

**FLOWERS WAY
Luton
LUI**

Bedfordshire

Geotechnical watching brief

October 2007



MUSEUM OF LONDON

Archaeology Service

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Geotechnical watching brief

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Summary (non-technical)

This report presents the results of a monitoring exercise carried out by the Museum of London Archaeology Service on geotechnical pits and boreholes at the site of Flowers Way, Luton, Bedfordshire, LU1.

Work was monitored on the 2nd of October 2007 during Phase II site investigation works which form part of the preparatory work for redevelopment of the former car park and adjacent office building.

The report summarises the archaeological potential of the site, and the likely impact on this of the proposed redevelopment. The report was commissioned from MoLAS by Environcorp. The geotechnical watching brief observed that the surface of natural glacial sands and gravels lay relatively close to the surface at between 0.8 and 1.1 m below current ground level. In two instances the natural surface was overlain by subsoil deposits, presently undated. The subsoil horizon seen in the east of the site (WS 9) exhibited characteristics consistent with cultivated soil deposits. In situ walls were present in the south of the site (BH 3) and the north-east corner (WS 6), the surfaces of which were present within 0.3m of current ground level. The wall in BH 3 measured 2.5m in depth and indicates the presence of possible basements/cellars across the southern part of the site. In all the interventions modern made ground, mainly comprising rubble, sand and redeposited soils, was present to a variety of thicknesses below the current ground surface.

Contents

1	Introduction	1
1.1	Site background	1
1.2	Planning and legislative framework	1
1.3	Planning background	4
1.4	Origin and scope of the report	4
1.5	Aims and objectives	6
2	The geotechnical pits and/or boreholes monitoring	7
2.1	Methodology	7
2.2	Results of monitoring the geotechnical pits and/or boreholes	7
2.3	Assessment of the monitoring	11
3	Archaeological potential	12
3.1	Realisation of the research aims	12
3.2	Assessment of potential	12
4	Proposed development impact and recommendations	12
5	Acknowledgements	14
6	Bibliography	14

Illustrations

<i>Fig 1: Site location</i>	5
<i>Fig 2: Areas of investigation</i>	9

1 Introduction

1.1 Site background

The Site Investigation took place at the former car park and adjacent office building at Flowers Way, Luton, and Bedfordshire (hereafter called 'the site'). It is located immediately south of Luton Crown Court, bounded by Flowers Way to the north, Park Street West to the east, Park Viaduct (A505) to the south and Castle Street to the west. The OS National Grid Ref. (NGR) for centre of site is 509250 220990. Pavement around the site slopes down from 116.5m OD at the south of the site to 114.2m OD at the junction of Flowers Way and Park Street West to the north-east. Ground level within the site varies between 116.5m OD to 114.3m OD.

1.2 Planning and legislative framework

1.2.1 Planning Policy Guidance PPG16

The then 'Department of the Environment' published its *Planning Policy Guidance Note 16: Archaeology and Planning* (PPG 16) in November 1990. This set out the Secretary of State's policy on archaeological remains on land, and provided recommendations many of which have been integrated into local development plans. The key points in PPG 16 can be summarised as follows:

- Archaeological remains should be seen as a finite and non-renewable resource, and in many cases highly fragile and vulnerable to damage and destruction. Appropriate management is therefore essential to ensure that they survive in good condition. In particular, care must be taken to ensure that archaeological remains are not needlessly or thoughtlessly destroyed. They can contain irreplaceable information about our past and the potential for an increase in future knowledge. They are part of our sense of national identity and are valuable both for their own sake and for their role in education, leisure and tourism.
- Where nationally important archaeological remains, whether scheduled or not, and their settings, are affected by a proposed development there should be a presumption in favour of their physical preservation.
- The key to informed and reasonable planning decisions is for consideration to be given early, before formal planning applications are made, to the question of whether archaeological remains are known to exist on a site where development is planned and the implications for the development proposal.
- When important remains are known to exist, or when archaeologists have good reason to believe that important remains exist, developers

will be able to help by preparing sympathetic designs using, for example, foundations which avoid disturbing the remains altogether or minimise damage by raising ground levels under a proposed new structure, or by careful siting of landscaped or open areas. There are techniques available for sealing archaeological remains underneath buildings or landscaping, thus securing their preservation for the future even though they remain inaccessible for the time being.

- If physical preservation *in situ* is not feasible, an archaeological excavation for the purposes of ‘preservation by record’ may be an acceptable alternative. From an archaeological point of view, this should be regarded as a second best option.
- Agreements should also provide for the subsequent publication of the results of any excavation programme.
- Development plans should reconcile the need for development with the interests of conservation — including archaeology. Detailed development plans should include policies for the protection, enhancement and preservation of sites of archaeological interest, and their settings.
- Decisions by planning authorities on whether to preserve archaeological remains *in situ*, in the face of proposed development, have to be taken on merit, taking account of development plan policies and all other material considerations — including the importance of the remains — and weighing these against the need for development.
- Planning authorities, when they propose to allow development which is damaging to archaeological remains, must ensure that the developer has satisfactorily provided for excavation and recording, either through voluntary agreement with the archaeologists or, in the absence of agreement, by imposing an appropriate condition on the planning permission.

PPG16 itself forms part of an emerging European context which recognises the importance of the archaeological and historic heritage in consideration of development proposals. This has recently been formulated in the *Code of Good Practice On Archaeological Heritage in Urban Development Policies* established by the Cultural Heritage Committee of the Council of Europe, and adopted at the 15th plenary session in Strasbourg on 8-10 March 2000 (CC-PAT [99] 18 rev 3). As stated at the beginning of that document however, ‘*a balance must be struck between the desire to conserve the past and the need to renew for the future*’.

1.2.2 Archaeology and planning in Bedfordshire.

The Bedfordshire Structure Plan 2011 was adopted in March 1997 and replaced Alterations Number 3. It aims for improved conservation of key resources of land, water, energy, landscape, wildlife and the historic environment and provides

programmes to enhance landscape, wildlife and historic resources. The County has significant archaeological deposits of regional and national significance in the river valleys.

The policies in this document include those on the historic environment, which are included below:

Policy 12 Identifying and Designating Historic Features

Designation and protection of heritage features of significance will be achieved by:-

- i. bringing potential buildings for listing and sites for scheduling to the attention of the Department for National Heritage.
- ii. keeping the designation of Conservation Areas under review, and preparing policies as a guide to applicants and residents.
- iii. maintaining a cumulative Historic Environment Record.

Policy 13 Preserving Features

Historic features will be preserved and managed by:-

- i. resisting proposals likely to have an adverse effect upon the character and appearance of historic buildings and Conservation Areas and their settings.
- ii. promoting measures likely to secure the conservation of historic buildings, especially those identified as being 'at risk'.
- iii. preserving Scheduled Ancient Monuments and other sites of major archaeological significance, together with their settings, by resisting proposals likely to have an adverse effect upon them;
- iv. ensuring that provision is made for an appropriate level of investigation and recording in advance of any development which is likely to damage or destroy sites and buildings of significance;
- v. encouraging the protection and management of historic landscape features, including historic parks and gardens, ancient woodland and ancient hedgerows.

Policy 14 Enhancing Features

Measures and proposals likely to enhance the character and appearance of historic buildings, Conservation Areas and their settings, archaeological sites and historic landscapes will be promoted. This includes:-

- i. the preparation of conservation briefs;
- ii. the preparation of management plans;
- iii. the requirement for a high standard of design.

1.3 Planning background

As part of the planning conditions (condition number 20) for the planning permission for the redevelopment of the site, a programme of archaeological work is required by the Local Authority to be formulated before the development can begin. The archaeological monitoring of the Site Investigation was carried out as a means of informing any future scheme of archaeological work that may be required.

1.4 Origin and scope of the report

This report was commissioned by Environcorp and produced by the Museum of London Archaeology Service (MoLAS).

Monitoring of test pits or boreholes, even when these are not primarily designed for archaeological evaluation, may nevertheless be able to provide useful information on the nature and extent of archaeological deposits. According to the most recent English Heritage guidelines (English Heritage, 1998) this will contribute to the:

- formulation of a strategy for the preservation or management of those remains; and/or
- formulation of an appropriate response or mitigation strategy to planning applications or other proposals which may adversely affect such archaeological remains, or enhance them; and/or
- formulation of a proposal for further archaeological investigations within a programme of research

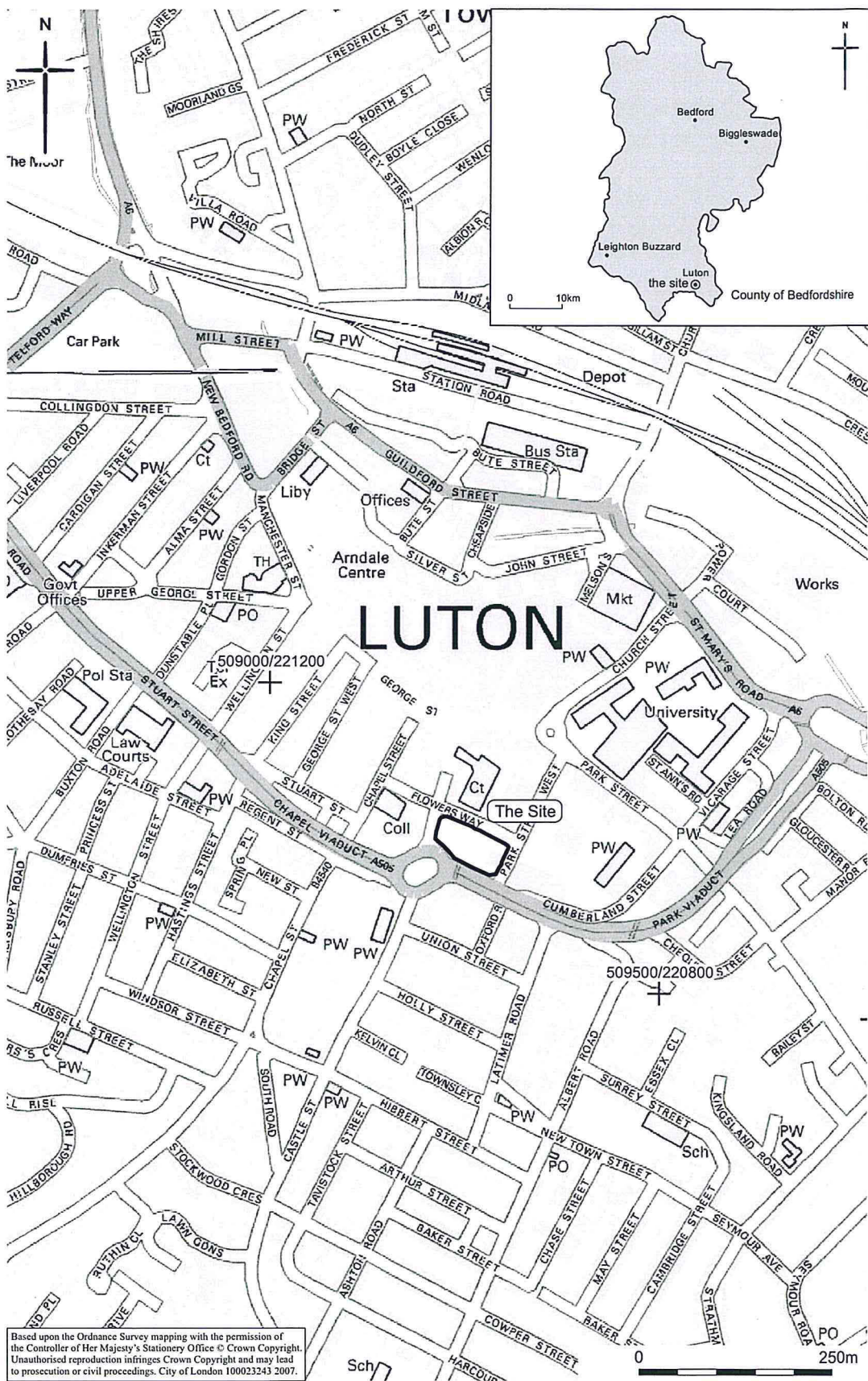


Fig 1 Site location

1.5 Aims and objectives

All research is undertaken within the priorities established in the in accordance with the advice contained in *Standards for Field Archaeology in the East of England* (Gurney 2003). It should be noted that the proposed research aims outlined in this document have been devised after consideration of the relevant research topics set out in *Research and Archaeology: A Framework for the Eastern Counties* (Brown and Glazebrook 2000).

Monitoring of the Geotechnical pits and/or boreholes was intended to address the following broad objectives and archaeological research aims:

- What is the level of truncation caused by earlier basements in this area?
- What is the nature and significance of the surviving archaeological remains?
- What are the levels of natural deposits?
- Is there any evidence of structures relating to the post-medieval development of the site?

2 The geotechnical pits and/or boreholes monitoring

2.1 Methodology

All archaeological excavation and recording during the monitoring was done in accordance with the MoLAS Archaeological Site Manual (MoLAS, 1994).

The slab/ground was broken out and cleared by contractors under MoLAS supervision. Boreholes and the cored window samples pits were drilled by machine by the contractors, and monitored by a member of staff from MoLAS.

The locations of the window samples and bores were recorded by the contractors and plotted on to a ground level survey (Drg. No. H0606 – T [P1]; KND Surveys Ltd August 2006). This information was then plotted onto the OS grid by MoLAS geomatics staff.

The heights of observations on the ground level survey were recorded relative to Ordnance Datum via a traverse to the OS benchmark (value of 111.430m OD) on the public house in Langley Street.

The site has produced: one trench location plan. The site records will be deposited in the archives as held at Luton Museum.

2.2 Results of monitoring the geotechnical pits and/or boreholes

In total, 10 separate interventions (window samples and bores) were monitored. These have been numbered WS 1 to 9 for the window samples and BH 1–3 consecutively following the contractors scheme. There follows a brief description of the deposits recorded. For all window sample and bore locations see Fig 2: Areas of Investigation

Geotechnical Borehole 1 (BHC1)

BHC 1 was not archaeologically monitored.

Geotechnical Borehole 2 (BHC2)

BHC 2 was not archaeologically monitored.

Geotechnical Borehole 2 (BH2)

BH 2 was not archaeologically monitored.

Geotechnical Borehole 3 (BH3)

BH 3, situated at the southern edge of the car park, measured 0.2m in diameter. The level at the top of the bore was *c* 116.5m OD. Natural sand and gravel was present at *c* 2.5m below ground level, beneath 2.3 depth of in situ brick wall. The depth of the wall indicates either deep foundations were struck or the presence of a cellar or

possible basement across the southern part of the site. Modern Tarmac and supporting blinding capped the sequence.

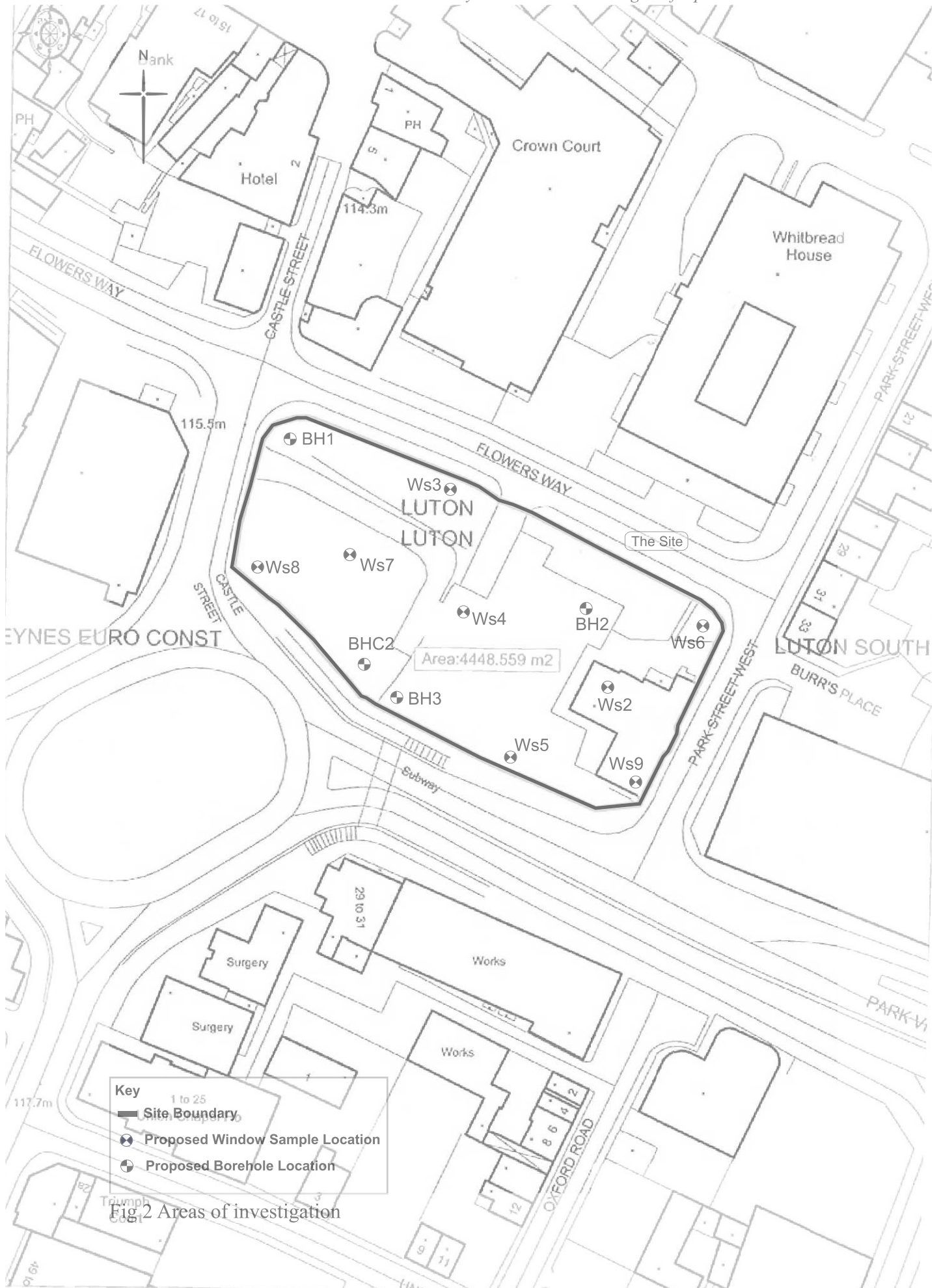


Fig 2 Areas of investigation

Window Sample 1 (WS 1)

WS 1 was not monitored archaeologically.

Window Sample 2 (WS 2)

WS 2 was located in the alleyway along the west side of Whitbread House in the eastern half of the site. The level at the top of the sample was *c* 115.1m OD. The surface of natural sands and gravels were present at 0.9m depth below present ground level. A layer of firm grey yellow sandy clay containing occasional fine to coarse flinty gravels overlay the natural strata to a thickness of *c* 0.3m. Modern brick rubble, mortar and redeposited clay hogging overlay the clay sand layer to a thickness of *c* 0.3m. Modern pitch/tarmac supporting the current metalling sealed the sequence to a thickness of 0.3m.

Window Sample 3 (WS 3)

WS 3 was located in the north of the car park area adjacent to the access ramp. The level at the top of the sample was *c* 115.4m OD. Natural deposits of sands and gravels were encountered at *c* 0.8m below current ground level, beneath 0.7m of modern made ground. Tarmac sealed the sequence.

Window Sample 4 (WS 4)

WS 4 was located in the approximate centre of the car park. The level at the top of the sample was *c* 116.1m OD. Natural deposits of sands and gravels were encountered at *c* 1.9m below current ground level, beneath 0.4m of crushed brick rubble and mortar. A layer of firm, grey brown clay measuring 0.5m thick and containing occasional flecks of calcite and root channels, gradually appearing more humic near its surface, overlay the rubble dump. Crushed mortar, concrete and rubble measuring 0.2m thick lay over the clay. Modern dumped deposits/made ground overlay the previous layer to a depth of *c* 0.9m. Tarmac sealed the sequence.

Window Sample 5 (WS 5)

WS 5 was located in the south-east corner of the car park. The level at the top of the sample was *c* 116.3m OD. Sands and gravels were recorded at *c* 1.0m below current ground level. Deposits of modern made ground, consisting mainly of ashy rubble, concrete and redeposited sandy clay and gravel overlay the natural sands and beneath the present day tarmac of the car park surface.

Window Sample 6 (WS 6)

WS 6 was located in the north-east corner of the site, on the grassed verge adjacent to Flowers Way. The level at the top of the sample was *c* 114.3m OD. Sands and gravels were recorded at *c* 1.0m below current ground level, beneath an *in situ* redbrick wall measuring 0.7m in depth. Modern topsoil and turf sealed the wall.

Window Sample 7 (WS 7)

WS 7 was located in the western part of the car park. The level at the top of the sample was *c* 116.1m OD. Sands and gravels were recorded at *c* 1.2m below current ground level. A layer of firm yellow brown sandy clay measuring *c* 0.4m thick overlay the natural. The layer contained occasional flecks of manganese, possible carbon/charcoal flecks and moderate amounts of poorly sorted gravel. A single fragment of yellow stock brick was present within the deposit, although it remains

unsure as to whether this was a contaminant or not. Modern deposits of made ground (ashy blinding sands, crushed brick and concrete) supporting the overlying tarmac car park surface capped the sequence.

Window Sample 8 (WS 8)

WS 8 was located in the south-east corner of the car park. The level at the top of the sample was *c* 116.3m OD. Sands and gravels were recorded at *c* 1.1m below current ground level. A yellow brown gravel and sand layer measuring 0.6m in thickness and containing occasional brick fragments sealed the natural. The deposit became increasingly coarser and gravelly towards its base. Dark grey brown silts were seen adhering to the larger gravel particles, indicating a limited degree of soil movement and possible percolation. Rubble and blinding material measuring *c* 0.4m thick lay between the gravel layer and modern tarmac.

Window Sample 9 (WS 9)

WS 9 was located in the south-west corner of building in the eastern part of the site. The level at the top of the sample was *c* 115.3m OD. Sands and gravels were recorded at *c* 0.8m below current ground level, beneath 0.5m thickness of brown silty clay subsoil. The subsoil contained occasional flecks of carbon/charcoal and occasional grit. A broad contact between the subsoil and underlying natural deposits was noted measuring *c* 0.2m in thickness. The inclusions and appearance of the soil indicate an element of cultivation may have occurred within this part of the site. The subsoil survived beneath 0.2m thickness of modern made ground and the alleyway ballast gravels.

2.3 Assessment of the monitoring

GLAAS guidelines (1998) require an assessment of the success of any evaluation ‘in order to illustrate what level of confidence can be placed on the information which will provide the basis of the mitigation strategy’. In the case of the Flowers Way site, the surface of naturally deposited Glacial Sands and Gravels was observed at around 1m below current ground level. The gravels were occasionally capped by *c* 0.2m thickness of greyish yellow to yellow brown sandy clay subsoils, interpreted as either naturally formed and weathered soil horizons or in the case of WS 9 a possible cultivation soil. The soils could not be dated. In situ brick walls were recorded in BH 3 and WS 6, below *c* 0.3m of modern made ground. The brick type and fabric indicate a late 18th century to early 20th century construction. 19th–20th century (modern) deposits were present in all the interventions, varying in thickness between 0.3m depth (WS 9) to *c* 1m depth (WS 5, WS 8) below present ground level.

3 Archaeological potential

3.1 Realisation of the research aims

What is the level of truncation caused by earlier basements in this area?

Only one of the interventions BH 3 indicated any evidence for possible basements within the site. An in situ brick wall was encountered between 0.3m to 2.5m below ground level, consistent with possible cellaring or deep foundations. The wall directly overlay natural sands and gravels, with any potential cellaring likely to have truncated c 1.5m depth of natural deposit.

What is the nature and significance of the surviving archaeological remains?

Subsoils were encountered in three of the interventions (WS 3, WS 7 and WS 9). Only the subsoil in WS 9 in the south-east of the site is interpreted as a possible cultivation soil. Two in situ brick walls were recorded. A deep wall was present in the south (BH 3) although it is likely that the wall may date to the late 19th century to 20th century. A second wall was present in WS 6 in the north-east corner of the site, dating of the structure is problematic due to the limitations of the sampling method, although a 19th to 20th century date is possible.

What are the levels of natural deposits?

Natural deposits of Glacial sands and gravels (BGS mapsheet 220) were present across the site between 0.8m to 1.1m below current ground level.

Is there any evidence of structures relating to the post-medieval development of the site?

A possible basement may be present in the south of the site as indicated by the deep wall in BH 3 and a shallow wall/foundation was observed in WS 6 in the north-eastern corner of the site. Both walls were probably constructed in the late post medieval period (19th century or later).

3.2 Assessment of potential

Monitoring of the geotechnical pits and boreholes has shown that the potential for survival of original ground surfaces (horizontal archaeological stratification) is low.

Whilst the archaeological remains are undoubtedly of local significance there is nothing to suggest that they are of regional or national importance.

4 Proposed development impact and recommendations

The proposed redevelopment at the Flowers Way site involves construction of a new residential housing block, with potential for basement level parking. The main impact from such a scheme would be the removal of all deposits within the footprint of the

new build, including removal of any surviving archaeological remains and structures, above the natural sand and gravel subsoils.

This preliminary assessment does not suggest that preservation *in situ* would be the appropriate mitigation strategy. The decision on the appropriate archaeological response to the deposits revealed within rests with the Local Authority. A combination of further evaluation and/or an archaeological watching brief might be appropriate.

5 Acknowledgements

The author would like to thank Jonathon Eudall of Environcorp for commissioning this report and for his guidance on site.

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