

ARCHAEOLOGICAL EVALUATION
OF THE NEW EXTENSION
OF
GRAVEL EXTRACTION
AT FAIRLOP QUARRY
HAINAULT ROAD
LONDON BOROUGH OF REDBRIDGE
LAWRENCE PONTIN
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ABSTRACT

The evaluation of the south western extension of gravel extraction at Fairlop Quarry, revealed evidence of archaeological activity in all five trenches excavated. The archaeological remains consisted of deep deposits in a major ditch , the lower fills of which were waterlogged, and a number of associated large ditch type features, probably dating from the early 1st century AD to probably the early 2nd century AD. Additionally there were two hearths possibly with domestic functions and a drain gully which remains undated.

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REPORT INTRODUCTION

This report sets out the details of an archaeological evaluation which took place at Fairlop Quarry, Hainault Road, Hainault between the 8th September and the 20th September, 1993. The results of the work are detailed here in an ordered and structured form to facilitate the checking of the results and use of the site archive.

The results of the work can be summarised as follows:

Archaeological features and deposits were revealed in all of the excavated trenches. These consisted of stratified fill deposits, some waterlogged, within a ditch, and associated ditches possibly dating from the early 1st century AD to probably the early 2nd century AD. Two possible domestic hearths and a drain gully were found with no datable material.

The report is divided into the following sections:

SITE INTRODUCTION AND METHOD
GROUP DISCUSSION
PHASE DISCUSSION
SUMMARY AND CONCLUSIONS
BIBLIOGRAPHY
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ILLUSTRATIONS
APPENDICES

The purpose of the work, work method, contract details, dates and project management details are set out in the "SITE INTRODUCTION AND METHOD".

In the "GROUP DISCUSSION" the contexts recorded on site are discussed in discrete groups. A context is any event in time represented by physical remains, e.g. a ditch, the material filling a ditch, a wall, a rebuild of a wall or a layer of soil. When several contexts are related, e.g. a pit and the material filling it, a line of postholes, a wall and its foundation trench, they are discussed together so as to fully appreciate their archaeological implications.

Firstly, the stratigraphic relationships between the contexts under discussion is illustrated in a matrix form:

e.g.	27
	I
	28
	I

In this diagram the stratigraphic relationships are shown as follows: context (27) is an event which occurs after both contexts (28) and (30), context (28) occurs subsequent to context (30) but prior to context (27) while context (30) occurs before both contexts (27) and (28).

The contexts are then listed with short descriptions. The nature of the group is then described in text. Finally, a list of colour slides and black and white photographs relevant to that group are given for accessing the site archive. The site archive is stored in the Passmore Edwards Museum.

In the "PHASE DISCUSSION" the groups of contexts are drawn together into phases. Phases are significant blocks of archaeology representing single or related activities within a band of time on the site under discussion, e.g. the occupation of a house or settlement, the complete renovation of a house or the abandonment of a house or settlement. When a significant change in activity is found in the archaeological record of a site then a change of phase can be said to have happened. By discussing phases and comparing them we can see the overall sequence of events at the site.

INTRODUCTION

The Passmore Edwards Museum undertook a nine day evaluation between the 8th September and the 22nd September 1993 in Cell 6, a field under agricultural usage now being taken into gravel extraction at Fairlop Quarry, Hainault (Fig.1). This took place in advance of planned gravel extraction within the south west area of the quarry (Meddens 1993). This area is known to contain a number of presumed archaeological field monuments inferred from aerial photographs (Fig.2), gravel extraction to a minimum depth of 2m will result in the removal of these monuments. The field was under an arable crop with no visible evidence of these field monuments through field survey, assumed to be a by-product of modern cultivation.

The aims of this evaluation were to establish whether the indicated archaeological remains are of sufficient importance and survive to a significant degree to require full assessment as to the need for rescue excavation.

Upon arrival of the Passmore Edwards Museum team it was found that a number of areas within the field were inaccessible to archaeological investigation. This was the result of banking of topsoil along its southern edge, the use of a trackway for quarry machinery, the banking of material at the northern end of the field and in the north-west corner where a large area was already being quarried .

In the Research Design for the evaluation, five trenches 3.0m wide and initially 15m long were scheduled to be opened by machine in areas to uncover parts of the most substantial grouping of field monuments. This was to be augmented by a resistivity survey to contrast and complement excavation results and to establish the usefulness of resistivity as an assessment tool on this site (Fig.3).

The trenches were extended in length to a maximum 50m where comparison on the ground, by survey, did not initially tally with the transposed location of the field monuments from the aerial photography.

The mixed topsoil and subsoil were removed by machine to a depth of 0.30m under mixed clay,silt and gravel deposits. Their respective concentrations varied considerably between trenches. All presumed archaeological features were cleaned by hand and a limited number were sampled by excavation. Health and Safety regulations prevented the completion of the investigation of the lower fills of a feature within

Trench 2. All the other archaeological deposits were recorded using the single context recording system with an accompanying photographic and drawing record.

A number of environmental samples were taken from two presumed hearths for seed and grain analysis in Trench 5 and the ditch in Trench 2 for snail analysis.

The site was negotiated and directed by Mr Frank Meddens and supervised by Lawrence Pontin. The project was funded by English Heritage. Access was arranged by the landowner, Redland Aggregates and the Clerk of Works for the London Borough of Redbridge.

GROUP DISCUSSION:

Trench 1 3/4
.....I.....
.....
22
.....I.....
.....
23
.....I.....
.....
27

Group 1.1 3/4
I
3/4 - layer - dark grey brown clay silt
25.52m-24.41m
with moderate gravel

Mixed topsoil and subsoil. Mixed through recent ploughing. Field currently under crop. Covers all of the field under study.

Photographs:
C/S 1; 14-17
B/W 1; 14-17
Phase: 5

Group 1.2 22
I
22-fill- light grey brown with orangemottles 24.79m-
unexc.
clay silt with some gravel

Uppermost fill of presumed ditch (23). Fill formed through natural silting and plough action.

Photographs:
C/S 2; 6-9
B/W 2; 6-9
Phase: 4

Group 1.3 23
I
23 - cut - sub-linear running northwest-southeast
24.79m-unexc.

Photographs:

C/S 2; 6-9

B/W 2; 6-9

Phase: 1

Group 1.4

I
27

27 - natural deposit - mixed gravels, clays and
25.20m-unexc.

brickearth

Photographs:

C/S 1; 22-33, 2; 10-13

B/W 2; 22-33, 2; 10-13

Trench 2

3/4
I

.....I.....
.....

I I
1 I
I I
16 18
I I
15 19
I I
I 25
I I
I 26

.....I.....I.....
.....

6 14

.....I.....I.....
.....

5 I

.....I.....I.....
.....

2 I

.....I.....I.....
.....

I I
I
17/27

Group 2.1

I I
1 I
I I
15 I
I I
16 I

I

I

1 - fill - grey brown clay silt with moderate
24.42m-23.97m
sand

15 - fill - grey brown with orange mottles,
24.37m-23.56m

silt with moderate clay and sand

16 - fill - grey with orange mottles, silt with
24.43m-23.86m

moderate clay and sand

The three uppermost fills of cut 2, presumed to have been the result of natural weathering and plough action (Fig.4).

Photographs:

C/S 1; 14-17

B/W 1; 14-17

Phase: 4

Group 2.2

I	I
I	18
I	I
I	19
I	I
I	24
I	I
I	25
I	I
I	26
I	I

18 - fill - red brown silt and gravel, frequent
24.45m-24.30m

ferric oxide particles

19 - fill - grey silt with occasional sand
24.45m-24.25m

24 - fill - orange grey silt, moderate sand and
24.46m-24.09m

occasional clay

25 - fill - grey orange silt, frequent clay and
24.37m-24.10m

sand

26 - fill - green grey silty clay with moderate
24.09m-23.97m

sand

Series of fills that accumulated within cut 14 though natural weathering and probable plough action (Fig.4)

Photographs:

C/S 1; 10-13

B/W 1; 10-13

Phase: 4

Group 2.3

I	I
6	I
I	I

6 - fill - grey silt with moderate sand and gravel
24.43m-23.56m

Fill comprising possible upcast from creation of cut 14 (Fig 4).

Photographs:
C/S 1; 14-17
B/W 1; 14-17
Phase: 3

Group 2.4

I	I
I	14
I	I

14 - cut - shape and orientation unknown, straight
14.46m-23.97m
sides gradual to concave base sloping
down to the south

Due to the small size of the investigating trench it is impossible to be exact about the shape and orientation of this cut and draw conclusions for its functions. It would appear that it may be linear running north-south (Fig.4).

Photographs:
C/S 1; 10-13
B/W 1; 10-13
Phase: 3

Group 2.5

I	I
5	I
I	I

5 - fill- grey silt with moderate sand
23.56m-unexc.

Presumed primary fill of cut 2 due to nature and depth of deposit, width of the cut 2 at this point and nature of pottery retrieved from this context. Excavation was halted due to depth and safety restrictions (Fig.4).

Photographs:
C/S 1; 14-17
B/W 1; 14-17
Phase: 2

Group 2.6

I	I
2	I
I	I

2- cut - linear, northwest-southeast, steep sides
24.42m-unexc.
, unexcavated base

Presumed linear ditch running northwest-southeast, that 4.00m in width and at least 1.20m in depth. Function unknown but presumed too deep to be purely for drainage (Fig.4).

Photographs:
C/S 1; 14-17
B/W 1; 14-17

Phase: 1

Trench 3

3/4

.....I.....
.....

11

.....I.....
.....

12

.....I.....
.....

27

Group 3.1

I
11
I

11 - grey with red mottles sandy silt with
24.42m-24.25m
moderate clay

Fill of cut 12. Presumed to be a result of natural weathering.

Photographs:

C/S 1; 18-25

B/W 1; 18-25

Phase: 4

Group 3.2

I
12
I

12 - cut - irregular shape, mixed orientation,
24.43m-24.25m
sides gradual to concave base

Cut which consists of two linear branches running east-west which join with a linear feature running north-south. This is presumed to be a shallow drainage system possibly for agriculture or for an as yet unknown building.

Photographs:

C/S 1; 18-25

B/W 1; 18-25

Phase: 1

Trench 4

3/4

.....I.....
..... ..

20

.....I.....
..... ..

21

.....I.....
..... ..

27

Group 4.1

I
20
I

20 - fill - grey brown clay silt with occasional
24.83m-unexc.
gravel

Uppermost fill of presumed cut 21. Formed through
natural weathering and/or plough action.

Photographs:

C/S 1; 30-33, 2; 1-4

B/W 1; 30-33, 2; 1-4

Phase: 4

Group 4.2

I
21
I

21 - cut - linear, sides and base unknown,
24.83m-unexc.
orientation northeast-southwest

Presumed to be a cut for a ditch. Not excavated.

Photographs:

C/S 1; 30-33, 2; 1-4

B/W 1; 30-33, 2; 1-4

Phase: 1

Trench 5

3/4

.....I.....
.....
 I I
 7 9

.....I.....I.....
.....
 8 10

.....I.....I.....
.....
 I
 27

Group 5.1

I I
7 I
I I
8 I
I I

7- fill- yellow grey with frequent concentrated 25.16m-25.05m

 areas of charcoal

8 - cut - circular, gradual sides to concave base 25.16m-25.05m

Cut and fill for presumed hearth.

Photographs:

C/S 1; 2-5, 26-29

B/W 1; 2-5, 26-29

Phase: 1

Group 5.2

I I
I 9
I I
I 10
I I

9 - fill - grey white silt clay with frequent 25.20m-25.12m

 concentrated areas of charcoal and
 frequent orange clay patches

10 - cut - rectangular, gradual sides to flat 25.20m-25.12m
 base

Cut and fill of presumed hearth.

Photographs:

C/S 1; 6-9
B/W 1; 6-9
Phase: 1

INTER-TRENCH PHASING

Introduction

It is difficult to phase the development and periods of active use of the archaeological features found during this evaluation. This is due to the limited areas that were excavated and the lack of datable material retrieved from particular contexts.

Phase 1 (Fig.3)

Consisting of groups 1.3, 2.6, 3.2, 4.2, 5.1 and 5.2.

A series of presumed contemporary ditches that may intersect (1.3, 2.6 and 4.2). These were associated with possible evidence of human occupation ie drain gully 3.2 and presumed domestic hearths /cooking pits 5.1 and 5.2.

Phase 2

Consisting of group 2.5.

Primary silting of a ditch, group 2.6, within the working life of the ditch's primary function. The ceramic assemblage from this event shows a date range of early 1st century AD to early 2nd century AD for adjacent human occupation.

Phase 3

Consisting of group 2.3 and 2.4.

Group 2.3 is the upcast from the creation of the cut for group 2.4. This would appear to mark the end of the period of primary function of group 2.6

Phase 4

Consisting of group 1.2, 2.1, 2.2, 3.3, 4.1.

A series of upper fills within ditches, group 1.3, 2.4, 2.6 and 4.2. Presumed to mark activity of deliberate infilling augmented by ploughing and natural weathering.

Phase 5

Consisting of group 1.1.

Development of mixed top and subsoil through modern agricultural methods.

SUMMARY AND CONCLUSIONS

The excavation has proved that the field monuments inferred from the results of aerial photography are of substantial archaeological value.

The excavation uncovered a number of large ditches, of which one, sample excavated produced a substantial amount of Late Iron Age and Roman pottery dated from the early 1st century AD to probably the early 2nd century AD. A possible drain gully and domestic hearths must point to intensive human activity within this area at that time.

Given the limited nature of of the archaeological excavation it is not surprising that the precise location and orientation of the field monuments investigated is not clear. The accompanying resistivity survey (see Appendix II) produced evidence for a possible ditch aligned northeast-southwest adjacent to three circular areas, with a diameter of 7m. These possible features had not been previously noted from aerial photography. Such results demonstrate the effectiveness of the use of resistivity in tracing the extent of archaeology on this site.

It is important to note that though the presence of certain features revealed in cropmarks were confirmed, previously unknown features were revealed by the use of resistivity.

ACKNOWLEDGEMENTS

The Museum and the author would like to thank Mr Ian F. Brown, General Production Manager and Mr David Stubbings, Quarry Manager of Redland Aggregates, owners of the site for their assistance.

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Thanks are also due to Dr Pamela Greenwood for her contribution to th pottery report, Mr Graham Reed for the illustrations, and Mr David Divers for his first class work on site and for providing much needed transport for this project.

BIBLIOGRAPHY

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Fairlop Quarry, Hainault.

Project Design for an
evaluation at

ILLUSTRATIONS

Site	Location
Plan.....	Figure 1
Trench	Location
Plan.....	Figure 2
Plan of Phase 1 and area of resistivity survey.....	Figure 3
South-Facing Section from Trench 2.....	Figure 4
Plan of resistivity survey results.....	Figure 5
Pottery chart.....	Figure 6
Finds Illustrations.....	Figure 7

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LEVEL III INDEX

CONTEXT PHASE NO.	TRENCH NO.	PLAN	SECTION	GROUP
1 4	2		2	2.1
2 1	2	2	2	2.6
3 5	1, 2, 3, 4, 5		2, 14	1.1
4 5	1, 2, 3, 4, 5		2, 14	1.1
5 2	2	2	2	2.5
6 3	2	2	2	2.3
7 1	5	8	8	5.1
8 1	5	8	8	5.1
9 1	5	10	10	5.2
10 1	5	10	10	5.2
11 4	3	12	12	3.1
12 1	3	12	12	3.2
13	Not used			
14 3	2	2	14	2.4
15 4	2		2	2.1
16 4	2		2	2.1
17 18	2	2	14	1.4
4 19	2	2	14	2.2
20 4	4	21		4.1
21 1	4	21		4.2
22 4	1	23		1.2
23 1	1	23		1.3

24	2	14	2.2
4			
25	2	14	2.2
4			
26	2	14	2.2
4			
27	1, 2, 3, 4, 5		1.4

SITE MATRIX

3/4

I _____ I _____ I _____ I _____ I _____ I _____ I _____
I
17/27

APPENDIX I

Results of the Resistivity Survey

at Fairlop Quarry

by Alison Anne Telfer

Introduction

A resistivity survey was carried out by members of the Passmore Edwards Museum on the 17th of August 1993, within the confines of Cell 6 at the Fairlop extraction quarry, in the London Borough of Redbridge (Fig. 1 and 2).

The primary object of the survey was to determine the nature and extent of archaeological remains below the ground surface prior to any possible further excavation. It was also to assess the effectiveness of a resistivity survey conducted on gravel levels.

The survey and excavation are part of an archaeological assessment funded by English Heritage.

The Survey

A Geoscan RM15 Basic resistivity meter with 0.5m separation twin array was used to conduct the survey. A total of three grids were surveyed, each spanning an area of 20m x 20m (Fig.3). Readings were taken at 1m sample intervals, with a 1m zig-zag traverse, except for two rows at the south of Grid 3, whose position fell over the makeshift road through the quarry and were subsequently dummy-logged. Dummy-logs were also inputted to the north and south of Grid 1, in order to square off the layout for the final printed plot.

The meter was set at a current of 1mA, with a gain of x10 and written information, such as location and conditions, was recorded for each grid on pro-forma sheets. A base line was already established running east-west for the excavation and this was used to locate the surveyed grids.

Results

The completed plot shows very strong positive readings of both high and low resistance (Fig.5). A linear feature can be seen running south-west to north-east across Grids 2 and 3, although it appears to fuse into a less distinct mass of high resistance readings in the north-eastern corner.

To the north-east of Grid 3, another linear feature shows up, its alignment north-west to south-east. This appears to be some kind of off-shoot from the linear feature mentioned above, since the two appear to meet at the intersection of Grids 2 and 3. To the south of this feature, it is possible to decipher another one or perhaps two parallel linear features, although it is difficult to determine their extent towards the north-west corner of the surveyed area.

Three circular areas of high resistance readings emerge within the plotted grids. The first of these can be seen to the west of Grid 1, with the second apparent to the east of Grid 2 and the third situated in the central region, to the north of Grid 3.

An area of low resistance readings can be seen across the central portion of the completed plot, predominantly in Grids 2 and 3.

Interpretation

Examination of the topsoil revealed that conditions were ideal for the use of the resistivity meter, which reads at between 0.5m and 1m below the ground surface. Features under consideration for interpretation are therefore more likely to be archaeological, rather than geological.

The linear feature which appears to be running through Grids 2 and 3 suggests the presence of either a drain or a ditch, the high resistance readings representing a possible fill of gravel or sand. Aerial photographs from the area show an group of possible ditches, spanning an overall distance of 75m by 40m; it is possible that this linear feature, together with the feature which appears to intersect it, may form part of this substantial field monument. The smaller and less distinct lines of high resistance, which appear to run in a parallel sequence across the eastern side of Grid 2, may represent plough marks over a larger field system, although this is inconclusive.

The circular areas of high resistance across the three grids may represent backfilled pits or tree bowls, although further excavation would be needed in this area to provide more substantial evidence.

The area of low resistance readings in the central region of the plot could be indicative of the presence of a change in the soil to one of a more water-retentive content, or it could simply be representative of the spatial distribution of the natural.

The clarity of the completed plot demonstrates how effectively the Geoscan RM15 Basic resistivity meter can work on soils with high inclusions of gravel. The plot can also be used as an accurate control and back-up against the previously taken aerial photographs of the area. Together with excavation and planning, a substantial record can be accumulated of the archaeological deposits in this part of Redbridge.

Acknowledgements

The Museum and author would like to thank English Heritage for funding the work and for their co-operation throughout the project.

Thanks also to Lawrence Pontin for his assistance in conducting the survey.

APPENDIX II

Finds report Fairlop Quarry assessment

by Frank Meddens

The greatest concentration of finds from the Fairlop Quarry assessment came from a sample from the fills of a large ditch (feature 2) (figure 3-4) which measured approximately 4 meters in width and at least 1.2 depth. This feature was not bottomed for health and safety reasons. Eighty-three potsherds were recovered from the sample, their total weight was 920 gr. This volume of pottery came from 1.05m³ of soil, indicating a relatively high finds density in comparison with other sites of comparable date in the area. The sherds are relatively large and many fit together. Some of the pottery is eroded with the surface finish being extensively damaged. All of the wares represented here are domestic types. There are no high quality products and all of them appear to have been produced locally. The types represented (Figure 6-7) date to the Late Iron Age and Early Roman Periods. Late Iron Age, Late Iron Age tradition and Early Roman types are represented. The Vesicular fabrics are known not to date much beyond AD 100. Some of the sandy fabrics last into the 2nd century AD.

This collection appears to reflect a rural domestic tradition dating from the conquest period into the Late 1st, Early 2nd Centuries AD. The size of the sherds represented and the large number of pieces which fit together indicates that this is a primary deposit.

One burned flint and 11 pieces of burned daub were also recovered from these contexts. The burned daub is suggestive of a hearth or kiln being located in the vicinity.

One iron artefact was found which appears to have been a cutting tool, probably a knife (Figure 6).

A ditch of the size from which these finds were recovered suggests it may have been defensive in nature. The nature of the finds recovered from its fills suggests that a purposeful backfilling operation took place rather than a gradual silting up of the feature.

The other finds from this assessment were recovered from the topsoil and reflect a similar Late

Iron Age to Early Roman dating as well as post medieval activity probably manuring and ploughing.

Report on the Pedology and Geology
at Fairlop Quarry
by Matthew Canti

a) The site is mapped as being on the Boyn Hill Terrace, which is mainly Hoxnian in age (Lake et al. 1986). There is no stated reason for its variability.

c) From the observed shallow trenches it is unlikely that buried soils would be traced.

Lake, R.D. et al. 1986 Geology of the country around
Southend and Foulness.
Memoirs of the British
Geological Survey, Sheets 258 and 259.

