FORMER KRUPP-CAMFORD AUTOMOTIVE ENGINEERING WORKS (PROPOSED SUPERMARKET SITE – PHASE 1 DEVELOPMENT) AMPTHILL ROAD BEDFORD

SECOND PHASE OF ARCHAEOLOGICAL EVALUATION BY TRIAL TRENCHING







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SECOND PHASE OF ARCHAEOLOGICAL EVALUATION BY TRIAL TRENCHING

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This report has been prepared by Richard Gregson (Archaeological Supervisor) and Jeremy Oetgen (Project Manager). Joan Lightning (CAD Technician) prepared the plans, and Jackie Wells (Artefacts Officer) identified the finds. Fieldwork was undertaken by Victoria Hainsworth (Archaeological Technicians), under the supervision of Richard Gregson. Earthmoving plant was provided by the Principal Contractor on behalf of the client.

Albion Archaeology would like to acknowledge the assistance of the clients and their agents, in particular Jon Brown of DLA Architecture Limited for commissioning the evaluation. Thanks are also due to McLaren Construction Ltd and their project manager Steve Newell for their help in facilitating the fieldwork.

We are also grateful for the advice provided by Officers of Bedford Borough Council, namely Vanessa Clarke (Senior Archaeological Officer).

Albion Archaeology St Mary's Church St Mary's Street Bedford, MK42 0AS The context of the contex

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1.0	20/12/2012	for approval by Historic Environment Team
1.1	08/01/2013	final version

Key Terms

Throughout this report the following abbreviations are used:

Albion	Albion Archaeology
BBC	Bedford Borough Council
Client	Optimisation Developments Limited
DA	Development area
ES	Environmental Statement
HER	Historic Environment Record, Bedford Borough Council
IfA	Institute for Archaeologists
LPA	Local Planning Authority
OS	Ordnance Survey
PDA	Proposed development area



A mixed development is proposed on land to the west of Ampthill Road, Bedford. The majority of the application site was formerly occupied by the Krupp-Camford Automotive Engineering Works.

The whole of the proposed development site comprises 12.75ha of land lying approximately 1.3km south-west of Bedford town centre. It is centred on National Grid Reference TL 04620 48220. At the time of the fieldwork it was largely cleared of buildings and was derelict, with the exception of a number of light industrial units at its northern end.

Planning permission has been granted to begin Phase 1 of this development; a retail food store, a petrol filling station and associated parking. The permission is conditional on the completion of a second evaluation in the area of the main Krupp-Camford Engineering works building that falls within the Phase 1 development footprint. This area was not included in the first evaluation because it would have required heavier plant than was available to break through the reinforced concrete raft of the building's floor.

This second stage of evaluation took place as part of the pre-construction enabling works and plant provided by the Principal Contractor permitted the opening of four trenches. The trenches were 25m to 50m long. All four trenches were found to be within the area of former gravel extraction. The deposits within them were exclusively related to quarrying and subsequent backfilling, overlain by deposits related to construction of the engineering works.

The results also further support the assumption of the Environmental Statement that the remainder of the Proposed Development Area (outside the area of Phase 1) is also affected by relatively recent deep quarrying. This cannot be proved without further trenching, but it may be possible to do so with a relatively small percentage of trenching.



1.1 Planning Background

Planning permission has been sought for a proposed mixed retail, office and residential development on land to the west of Ampthill Road, Bedford, the majority of which was formerly occupied by the Krupp-Camford Automotive Engineering Works (Figure 1).

In September 2011, as part of a revised Environmental Statement (ES) (Peacock and Smith Ltd 2011) in support of the development, an archaeological desk-based assessment was compiled and evaluation by trial trenching was undertaken of part of the PDA (Albion Archaeology 2011c). Bedford Borough Council's Historic Environment Team (HET) has advised that these studies provide sufficient information to enable the heritage impact of the application to be assessed.

Phase 1 of the development, comprising a retail food store, petrol filling station and associated car parking spaces, covering *c*.3ha of land, was given permission subject to the condition that a second archaeological evaluation by trial trenching would be required. This was in order to provide sufficient archaeological information to determine the need for, and development of, design solutions and/or mitigation schemes (such as preservation-in-situ and/or open-area excavation).

At the client's instruction, Albion Archaeology prepared a Written Scheme of Investigation (WSI) (Albion Archaeology 2012) in response to a brief for a second phase of archaeological evaluation by trial trenching within Phase 1, which was issued by the HET (13 March 2011). The brief required excavation of an additional four trenches, each 50m long by 1.8m wide.

1.2 Site Location and Description

The entire PDA comprises 12.75ha of land lying approximately 1.3km south west of Bedford town centre. It is bounded to the north by the rear of properties on the southern side of Victoria Road, to the east by Ampthill Road, to the south by the grounds of Technology House, and to the west by the Midland Main railway line and Cauldwell Lower School. Phase 1 of the development occupies an area of 3.1ha within the PDA, centred on National Grid Reference TL 0454 4822. The south-east boundary of Phase 1 is formed by the metal fences and walls alongside Ampthill Road, but elsewhere the limits are not clearly defined. It should also be noted that part of Phase 1 lies to the north-west of the 2m-high chain-link fence to the rear of the former engineering works.

The Phase 1 development area had been previously cleared of buildings and was derelict, but it still contained footings, hard standings and landscaped grounds of the former engineering works. The majority of the area was covered by reinforced concrete surfaces of varying thickness with shrubs colonising joints in the concrete and disturbed areas. A dense thicket of trees and shrubs occupied the north-west corner, beyond the chain-link fence. Along the Ampthill Road frontage there is a line of ornamental shrubs and protected trees.

The underlying geology of the site comprises sands and gravels of the 'Second Terrace', which lie above Oxford Clay or Kellaways Sand. Historical mapping and geotechnical data from the PDA indicate that considerable changes have been made to the topography of most of the site in the last 150 years, firstly to accommodate railway sidings and remove gravel, and later the import of material to form a level foundation for the concrete slab/s.

1.3 Archaeological Background

Existing knowledge of the archaeology and history of the PDA and surrounding area was comprehensively summarised in a desk-based assessment compiled by Albion Archaeology in September 2011 (Albion Archaeology 2011a; ES, Appendix 15). No archaeological work had taken place within the PDA prior to the September 2011 evaluation and there were no references in the Bedford Borough Historic Environment Record (HER) other than those recording the locations of industrial buildings depicted on the site on the 1972 Ordnance Survey map (HER 17628 and 17631-3). The examination of evidence from within a 500m-radius study area from the centre of the site suggested that the PDA had the potential to contain archaeological remains dating from the Palaeolithic to the present day. However, historical maps suggested that the majority of the PDA had been subject to sand and gravel extraction in the late 19th and early 20th centuries, reducing any potential for the survival of archaeological remains.

The trial trenching undertaken by Albion Archaeology in September 2011 (Albion Archaeology 2011b; ES Appendices 16 and 17) largely confirmed the predictions of the desk-based assessment, demonstrating that quarry backfill deposits extended over the central and western part of the PDA (Figure 2, Character Area H6). Some undisturbed archaeological features survived at the south end of the PDA (Figure 2, Character Area H1), but these were associated with a 19th-century farmstead and were therefore of relatively low heritage value. Documentary evidence suggests the northern end of the PDA (Figure 2, Character Area H7) has also been subject to quarrying, but trial trenching could not be undertaken here because of the difficulty of breaking through the existing concrete foundation slabs and hard standings.

2. TRIAL EXCAVATION METHODOLOGY

2.1 Strategy

The brief issued by the Bedford Borough Council HET (2012) specified the need for an additional four 50 x 1.8m trenches to be located within Character Area H7 (probable backfilled quarries) and crossing over the 'boundary' into Character Area H6 (backfilled quarries; see Appendix 1), where these 'Areas' fell within the proposed supermarket development site. The trench layout needed be designed to ensure that any surviving archaeological deposits, features and structures across the development area were sampled. To address this requirement, a detailed methodology was set out in the written scheme of investigation (WSI) Albion Archaeology 2011b), which was approved by the HET in advance of the works.

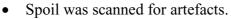
2.2 Method Statement

Throughout the project the standards set out in the following documents were adhered to:

- the IfA's Standard and Guidance for Field Evaluation
- Albion Archaeology's *Procedures Manual: Volume 1 Fieldwork* (2001)
- the IfA Code of Conduct
- English Heritage's Management of Research Projects in the Historic Environment [MoRPHE] Project Managers' Guide (2006)

Section 6 defines the main objectives of the individual trenches. The main points with regard to the trial excavation methodology were as follows:

- Fieldwork began on 11/12/2012.
- Four 2.6m-wide trenches were excavated. Due to the presence of a number of modern concrete structures beneath the surface, the trenches were not all excavated to the full 50m length. However, the Senior Archaeological Officer accepted that the trenches still provided an adequate sample of the deposits. Trenches were generally dug to a depth of 1.2m below the base of the concrete raft. In several places trenches were dug deeper than this to be sure that lower deposits were indeed derived from quarry infilling. In these places the trenches were not entered for safety reasons and the edges were protected by barriers. All trenches were backfilled within a maximum of three days of opening them.
- All machine excavation was supervised by an archaeologist and was undertaken using a 360° mechanical excavator fitted with a toothless bucket (except where a toothed bucked was required to break through hard surfacing).
- Modern overburden was removed by machine until the maximum safe depth was attained or, in places, slightly deeper, since no natural or archaeological deposits were encountered.
- All deposits were recorded in accordance with Albion Archaeology's Procedures Manual.
- No human remains or finds covered by the Treasure Act were discovered.
- Each trial trench was allocated a unique block of context numbers to facilitate recording and identification of archaeological deposits.



- A record of the excavations was made by 35mm monochrome print photography, supplemented by digital and 35mm colour slide/print photography as appropriate. A register detailing the subject, direction, date and author of each photograph was compiled.
- The trial trenches were inspected by the Vanessa Clarke, Senior Archaeological Officer of the HET, on 14/12/2012.

3. RESULTS OF THE TRIAL EXCAVATION

3.1 Introduction

The results of the trial trenching are summarised below. Full information on the deposits found in each trench has been tabulated in the detailed trench tables in Section 6.

3.2 Results

The trenches were numbered 17–20, continuing the sequence from the first stage of evaluation completed in September 2011. Only *circa* half of Trench 17 was excavated to the maximum depth due to the presence of a very thick lower concrete surface 0.6m below the base of the upper concrete layer. Almost the whole of Trenches 18 and 19 were excavated to the maximum depth. Only 17.5m of Trench 20 was excavated to the maximum depth by the time of the visit to the site of Bedford Borough Council's Senior Archaeological Officer. Quarry backfill deposits were discovered to the maximum depth across the whole of the area opened in all four trenches. This demonstrated that they were all within the area of deep gravel extraction. On this basis and given the results of the earlier evaluation, the Senior Archaeological Officer agreed that there was no need to open the remainder of Trench 20.

The quarry backfill deposits comprised sloping, tipped quarry infill (Figure 4), up to 1.25m thick, overlain by horizontally dumped deposits. These, in turn, were overlain by make-up layers and concrete surfaces associated with the Krupp-Camford Engineering Works.

The lower, tipped quarry infill deposits consisted of alternating bands of tarmac planings (or similar), blue grey clay, chalk, large grey concrete lumps and other deposits probably derived from topsoil and subsoil. The alternation of the deposits suggests that they were probably created by sequential, systematic dumping, wagon load by wagon load, in a concerted effort to back-fill the deepest, boggiest parts of the quarry. The overlying, horizontal dumps may have been used to level up the ground after the main process of backfilling.

In Trench 18, there was also a line of 12 backfilled pile holes that were probably related to an earlier phase of engineering works buildings, subsequently covered over by the concrete raft floor of the later building.

A deposit model based on the results of the earlier evaluation (Albion 2011c), demonstrated that where evidence of deep quarrying was identified, it is almost certain to have destroyed any archaeological remains that might have been present prior to extraction.

3.3 Artefact Assemblage

A modern porcelain plate was recovered from the tipped quarry infill deposit (1703) in Trench 17. This corroborates the dating of the deposits.



4. SYNTHESIS

This second archaeological evaluation at the former Krupp-Camford Engineering Works, in combination with results of the first evaluation (Albion 2011c), has demonstrated that the area of deep quarrying covers the full extent of the Phase 1 development (Figure 5). In this area, no archaeological deposits remained, and the likelihood of there being any here is very low since the present ground surface is well below the level at which archaeological features were found to have survived in the earlier evaluation on the higher land to the south of the parish boundary.

In the context of research agendas and strategies for Bedford and the region (Glazebrook 1997; Medlycott 2011, Medlycott and Brown 2008 and Oake et al 2007) the Phase 1 development site has no archaeological potential.

The results of this stage of evaluation support the assumption of the Environmental Statement that the remainder of the Proposed Development Area (outside the area of Phase 1) is also affected by relatively recent deep quarrying. This cannot be proved without further trenching, but it may be possible to do so with a relatively small percentage of trenching.

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6. TRENCH SUMMARY

Former Krupp-Camford Automotive Engineering Works (proposed supermarket site – Phase 1 development) Ampthill Road, Bedford Second phase of archaeological evaluation by trial trenching

					L
Trench:	17				
Max Dimensions:	Length:	50.00 m.	Width: 2.60 m.	Depth to Archaeology Min: m.	Max: m.
Co-ordinates:	OS Grid	Ref.: TL	(Eastin	g: 4600: Northing: 48190)	
	OS Grid	Ref.: TL	(Eastin	g: 4552: Northing: 48203)	
Reason:	To evalua	ate area.			

Context:	Туре:	Description:	Excavated:	Finds Present:
1700	Concrete	0.4m thick	\checkmark	
1701	Brick rubble	0.5m thick	\checkmark	
1702	Dump material	Compact dark grey brown sandy gravel frequent small-medium stones 0.35m thick		
1704	Tarmac	0.1 m thick	\checkmark	
1705	Make up layer	Loose mid brown orange sandy gravel occasional small-medium stones 0.6m thick		
1706	Concrete	Thickness unknown.		
1707	Make up layer	Loose light orange yellow gravel 0.6m thick	\checkmark	
1708	Quarry	dimensions: max breadth 2.6m, min depth 1.25m, min length 25.m	\checkmark	
1703	Backfill	Sequence of sloping quarry tip deposits.	\checkmark	\checkmark

					L.
Trench:	18				
Max Dimensions:	Length:	50.00 m.	Width: 2.60 m.	Depth to Archaeology Min: m.	Max: m.
Co-ordinates:	OS Grid	Ref.: TL	(Eastin	g: 4526: Northing: 48203)	
	OS Grid	Ref.: TL	(Eastin	g: 4540: Northing: 48251)	
Reason:	To evalua	ate area.			

Context:	Туре:	Description:	Excavated: Finds P	resent:
1800	Concrete	0.25m thick.	\checkmark	
1801	Brick rubble	0.4m thick.	\checkmark	
1802	Make up layer	Loose mid grey brown sandy gravel 0.35m thick.	\checkmark	
1803	Dump material	Horizontal layers comprising tarmac planings, mid blue grey clay and mid brown grey gravelly sand. 0.3m thick.		
1805	Quarry	dimensions: min breadth 2.6m, min depth 0.75m, min length 50.m	\checkmark	
1804	Backfill	Sequence of sloping quarry tip deposits.	\checkmark	
1806	Modern intrusion	Sub-square N-S sides: vertical dimensions: max breadth 0.7m, min depth 1.2m, max length 0.7m Line of 12 pile holes.		
1807	Backfill	Loose mid orange yellow gravel	\checkmark	

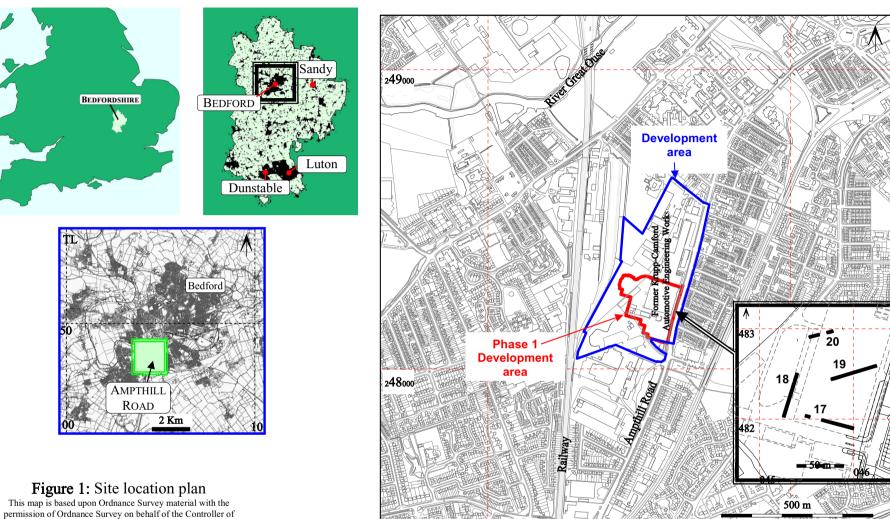
					<u>H</u>
Trench:	19				
Max Dimensions:	Length:	50.00 m.	Width: 2.60 m.	Depth to Archaeology Min: m.	Max: m.
Co-ordinates:	OS Grid	Ref.: TL	(Eastin	g: 4621: Northing: 48258)	
	OS Grid	Ref.: TL	(Eastin	g: 4573: Northing: 48243)	
Reason:	To evalua	ate area.			

Context:	Туре:	Description:	Excavated: Finds Pro	esent:
1900	Concrete	0.7m thick.	\checkmark	
1901	Dump material	Horizontal layers comprising tarmac planings, mid blue grey clay and mid brown grey gravelly sand. 0.5m thick.		
1903	Quarry	dimensions: min breadth 2.6m, min depth 1.1m, min length 50.m	\checkmark	
1902	Backfill	Sequence of sloping quarry tip deposits.	\checkmark	

					Ł
Trench:	20				
Max Dimensions:	Length:	26.00 m.	Width: 2.60 m.	Depth to Archaeology Min: m.	Max: m.
Co-ordinates:	OS Grid	Ref.: TL	(Eastin	g: 4588: Northing: 48300)	
	OS Grid	Ref.: TL	(Eastin	g: 4541: Northing: 48284)	
Reason:	To evalua	ate area			

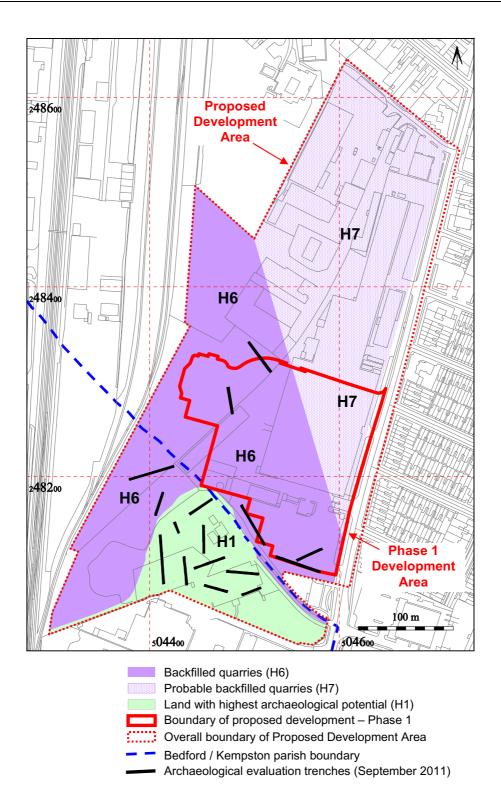
Context:	Туре:	Description:	Excavated: Finds P	resent:
2000	Concrete	0.4m thick.	\checkmark	
2001	Make up layer	Loose mid grey brown sandy gravel 0.3m thick.		
2002	Dump material	Horizontal layers comprising tarmac planings, mid blue grey clay and mid brown grey gravelly sand. 0.2m thick.		
2004	Quarry	dimensions: min breadth 2.6m, min depth 1.1m, min length 26.m	\checkmark	
2003	Backfill	Sequence of sloping quarry tip deposits.		

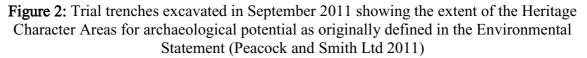
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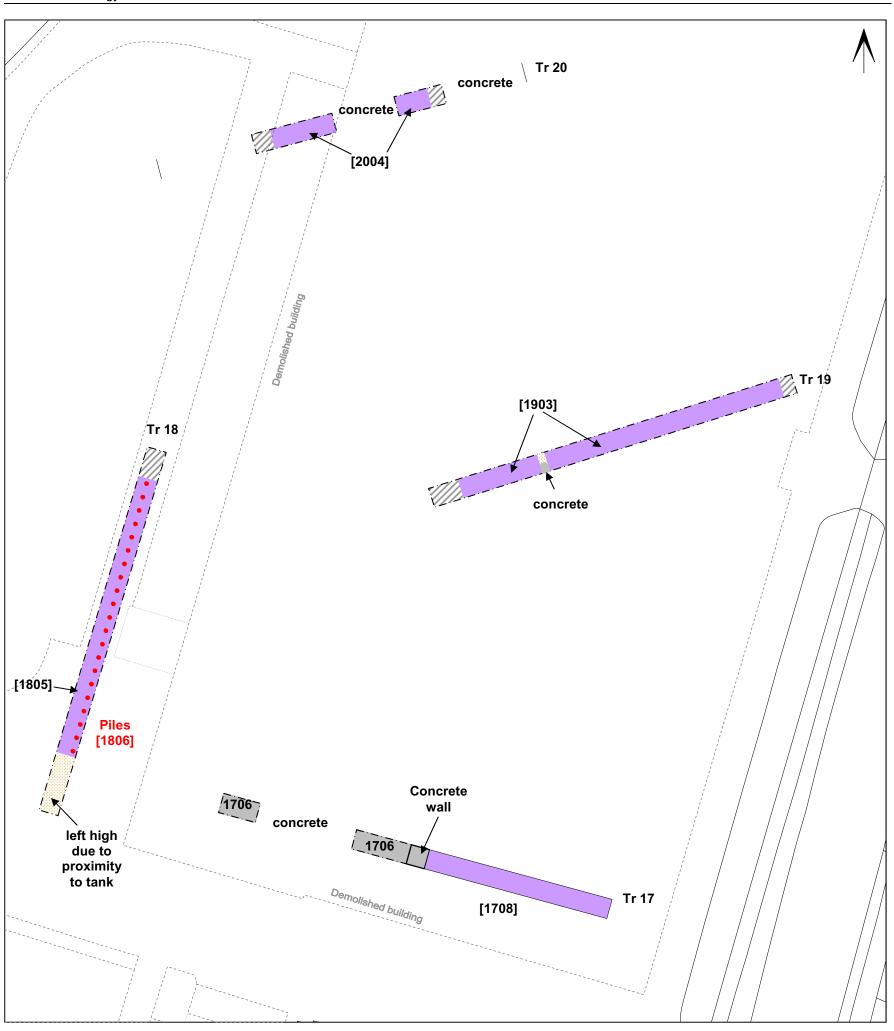
Former Krupp-Camford Automotive Engineering Works (proposed supermarket site – Phase 1 development) Ampthill Road, Bedford Second phase of archaeological evaluation by trial trenching





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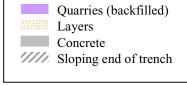
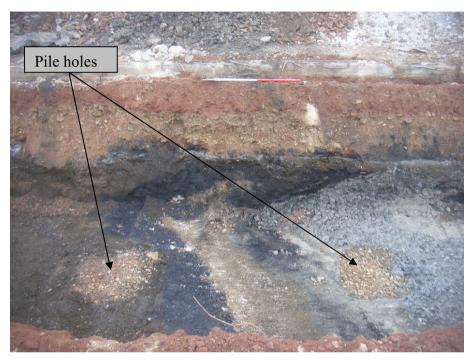


Figure 3: All features revealed in Trenches 17–20 (December 2012)

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Photograph showing quarry infill, Trench 18 (2012) (Scale 1m)



Photograph showing quarry infill, Trench 4 (2011) (Scale 1m)

Figure 4: Photographs showing similarities between quarry infill deposits from this evaluation and the first evaluation in 2011

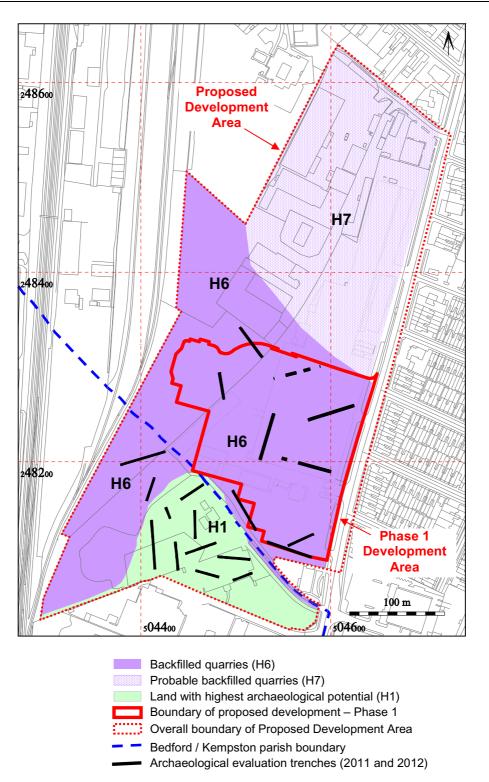


Figure 5: Likelihood of surviving archaeological deposits within the development area, revised to incorporate the results of trenching in 2012

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