lying directly on natural geology at 8.55 metres OD.

The geological layers were similar in character to those encountered in Test-Pit 10 with 1.65 metres of gravel to cobble sized stones in a silty sand matrix overlying orange, clayey sand, with occasional gravel-pebble sized inclusions, the latter continuing beyond the bottom of the trench at a depth of 2 metres (6.7 metres OD) (Plate 4).

Plate 4: West Side of Test-Pit 11

Test-Pit 12 (TM 1628 4328)
Test-Pit 12 was located in the centre of the site approximately 60 metres south-west of Test-Pit 11 (Fig. 2).

Metres OD	Depth	Thickness	Description
9.17 metres	0.00 metres		Surface of site
9.02 metres	0.15 metres	0.15 metres	Clinker
7.57 metres	1.60 metres	1.45 metres	Orange sand with gravel-small cobble sized inclusions, possibly includes an upper sandier component
6.77 metres	2.40 metres	0.8 metres +	Orange/yellow sand with some gravel/pebble-sized inclusions, less than overlying unit
			Bottom of trench

Table 12: Details of Test-Pit 12

The uppermost layer, comprising 0.15 metre thickness of clinker, was found lie directly on the natural geology at 9.02 metres OD.

Here, 1.45 metres of orange sand with inclusions of gravel to small cobble-sized stones overlay orange/yellow sand with gravel to pebble sized inclusions which continued down beyond the bottom of the trench at a depth of 2.4 metres (6.77 metres OD) (Plate 5).

Plate 5: East Side of Test-Pit 12

Test-Pit 13 (TM 1628 4333)
Test-Pit 13 was located towards the northern edge of the site approximately 50 metres north-north-west of Test-Pit 12 (Fig. 2).

Metres OD	Depth	Thickness	Description
9.17 metres	0.00 metres		Surface of site
8.57 metres	0.60 metres	0.60 metres	Clinker
7.62 metres	1.55 metres	0.95 metres	Mixed sand & clay, unconsolidated. Made ground
7.07 metres	2.10 metres	0.55 metres	Clayey loam with mortar, tile, slate & brick fragments. Made ground or pit fill
6.87 metres	2.30 metres	0.20 metres +	Fine grained yellow/orange sand
			Bottom of trench

Table 13: Details of Test-Pit 13

Plate 6: Northern Side of Test-Pit 13

At this juncture, 0.6 metres of clinker was found to overlie 0.95 metres of unconsolidated, mixed sand and clay which in turn gave way to a brown clayey loam with inclusions of brick, tile, slate and mortar with natural geology encountered at a depth of 2.1 metres (7.07 metres OD) (Plate 6). The depth of the made ground suggests that it represented pit fill rather than laterally persistent layers.

The natural geology comprised fine-grained yellow/orange sand that continued down beyond the bottom of the trench at a depth of 2.3 metres (6.87 metres OD).

Test-Pit 14 (TM 1624 4331)
Test-Pit 14 was located towards the north-western corner of the site approximately 25 metres west-south-west of Test-Pit 13 (Fig. 2).

A total of 0.8 metres of made ground was encountered comprising 0.45 metres of clinker over 0.35 metres of mixed dirty grey clay and clinker with the natural geology recorded at a depth of 0.8 metres (8.6 metres OD).

The well-stratified deposits were some of the most geologically variable seen on the site, with individual components measuring only a few centimetres in thickness (Plate 7).

Metres OD	Depth	Thickness	Description
9.40 metres	0.00 metres		Surface of site
8.95 metres	0.45 metres	0.45 metres	Clinker
8.60 metres	0.80 metres	0.35 metres	Dirty grey clay & clinker
8.38 metres	1.02 metres	0.22 metres	Yellow/orange clay
8.15 metres	1.25 metres	0.23 metres	Medium grained light brown sand
7.90 metres	1.50 metres	0.25 metres	Coarse grained orange sand with occasional pebble-sized stones
7.74 metres	1.66 metres	0.16 metres	Silver & light brown medium grained sand
7.70 metres	1.70 metres	0.04 metres	Intermittent clay
7.00 metres	2.40 metres	0.70 metres	Alternating layers of silty clay, sand & gravel with common manganese staining. Cross-bedded, dip towards north-west
6.70 metres	2.70 metres	0.30 metres +	Coarse grained orange stony sand, continues beyond bottom of the trench
			Bottom of trench

Table 14: Details of Test-Pit 14

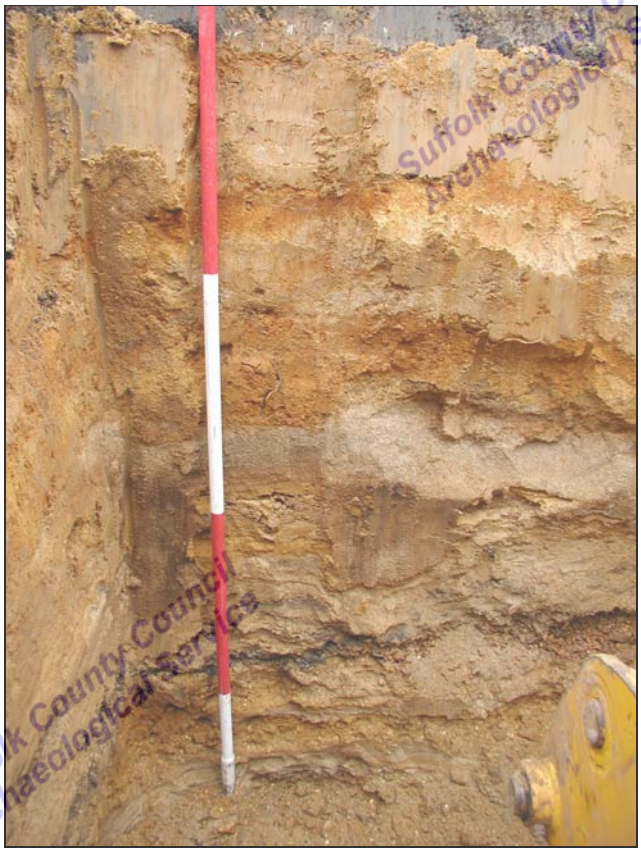


Plate 7: North Side of Test-Pit 14, Base of Made Ground to Bottom of Trench

The uppermost geological layer comprised *c*.0.22 metres of yellow/orange clay overlying 0.23 metres of medium-grained, light brown sand. Below this was 0.25 metres of coarse-grained orange sand, with occasional pebble inclusions, which itself overlay a 0.16 metres thick layer of silver-light brown medium-grained sand. Under this was a thin (maximum thickness 0.04 metres) layer of brown silty clay, not consistently identified around the whole trench, which overlay a 0.7 metres thick stratified unit consisting of alternating bands of silt/clay, sand and gravel with common manganese staining. These bands consistently dipped towards the north-west and overlay a coarse-grained stony sand, which continued beyond the base of the trench at a depth of 2.7 metres (6.7 metres OD).

Test-Pit 15 (TM 1623 4329)

Test-Pit 15 was located towards the north-west corner of the site approximately 35 metres to the south-east of Test-Pit 14 (Fig. 2).

Metres OD	Depth	Thickness	Description
9.51 metres	0.00 metres		Surface of site
9.16 metres	0.35 metres	0.35 metres	Concrete slab
8.76 metres	0.75 metres	0.40 metres	Clinker
8.51 metres	1.00 metre	0.25 metres	Mixed sand, gravel & brick fragments. Made ground
8.16 metres	1.35 metres	0.35 metres	Mixed sand, gravel & clay, locally contaminated by diesel. Made ground
7.36 metres	2.15 metres	0.80 metres	Homogenous orange gravelly sand, unconsolidated. Made ground or pit fill
6.61 metres	2.90 metres	0.75 metres	Unconsolidated clay with some organic matter + voids. Includes fragments of bone. Made ground or pit fill
6.51 metres	3.00 metres	0.10 metres +	Light brown gravelly sand with some clay, possibly natural, but could still be part of made ground or pit fill. Continues beyond bottom of trench
			Bottom of trench

Table 15: Details of Test-Pit 15

Plate 8: North Side of Trench 15

At this juncture a 0.35 metre concrete slab overlay 0.4 metres of clinker which in turn overlay 0.25 metres of mixed sand and gravel with frequent fragments of brick.

The underlying layer, comprising 0.8 metres of homogenous unconsolidated orange sand and gravel, was initially thought to represent natural geology. However, the 0.75 metres thick layer of blocky clay with voids, which underlay the sand, was found to include grass and wood. This, along with the unconsolidated nature of the sand, suggests that this was actually made ground, almost certainly pit fill.

The clay layer gave way to a light brown sandy gravel with clay at a depth of 2.9 metres (6.61 metres OD), a layer which continued on down beyond the bottom of the trench at a depth of 3.00 metres (6.51 metres). It was unclear whether this basal layer was naturally derived or part of the pit fill.

Three fragments and one larger piece of bone were recovered from the blocky clay layer which suggesting that it may have derived from geological layers which included the bone-bed.

Test-Pit 16 (TM 1620 4332)
Test-Pit 16 was located towards the north-western edge of the site approximately 37 metres to the north-west of Test-Pit 15 and only 22 metres from the working railway lines (Fig. 2).

Metres OD	Depth	Thickness	Description
9.20 metres	0.00 metres		Surface of site
8.85 metres	0.35 metres	0.35 metres	Concrete slab
8.72 metres	0.48 metres	0.13 metres	Clinker & rubble
8.46 metres	0.74 metres	0.26 metres	Mixed brown silt, sand & clay. Made ground or pit fill
8.26 metres	0.94 metres	0.20 metres	Fine grained yellow sand
6.60 metres	2.6 metres	1.66 metres +	Well laminated sands, some gravel layers & manganese staining, more gravel at base of trench. Continues beyond base of trench
			Bottom of trench

Table 16: Details of Test-Pit 16

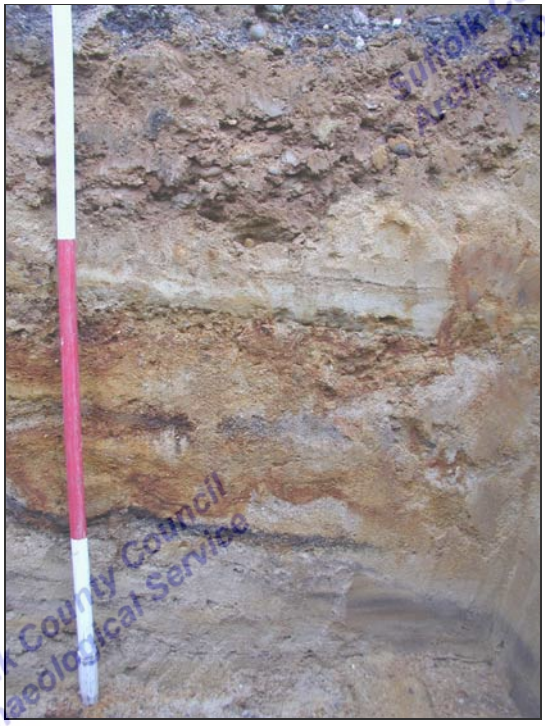


Plate 9: West Side of Test-Pit 16

Here, a 0.35 metres thickness of concrete was found to overlie 0.13 metres of clinker and rubble which, in turn, overlay 0.26 metres (on the western side of the pit, increasing to 1 metre to the east) of mixed, brown silt, sand, stones and clay. The latter was clearly made ground and almost certainly represented the fill of a pit. At their shallowest, in the recorded western side of the pit, natural geological layers were encountered at a depth of 0.74 metres (8.46 metres OD).

The uppermost geological layer comprised 0.2 metres of fine-grained yellow sand overlying a series of stratified sand and gravel, which exhibited frequent manganese staining, which continued on below the bottom of the trench at a depth of 2.6 metres (6.6 metres OD).

Test-Boxes
As a result of the excavation of the sixteen Test-Pits, Suffolk County Council's Archaeological Service Conservation Team identified areas in which a second phase

of evaluation, involving the excavation of three 4 metres by 4 metres boxes, should be targeted. As a result, one of the boxes was excavated towards the eastern edge of the site, investigating the buried soil horizon, while the other two were located towards the north-west corner of the site, relatively close to the existing SSSI, where the bone bed had previously been identified and where bone fragments had been recovered from the later pit fill (Test-Pit 15) (Fig. 2).

Test-Box 1 (TM 1630 4317)

Test-Box 1 was located towards the eastern side of the site approximately 25 metres to the south of Test-Pit 5 (Fig. 2).

Metres OD	Depth	Thickness	Description
8.78 metres	0.00 metres		Surface of site
8.43 metres	0.35 metres	0.35 metres	Clinker (*0002*)
7.98 metres	0.80 metres	0.45 metres	Mixed orange sand, clay & gravel-pebble sized stones, made ground (*0003*)
7.58 metres	1.20 metres	0.40 metres	Mid brown very silty sand (buried soil) (*0004*)
8.28 metres	1.60 metres	0.40 metres	Fine grained light brown sand, grades into base of overlying layer (*0005*)
7.88 metres	2.00 metres	0.40 metres +	Orange patchy sand with some gravel to pebble-sized inclusions (*0006*). Continues beyond bottom of trench
			Bottom of trench

Table 17: Details of Test-Box 1

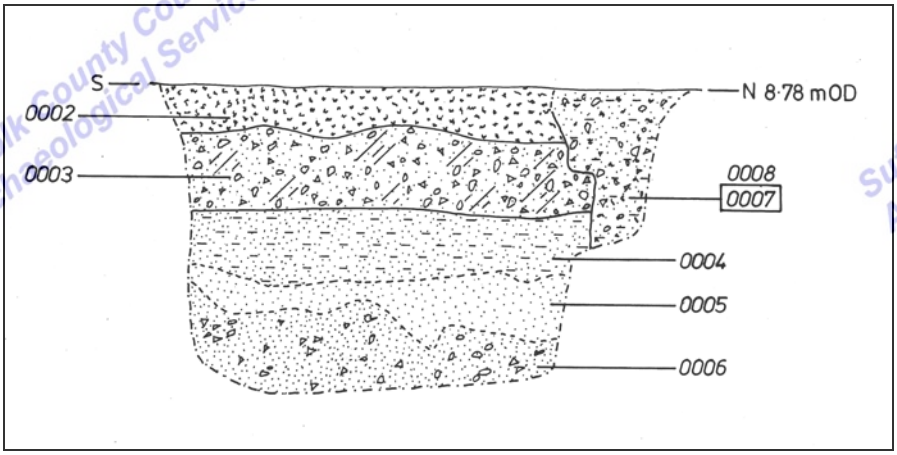
Plate 10: West Side of Test-Box 1

The soil profile recorded in Test-Box 1 was remarkably consistent with that seen in Test-Pit 5, an indication that the layers in this area of the site were laterally persistent over a reasonably large area.

A 0.35 metre thick layer of clinker (*0002*) was recorded over 0.45 metres of relatively compacted, mixed, orange sand, silt, clay with frequent gravel to pebble sized stones (*0003*). Below this was encountered a 0.4 metres thick layer of mid-brown, very silty sand (*0004*) which was interpreted as a buried soil horizon. This in turn graded down into the underlying natural geology (at a depth of 1.2 metres, 7.58 metres OD) comprising a 0.4 metres thick layer of light brown sand (*0005*) overlying orange patchy sand with gravel to pebble-sized stone inclusions (*0006*), the latter continuing on down beyond

the bottom of the trench at a depth of 2.00 metres (7.88 metres OD).

An east to west orientated drainage trench (*0007*, fill *0008*) was also recorded running across the trench, appearing in the drawn section (Fig. 3).



A one-bag soil sample was taken from each of layers *0004*, *0005* & *0006*.

Fig. 3 Test-Box 1: 1:50 scale section drawing

Test-Box 2 (TM 1623 4331)
Test-Box 2 was located towards the north-western corner of the site, equidistant between Test-Pits 14 and 15 (Fig. 2).

Metres OD	Depth	Thickness	Description
9.23 metres	0.00 metres		Surface of site
8.78 metres	0.45 metres	0.45 metres	Clinker (*0010*)
8.60 metres	0.63 metres	0.18 metres	Dirty orange/brown sand with clinker (*0011*)
8.15 metres	1.08 metres	0.45 metres	Orange silty/clayey sand with gravel-pebble sized inclusions, some cross-sets in sand (*0012*)
7.48 metres	1.48 metres	0.67 metres +	Light brown/yellow stratified silts, gravels & sands (*0013*). Continues beyond bottom of trench
			Bottom of trench

Table 18: Details of Test-Box 2

Plate 11: Pit Edge Seen in Test-Box 2

At this juncture, 0.45 metres of clinker (*0010*) was recorded overlying 0.18 metres of dirty orange/brown sand with clinker (*0011*). Natural geology was encountered at a depth of 0.63 metres (8.60 metres OD) on the western side of the trench, but was cut away by the edge of a large pit on the eastern side. This feature was almost certainly that into which Test-Pit 15 had been excavated. Plate 11 shows the surface of the natural geology to the right (west) with the darker fill of the pit to the left (east) with its clearly defined edge running through the centre of the photo.

At the interface between the natural geology and the

overlying made ground the vestiges of as sticky brown clay layer was recorded locally, but was not thick enough to appear as a discrete unit on the drawn section.

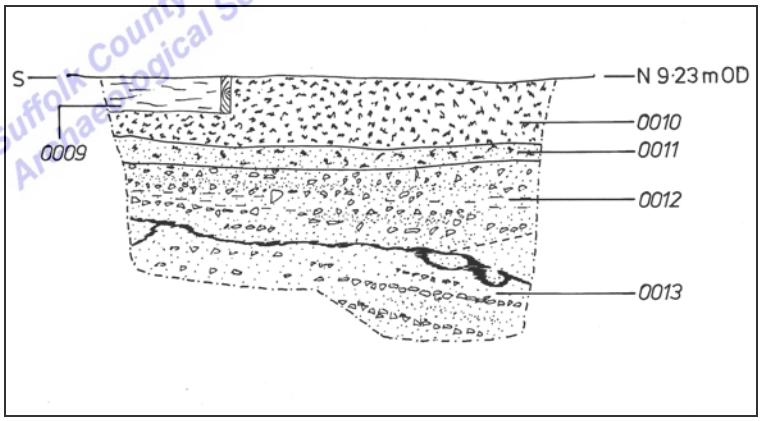


Fig. 4 Test-Box 2: 1:50 scale section drawing

Plate 12: West Side of Test-Box 2

The natural geological layers comprised 0.45 metres of stratified orange silty/clayey sand with some gravel to pebble-sized stone inclusions (*0012*), overlying light brown/yellow stratified silts, sands and gravels (*0013*), which continued down beyond the bottom of the trench at a depth of 1.48 metres (7.48 metres). A dark band of manganese staining had developed primarily at the interface between the two geological layers, although it did dip down into *0013* at the northern end of the trench (Plate 12).

Test-Box 3 (TM 1620 4333)

Test-Box 3 was also located towards the north-west corner of the site approximately 12 metres to the north-west of Test-Pit 16 and only 18 metres from the working railway lines (Fig. 2).

Metres OD	Depth	Thickness	Description
9.23 metres	0.00 metres		Surface of site
9.03 metres	0.20 metres	0.20 metres	Concrete slab (*0014*)
8.93 metres	0.30 metres	0.10 metres	Angular granite aggregate (*0015*)
8.83 metres	0.40 metres	0.10 metres	Clinker (*0016*)
8.53 metres	0.70 metres	0.30 metres	Very dark grey loam with common inclusions of clinker & brick (*0017*)
8.13 metres	1.10 metres	0.40 metres	Homogenous buff coloured sandy, clayey silt (*0018*)
7.33 metres	1.90 metres	0.80 metres +	Well stratified sands, silts & gravels, dipping slightly towards north-west (*0019*). Continues beyond base of trench
			Bottom of trench

Table 19: Details of Test-Box 3

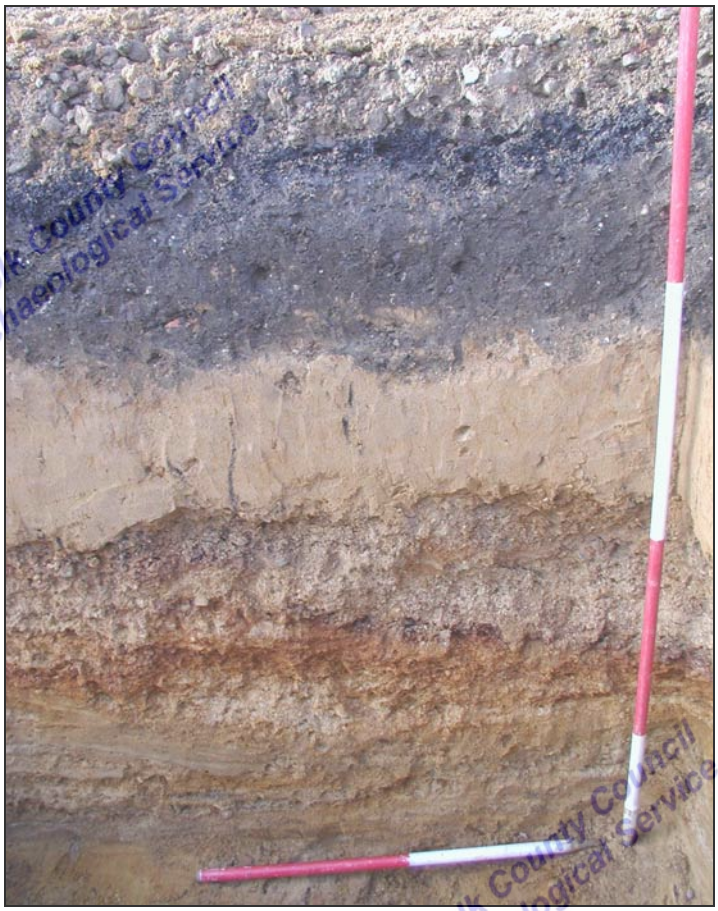


Plate 13: West Side of Test-Box 3

Here, a 0.2 metres thick concrete slab (*0014*) was found to overly a 0.1 metres thick layer of granite chippings (*0015*) which, in turn, gave way to 0.1 metres of clinker (*0016*) over 0.3 metres of very dark grey loam with clinker and brick inclusions (*0017*) (Plates 13 & 14). Natural geology was encountered at a depth of 0.7 metres (8.53 metres OD).

The uppermost geological layer comprised homogenous buff coloured very fine-grained sandy, clayey silt (*0018*) which varied in thickness between 0.24 metres to 0.52 metres and overlay a series of well stratified silts, sands and gravels (*0019*) which continued on down beyond the bottom of the trench at a depth of 1.9 metres (7.33 metres OD). One bag samples were taken from both *0018* and *0019*, along with a column sample through *0018* (Fig. 5).

One feature (*0020*) was seen cutting through the natural geology in the north side of Test-Box 3, but was clearly sealed by all of the made ground layers (Plate 14). Initially this was thought to represent an Ice Wedge with its dark grey/mauve clay fill (*0021*) derived from layers higher up the geological sequence which have since been eroded or truncated in the railway cutting. However, when some of the fill was sorted a single piece of roof-tile was recovered proving beyond doubt that the feature was actually another pit of modern date.

Plate 14: North Side of Test-Box 3

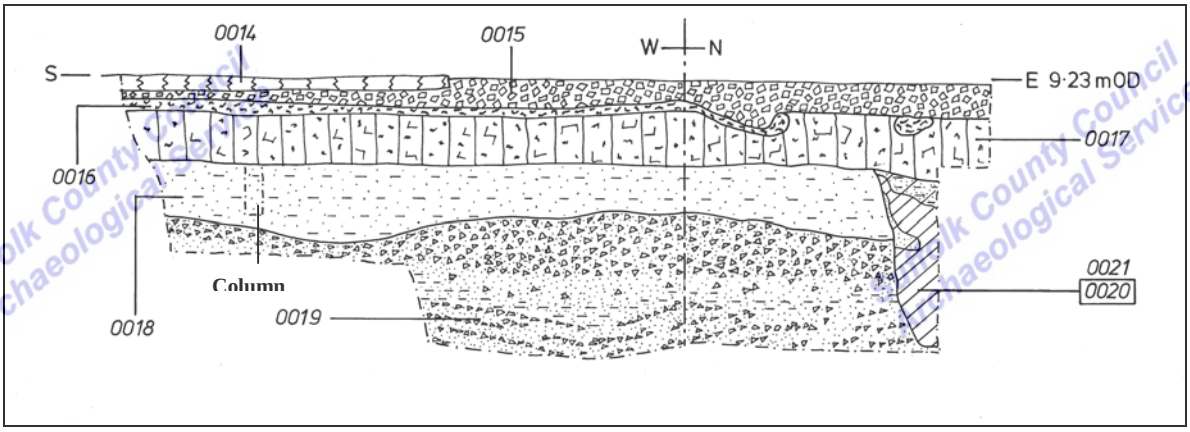


Fig. 5 Test-Box 3: 1:50 scale section drawing

4. Archaeological Interpretation

The evidence gleaned from the trial-pits has proved that it is unlikely that the previously identified bone bed now exists within the proposed development area.

It had formerly been postulated (Wymer, 1985, p.227) that the bone bed extended for nearly a kilometre southward from the railway tunnel, at a level of approximately 8 to 8.5 metres OD, broken only by a dry valley that cut through it. Evidence from the trial-trenches (Test-Pit 5 & Test-Box 1) does not contradict this hypothesis, proving that in an area on the south-east side of the site that, rather than being truncated by railway landscaping, the ground level has been artificially built up. The natural geological deposits in this area were, therefore, below 8.00 metres OD and natural processes would already have eroded the bone bed at this juncture. Indeed, this area of the site may represent the continuation eastwards of the dry valley described by Wymer in which he suggests that the bone bed had previously been truncated. While it is certain that the bone bed will not occur in this area, there is the potential for more conventional archaeological deposits to survive below the buried soil, although none were identified within the limited areas of the trial-trenches.

For much of the remainder of the site, the natural geology has been truncated to a level where major disruption, if not total destruction of the bone bed is already likely to have occurred through a combination of landscaping, pitting and the insertion of structures associated with the railway. The recovery of bone fragments from one of the pits, almost certainly derived from the bone bed, is further evidence for both its former presence and subsequent destruction during the 19th and 20th centuries.

5. Conclusions & Recommendations for Further Work

In summary, the results of the test-trenching suggest that any survival of the bone-bed within the development area would be limited to very small pockets, none of which were encountered during the evaluation. There is, however, the potential for conventional archaeological deposits to occur, on the south-eastern side of the site, below a buried soil horizon at a depth of *c*.1.3 metres.

It is unlikely that any further programme of archaeological work specified by the archaeological advisors to the local planning authority (SCCASCT) will involve open

area excavation. However, pre-development clearance of the site and the groundworks associated with the construction works will clearly cause major destruction to both the natural geological layers and archaeological deposits, conventional or otherwise. On that basis, it is thought that any recommendation for further archaeological work will probably involve the monitoring of the site clearance and subsequent groundworks and the recording of any archaeological deposits identified.

6. Bibliography

Hawkins, D. 2004 — *Land at Croft Street Ipswich, Archaeological Desk Based Assessment*, CgMs Limited Document DH/KB/4758

Wymer, J. 1985 — *Palaeolithic Sites of East Anglia*, Norwich 1985

Any opinions expressed in this report about the need for further archaeological work are those of the Field Projects Division alone. The need for further work will be determined by the Local Planning Authority and its archaeological advisors when a planning application is registered. Suffolk County Council's archaeological contracting service cannot accept responsibility for inconvenience caused to clients should the Planning Authority take a different view to that expressed in the report.

Appendix I: Croft Street, Ipswich, Method Statement for an Archaeological Evaluation

1.0 Background

1.1 A *c*.4.15 hectares site at Croft Street, Ipswich (TM 163 432) has been proposed for redevelopment.

Until recently the site had been occupied by a railway depot that was established in the middle of the 19th century.

Landscaping and construction works associated with this depot have truncated much of the surface deposits with the archaeological potential for the site now limited to Pleistocene/Palaeolithic levels and buildings and structures associated with the railway depot itself.

1.2 A desk-based survey by CgMs Consulting describes in detail the earlier finds and investigations on the site, the majority of which have been made during engineering works.

The most significant finds were recovered from a Pleistocene 'bone-bed' and included a wide range of faunal remains. While rare, human artefacts have also been recovered from the bone-bed and associated layers

The bone-bed occurs at approximately 8.00 metres OD which lies between 1 and 1.5 metres below the level of the existing railway lines.

Comprehensive geotechnical logs and the evidence gleaned from a site walkover suggest that, locally, features associated with the railway depot have truncated the bone-bed.

1.3 The proposed use of strip-foundations, vibrostone piling and insertion of Mains Services on the site is considered to be potentially damaging to the surviving archaeological deposits.

The County Archaeologist, in his role as Archaeological Planning Advisor to the Local Planning Authority, has stated that an Archaeological Evaluation will be required which will be aimed principally at mapping the depth of and lateral extent of the bone-bed.

2.0 Fieldwork Methodology

2.1 All parties (specified by Suffolk County Council's Archaeological Conservation Team & CgMs) that have an interest in the Archaeological Evaluation, will be informed regarding the dates of the fieldwork.

2.2 The evaluation will be undertaken in two phase; the first involving the mechanical excavation of 16 test-pits (*c*.1.5 metres by *c*.1.5 metres) and the second comprising three 4 x 4 metres boxes, the location for which will be informed by the results obtained from the earlier trenches.

The approximate locations for 16 trial-trenches will be agreed with CgMs and the Conservation Team of Suffolk County Council's Archaeological Service and marked out on the site (a proposed location plan is appended to this document). Where possible these should be placed to avoid concrete slab, known services (no comprehensive service plan exists) and other structural interventions. In addition, they have been located with due regard to the proposed development within the footprints of the buildings.

The locations of the test-pits, if undertaken prior to the autumn of 2004, will be further limited by the presence railway contractors on the site. Their access road effectively takes five metres from the western edge of the site, with a corridor through to their Wherstead Road entrance, and a compound in the north-west corner corresponding with the area of the SSSI to the south of the railway tunnel entrance.

Prior to excavation, the area of the trench will be surveyed using a CAT scanner.

The trenches will be opened using a JCB mechanical excavator equipped with a toothless ditching bucket, to give a good clean cut.

One face of each test-pit will be recorded as a drawn section (1:20 scale in pencil on plastic drafting film).

At each test-pit, the existing ground surface and the level of the bone-bed, if present, will be related to Ordnance Datum from a known Benchmark.

While no wholesale collection of bones will be undertaken as part of the evaluation, selected pieces will be retained along with any human artefacts.

Where groups of bones are revealed, 1:20 scale plans will be drawn.

A full photographic record (colour slide, monochrome & digital) will be made.

The 4 x 4 metre trenches will have battered sides (three faces) with one vertical face to be recorded as a section drawing (1:20 scale in pencil on plastic drafting film).

3.0 Health & Safety Considerations (including EMS)

3.1 General Health and Safety

The Archaeological Evaluation will be carried out while adhering to the Suffolk County Council statement on health and safety (copy available on request) and fully complying with health and safety policies of other contractors that may be operating on the site at that time.

Suffolk County Council has been approved by Lloyd's Register Quality Assurance to the following Environmental Management System Standard (BS EN ISO 14001:1996). All subcontractors are sent an Environmental Guidance Note for Contractors.

Particular attention will be given to the following points which are deemed particularly relevant to this site.

- **Insurance:** Site staff and official visitors are covered by Suffolk County Council insurance policies (copy available on request).

- **Working in an isolated setting:** A fully charged mobile phone will be available at all times. Site staff will be made aware of the location of the nearest hospital casualty department and a van will always be available for transport purposes. At least one of the site staff will be a qualified First Aider and a fully maintained first aid kit is kept in the van.

- **Working within close proximity to mechanical plant:** Hard hats, high visibility vests and protective footwear will be worn at all times.

- **Working in close proximity to a railway line:** If the contractors roadway and fencing are present then the site will not be open to the working railway. However, if this has been removed then orange high visibility vests will be worn rather than the usual yellow vests. Site workers will be warned to keep well away from the working railway.

- **Extremes of weather:** Site staff will be issued with waterproof clothing and made aware of the dangers of extreme temperature. The van will be available for shelter should conditions become unworkable.

- **Deep excavations:** Should the archaeological investigations involve the excavation of deep holes/trenches, battered or stepped sides may be deemed necessary. Deep excavations left overnight will be surrounded by 'Heras' fencing.

- **Toilets/washing facilities:** Suffolk County Council's Archaeological Service Warehouse Facility lies within 100 metres of the site.

3.2 Contaminated ground

An Environmental Risk Assessment was undertaken as part of a Geotechnical Report for the site (ENSR Rpt. No. 21253-1).

The report identified the limited presence of contaminated soil and groundwater. It was suggested that providing the site workers maintained good hygiene practices, then the uptake of contaminants would be minimised.

All site workers will be informed as to the risks and the necessity for good hygiene practices.

While the excavated trial-trenches should not reach the depth at which groundwater would be encountered, if it were, specialist advice would be sought.

4.0 Post-Excavation Methodology

All plans and sections will be inked on plastic drafting film

The locations of the test-pits will be accurately plotted on an OS map base along with the level of both the extant ground surface and, if present, the bone-bed.

The results of the evaluation will be incorporated into a report.

Stuart Boulter
Field Projects Team
Archaeological Service
Environment & Transport Dept.
Suffolk County Council
May 2004

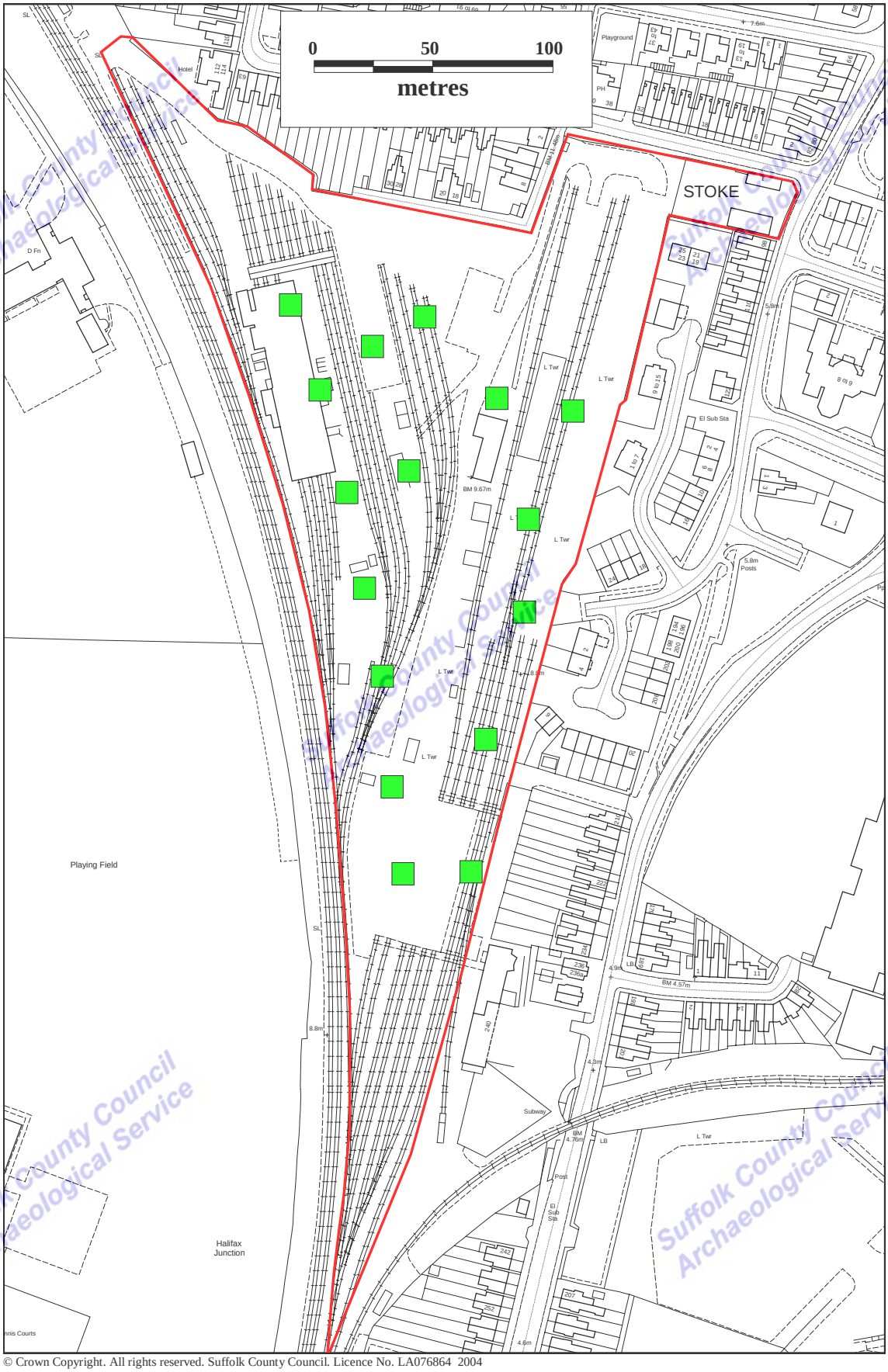
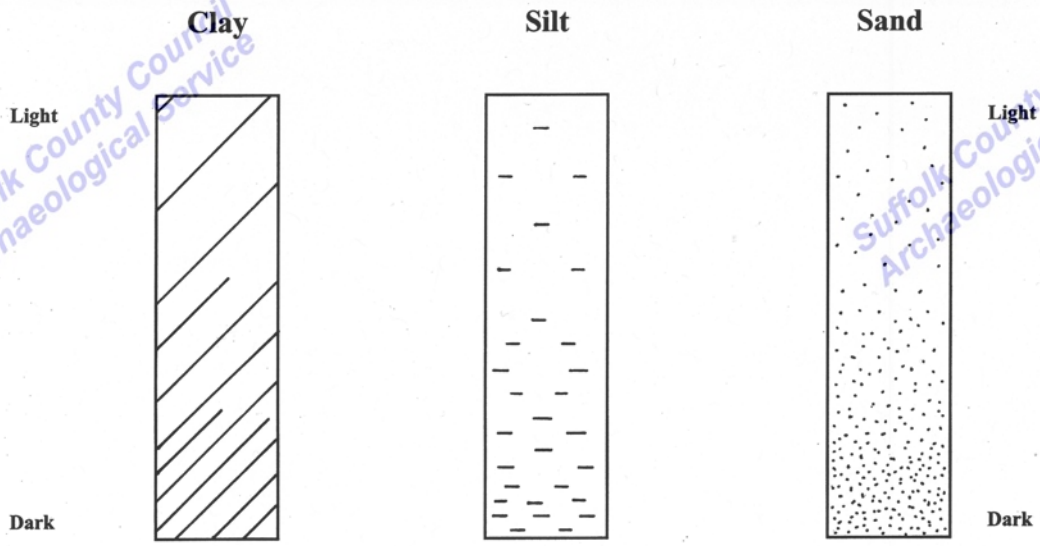


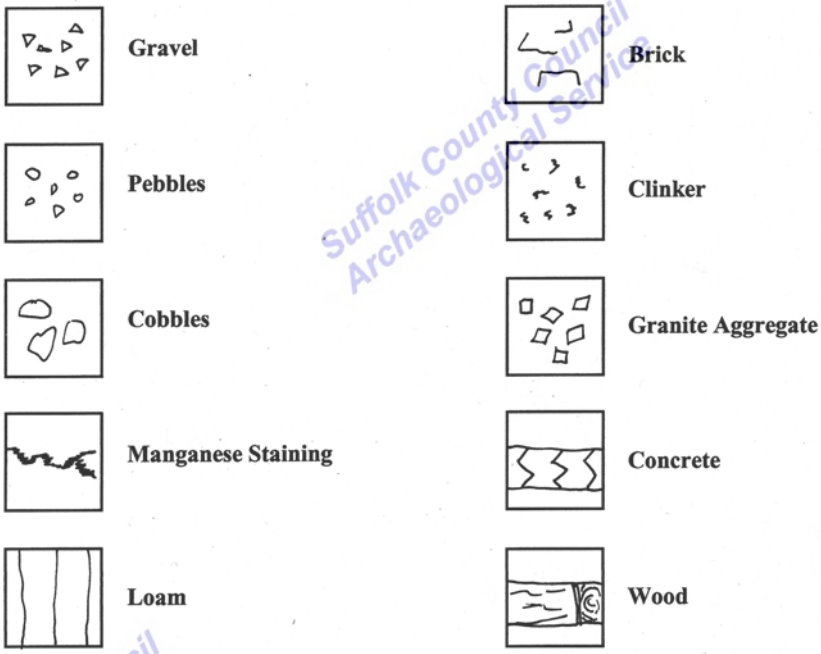
Fig. 1 *c.*1:2500 Scale OS Map Extract Showing the Proposed Location of the Test-Pits

Appendix II: IPS 468, Context List and Descriptions

OPNO	LOCATION	IDENTIFIER	DESCRIPTION	CUTS	OVER	CUTBY	UNDER	SAMPLES
0001	Whole Site	U/S	Number allocated to unstratified finds from the whole site					
0002	Test-Box 1	Layer	0.3-0.4 metres thick layer of clinker, surface layer in Test-Box 1		*0003*	*0007*		
0003	Test-Box 1	Layer	0.4-0.5 metres thick, homogenous mix of sand, clay, silt, gravel, pebbles & occasional cobbles, made ground		*0004*	*0007*	*0002*	
0004	Test-Box 1	Layer	0.4 metres thick, buried soil, brown homogenous silty sand with occasional pebbles		*0005*	*0007*	*0003*	1 bag
0005	Test-Box 1	Layer	0.4 metres thick, natural sand, light brown fine-grained silty sand grades into overlying layer		*0006*	*0007*	*0004*	1 bag
0006	Test-Box 1	Layer	0.4 metres+, patchy orange sand, silt and gravel, continues down beyond base of trench				*0005*	1 bag
0007	Test-Box 1	Pipe Trench (Cut)	Pipe trench, E-W orientated across Test-Box, appears in section only					
0008	Test-Box 1	Pipe Trench (Fill)	Fill of 0007, mixed sand, gravel and clinker	*0002, 0003,0004 , 0006*				
0009	Test-Box 2	Sleepers	Wooden sleepers used as retaining	*0010*				
0010	Test-Box 2	Layer	0.45 metres thick layer of clinker, surface layer in Test-Box 2		*0011*	*0009*		
0011	Test-Box 2	Layer	0.18 metres thick layer of mixed orange/brown sticky sand and clay with pebbles & some clinker. Made ground		*0012*		*0010*	
0012	Test-Box 2	Layer	0.45 metres thick layer of orange, clayey, silty sand. Well stratified with occasional stones, has manganese staining at its base		*0013*		*0011*	1 bag

OPNO	LOCATION	IDENTIFIER	DESCRIPTION	CUTS	OVER	CUTBY	UNDER	SAMPLES
0013	Test-Box 2	Layer	0.67 metres+, stratified coarse sand & gravel layers with occasional fine sand layer, continues beyond bottom of trench				*0012*	1 bag
0014	Test-Box 3	Layer	0.2 metres, fragmented concrete slab over part of Test-Box 3		*0015*			
0015	Test-Box 3	Layer	0.1-0.25 metre thick layer of large granite chippings		*0016*		*0014*	
0016	Test-Box 3	Layer	0.1 metres thick layer of clinker		*0017*		*0015*	
0017	Test-Box 3	Layer	0.3 metre thick layer of dark grey loam with brick and clinker inclusions		*0018, 0020*			
0018	Test-Box 3	Layer	0.24-0.52 metres thick, homogenous layer of fine, clayey, silty sand, column sample retained from this layer			*0020*		1 bag, + column
0019	Test-Box 3	Layer	0.8 metres + thick layer of stratified sands & gravels, dip slightly to north-west			*0020*		1 bag
0020	Test-Box 3	Pit (Cut)	Vertical sided pit	*0018,*				
0021	Test-Box 3	Pit (Fill)	Fill of 0020, blocky clay, grey-mauve coloured, some sand, included roof-tile fragment concrete slab over part of Test-Box 3					





Appendix III Key to Section Drawings