PN1788

birmingham archaeology

UNIVERSITY OF BIRMINGHAM

Cambridge Street, Birmingham
Archaeological Evaluation
2008

REGISTERED IFA ORGANISATION

Project No. 1788

New Library Site, Cambridge Street, Birmingham
An Archaeological Evalution, 2008

by
Eleanor Ramsey

For further information please contact:
Alex Jones (Director)
Birmingham Archaeology
The University of Birmingham
Edgbaston
Birmingham B15 2TT
Tel: 0121 414 5513
Fax: 0121 414 5516
E-Mail: BUFAU@bham.ac.uk
Web Address: http://www.arch-ant.bham.ac.uk/bufau

NEW LIBRARY SITE, CAMBRIDGE STREET, BIRMINGHAM

AN ARCHAEOLOGICAL EVALUATION, 2008.

CONTENTS

Figures

Plates

Appendices

SUMMARY

An archaeological evaluation at Cambridge Street, Birmingham (centred on NGR SP 0631 8687) was commissioned by Capita Symonds on behalf of Birmingham City Council. The work was undertaken by Birmingham Archaeology in May 2008. The evaluation comprised four trenches, which were located over potential archaeological structures and deposits identified from cartographic evidence, and to avoid known services.

The work was required as part of an assessment of the impact of the proposed development of the new Library on below-ground archaeological remains, in order to determine the necessity for further archaeological mitigation in advance of the commencement of the development.

A previous desk-based assessment showed that the site was formerly within the vicinity of John Baskerville's house in the 18th century, and was the later location of the Union Brassworks in the early-19th century, and Winfields Brass Works, one of the largest brassworks in Birmingham during the mid to late-19th century.

The archaeological evaluation demonstrated good survival of below-ground archaeological deposits relating to the former brassworks and the canal basin constructed to serve the works. The results both correlate with known cartographic evidence, and also provide additional detailed information regarding specific rooms and structures within the works.

NEW LIBRARY SITE, CAMBRIDGE STREET, BIRMINGHAM

AN ARCHAEOLOGICAL EVALUATION, 2008.

1.0 INTRODUCTION

1.1 Background to the project

1.1.1 Birmingham Archaeology was commissioned by Capita Symonds on behalf of Birmingham City Council to undertake a programme of trial trenching ahead of a proposed development at Cambridge Street, Birmingham hereinafter referred to as the site, Planning Application Number 2006/1254).

1.1.2 This report outlines the results of a field evaluation carried out during April 2008, and has been prepared in accordance with the Institute of Field Archaeologists Standards and Guidance for Archaeological Evaluations (IFA 2001).

1.1.3 A previous desk-based assessment of the development area was carried out in October 2006 (Lobb 2006, BA report no. 1517).

1.1.4 The evaluation conformed to a brief produced by Birmingham City Council (Appendix 1), and a Written Scheme of Investigation (Birmingham Archaeology 2008) which was approved by the Local Planning Authority prior to implementation, in accordance with guidelines laid down in Planning Policy Guidance Note 16 (DoE 1990).

1.2 Location and geology

1.2.1 The site is located within the city centre of Birmingham, and is centred on NGR SP 0631 8687 (Figs. 1 and 2). It lies on the south side of Cambridge Street, between the upstanding buildings of the Repertory Theatre to the east, Baskerville House to the west and Centenary Square to the south.

1.2.2 The underlying geology consists of Bromsgrove Sandstone overlain by glaciofluvial deposits.

1.2.3 The site lies in the middle of a ridge of higher ground running southwest – northeast. The Birmingham and Fazeley canal and redundant Newhall Arm are located to the north, and the Birmingham and Worcester canal is located to the west. The early canals are contour canals which skirt around the higher ground on which the site is located (Fig. 3).

1.2.4 The present character of the site is tarmac hardstanding and is currently used as a public car park.

2.0 ARCHAEOLOGICAL BACKGROUND

2.0.1 The proposed new Library Site, to the south of Cambridge Street lies within an area of high historical significance. The desk-based assessment noted that the site was close to the location of Easy Hill, the house of John Baskerville, the noted printer and typesetter

in the 18th century, and in the 19th century was the site of Winfield's Cambridge Street Works, at one time one of the largest brassworks in Birmingham (Lobb 2006).

2.0.2 Baskerville Wharf was laid out by 1824-5 and consisted of four canal arms, connected to the Birmingham and Fazeley Canal (formerly the Newhall Branch of the Birmingham Main Line) by a tunnel running underneath Cambridge Street to the north. The northernmost canal arm runs northeast – southwest through the site. The earliest building associated with the canal is depicted on Piggot-Smiths map of this date (Fig. 4), named as 'Union Rolling Mills', though this was acquired by Robert Winfield in the 1830's. Winfield was principally a brass manufacturer, but with the gradual accumulation of sites within the area (later referred to as the Cambridge Street Works, Fig. 5) became engaged in metal rolling, gas fitting, brass foundry, carpentry, wire manufacture and the coal trade. All of these industries, with the exception of coal import, took place within the Cambridge Street Works (Lobb 2006).

2.0.3 In the mid-19th century the Cambridge Street Works was one of the largest brass works in Birmingham, though after a slump in trade at the end of the 19th century the Cambridge Street Works went into receivership and the various buildings were auctioned off (Lobb 2006). Plans surveyed at this time depict room by room detail of the site (Fig. 6).

2.0.4 The site of the Baskerville Wharf was chosen as the location of a civic complex west of Victoria Square, proposed in 1918 and work began clearing the site in 1922. The desk-based assessment notes that a photograph of 1926 shows the stacks of the north half of the Cambridge Street Works still visible, though by the time of the Ordnance Survey map of 1936 the site was completely cleared.

3.0 AIMS AND OBJECTIVES

3.0.1 The principle aim of the evaluation was to determine the character, state of preservation and the potential significance of any buried remains so that an appropriate mitigation scheme can be devised.

3.0.2 In particular the field evaluation aimed to address the following:

- The survival and significance of remains of the buildings belonging to John Baskerville's House, a former canal wharf, the Union Rolling Mill and brass and iron works.
- The potential survival of any other archaeological remains.
- The potential of the site to contribute to an understanding of the historic development of this part of Birmingham.

4.0 METHODOLOGY

4.1 Fieldwork

4.1.1 The proposed development area covers approximately 0.4 hectares. A total of 4 trenches were excavated across the site totalling 200m² (100m x 2m) which provided a 16% sample of the total area (Fig. 2).

4.1.2 Trenches were located to target specific features revealed in the archaeological desk-based assessment. These included John Baskerville's House, a former canal wharf, the Union Rolling Mill and brass and iron works. The trenches were surveyed in using an EDM total station.

4.1.3 The outline of the trenches were cut using a diamond tipped floor saw and the tarmac and road stone were removed and stored separately. All topsoil and modern overburden was removed using a JCB and 360° tracked mechanical excavators with toothless ditching buckets, under direct archaeological supervision, down to the to the top of the uppermost archaeological horizon or the subsoil. Subsequent cleaning and excavation was by hand.

4.1.4 All stratigraphic sequences were recorded, even where no archaeology was present. Features were planned at a scale of 1:20 or 1:50, and sections were drawn through all cut features and significant vertical stratigraphy at the same scale. A comprehensive written record was maintained using a continuous numbered context system on *pro-forma* context and feature cards. Written records and scale plans were supplemented by photographs using monochrome, colour slide and digital photography.

4.1.5 Recovered finds were cleaned, marked and remedial conservation work was undertaken as necessary. Treatment of all finds conformed to guidance contained within 'A strategy for the care and investigation of finds' published by English Heritage (1995).

4.1.6 The full site archive includes all artefactual and/or ecofactual remains recovered from the site. The site archive will be prepared according to guidelines set down in Appendix 3 of the Management of Archaeology Projects (English Heritage, 1991), the Guidelines for the Preparation of Excavation Archives for Long-term Storage (UKIC, 1990) and Standards in the Museum Care of Archaeological collections (Museum and Art Galleries Commission, 1992). Finds and the paper archive will be deposited with Birmingham Museum and Art Gallery subject to permission from the landowner.

5.0 RESULTS

5.1 Introduction

5.1.1 Detailed summaries of the individual trenches are presented in Appendix 2 and full details are available in the project archive. In the following sections feature (cut), structure and context numbers are highlighted in bold. The features, structures and contexts are illustrated in Fig. 7 (Trenches 1 and 2) and Fig. 8 (Trenches 3 and 4) unless specified. Fig. 9 shows the site and major archaeological structures in 3d.

5.2 Subsoil (natural)

5.2.1 The natural subsoil was reached at a height of 142.06m AOD in Trench 3 (**3021**), and comprised yellow orange sand with some gravel inclusions. It was also identified at the base of the canal in machine excavated sondages in Trenches 1 and 2 at approximately 4.3m below the current ground surface (**1037**, **2017**), and sandstone bedrock was identified beneath the walls and machine base at the western end of Trench 4. The natural subsoil consisted of yellow orange sand with some gravel inclusions.

5.3 Summary of archaeological features and deposits.

5.3.1 Archaeological structures and deposits were found in all of the trenches. The principle dated structures and deposits were:

- The canal and associated towpaths and infrastructure.
- Industrial structures including walls, a chimney, machine bases and floor surfaces associated with the Rolling Mills and subsequent brass and iron works.

5.3.2 These features were multiphased, though all were of a post-medieval date from 19th century to early 20th century. The archaeological structures and deposits identified correlate well with the historic maps and plans, and supplement this information with detail regarding internal structures and functions within the buildings.

5.3.3 The dating of the structures was problematic, as no artefactual dating evidence was recovered from stratigraphic contexts within the site. Architectural detail, in particular brick type and form and stratigraphic relationships were used to phase the site.

5.3.4 The phasing of the site is therefore roughly early to mid-19th century, mid to late-19th century, and late-19th to early 20th century. It should be noted, however, that these are provisional dates only.

5.4 Phase 1 Early to Mid-19th Century

5.4.1 The earliest structures identified on the site were the canal, present in Trench 1 (**1021** **1022**) and Trench 2 (**2015**), and the base of a chimney in Trench 1 (**1016** Plate 1).

5.4.2 The canal was aligned northeast - southwest, and was tested by machine excavated sondage against the southern wall in both Trenches 1 and 2. The base was determined to be approximately 4.3m below the current ground surface at approximately 139.7m AOD, and lined with puddle clay (**1027** not illustrated). It was approximately 7m wide. In Trench 1 it was constructed with blue engineering bricks, though in Trench 2 it was constructed with red bricks possibly suggesting renovation or rebuilding at some time in its history. The bond of the wall in Trench 1 was English garden wall, and in Trench 2 the wall was constructed in stretcher bond.

5.4.3 10m to the north of the canal in Trench 1 the base of a chimney was identified (**1016** Plate 1), with a flue present heading off to the east. The outer structure was octagonal, and approximately 10m in diameter, with a circular internal face constructed in English bond that had been exposed to heat and smoke. The octagonal corners of the external face were formed by terracotta or brick specials.

5.4.4 A north-south brick wall (**1009**) identified at the northern end of Trench 1 may also have been early in date. Part of a possible cut for this wall was also identified (**1012**), cutting a deposit of sand and rubble with patches of red burnt sand in places **1013**.

5.5 Phase 2 Mid to Late-19th Century

5.5.1 The majority of the structures and deposits identified during the evaluation are likely to be of this phase.

5.5.2 Within Trench 1, a culvert (**1010**, Plate 2) was identified abutting wall **1009**. Between the culvert and the chimney were a series of different phased but essentially undiagnostic structures, including the truncated remains of walls and drains (**1011**, **1015**). To the south of the chimney a small amount of brick surface was identified **1017** that overlay a yellow brown sand with mortar fragments **1003**. A discrete deposit of black-grey silt-sand with ash was identified in the vicinity of this surface (**1004**). This area was not fully investigated due to the proximity of modern services.

5.5.3 Adjacent to the canal the remains of brick surfaces, possibly related to the former towpath or adjacent buildings, were identified in Trenches 1 and 2. In Trench 1, the surface to the north of the canal (**1020**, Plate 3) displayed evidence of having drains inserted or incorporated into its build. This surface was constructed from blue bricks and laid in stretcher bond (**1020**). To the south of the canal, surface **1024** was of similar construction. At the northern end of Trench 2, surface **2009** was disturbed by a possible cut **2012** then continued to the north of this as **2008**. A concrete base (**2005**) was set into the surface at its northern extent, adjacent to a brick path or floor (**2006**). To the west of this wall another fragment of brick surface was identified (**2007**). To the south of the canal in this trench, surface **2014** abutted the canal wall and a northwest – southeast aligned wall (**2016**).

5.5.4 At the southern end of Trench 2, a series of walls was identified (**2011**, **2016**, Plate 4) with part of another possible floor surface (**2010**) abutting the canal wall and **2011**. This surface overlay deposits **2003** and **2004**, which contained inclusions of broken brick, slag and crucible. These may constitute primary deposits for the levelling of the surface.

5.5.5 A brick surface was identified at the northern end of Trench 3 that is likely to have been from this phase (**3010**, Plate 5).

5.5.6 Several parallel northeast - southwest aligned walls were identified in Trench 4 (**4016, 4018, 4019, 4020** and **4021**, Plate 6). These were constructed in blue brick, and were predominantly laid in English bond where it was discernable. Within these walls iron fitments, tubing and superstructure were present, suggesting these were to support machinery rather than representing the foundations of internal walls. A grey ashy rubble deposit (**4007**) was identified between walls **4016** and **4018**.

5.5.7 A worn brick surface was present at the eastern end of Trench 4 (**4017**), abutted by later machine bases.

5.6 Phase 3 Late-19th to Early-20th Century

5.6.1 Later structures identified within Trench 1 comprised a series of walls and surfaces constructed from yellow firebricks, located between the chimney and the canal (**1006, 1007, 1008 and 1018**, Plate 7). Some were stamped 'Stourbridge' and incorporated into these were two yellow bullnose brick piles, which may have formed part of a door way or roof support.

5.6.2 A later drain or sump constructed from blue bricks and concrete was located at the northern end of Trench 1 (**1014**).

5.6.3 At the southern end of Trench 1, a square concrete base with the remains of scaffolding (**1025**) was identified adjacent to the canal, overlying brick surface **1024** (Plate 8). A

brick and concrete surface (**1026**) was also present in this area, also directly overlying the earlier surface. A square drain or manhole was located adjacent to the canal in this area (**1030**).

5.6.4 A small brick structure comprising yellow firebricks (**2013**) was identified in Trench 2 constructed on top of surface **2009**.

5.6.5 Within Trench 3, a brick and concrete surface (**3007**), which was present over the majority of the trench, was likely to date from this phase. Incorporated into this surface were wooden supports, metal beams, and occasional areas of truncation (**3016**, **3017 3018** and **3019**). This surface abutted the earlier brick surface **3010**, and both were cut by a modern service cut at the northern end of the trench (**3011**/ **3015**). It overlay deposits of black sand with small stones (**3008** not illustrated) and brown sand (**3009**) which may represent levelling for this surface, or build up from an earlier phase, that overlay the natural subsoil (**3021**). A brick manhole (**3012**) infilled with rubble (**3001**) and a brick drain with a slate base (**3020**) were identified within these deposits, beneath the concrete surface. The manhole corresponded with a disturbance through the surface, and is likely to be a later addition.

5.6.6 At the southern end of Trench 3 a brick lined pit (**3013**) was set into the concrete surface. The feature extended beyond the edges of the trench. The base of the pit, **3014**, was possibly made of stone or concrete, and it was filled with rubble, timber and part of a collapsed wall (**3002**).

5.6.7 In Trench 4, later additions comprised two poured concrete machine bases, at either end of the trench (**4015** Plate 9 **4022** Plate 10). Machine base **4015** had the remains of iron fitments within it, and appeared to be very smooth poured concrete with few inclusions, probably moulded in shutters. Within this structure was a possible scoop feature (**4023**), filled with orange sand gravel and rubble (**4024**), similar to the overlying demolition deposits. At the base, however, was a deposit of wood and slate possibly suggesting this was a separate feature.

5.6.8 The machine base at the western end of the trench comprised two parallel concrete walls again with the remains of iron fitments, abutting the earlier wall **4021**. A north-south aligned brick wall, ½-brick thick, was identified as part of the structure at its base, with possible wood lining. A void was present beneath the base of this structure, suggesting that the brick wall and wood represented a tank or pit. It is possible that this structure relates to a steam engine.

5.6.9 Overlying the structures at the eastern end of Trench 4 (machine base **4015**, surface **4017** and wall **4016**) were thin deposits of black silt, which are likely to represent *in-situ* trample from the industrial processes and use of the structures (**4004**, **4005** and **4006**).

5.6.10 Black silt and organic material was present at the base of the canal (**1005** not illustrated).

5.7 Overburden and topsoil

5.7.1 Overlying all the features were demolition deposits and levelling layers for the car park surface (not illustrated). These ranged in depth from 0.1m over the southern canal wall

to 4.3m within the canal itself. The majority of the archaeological structures and deposits were overlain by approximately 0.5 - 1m of overburden. The demolition deposits mainly comprised clean orange sand and gravel with large brick fragments, though in specific areas discrete demolition deposits were identified. These include:

- Trench 1 – **1019** rubble deposit comprising yellow fire bricks in the area of **1018**; **1002** black ash and brick rubble deposit in the area of **1018**; **1023**, **1028 and 1031** (not illustrated) demolition rubble infilling the canal; **1032** – **1036** levelling layers for the car park; **1000** tarmac

- Trench 2 – **2002** demolition layer over whole of trench; **2000** - **2001** tarmac and levelling

- Trench 3 – **3006** uniform demolition deposit over whole of trench; **3003** - **3005** levelling layers; **3000** tarmac

- Trench 4 – **4010** demolition deposit in area of machine base **4015**; **4013** demolition deposit in area of walls **4018**, **4019**, **4020**; **4003**, **4004** demolition deposit at western end of trench; **4008**, **4009**, **4011**, **4012**, **4014** series of demolition deposits throughout trench; **4001**, **4002** levelling layers for carpark; **4000** tarmac

6.0 THE FINDS

6.0.1 The archaeological evaluation, perhaps surprisingly, produced little in the way of artefactual evidence, certainly not the quantity of ceramic evidence that usually accompanies post-medieval sites. The artefacts that were recovered from the evaluation were predominantly ones associated with the construction and industrial use of the site, including stamped bricks, cruicible fragments and fragments of copper or brass, and slag. Leather items were recovered from the base of the canal.

6.0.2 The majority of the finds were from demolition layers, and where datable were likely to date to the late-19th century. Many fragments of copper alloy were recovered, including pins and wire. Crucible and slag were also collected.

6.0.3 Of the glass collected, some of the fragments were possible from industrial processes including a rod and tubes. These may relate to the production of stained glass, one of the industries the Cambridge Street Works was annotated as being involved in on the Ordnance Survey 1:500 map.

Strat unit	Tile: ceramic	Brick: ceramic	Clay pipe	Crucible/ mould	Iron nails	Copper/alloy	Lead	Slag	Bottle glass	Window glass	Other glass	Animal Bone (g)	Leather
1002						27							
1003						16							
1004						25							
1005				2		1			1				2
1007		3											
1008		1											
1019		2											

Strat unit	Tile: ceramic	Brick: ceramic	Clay pipe	Crucible/ mould	Iron nails	Copper/alloy	Lead	Slag	Bottle glass	Window glass	Other glass	Animal Bone (g)	Leather
2003		2		9	1	2		7					
3001			2										
3002	1	15				1			2				
4003					1	9				9			
4004						4							
4005						2	1	14	5			1	1
4006						5						9	
4007	1					1			4	2	9		

Table 1 - Finds

6.1 The ceramics *by Stephanie Rátkai*

6.1.1 Eleven fragments of crucible were recovered from the site. Two of these were from the base of the canal (**1005**) and nine were recovered from deposit **2003**. The crucibles were in general similar to those found during the excavations at Park Street, and were probably used in the brass working industry. Some had coppery residue on the surfaces.

6.1.2 It was noted that the nine fragments from deposit **2003** were bits of different broken crucibles, suggesting they had been moved at some point. This fits with the possibility that this deposit was a levelling deposit for the floor.

6.2 Other finds *by Erica Macey-Bracken*

Tile

6.2.1 Two fragments of tile were recovered from the site. One of the fragments (**3002**) was from a late-19th century flat tile with a very pale yellow-brown fabric and surfaces, very similar to the bricks described below. The other tile fragment, recovered from Trench 4 (**4007**) was made from a very dense engineering brick fabric.

Brick

6.2.2 Twenty-three brick fragments were recovered from the site, including two fragments that made up a complete brick (**2007**). The bricks all dated to the later 19th century (S. Kelleher and R. Tyler, pers. comm.) and were all a pale yellow-brown colour due to the amount of ash and clinker that had been mixed in with the brick clay during the manufacturing process – a practice common in London, but less so in the Midlands. Three of the bricks, including the complete brick, had been stamped, two (**1007**, **2007**) with the word STOURBRIDGE and an indistinct manufacturer's name, and one fragment (1019) had the letters __UGLAS stamped on one side.

Clay Pipe

6.2.3 Two joining fragments of a clay pipe bowl were recovered from Trench 3 (**3001**). Although the bowl is incomplete, it looks likely to date to the later 19th century (Ayto, 1999, 8).

Iron

6.2.4 Two iron nails were recovered, one from Trench 2 (**2003**) and one from Trench 4 (**4003**). Both nails were quite well-preserved, and relatively free of corrosion products. Other iron items included a thick iron bolt, the shaft of which was 2cm in diameter, and a triangular piece of iron scrap, both recovered from Trench 3 (**3002**).

Copper Alloy

6.2.5 Most of the copper alloy material from the site consisted of pins and wire (**1002**, **1003**, **1004**, **4003**, **4006**). Other items from the site included offcuts of brass / copper scrap (**2003**, **3002**, **4003**, **4007**), a circular piece with a crimped edge (**4003**) and a cigarette tin (**1005**), which still retained some of the elastic strips used to keep the cigarettes in place.

Lead

6.2.6 One piece of lead was recovered from Trench 4 (**4005**). This was a short section of lead rod.

Slag

6.2.7 Twenty-one fragments of slag were recovered (**2003** x 7, **3002** x 14) from Trenches 2 and 3. The fragments were nonmagnetic and very light and vesicular. Further examination of the material by a specialist would be require to determine their exact nature.

Glass

6.2.8 Twelve pieces of bottle glass, including one complete bottle (**1005**), were recovered from the site. The complete bottle was made from blue-green glass and embossed with the name R. WHITE on the shoulder and the base. It had an internal screw top that suggested a late-19th century date. Nine fragments of window glass and eight other glass fragments were also recovered. The bottle fragments from Trench 3 (**3002**) were neck fragments from three blue-green aqua bottles. The window glass was 20th century "safety glass" (**4003** x 7, **4007** x 2), and other glass included a clear glass sphere (**4007**) that had once been attached to a glass rod, six thin clear glass tubes (**4007**) an opaque white glass funnel-shaped item that was rounded off at the narrow end (**4007**).

Animal Bone – comments by David Brown

6.2.9 Three fragments of animal bone were recovered from Trench 4. Two fragments were from domestic birds; a chicken carpometacarpus was recovered from the black silt layer in Trench 4 (**4004**), and a scapula from a domestic goose (*anser anser*) was recovered from another layer in the same trench (**4006**). This layer also produced a rib fragment from a small – medium sized mammal such as a sheep.

Leather

6.2.10 Two leather boots (**1005**) were recovered from the base of the canal. The boots are quite large – equivalent to a modern size 10 – and have the appearance of workmen's boots. One small leather offcut was also recovered from Trench 4 (**4005**). These contexts were dated to the late-19th to early-20th century.

7.0 DISCUSSION

7.0.1 The evaluation demonstrated the exceptional survival of archaeological remains within the site. These remains can be related both to the cartographic evidence, but also further enhance our knowledge and understanding of the internal structures within the buildings.

7.0.2 The site lies on a natural ridge of higher ground running southwest – northeast (Fig. 3) with the land falling away to the north and south. The depth of the natural subsoil was confirmed in Trench 3 at 142.06m AOD.

7.0.3 There was no evidence relating to the remains of Baskerville House or the associated 18th-century gardens depicted on cartographic evidence.

7.0.4 The earliest phase 1 structures on the site, the canal arm and the chimney within Trench 1, possibly relate to the earliest industrial building on the site, the Union Rolling Mill which was taken over by Robert Winfield in the 1830s. The cartographic evidence for this period is not particularly detailed, and it is unclear how much of the original building was retained in the later phases.

7.0.5 The canal arm was constructed some time before 1824, and was joined to the earlier Birmingham and Fazeley contour canal to the north. This canal ran southwest – northeast and skirted the higher ground on which the site is located. Late-18th century maps show that much of the area at this time was still undeveloped, with the site being part of the gardens of the original Baskerville House. A wharf and iron foundry were present to the south of the site, but to the east, the developed area is delimited by Easy Row, Great Charles Street and Suffolk Street.

7.0.6 Development around the canals in general was rapid, and by 1840, on a two mile stretch of the Birmingham and Fazeley canal there were 124 wharfs and canalside industries (Crowe 1994, 74). It is noted by Crowe (1994) that big industrial towns had many public, private and company-owned wharfs and basins (*ibid.*).

7.0.7 The canal arm identified in the evaluation was demonstrated to be over 4m deep. The difference in height (AOD) between the canal arm identified in the evaluation, and the contour canal to which it joined gives some idea for the reason for the additional depth of the canal in this area. The difference in level of the canal towpath on the Newhall Arm of the Birmingham and Fazeley Canal (138.4m AOD as ascertained from the data from the Ordnance Survey 1st Edition) and within the site at Cambridge Street (approximately 144m AOD) suggest a difference in surface level of 5.5m.

7.0.8 It is known from documentary, cartographic, and photographic evidence that there was a lock in the canal located under the present Baskerville House building. However, locks in general raise water levels between 1.8m – 3m (http://www.canaljunction.com/canal/lock.htm), so the additional depth of the canal arm within the site may be due to the water level being significantly lower than the adjacent ground level.

7.0.9 This suggests a roofed-in wharf with cranes to allow shipments to be accessed to the level up to 4m below. Later scaffolding present at the southern end of Trench 1 may be associated with this type of activity.

7.0.10 The chimney identified in Trench 1 is not depicted on the map of 1824 (Fig. 4), but is present on later mapping, and on Ackerman's Panoramic of 1847 (not illustrated). The wall (**1009**) identified at the north end of Trench 1 as potentially being an earlier wall matches well with the later cartographic evidence from the Ordnance Survey 1:500 1st Edition (Fig. 5) and the detailed plan of the late-19th century Cambridge Street Works (Fig. 6).

7.0.11 The majority of the phase 2 structures correlate directly with the cartographic evidence. Within Trench 1, the remains of surfaces survived to the north and south of the canal. On the Ordnance Survey 1:500 map the surface to the south of the canal is seen to be within the footprint of a building in this area, though this area is not illustrated on the detailed works plan of 1897, and there are no buildings in this area on the earlier mapping.

7.0.12 The truncated surface, and walls, surface and possible entrance identified from structures to the north of the canal in Trench 1 relate well to a room or building illustrated on both the late-19th century maps. This room is annotated 'Three Muffles' (Fig. 6), and depicts an entrance in the vicinity of the bullnose bricks identified as a possible entrance.

7.0.13 Again, the area to the south of the canal arm in Trench 2 is not covered on the plan of the works. This area is shown on the Ordnance Survey 1:500 edition however, as being the location of a footbridge over the canal arm. The northwest – southeast aligned wall identified here is likely to relate to the building to the east, with the archaeology either side of this wall relating to a levelled floor surface and the towpath adjacent to the canal. To the north of the canal arm in Trench 2 there is a gap, with another building depicted at the northern extent of the trench. This building is annotated 'boilers' on the detailed plan (Fig. 6), and again, this correlates well with the archaeological structures identified in the evaluation.

7.0.14 Trench 3 can be seen to be located within an area depicted on the maps as a yard, and shows no evidence of upstanding structures either as archaeological features or on the cartographic evidence. It is possible, however, that earlier structures associated with Baskerville House survive beneath this surface, as it was only tested in a sondage in one place.

7.0.15 Trench 4 is located across two large rooms annotated 'Rolling Mill' at the eastern end of the trench and 'Wire Drawing Mill' to the west. Little detail is shown on the plans of this area, and so the archaeology, enhances the cartographic evidence by giving some indication of internal structures. The internal walls identified within Trench 4 were probably mid to late-19th century in date, and displayed evidence of supporting machinery. The poured concrete machine bases at either end of this trench were likely to be later additions or alterations to the original industrial structure, though given that the works were auctioned off at the very end of the 19th century, are possibly not 20th century in date, unless the works continued to function after this date. The machine base at the western end of Trench 4 may relate to a steam engine, though again, there is not enough cartographic evidence to confirm this. Further documentary research may shed light on this.

7.0.16 The artefactual evidence recovered from this trench comprised mainly copper/alloy fragments and slag, from possibly *in-situ* contexts over the structures themselves. This suggests the buildings were being used as brass works up until its demolition.

8.0 IMPLICATIONS

8.0.1 The importance of the archaeological remains to help understand the history and development of this area of Birmingham should not be underestimated. The construction of the canal system in general was integral to the growth and industrial development of the city, and within the vicinity of the site itself. However, the area surrounding Cambridge Street has seen rapid and dramatic change and many characteristic industries have been lost.

8.0.2 The survival of the archaeological remains in this area suggests that further work in the form of open area excavation will have the potential to significantly increase our understanding of the site, its history, development and industrial processes that were carried out during the 19th century. This will contribute to our understanding of the site, and to our knowledge about industrial development of Birmingham as a whole.

8.0.3 As is highlighted in the West Midlands Research Framework for Archaeology, although the importance of Birmingham's industrial archaeology is widely appreciated, it has tended to be seen in terms of better documented sites and those associated with well-known individuals. There is a gap in our knowledge of less-well documented industries (Hodder 2003).

8.0.4 Additionally, there is the question of whether the physical remains of particular industries are distinctive in terms of below-ground archaeology, or whether the remains show as 'industrial buildings' (Hodder 2003). The surviving archaeology at Cambridge Street in particular has the potential to address this question.

8.0.5 For these reasons, archaeological mitigation in the form of open area excavation is likely to be recommended by Mike Hodder, Planning Archaeologist for Birmingham City Council, prior to the development of the site.

8.0.6 There is also the possibility of some preservation *in-situ*, within a sympathetic design of the new library.

9.0 ACKNOWLEDGEMENTS

9.0.1 The project was commissioned by Capita Symonds. Thanks are due to Dave Robertson and Craig Sanders from Capita Symonds, and Terry Perkins, Jim Wilson and Mike Evans from Birmingham City Council for their co-operation and assistance throughout the project. Thanks are also due to Ray and Collin from St Clements Plant Hire for their careful machining. Thanks also go to Dr Mike Hodder, Planning Archaeologist, who monitored the project on behalf of Birmingham City Council. Work on site was undertaken by Dave Brown, Mark Charles, Paul Collins, Shane Kelleher, Nuala Marshall, Eleanor Ramsey and Emma Sautejeau. Specialists to whom thanks are due are Stephanie Rátkai, Erica Macey-Bracken, Shane Kelleher, Rik Tyler and David Brown. Eleanor Ramsey produced the written report which was illustrated by Nigel Dodds, and edited by Christopher Hewitson who managed the project for Birmingham Archaeology.

10.0 REFERENCES

Birmingham Archaeology 2008 *Land south of Cambridge Street, Archaeological Evaluation: Written Scheme of Investigation*

Birmingham City Council 2006 *Proposed New Library of Birmingham, Cambridge Street: Brief for Archaeological Field Evaluation as part of development proposals*

Crowe, N. 1994 *Canals* English Heritage

Department of the Environment (DoE) 1990 *Planning Policy Guidance Note 16: Archaeology and Planning*

English Heritage 1991 *MAP 2*

English Heritage 1995 *A strategy for the care and investigation of finds*

Hodder, M. 2003 *Birmingham in the late post-medieval period, c1750 onwards* West Midlands Regional Research Framework for Archaeology, Seminar 7 at http://www.iaa.bham.ac.uk/research/fieldwork_research_themes/projects/wmrrfa/seminar7/Mike%20Hodder.doc (last accessed 22/05/08)

Institute of Field Archaeologists (IFA) 2001 *Standards and Guidance for Archaeological Evaluations*

Lobb, M. 2006 *Proposed New Library, Cambridge Street, Birmingham. An Archaeological Desk-based Assessment 2006* BA Project No. 1517

Museums and Galleries Commission. 1992 *Standards in the museum care of archaeological collections.* London: Museums and Galleries Commission

Walker, K. 1990 *Guidelines for the preparation of excavation archives for long-term storage.* UKIC, London.

http://www.canaljunction.com/canal/lock.htm (last accessed 18/05/08)

Cartographic Sources

1824 Piggot Smiths map of Birmingham

1889 Ordnance Survey 1st Edition 1:500 Series

1897 Plan of the Cambridge Street Works


SITE
BIRMINGHAM
BIRMINGHAM DISTRICT
Perry Barr
Handsworth Wood
Birchfield
Lozells
Newtown
Winson Green
Ladywood
Lee Bank
Edgbaston
Nechells
Saltley
Washwood Heath
Ward End
Erdington
Gravelly Hill
Stockland Green
Witton
Upper Witton
Short Heath
Pype Hayes
Bromford
Alum Rock
Stechford
Bordesley Green
Little Bromwich
Yardley
Small Heath
Sparkbrook
Highgate
Digbeth
Balsall Heath
Sparkhill
Hay Mills
South Yardley
Tyseley
Moseley
Moor Green
Selly Park
Bournbrook
Stirchley
Bournville
Cotteridge
Lifford
Kings Norton
Kings Heath
Brandwood End
Billesley
Springfield
Wake Green
Hall Green
Yardley Wood
Olton
Acocks Green
Hightor Heath
Reproduced from the 1991 Ordnance Survey 1:50,000 map with the permission of the Controller of Her Majesty's Stationary Office,
© Crown Copyright
Licensee : Field Archaeology Unit
University of Birmingham
Edgbaston
BIRMINGHAM
B15 2TT
Licence No. AL 51303A

Fig.1

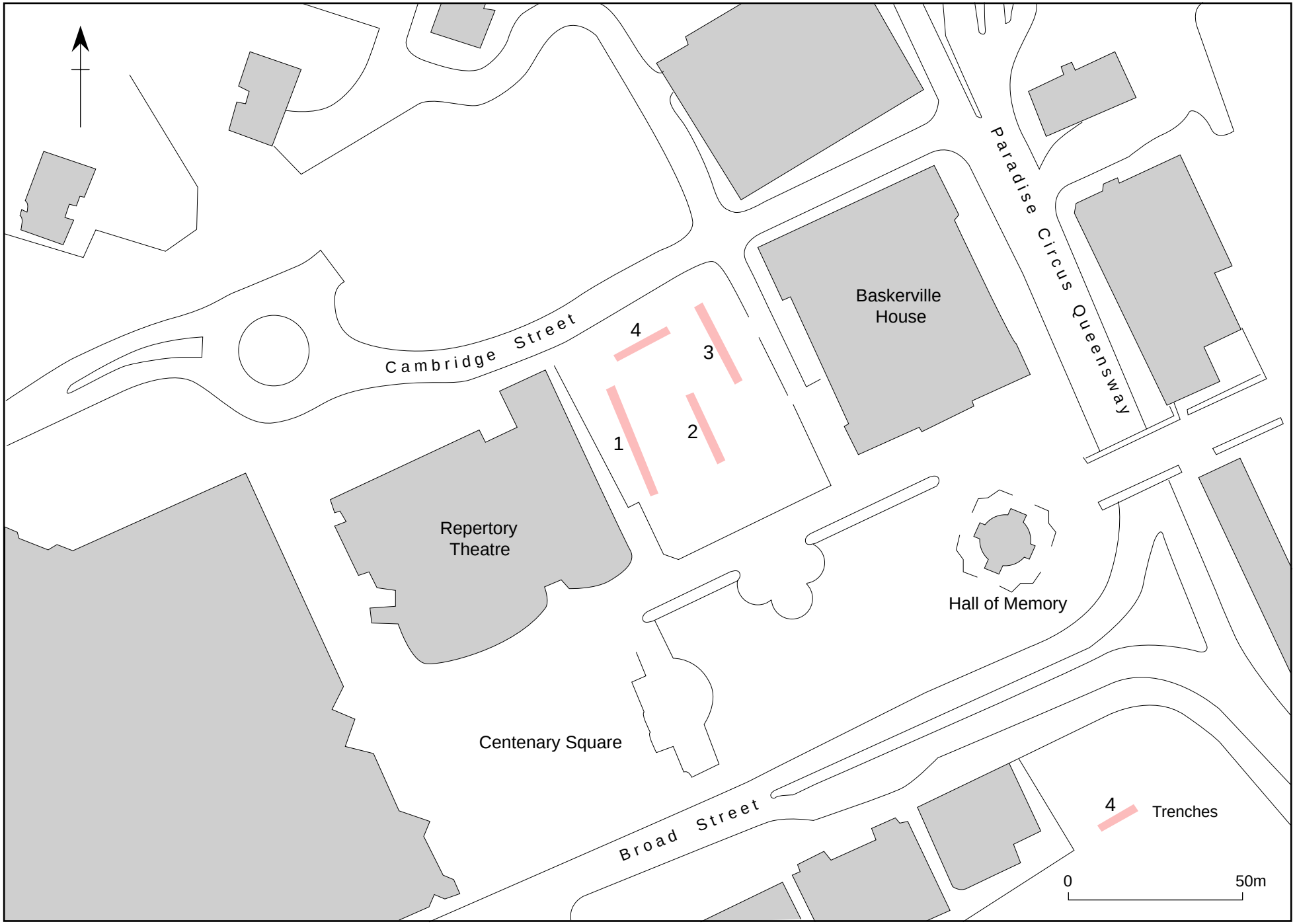

Cambridge Street
Paradise Circus Queensway
Baskerville House
Repertory Theatre
Hall of Memory
Centenary Square
Broad Street
1
2
3
4
4 Trenches
0
50m

Fig.2


Birmingham and Fazeley
Newhall Arm
Baskerville
Wharf
Birmingham Mainline
Birmingham and Worcester
Trenches
Union Rolling Mills
canal arm north
canal arm south
Canals
Elevation
150.714 - 155
146.429 - 150.714
142.143 - 146.429
137.857 - 142.143
133.571 - 137.857
129.286 - 133.571
125.000 - 129.286
120.714 - 125
116.429 - 120.714
112.143 - 116.429
107.857 - 112.143
103.571 - 107.857
99.286 - 103.571
95 - 99.286
0 25 50 100 150 200
Metres

Fig.3


1824
E
R
T
S
E
Union Rolling Mills
BASKERVILLE
1
2
3
4
0 3.75 7.5 15 22.5 30
Metres

Fig.4

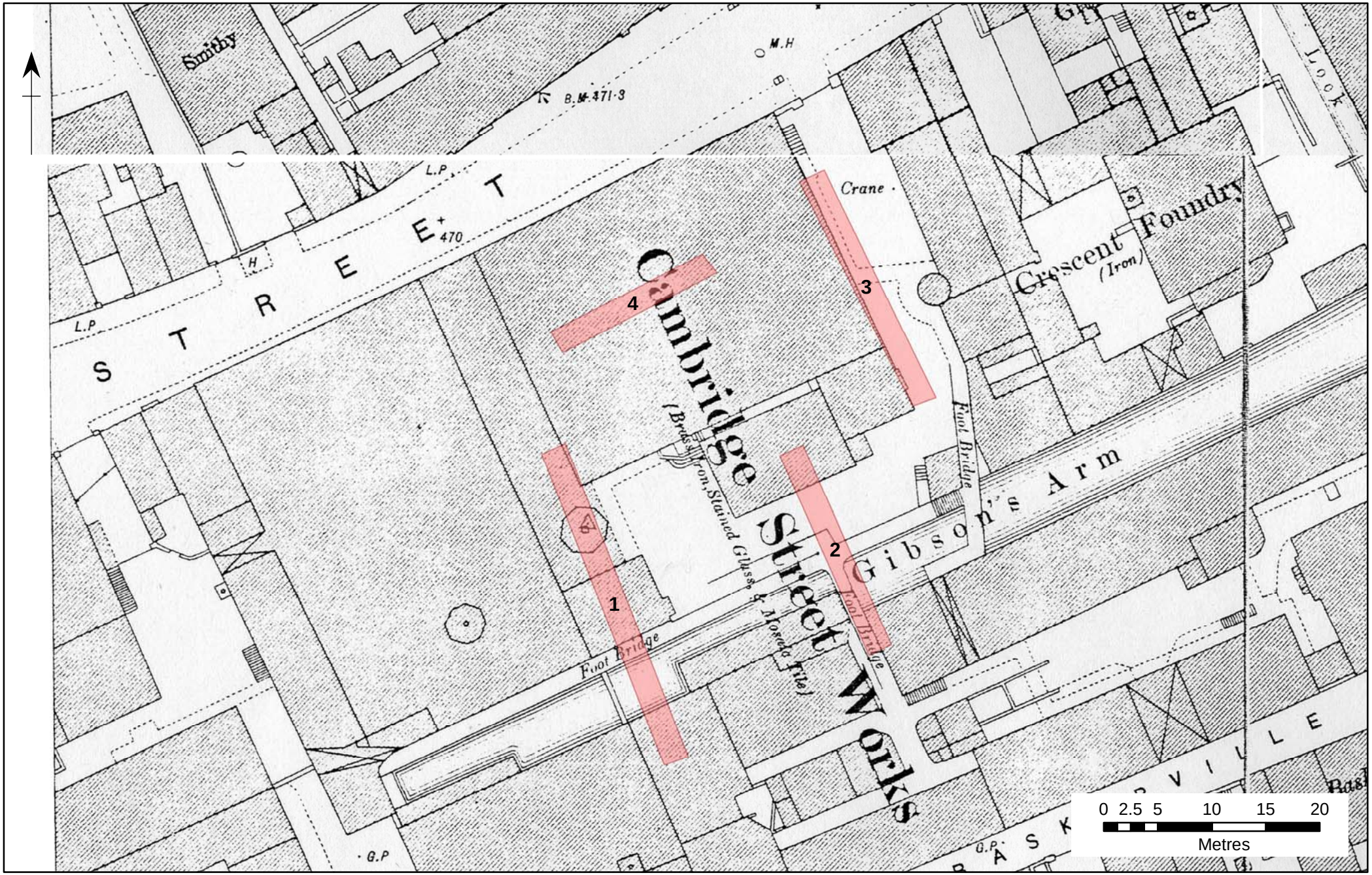

Smithy
B.M.471·3
M.H
L.P
STREET
470
H
L.P
Crane
Crescent Foundry
(Iron)
4
3
Cambridge Street Works
(Brass, Iron, Stained Glass & Mosaic Tiles)
Foot Bridge
Gibson's Arm
2
1
Foot Bridge
Foot Bridge
G.P
G.P
0 2.5 5 10 15 20
Metres

Fig.5

1897

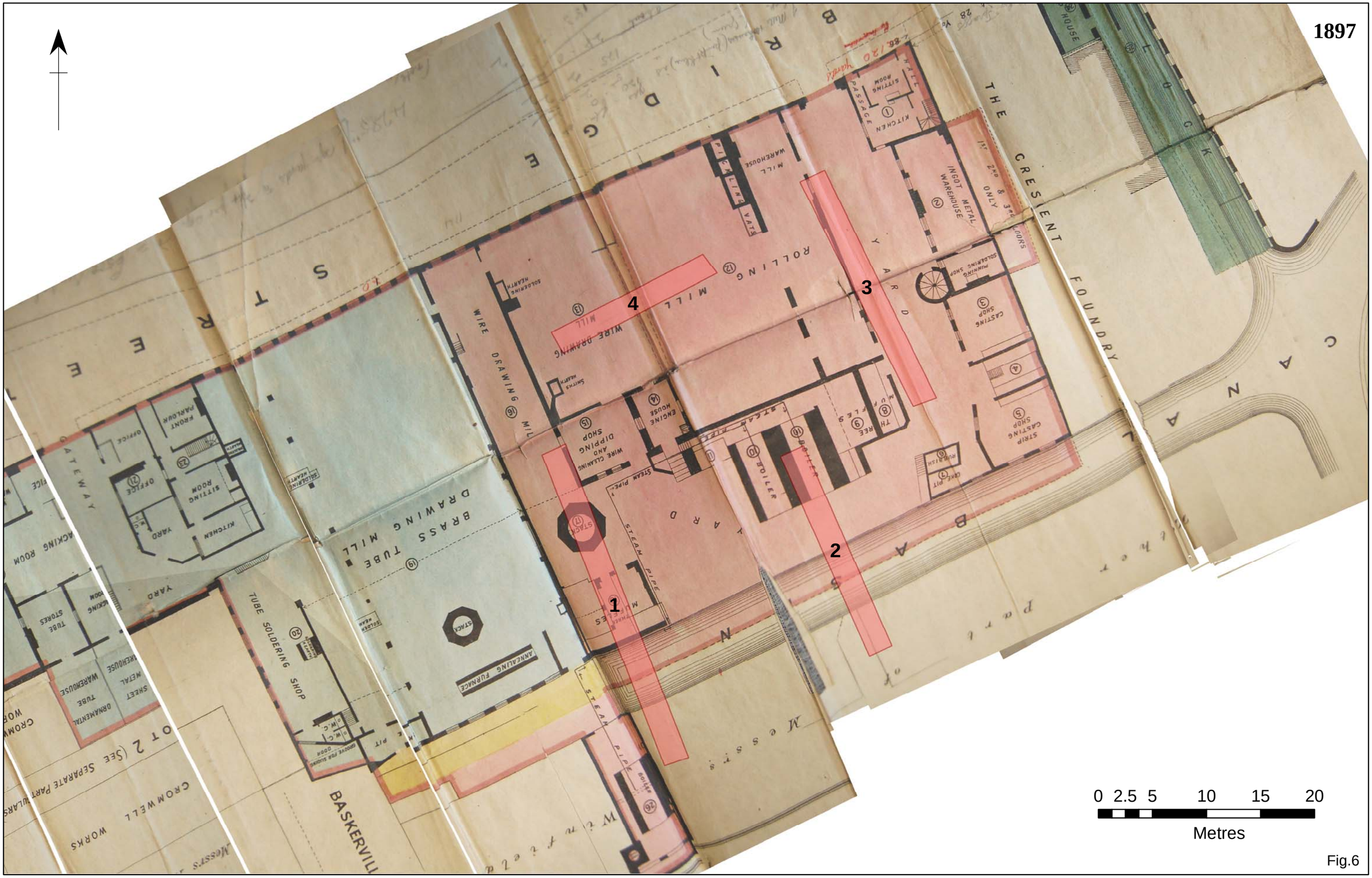
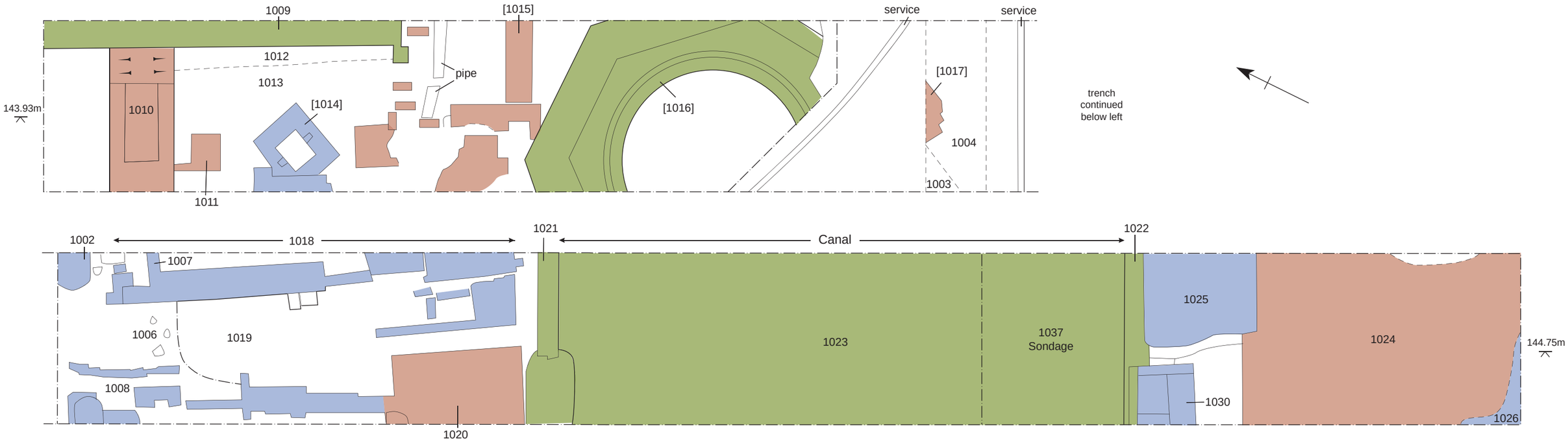
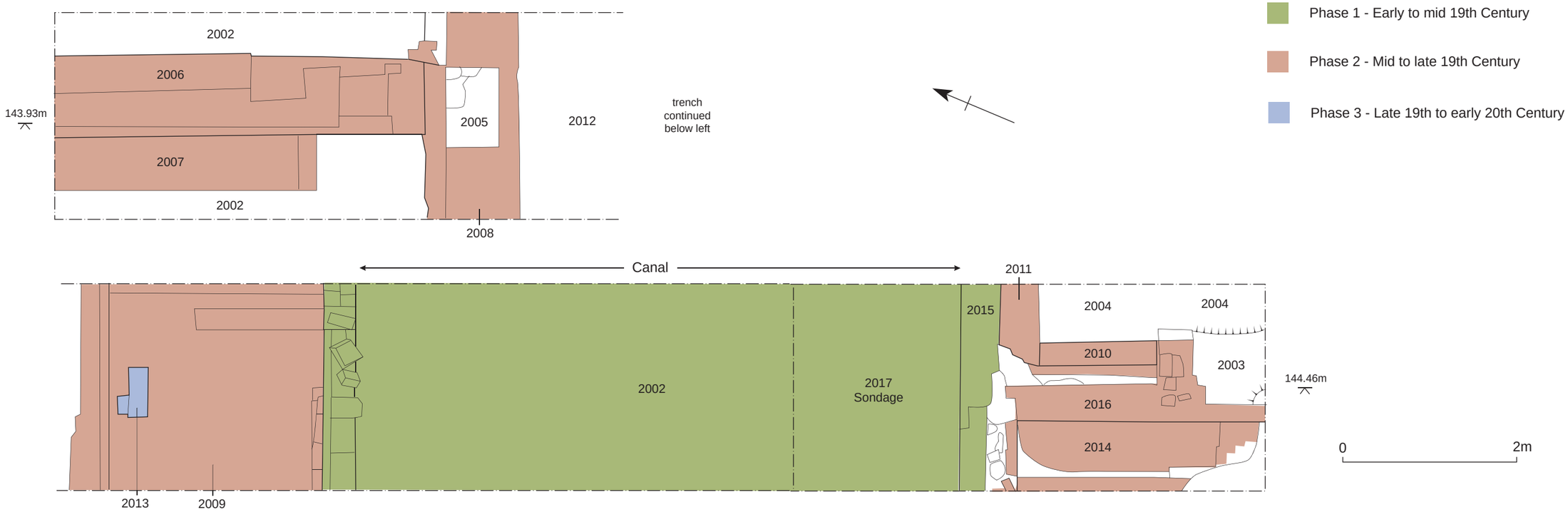


Fig.6

Trench 1



Trench 2



Phase 1 - Early to mid 19th Century

Phase 2 - Mid to late 19th Century

Phase 3 - Late 19th to early 20th Century

Fig.7

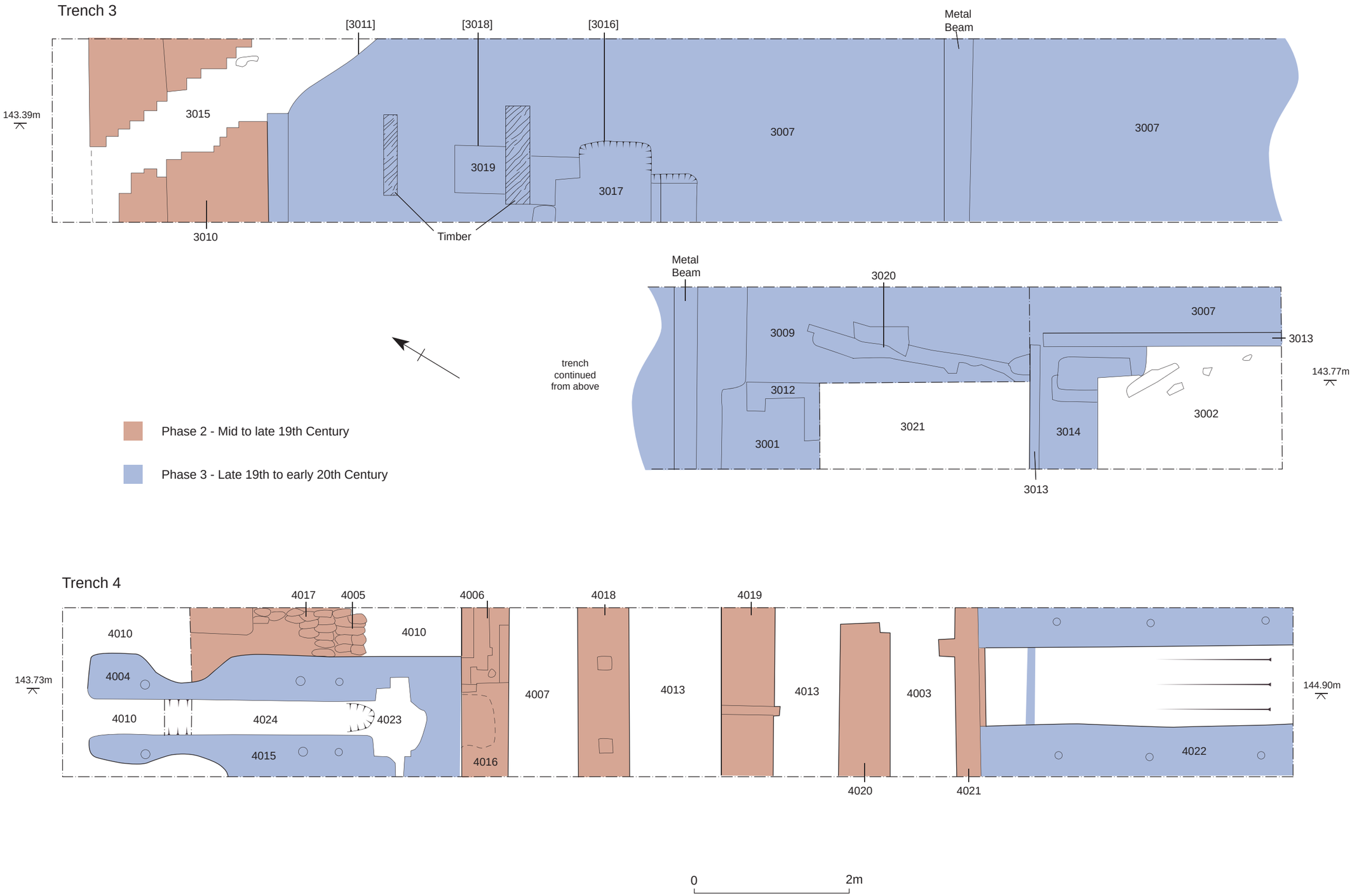

Trench 3
[3011]
[3018]
[3016]
Metal Beam
143.39m
3015
3007
3007
3019
3017
3010
Timber
Metal Beam
3020
3007
3009
3013
143.77m
trench continued from above
3012
3021
3002
3001
3014
3013
Phase 2 - Mid to late 19th Century
Phase 3 - Late 19th to early 20th Century
Trench 4
4017
4005
4006
4018
4019
143.73m
4010
4010
4004
4007
4013
4013
4003
144.90m
4010
4024
4023
4015
4016
4022
4020
4021
0
2m

Fig.8

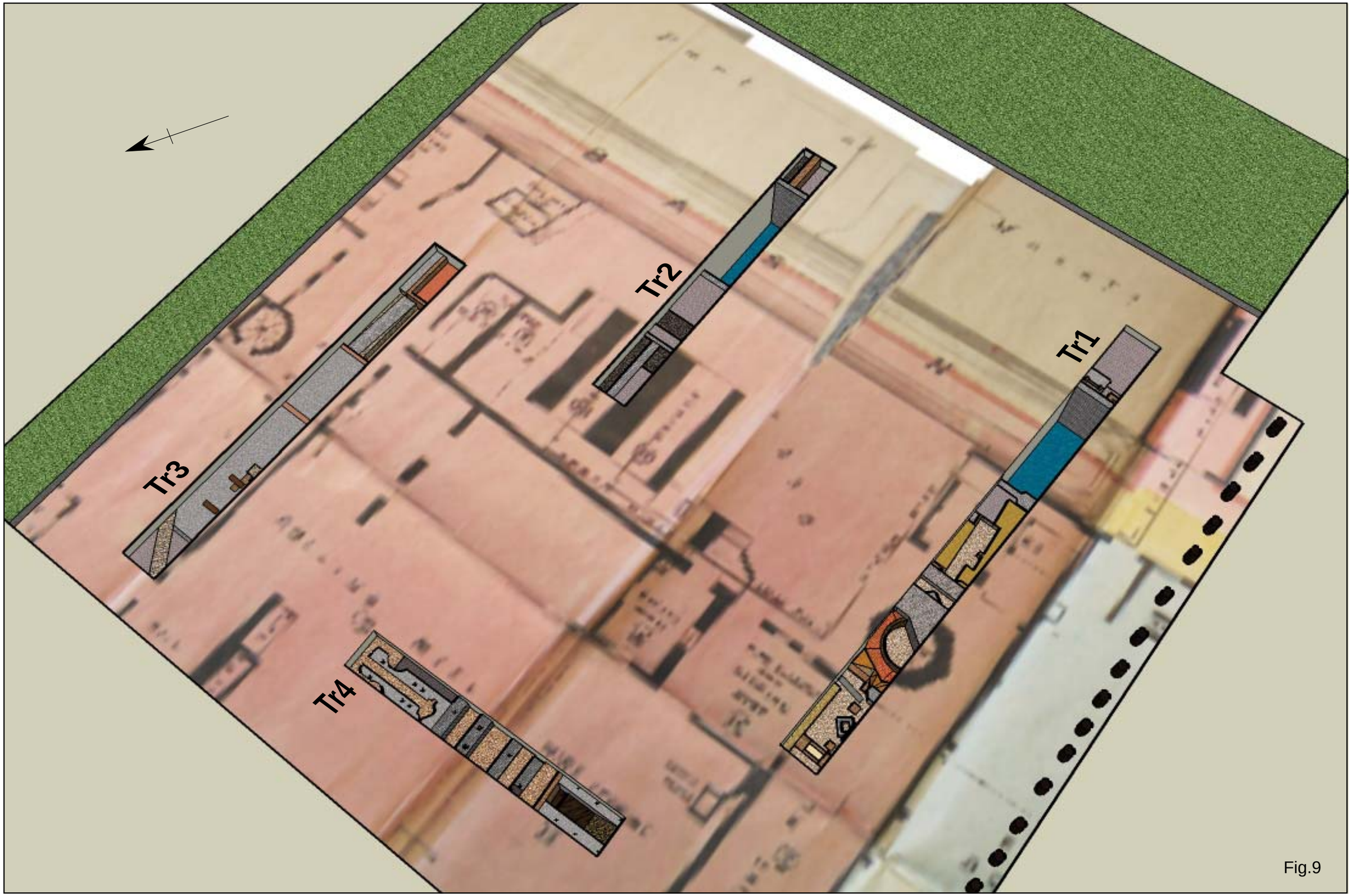


Fig.9

Plate 1

Plate 2

Plate 3

Plate 4

Plate 5

Plate 6

Plate 7

Plate 8

Plate 9

Plate 10

BIRMINGHAM CITY COUNCIL
DEVELOPMENT DIRECTORATE
Proposed New Library of Birmingham, Cambridge Street (centre SP 0631 8687)
Brief for *Archaeological Field Evaluation* as part of development proposals

1.Summary

Proposed development of the Library of Birmingham includes the site of buildings belonging to John Baskerville's house, a former canal wharf, the Union Rolling Mill and brass and iron works and is therefore likely to affect below-ground archaeological remains. This brief is for the second stage of assessment of the impact of the proposed development on archaeological remains, consisting of an ***archaeological field evaluation through excavated trenches.*** *This will determine the need for preservation of archaeological remains in-situ and/or for further archaeological excavation in advance of commencement of development.*

2.Site location and description

The site is on the south side of Cambridge Street. It is currently mainly occupied by a surfaced car park, bounded by the Repertory Theatre on the west, Baskerville House on the east, and part of Centenary Square on the south.

3.Planning background

Because the site is likely to include archaeological remains which would be affected by the proposed redevelopment, an assessment of its archaeological implications is required in advance of consideration of the proposals. This is in accordance with Policy 8.36 of the City Council's Unitary Development Plan, government advice in Planning Policy Guidance Note 16, "Archaeology and Planning" and the City Council's Archaeology Strategy (Supplementary Planning Guidance). The archaeological assessment will enable appropriate archaeological mitigation strategies to be devised. The mitigation strategies may involve modification of site layout or foundation design to ensure in situ preservation of archaeological remains, or, if this is not feasible, full recording of archaeological remains in advance of development. The archaeological evaluation by trial trenching is the second stage of archaeological assessment and follows an archaeological desk-based assessment.

4.Existing archaeological information

An archaeological desk-based assessment carried out in October 2006 included historic maps and documents and suggested that there are well-preserved archaeological remains on the site, including buildings belonging to John Baskerville's house, a former canal wharf, the Union Rolling Mill and brass and iron works.

5.Requirements for work

The archaeological field evaluation is required to define the nature, extent and significance of archaeological remains on the application site, so that an appropriate mitigation scheme can be devised. The mitigation strategies may involve a design solution which ensures in situ preservation of archaeological remains, or, if this is not feasible, full recording of archaeological remains in advance of development.

In particular, the archaeological field evaluation must address the following:
(i)The survival and significance of remains of the buildings belonging to John Baskerville's house, a former canal wharf, the Union Rolling Mill and brass and iron works.
(ii)The potential survival of any other archaeological remains
(iii)The potential of the site to contribute to an understanding of the historic development of this part of Birmingham.

6.Stages of work
The archaeological field evaluation is to consist of excavated trenches located in relation to the features described above, based on their depiction on the historic maps included in the desk based assessment. The number and exact location of each trench is to be agreed on site with the Planning Archaeologist prior to commencement. Surface deposits in each trench are to be mechanically removed, under archaeological supervision. Subsequent excavation is to be entirely manual. Excavation in each trench is to be sufficient to define, record and sample all archaeological features encountered. The potential of deposits for environmental analysis and analysis of industrial residues must be assessed. Finds are to be cleaned, marked and bagged and any remedial conservation work undertaken.

7.Standards and Staffing
The archaeological field evaluation is to be carried out in accordance with the Code of Conduct, Standards, Guidelines and practices of the Institute of Field Archaeologists, and all staff are to be suitably qualified and experienced for their roles in the project. It is recommended that the project be under the direct supervision of a Member or Associate Member of the Institute of Field Archaeologists.

8.Written Scheme of Investigation
Potential contractors should present a Written Scheme of Investigation which details methods and staffing. It is recommended that the proposal be submitted to the City Council's Planning Archaeologist before a contractor is commissioned, to ensure that it meets the requirements of the brief.

9.Monitoring
The archaeological field evaluation must be carried out to the satisfaction of Birmingham City Council, and will be monitored by the Planning Archaeologist. At least five working days notice of commencement of the evaluation must be

given to the Planning Archaeologist, so that monitoring meetings can be arranged.

10.Reporting
The results of the archaeological field evaluation are to be presented as a written report, containing the following:
(i)An analytical summary of features and deposits;
(ii)Appropriate plans and sections;
(iii)A summary of finds;
(iv)An assessment of the site's significance in terms of national, regional and local importance. The non-statutory criteria for scheduling should be employed;
(v)A copy of this brief.
A bound hard copy of the report **and an electronic copy in pdf format** must be sent to the Planning Archaeologist.

11.Archive deposition
The written, drawn and photographic records of the archaeological field evaluation, together with any finds, must be deposited with an appropriate repository within a reasonable time of completion, following consultation with the Planning Archaeologist.

12.Publication
The written report will become publicly accessible, as part of the Birmingham Sites and Monuments Record, within six months of completion. The contractor must submit a short summary report for inclusion in *West Midlands Archaeology* and summary reports to appropriate national period journals.
On completion of the project the contractor must complete the obligatory fields of the OASIS form and submit an electronic version of the report to OASIS (http://ads.ahds.ac.uk/oasis)

BIRMINGHAM CITY COUNCIL
Date prepared: 10 November 2006
Planning Archaeologist: Dr Michael Hodder 0121-464 7797 fax 0121-303 3193
Mike.hodder@birmingham.gov.uk
Birmingham City Council
Planning
PO Box 28
Alpha Tower
Suffolk Street Queensway
Birmingham B1 1TU

Strat No	Area	Context Type	Masonry type	Description	Phase
1000	1	Layer		Tarmac layer over whole trench	Overburden
1002	1	Layer		Black orange silt sand with brick fragments and ash, waste layer in vicinity of yellow brick walls 1006, 1007, 1008 (1018)	Overburden
1003	1	Deposit		Yellow brown sand with mortar fragments, base layer for floor 1017, depth unknown	Mid-Late 19th century
1004	1	Deposit		Black grey silt sand with ash, black deposit in area of floor 1017, not investigated due to proximity of services	Mid-Late 19th century
1005	1	Fill		Black silt and organic material at base of canal, tested in machine excavated sondage, not sampled due to contamination from demolition layers	Late 19th - early 20th century
1006	1	Structure	Wall	Yellow brick wall, contemporary with 1007 and 1008, recorded as series 1018	Late 19th – early 20th century
1007	1	Structure	Wall	Yellow brick wall, see 1018	Late 19th – early 20th century
1008	1	Structure	Wall	Yellow brick wall, see 1018	Late 19th – early 20th century
1009	1	Structure	Wall	Brick wall, with bitumen, asphalt and concrete capping, not fully excavated	Early – mid 19th century
1010	1	Structure	Culvert	Brick culvert, hardened material with copper flecks on top, not fully excavated	Mid-late 19th century
1011	1	Structure	Pier or machine base	Brick pier or machine base, cherry red brick, v fragmentary difficult to determine size, not fully excavated or exposed	Mid-late 19th century
1012	1	Fill		Possible infill of foundation trench for wall 1009, not excavated	Early – mid 19th century
1013	1	Deposit		Sand and rubble between culvert and wall, patches of red possibly burnt sand in places, possibly cut by foundation for 1009, stratigraphy not fully investigated	Early – mid 19th century
1014	1	Structure	Drain	Blue brick drain, manhole or sump structure, thin yellow brick coping, 1 brick thick walls, 4 courses exposed with 2 courses of yellow brick coping on different alignment, likely part of same structure	Late 19th – early 20th century
1015	1	Structure		Different phases/segments of brick work, post date chimney, only fragments survive difficult to	Mid – late 19th

Strat No	Area	Context Type	Masonry type	Description	Phase
				assess stratigraphy, 1.5 brick thick wall n-s foundation abuts chimney, butted by e-w wall 1 brick thick, overlain by 1023 and blue brick surface, cut by drain	century
1016	1	Structure	Chimney	Chimney base and flue, octagonal outside, circular inside, not fully excavated, specials in corners on outside, clay abuts outside shows signs of heating, sooting present on inside of chimney	Early – mid 19th century
1017	1	Structure	Floor	Single course of partial blue brick surface, not fully excavated due to proximity of services, relationship with chimney undetermined	Mid-Late 19th century
1018	1	Structure	Wall	Series of walls (1006, 1007, 1008) with metal support at s end, buff yellow fire bricks, at n end 2 yellow bullnose bricks may support machine base or roof, formal doorway with yellow brick lined passage, some bricks stamped, poss late 19th or early 20th	Late 19th – early 20th century
1019	1	Deposit		Rubble in between 1007 and 1008, not fully excavated, contains similar bricks to that of structures, likely demolition deposit	Overburden
1020	1	Structure	Floor	Red and blue brick floor surface, relationship with 1018 unclear, though possibly contemporary, overlies black ashy deposit, has drains or channels incorporated into it, gap between this surface and edge of canal	Mid-Late 19th century
1021	1	Structure	Wall	Northern canal wall, likely butted by 1020, 1 brick wide, side by side stretchers then widening with curved bricks to be 2 bricks wide. Not fully excavated, s edge 4.3m deep, iron I beam parallel, might be part of structure or demolition rubble	Early – mid 19th century
1022	1	Structure	Wall	Southern canal wall, 1.5 bricks wide, survives directly under car park surface, exc to 4m where abutted by puddle clay 1027	Early – mid 19th century
1023	1	Layer		Deep demolition rubble layers infilling canal and overlying much of other structures in trench. Includes thick lenses of clean orange sand and deposits of large brick rubble with occasional large bits of wood and metal	Overburden
1024	1	Structure	Floor	Brick floor surface, laid in stretchers, likely associated with canal towpath	Mid-Late 19th century
1025	1	Structure	Base	Concrete base with scaffolding, block with brick inclusions and a piece of iron scaffolding still attached, squarish shaped, over surface 1024	Late 19th – early 20th century
1026	1	Structure	Floor	Concrete floor with brick inclusions, later addition overlying surface 1024, covered the area to the south of the canal in this trench. Under demolition deposit 1032	Late 19th – early 20th century
1027	1	Deposit		Green grey clay, puddle clay lining at base of the canal, overlies natural 1037, abutts wall 1022, under 1005. Recorded from top of trench, estimated thickness 0.3m, identified at 4.3m below	Early – mid 19th century

Strat No	Area	Context Type	Masonry type	Description	Phase
				surface	
1028	1	Deposit		Discrete deposit of black ash and rubble abutting canal wall 1022. Demolition layer	Overburden
1030	1	Structure	Drain	Square drain or manhole abutting canal wall 1022. Not excavated, visible only in plan	Late 19th – early 20th century
1031	1	Layer		Demolition rubble, over canal infill 1028. Very mixed orange brown grey silt sand with rubble and gravel	Overburden
1032	1	Layer		Orange sand with small brick and mortar fragments with some larger brick fragments, one of a series of levelling layers at the southern end of the trench, over surface 1026	Overburden
1033	1	Layer		Grey sand silt with ash, concrete and gravel, one of a series of levelling layers at the southern end of the trench	Overburden
1034	1	Layer		Orange brown silt sand with crushed bricks, one of a series of levelling layers at the southern end of trench 1	Overburden
1035	1	Layer		Black ash, sand and clinker, black levelling deposit for car park surface	Overburden
1036	1	Layer		Orange sand with some brick and mortar fragments and gravel, levelling layer or demolition deposit, at north end of trench only	Overburden
1037	1	Natural		Orange silty sand natural recorded from top of sondage through canal infill. Identified at 4.3m below current ground surface, under puddle clay 1027	Subsoil
2000	2	Layer		Black tarmac surface	Overburden
2001	2	Layer		Dark grey ashy sand, levelling for tarmac	Overburden
2002	2	Layer		Browny red silty sand with rubble, demolition deposit/layer covering most of trench, including the canal	Overburden
2003	2	Deposit		Mid grey sandy slaggy grit with mortar and brick fragments. Possibly a levelling deposit for a removed floor between walls, contains glass slag which may have been imported.	Mid-Late 19th century
2004	2	Layer		Dark red brown silty sand with coal, not fully excavated	Mid-Late 19th century
2005	2	Structure	Machine base	Mid grey concrete rectangle set within surface 2008 with an upright metal pipe in the north east corner, cracking and damage noted, unknown depth	Mid-Late 19th century
2006	2	Structure	Floor	Floor or path running north south with a step at south end, possibly contemporary with 2007and 2008, bricks laid side by side, machine cut and unfrogged, not fully excavated	Mid-Late 19th century

Strat No	Area	Context Type	Masonry type	Description	Phase
2007	2	Structure	Floor	Brick floor constructed from fire bricks with metal fragments stuck to the surface and curved bricks at the southern end	Mid-Late 19th century
2008	2	Structure	Floor	Brick surface with a cut to the south and a machine base possibly constructed later into it	Mid-Late 19th century
2009	2	Structure	Floor	Surface north of canal, constructed in dark red and blue grey bricks in stretcher bond with a line of limestone blocks at the southern edge demarking the canal edge	Mid-Late 19th century
2010	2	Structure	Floor	Rough surface over 2003 with a mortar covering, south of main canal wall, possibly internal wall as it abuts 2016. May be the surface that was potentially removed over 2003	Mid-Late 19th century
2011	2	Structure	Wall	Rough looking wall with metal slag fused into side. Butted by 2016? Not fully excavated	Mid-Late 19th century
2012	2	Layer		Black with pale grey gritty ash, exposed by not excavated, between 2 surfaces 2009 and 2008, may represent a bedding layer for the continuation of these, or represents a disturbance between them. No evidenc of a cut.	Mid-Late 19th century
2013	2	Structure	Step	Cluster of 6 yellow bricks neatly placed on top of surface 2009. Possibly the remains of a surface, step, platform or base, very different bricks to surface	Late 19th – early 20th century
2014	2	Structure	Floor	Floor surface or tow path at southern end of trench 2, abuts 2016 and covered over before a later addition of 2010, cobble like surface	Mid-Late 19th century
2015	2	Structure	Wall	Wall abutted by 2016, southern canal wall, exposed in sondage to 4m, abutted at base by puddle clay, same as 1022.	Early – mid 19th century
2016	2	Structure	Wall	Rough t-shaped wall abuts 2015 and on top of 2010, many broken bricks, english bond in most places, but random in others	Mid-Late 19th century
2017	2	Natural		Natural. Not exposed in this trench	Subsoil
3000	3	Layer		Tarmac	Overburden
3001	3	Deposit		Light brown medium sand with inclusions of small stones and brick rubble, demolition deposits within brick feature 3012, not fully excavated	Overburden
3002	3	Deposit		Light orange sandy clay with inclusions of stone, brick rubble and slag. Deposit fill of brick feature 3012, demolition rubble	Overburden
3003	3	Layer		Black coarse gravel with small stone, levelling layer for tarmac surface	Overburden
3004	3	Layer		White coarse sand with small stones, make up layer for carpark surface	Overburden

Strat No	Area	Context Type	Masonry type	Description	Phase
3005	3	Layer		Black fine ashy sand with no inclusions, likely another levelling deposit for car park surface	Overburden
3006	3	Layer		Uniform deposit throughout trench over concrete surface and below 3005. Most likely demolition rubble	Overburden
3007	3	Structure	Floor	Mixed concrete and brick fragment floor surface, covers almost the full extent of trench. Various wooden supports, 'holes' and metal drains/I beams set into it. Overlies levelling layers and drains, possibly a later floor covering earlier structures	Late 19th – early 20th century
3008	3	Deposit		Mixed deposit identified in sondage beneath floor surface 3007. Black course sand with lenses of sand and small stones	Late 19th – early 20th century
3009	3	Deposit		Pale brown medium sand identified in sondage beneath floor surface 3007. possible makeup layer for surface. Relationship with drain 3020 unclear.	Late 19th – early 20th century
3010	3	Structure	Floor	Grey cobble stone surface with red brick repair inclusions, situated at the northern end of trench 3. Cut by service cut 3011, level with concrete surface 3007, probably butted by it. Possibly an earlier surface than the concrete	Mid-Late 19th century
3011	3	Cut		Cut for services which truncates cobbled surface 3010 at the northen end of trench 3. also truncates part of concrete surface 3007. not excavated	Late 19th – early 20th century
3012	3	Structure	Wall	Square feature, possibly a manhole or drain, identified after the removal of concrete surface 3007. Infilled with 3001, cut into natural 3021.	Late 19th – early 20th century
3013	3	Structure	Wall	Brick feature set into concrete floor 3007. Walls of feature 0.5 brick thick, base of feature 3014. Extends beyond boundary of trench. Filled with rubble.	Late 19th – early 20th century
3014	3	Structure	Floor	Base of tank or pit 3013, possibly made of stone, but difficult to determine. Tank or pit filled with 3002 demolition rubble. Slag, timber and collapsed wall within infill.	Late 19th – early 20th century
3015	3	Fill		Rubble deposit fill of cut 3011, construction cut backfill for surfaces. Unexcavated	Late 19th – early 20th century
3016	3	Cut		Cut truncates concrete surface 3007 and possibly relates to cut 3018 to the north. Both separated by wood. Filled with rubble deposit 3017. Not excavated. Possibly associated with machinery supports	Late 19th – early 20th century
3017	3	Fill		Pale orange medium sand with rubble inclusions, fill of cut 3016, constuction backfill. Not excavated	Late 19th – early 20th century
3018	3	Cut		Possible machine base cut, truncates concrete surface, poss contemporary with cut 3016, separated by wood, not excavated	Late 19th – early 20th century

Strat No	Area	Context Type	Masonry type	Description	Phase
3019	3	Fill		Rubble fill of cut 3018, pale orange medium sand with rubble inclusions, unexcavated	Late 19th – early 20th century
3020	3	Structure	Drain	Base of drain, identified as a line of slate tiles with two half brick thick walls above it, aligned roughly north south. Drain itself excavated out by machine, bricks visible only in section. Sealed by 3007, possibly an earlier drain system	Late 19th – early 20th century
3021	3	Natural		Yellow orange sand with some small stones, identified in sondage beneath concrete surface 3007. likely to be dirty natural subsoil	Subsoil
4000	4	Layer		Tarmac car park surface over whole of trench	Overburden
4001	4	Layer		Brown orange silty sand with occasional brick mortar and ash fragments, levelling layer, north facing section only, but continuous throughout trench	Overburden
4002	4	Layer		Dirty white mortar with brick and ash rubble, demolition deposit, visible in north facing section only. Thin lens of broken slate present in middle of trench at base of deposit	Overburden
4003	4	Layer		Orange brown grey silty sand with brick mortar and ash fragments. Very mixed demolition deposit, varies in depth, deeper at west end of trench	Overburden
4004	4	Layer		Black silt with charcoal, thin layer of black material, in situ burning deposit over machine base 4015. Similar to 4005. essentially a cleaning layer. Difficult to assess stratigraphy, but likely under demolition layers 4003 and 4011	Late 19th – early 20th century
4005	4	Layer		Black sandy silt with charcoal, in situ burning? deposit, very compacted, over cobble layer 4017. Not fully over the cobbles, is located adjacent to machine base. Likely contemporary with 4004	Late 19th – early 20th century
4006	4	Layer		Black silt sand with charcoal, thin layer of burning or trample over wall 4016. May represent in situ deposit rather than demolition layer. Essentially a cleaning layer over this wall.	Late 19th – early 20th century
4007	4	Layer		Grey ashy sandy silt with occasional large brick fragments and bits of wood. Infill between walls 4016 and 4018, different from other demolition layers, possibly a primary fill to support an extant floor. Not fully excavated	Mid-Late 19th century
4008	4	Layer		Grey white concrete and stone layer under car park tarmac, south facing section only, continuous throughout trench	Overburden
4009	4	Layer		Black clinker and ash, levelling for tarmac, deeper at eastern end of trench, not present in south facing section	Overburden
4010	4	Layer		Light orange brown silt sand gravel with small brick fragments, compact layer around machine base at the eastern end of the trench, over surface 4017 and 4005 compacted layer. Liekly demolition	Overburden

Strat No	Area	Context Type	Masonry type	Description	Phase
				deposit.	
4011	4	Layer		Grey brown silty sand with patches of yellow clay and occasion bricks and charcoal fragments. One of a series of demolition layers	Overburden
4012	4	Layer		Black silt with organic material, thin layer. One of a series of demolition layers.	Overburden
4013	4	Layer		Grey orange silt sand with gravel and small brick rubble fragments, not fully excavated. Over and between walls 4018, 4019 and 4020. Quite clean and sterile. One of a series of demolition layers	Overburden
4014	4	Layer		Mixed brown orange silt sand gravel with brick and rubble. Demolition layer similar to 4013, present at west end of trench only. One of a series of demolition layers	Overburden
4015	4	Structure	Machine base	Machine base, remains of iron fitments to secure machine structure still present. Very smooth poured concrete with few inclusions. Probably moulded in shutters. Abuts surface 4017 and wall 4016. Under demolition layers. Full depth not excavated	Late 19th – early 20th century
4016	4	Structure	Wall	Mid to late 19th century wall, most likely an internal wall, abutted by machine base 4015. Has iron fitments within build. Full depth not determined, 7 courses exposed. Aligned north south.	Mid-Late 19th century
4017	4	Structure	Floor	Cobble or brick surface, blackened by industrial processes difficult to determine detail, abutted by machine base 4015, under layer 4005.	Mid-Late 19th century
4018	4	Structure	Wall	Blue brick wall, not fully exposed, machine excavated sondage suggests depth greater than 2m. Evidence of timber and iron tube superstructure projecting upwards. Mid to late 19th century date.	Mid-Late 19th century
4019	4	Structure	Wall	Blue brick wall, not fully excavated, has projecting iron strap on west side cut into brick work. Possibly over 2m deep. Slate like material incorporated into the build in parts	Mid-Late 19th century
4020	4	Structure	Wall	Brick wall, not fully excavated, overlain by slag deposits/burnt material. To the side of this projects an iron/steel tube, abutted by stone block with iron fitment, overlying timber plate which overlies an iron support/bracing. Mid to late 19th century	Mid-Late 19th century
4021	4	Structure	Wall	Blue brick wall, 1.5 bricks wide, abutted and overlaid by concrete structure 4022, so might be earlier. Full depth not exposed.	Mid-Late 19th century
4022	4	Structure	Machine base	Concrete tank or machine pit, poss for steam engine. 2 parrallel poured/shuttered concrete walls abutting earlier wall 4021. 0.5brick thick dividing wall then ?wood lined tank. Void beneath this. Under concrete, poss cut into sandstone. Not fully exc	Late 19th – early 20th century
4023	4	Cut		Possible scoop within machine base 4015, slate and wood suggest infilling of depression. May be slake out of machine droppings. Fill similar to 4010, so might also be demolition deposit	Late 19th – early 20th century

Strat No	Area	Context Type	Masonry type	Description	Phase
4024	4	Fill		Brown silty sand with gravel, stone and brick, filled at base with slate and wood fragments, difficult to tell if genuine feature or demolition deposit	Late 19th – early 20th century