ARCHAEOLOGICAL INVESTIGATIONS AT LION MEDICAL CENTRE, LOWNDES ROAD, STOURBRIDGE, WEST MIDLANDS

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Project 3863
Report 1930

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Archaeological evaluation at the Lion Medical Centre, Lowndes Road, Stourbridge, West Midlands

Nick Daffern

Part 1 Project summary

An archaeological evaluation was undertaken at the Lion Medical Centre, Lowndes Road, Stourbridge, West Midlands (NGR SO 8945 847), on behalf of The Environmental Dimension Partnership who are acting on behalf of Verlane Limited. The client intends to redevelop the historic ironworks including conversion works to the Grade II* listed Rastrick and Fosters New Foundry. The planning application has been approved by Dudley Metropolitan Borough Council (reference P09/1070).

The development site is considered to include heritage assets with archaeological interest, the significance of which may be affected by the application (Listed Building No 576/2/50 and Dudley Historic Environment Record entries HER 1043, 1044, 1047, 4710, 4711, 7240 and 7650).

This report on an archaeological evaluation describes and assesses the significance of a heritage asset with archaeological interest potentially affected by the application. The impact of the application on the significance is assessed.

The evaluation has identified that structural remains associated with the iron works have survived with the presence of outbuildings associated with the New Foundry, including walls and internal floor surfaces, an external yard surface to the south of the New Foundry and extant and robbed out evidence for the tramway which served the iron works. The majority of these remains are considered to date from between 1820-1857 although one wall associated with the Old Foundry to the north-east of the site may date to approximately 1808.

An as yet undated possible palaeochannel was also identified in the north-east of the site, although no intrusive investigation of this was made at this stage due to health and safety considerations.

Part 2 Detailed report

1. Planning background

An archaeological evaluation was undertaken at the Lion Medical Centre, Lowndes Road, Stourbridge, West Midlands (NGR SO 8945 847; Fig 1), on behalf of The Environmental Dimension Partnership who are acting on behalf of Verlane Limited. The client intends to redevelop the historic ironworks including conversion works to the Grade II* listed Rastrick and Fosters New Foundry. The planning application has been approved by Dudley Metropolitan Borough Council (reference P09/1070).

The development site is considered to include heritage assets with archaeological interest, the significance of which may be affected by the application (Listed Building No 576/2/50 and Dudley Historic Environment Record entries HER 1043, 1044, 1047, 4710, 4711, 7240 and 7650).

The project conforms to the *Standard and guidance for archaeological field evaluation* (IfA 2008). The project also conforms to the conservation plan prepared by The Environmental Dimension Partnership (EDP 2012a) and for which a project proposal (including detailed specification) was produced (Worcestershire Archaeology 2012a).

2. Aims

The aims and scope of the project as listed in the Client's written scheme of investigation (EDP 2012b) are:

- To clearly define the location and nature of any archaeological remains that will be affected by the aspects of the development listed above;

- To characterise the nature of the archaeological sequence in terms of date and nature and to recover as much information as possible about the spatial patterning of those features and deposits identified; and

- To define the stratigraphic sequence, through the recovery of well-dated artefactual assemblages, and to establish quality of preservation through the collection of appropriate environmental samples.

In particular the Client's WSI has identified the following as key historic and archaeological elements across the site:

- Rastrick and Foster’s New Foundry, which is a Grade II* listed building;

- The former chimney and furnace structures located on the south side of Rastrick and Foster’s New Foundry;

- The former rail/tramways across the site;

- The former loam and blacking mills;

- The site of Bradley’s Old Foundry in the north east corner;

- A palaeochannel associated with the former course of the Stour; and

- The potential for remains of unmapped buried structures associated with the historic use of the site.

3. Methods

3.1 Documentary search

A detailed conservation plan and desk based assessment of the site was prepared by The Environmental Dimension Partnership (EDP 2012a) which collated data from the following national and local archives and repositories:

- Dudley Historic Environment Record (HER);
- Dudley Archives;
- Staffordshire Record Office;
- Worcestershire Record Office; and
- English Heritage's National Monuments Record Centre (NMRC).

3.2 Fieldwork methodology

3.2.1 Fieldwork strategy

A detailed specification has been prepared by the Service (Worcestershire Archaeology 2012a) to which several adjustments were made due to on-site constraints. The first of these was the presence of scaffolding supporting the north-east elevation of the Rastrick and Foster's New Foundry which prevented the excavation of the north-east to south-west orientated segment of Trench 4.

The second was that doubts were raised regarding the load bearing capacity of the locally listed cast iron bridge (HER 7240) which spans the River Stour. Due to this, the machine was unable to cross the River Stour to the northern island area of the site where the 15m Trench 3 was to be excavated. As a result of this it is anticipated that Trench 3 will be excavated at a later date when access to the area can be safely achieved.

The final limiting factor was the presence of a concrete ramp in the north-western 5m segment of Trench 1. This prevented excavation of the underlying deposits as the removal of this would have required the extensive breaking of concrete in close proximity to the Grade II* Listed Building. It was determined that avoidance of accidental damage due to excessive vibration was the responsible course of action, so this was left in situ.

Fieldwork was undertaken between 11 and 15 June 2012. The Service project number is P3863. The site code will be issued by the Curator upon submission of the report to the HER (pers comm Pete Boland, 26 June 2012).

Three trenches were excavated. Two (Trenches 1 and 4) were 50m in total length, by 1.80m wide, whilst Trench 2 was 3m by 3m, later extended by 1m to the south. The location of the trenches is indicated in Figure 2. Trench locations were determined by the Client (EDP 2012b with the intent of revealing structural features identified during the cartographic research undertaken in the conservation plan (EDP 2012a)

Deposits considered not to be significant were removed using a 180º wheeled excavator, employing a toothless bucket and under archaeological supervision. Subsequent excavation was undertaken by hand. Clean surfaces were inspected and selected deposits were excavated to retrieve artefactual material and environmental samples (as appropriate), as well as to determine their nature. Deposits were recorded according to standard Service practice

(Worcestershire Archaeology 2012b). On completion of excavation, trenches were reinstated by replacing the excavated material.

3.3 Structural analysis

All fieldwork records were checked and cross-referenced. Analysis was effected through a combination of structural, artefactual and ecofactual evidence, allied to the information derived from other sources.

3.4 Artefact methodology

3.4.1 Artefact recovery policy

The artefact recovery policy conformed to standard Service practice (Worcestershire Archaeology 2012b; appendix 2). In the event, all artefacts were identified on site to be of later post-medieval and modern date and discarded, with the exception of a sample of bricks (see Section 3.5 below).

3.5 Brickwork methodology

Four brick samples were taken once recording of the Trench 1 had been completed. Two came from the yard surface, 1007; one came from the possible firebox, 1008, and the final sample came from a foundation wall of an outbuilding on the south-east corner of the New Foundry, 1015. Each was representative of the brickwork used in each of the constructions.

The bricks were cleaned and then examined and measured by the Service's Historic Building Archaeologist who subsequently undertook a search of the Worcestershire Brick Type Series and additional reference material held by the Service.

3.6 Environmental archaeology methodology

3.6.1 Sampling policy

The environmental sampling strategy conformed to standard Service practice (Worcestershire Archaeology 2012b; appendix 4). In the event no deposits were sampled for environmental analysis at this stage.

3.7 Statement of confidence in the methods and results

Although it was not possible to excavate all four of the intended trenches at this stage, the methods adopted are considered to allow a high degree of confidence that the aims of the project have been achieved.

4. Topographical and archaeological context

The site is located in the north-west of Stourbridge town centre. It comprises two areas which are divided by the River Stour, spanned by a locally listed cast iron bridge (HER 7240).

The site is bounded to the north by the towpath of the Stourbridge Canal and to the south by Lowndes Road and Bradley Road. To the east it is bounded by the existing property boundary with the Linwood Industrial Estate whilst to the west the site boundary is demarcated by the existing enclosure wall of the New Foundry.

The site lies upon geology of the Triassic Wildmoor Sandstone Formation which in turn is overlain by Pleistocene and Holocene alluvium and gravels deposited by the River Stour. The predominant soils belong to the Bridgnorth formation (551a) consisting of well drained sandy and coarse loamy soils over soft sandstone, which are occasionally deep and at risk from water and wind erosion (Soil Survey of England and Wales 1983).

A comprehensive narrative of the historic development of the site has been produced in the conservation plan (EDP 2012a).

5. Results

5.1 Structural analysis

The trenches and features recorded are shown in Fig 2. The results of the structural analysis are presented in Appendix 1.

5.1.1 Phase 1: Natural deposits

Trenches 2 and 4 were the two locations in which natural deposits were encountered through the excavation of deeper sondages. The natural deposits were alluvial in nature associated with in-channel and floodplain sedimentation of the River Stour.

The alluvium identified in Trench 2 contained occasional organic inclusions and was greyer and darker in colour than the alluvium encountered in Trench 4. The deposit was also observed to support groundwater flow. Given the nature of the deposit, there is potential for the survival of palaeoenvironmental remains such as pollen and plant macrofossils although no attempt was made to sample the material due to the depth at which the deposit was encountered, *c* 2.00m.

The alluvium encountered in Trench 4 was reddish orange in colour, homogenous and coarser in texture, containing occasional lithorelicts (fragments of parent geology) indicating that it is primarily composed of reworked soils and parent geology and has little or low potential for the recovery of palaeoenvironmental remains.

5.1.2 Phase 2: Post-medieval/modern

The vast majority of the deposits encountered during the evaluation can be assigned to this site phase consisting either of in-situ deposits relating to the New Foundry and its associated structures or the subsequent disuse, demolition and levelling.

Trench 1 contained the greatest quantity of archaeological remains encountered during the evaluation with numerous features associated with the Rastrick and Fosters New Foundry and its associated outbuildings and internal tramway system.

The most notable feature was a brick surface, 1007, approximately 7m in length and in excess of 1.60m in width, which was encountered *c* 0.95m below ground surface (Plates 1 and 2). The surface consisted of vitrified fire bricks (see Section 5.2) and is thought to represent an external yard surface. This interpretation is supported by the Ordnance Survey mapping which shows that this area remained open throughout the life of the foundry.

Plate 3 shows an area of the surface, 1007, where the coursing/construction of the surface changes to form a circular feature which is contemporary with the yard surface. Unfortunately, this feature has been masked and possibly truncated by the construction of the later wall and its associated footings, 1006, and therefore no interpretation can be made of its function.

Two truncations of this yard surface by later services have also occurred (Fig 3, Plate 4).

At the north-western end of this yard surface, another brick structure, 1008 (Plates 5 and 6), was identified *c* 1.10m below ground surface. It has tentatively been identified as a firebox for a furnace although this is not definite as only a small portion of the structure was exposed.

In the north-east to south-west segment of Trench 1, a wall was encountered (1015; Plate 7) which is considered to be a foundation wall for an upstanding structural element of the foundry, most probably the southern face of the large outbuilding at the south-eastern end of the foundry as shown on the 1st edition Ordnance Survey map. In the absence of the detailed drawings of John Urpeth Rastrick, the exact function of this outbuilding is unknown although it is recorded that a blacking mill and loam mill lay to the south-east of the New Foundry in the 1820s, along with a boiler maker's shop, an engine house, an iron warehouse, a pattern shed and a boring mill elsewhere across the site (EDP 2012a, 9 & 10). Layer 1014 is likely to represent a demolition or levelling spread within this out-building.

In the eastern end of Trench 1, the remains of the former tramway system were identified in the form of four sandstone blocks with two holes drilled into the upper surface to receive the fittings/brackets of tram rails. The stone blocks were laid on an east to west alignment which matches the orientation of the tramway shown on the 1st Edition Ordnance survey map (Plates 8 and 9). It is considered likely that further to the south, outside of the evaluated area, a parallel set of sandstone blocks would be encountered representing the second rail of this tramway. Confirming the function of these blocks was the presence of a bent section of tram track exiting the eastern baulk section which still had the fittings attached that formerly held it in place upon the sandstone footings (Plates 10, 11 and 12).

Aside from the copious amounts of demolition and levelling rubble that was encountered within Trench 2, the sole feature of note was a wall running north-east to south-west in the southern end of the trench (Fig 2) encountered *c*0.80m below ground surface (Plates 13 and 14). Only a couple of courses survived, with the upper portions most probably truncated during the demolition of the Old Foundry (HER 1047) in the mid 20th century to straighten the course of the River Stour (EDP 2012a, 26-27).

Unfortunately, given its location in the margins of the trench, no clear function or association could be ascertained although, after extending the trench to expose both faces, it was evident that no surfaces were associated with the structure. It is most probable that this wall relates to the Old Foundry that occupied the meander of the River Stour although its alignment differs from the dominant north-south, east-west wall alignment that is illustrated on the cartographic sources possibly suggesting that it was a minor internal division which probably spared its destruction during the demolition works.

The majority of the deposits encountered in Trench 4 were associated with the demolition and levelling of the area once the Foundry had fallen out of use. This consisted of large quantities of fragmented brick and tile, clinker, slag and coal in a matrix of reworked ash and coarse sandy silt. This was sealed by approximately 0.15m of double strengthened reinforced concrete (Plate 15).

Sealed by these demolition layers was deposit 4003, a highly compacted layer of earth and industrial waste including iron, slag, coal and cinder which was encountered *c* 0.95m below ground surface in the western end of the trench (Plate 16). This has been interpreted as an internal metalled floor surface associated with the building shown on the north-western end of the Foundry on the 1st edition Ordnance Survey Map. The function of this structure is unclear but what it is evident is that one of the branches of the tramway system that operated within the New Foundry passes through this area.

No in-situ evidence for the tramway was identified within Trench 4, although disturbed evidence as to its presence was identified as were features associated with its dismantling. The most evident feature of this was the robber trench, 4005, running north to south through Trench 4. This truncated the floor surface 4003 and was subsequently backfilled with the material 4003 and other homogenous demolition material. It is likely that the backfill 4004

and the overburden layer 4002 were deposited during the same phase of demolition and levelling works. Several large sandstone blocks were recovered from within 4002 and 4003 with similar dimensions and features to those identified in Trench 1 although these were not in-situ and unaligned indicating that they had previously supported tracks for the tramway but had been disturbed and subsequently redeposited during the robbing and levelling works.

The exact reason for the large scale removal, most probably by mechanical excavator, of this tramway is unclear although it may have been robbed for the recovery of the metal.

5.2 Brick Analysis

The sample bricks from 1008 and 1015 were both mould made and their fabrics were similar, with a swirled pattern with occasional to frequent pebble inclusions. Also the colour of the two bricks were similar with both being redder than is normal possibly indicating some element of heating subsequent to firing which is not surprising given the industrial nature of the site. The dimensions of the two bricks (see Table 1 below) and their fabrics place them between 1784-1850, during the application of the Brick Tax (pers comm Shona Robson-Glyde).

The two brick samples from floor surface 1007 were both examples of over-fired, vitrified, fire bricks which were probably utilised as a yard surface due to their over-firing as they are unlikely to have been fit for their original purpose (*ibid*).

Stourbridge fireclay was world renowned in the 19th century and the area became a focus for the production of firebricks. This is reflected in one of the samples as it contained the makers mark "Rufford – Stourbridge". Rufford and Co., based at Hungary Hill, Stourbridge, were a manufacturer of brick and glazed wares with particular emphasis on products requiring heat resistance including firebricks. One source (Black Country Bugle 2010) quotes Rufford and Co. being established in 1802 although the source and therefore the reliability of this claim are unknown. It is certain they were operating on a national scale by 1846 when the firm achieved the manufacture of a one piece porcelain bath for the Society of Arts (Cockeram 1998; pers comm Shona Robson-Glyde).

Context	Dimensions (in Inches)		
	Length	Width	Depth
1007	Incomplete	4 ¼"	2 ½"
1008	Incomplete	4 ⅜"	2 ¾"
1015	9 ⅛"	4 ¼"	2 ⅞"

Table 1 Dimensions of brick samples from Trench 1

6. Synthesis

6.1 Undated

The only undated deposits encountered upon the site were alluvial in nature identified in the sondages of Trench 2 and Trench 4.

The alluvium in Trench 4 was primarily composed of reworked soils and parent geology representing flood events and the gradual sedimentation of the floodplain and has little or low potential for the recovery of palaeoenvironmental remains. The alluvium encountered in Trench 2 however may represent the fill of a palaeochannel of unknown date which may have the potential for the survival of palaeoenvironmental remains.

This deposit is considered likely to represent sedimentation of a relict channel abandoned during migration of the River Stour and the formation of the tight meander originally recorded on the Amblecote Tithe Map of 1837 (EDP 2012a: Plan EDP2).

6.2 Post medieval/modern

The structural remains encountered upon the site can be assigned to the 19th century, with the majority of the features post-dating 1820, the commencement date for the construction of the Grade II* Listed New Foundry. These remains included structural elements of outbuildings, including walls and internal floor surfaces, which were arranged around the New Foundry building, an external yard surface to the south of the New Foundry, extant and robbed out evidence for the tramway which served the iron works.

As regards the tramway, the Conservation Plan (EDP 2012a, 10) notes that:

> Given that Foster, Rastrick & Co. were manufacturing a wide range of railway items from the early 1820s, it is likely that an internal tramway system was in operation for transporting raw materials and finished products between the various enterprises within the wider complex… the first documented use of railway transport within the site dates from 1857, when John Bradley & Co signed an agreement with the Oxford, Worcester and Wolverhampton Railway Company, who would, in return, complete the laying of a double line of track, with one turntable, as far as the river, from where a bridge would convey a single line into the works complex.

It is therefore probable that the tramway identified during the evaluation was not laid during the initial 1820's construction of the New Foundry but was installed in the mid-19th century. It should be noted though that a previous internal tramway system may have existed and the 1857 agreement may have served to replace this, although without further cartographic, documentary or archaeological evidence, this remains unclear.

Despite the inexact date of the over-fired firebricks with the "Rufford - Stourbridge" stamp which were laid to form the external yard surface to the south of the New Foundry, it is likely that the yard surface can be assigned a date contemporaneous to the construction of the New Foundry which commenced in 1820, was ongoing in 1821 and was definitely completed prior to 1827 (EDP 2012a, 9-10)

The sole possible exception to the post 1820's date for structural remains is the brick wall encountered in Trench 2 The wall is of unknown date although the measurements of the bricks is likely to place it in the same 1784 – 1850 period as the brick samples recovered from Trench 1. The wall is likely to represent a minor land division within the Old Foundry which is thought to date from around 1808 onwards and can therefore be considered to lie within the same overall period as the remains identified at the New Foundry

7. Significance

7.1 Significance of a heritage asset with archaeological interest

The aim of an archaeological evaluation is to provide the client and the planning authority (and its advisors) with sufficient information to assess the significance of a heritage asset with archaeological interest, in line with *National Planning Policy Framework* (DCLG 2012, para 128). Detailed guidance on assessing the significance of a heritage asset with archaeological interest is set out in the *Historic Environment Planning Practice Guide,* which advises that an on-site evaluation should establish the nature, importance and extent of the archaeological interest in order to provide sufficient evidence for confident prediction of the impact of the proposal (DCLG/DCMS/EH 2010: Section 5, Development Management).

7.2 Assessment of significance

The on-site evaluation has provided new evidence on a site with archaeological interest. As a result, an assessment of the significance of this site can be made in terms of the nature, importance and extent of the archaeological interest.

Nature of the archaeological interest in the site

The evaluation has shown that structural remains associated with the iron works have survived with the presence of outbuildings associated with the New Foundry, including walls and internal floor surfaces, an external yard surface to the south of the New Foundry and extant and robbed out evidence for the tramway which served the iron works. The majority of these remains are likely to date from between 1820-1857 although one wall associated with the Old Foundry to the north-east of the site may date to approximately 1808.

A possible undated palaeochannel was also identified in the north-east of the site although no investigation of this was made due to health and safety restrictions as regards access.

Relative importance of the archaeological interest in the site

The main focus of the evaluation was upon the Grade II* Listed New Foundry building and it has established that associated locally significant structural remains survive as buried features. The extent of preservation across the site is unknown, yet given the detail and quality of the cartographic and documentary evidence available for the site and its associated industries, it is unclear if significant new information regarding the specific function of each of the iron works buildings would be gained through further intrusive archaeological investigation.

Physical extent of the archaeological interest in the site

The evaluation indicates that the best survival of archaeological remains is to the south of the New Foundry building, with walls, surfaces and an in-situ tramway extant from *c* 0.95m below ground. In this southern area, the density of the archaeology appears to be moderate to high, although it is unclear how the construction of later walls and the laying of services outside the excavated area have effected the structural remains.

To the north of the New Foundry, it would appear that far more disturbance has occurred, specifically in regard to the removal of the tramway system which exited the foundry through an outbuilding at the north-east corner. A metalled internal floor surface has survived in this area although no other features associated with this outbuilding were identified.

7.3 Assessment of the impact of the proposal

The on-site evaluation, allows a provisional assessment to be made of the potential impact of the development on the archaeological interest in the site to inform the proposed programme of mitigation (EDP 2012b).

The presence of the structural remains was somewhat unexpected given the level of demolition and disturbance which has occurred generally across the site. It should therefore be noted that any intrusive works which will impact below *c* 0.95m to the south of the New Foundry have the potential for the disturbance of locally significant archaeological remains.

To the north and north-east of the New Foundry, it was evident that more disturbance of the archaeological remains had occurred although whether this is indicative of the entire site or whether this is restricted to the areas evaluated is unclear.

8. Publication summary

The Service has a professional obligation to publish the results of archaeological projects within a reasonable period of time. To this end, the Service intends to use this summary as the basis for publication through local or regional journals. The client is requested to consider the content of this section as being acceptable for such publication.

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9. Acknowledgements

The Service would like to thank the following for their kind assistance in the successful conclusion of this project, Jo Vallender (The Environmental Dimension Partnership) and Pete Boland (Principal Conservation Officer & Borough Archaeologist, Dudley Metropolitan Borough Council).

10. Personnel

The fieldwork and report preparation was led by Nick Daffern. The project manager responsible for the quality of the project and the editing of this report was Tom Vaughan. Fieldwork was undertaken by Teagan Cole and Graham Arnold, brick analysis by Shona Robson-Glyde, and illustration by Carolyn Hunt.

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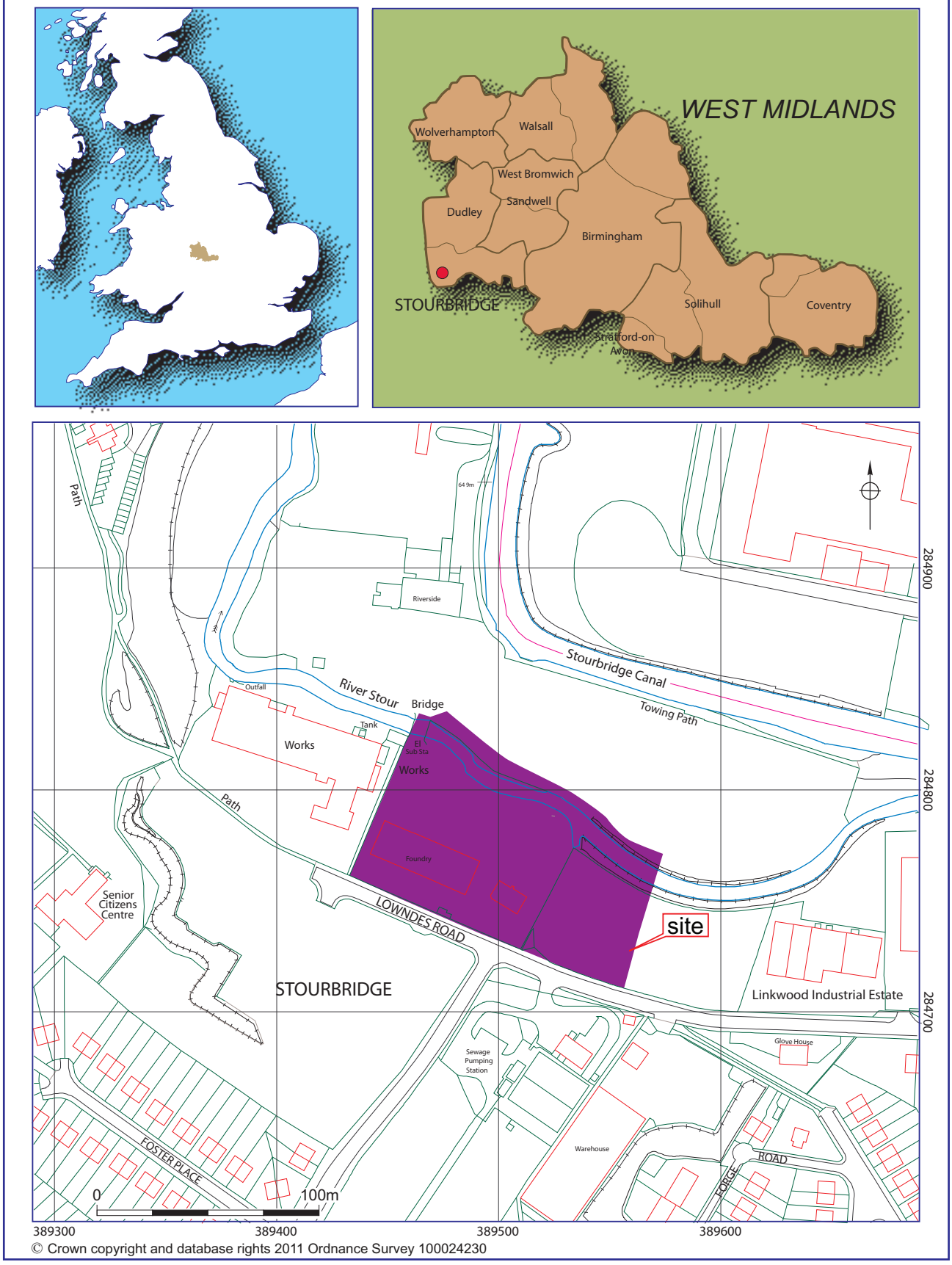
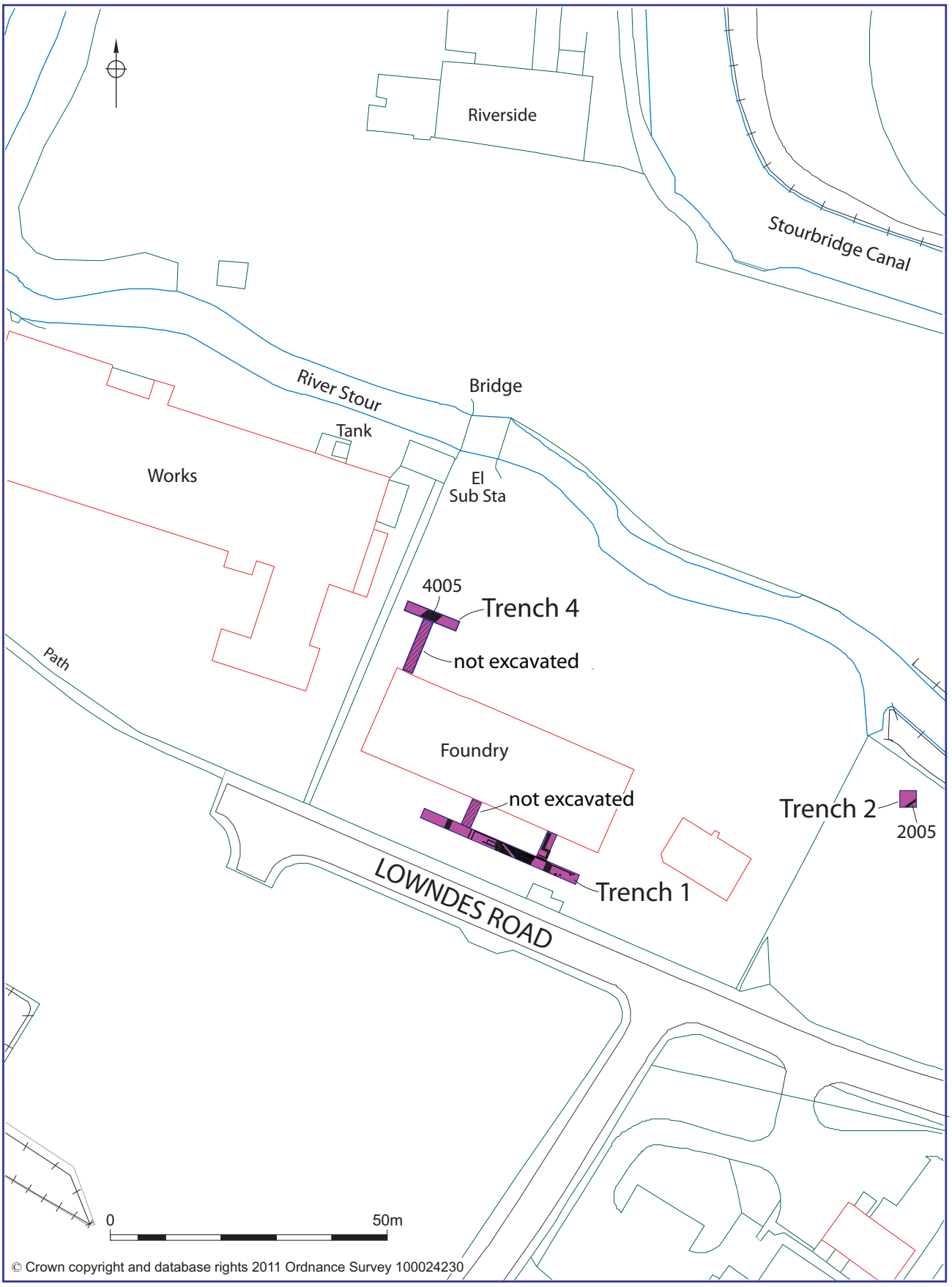
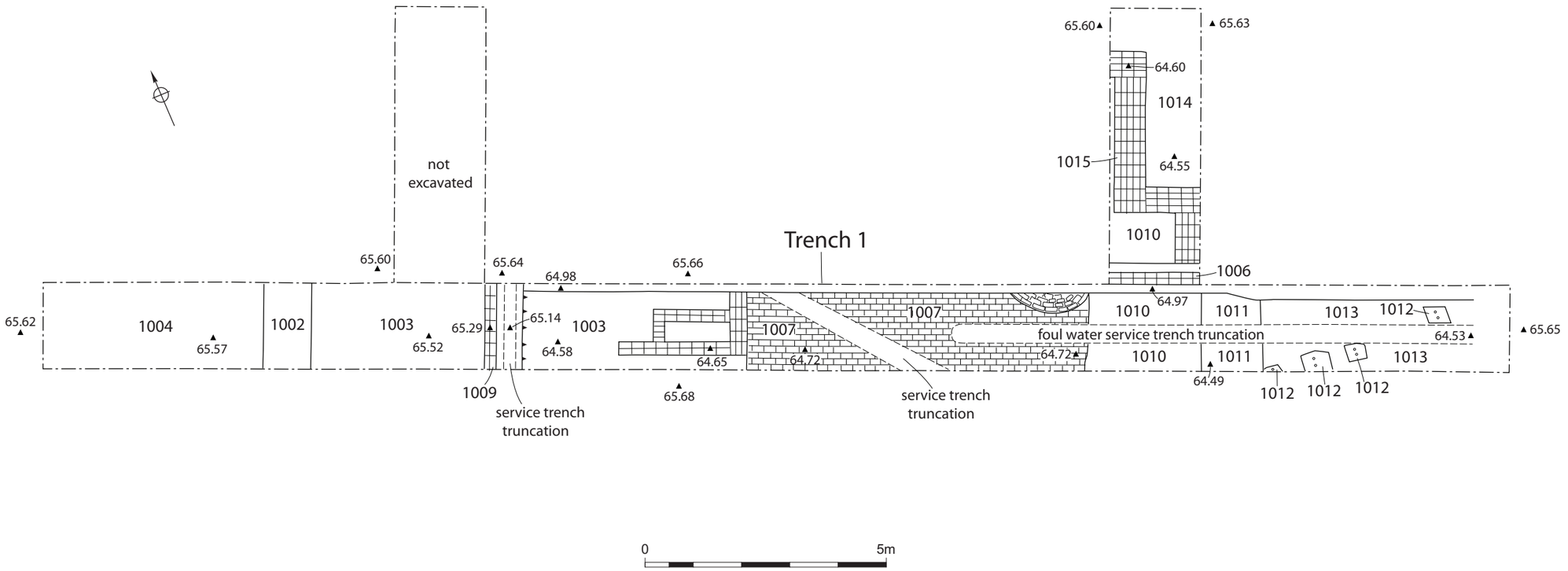
Figures



Location of the site *Figure 1*



Trench location plan *Figure 2*



Plan of Trench 1

Figure 3

Plates

Plate 1 Yard surface 1007, looking north-west

Plate 2 Yard surface 1007, looking south-east

Plate 3 Circular edging within yard surface 1007, facing south-east

Plate 4 Truncation of yard surface 1007 by later services, looking north-west

Plate 5 Possible firebox? 1008, looking south-west

Plate 6 Possible firebox? 1008, looking south-east

Plate 7 Context 1015: probable wall of foundry outbuilding, looking south-west

Plate 8 Context 1012 - Sandstone footings for tramway, looking south-east

Plate 9 Context 1012 - Sandstone footings for tramway, looking south-east

Plate 10 Tram rail

Plate 11 Tram rail

Plate 12 Tram rail and fittings protruding from south-eastern baulk

Plate 13 Brick wall 2005, looking south-east

Plate 14 Brick wall 2005, looking south-east

Plate 15 Excavation of Trench 4 showing the extensive reinforced concrete, looking north

Plate 16 Internal metalled floor surface 4003, looking north-west

Appendix 1 Trench descriptions

Trench 1

Maximum dimensions: Length: 31.00m Width: 1.80m Depth: 2.10m

Orientation: NW - SE

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
1000	Concrete	Non-reinforced concrete	0.00 – 0.28m
1001	Layer	Loose, mid – dark reddish brown, silty sand with abundant slag, clinker and coal, occasional – abundant ceramic building material (CBM) and rare modern plastic protective gloves.	0.28m – 0.85m
1002	Layer	Loose, dark black cinder/fuel ash with abundant CBM and iron oxide staining	1.10m - ?
1003	Layer	Friable, mid orange coarse sand with abundant CBM	1.10m - ?
1004	Layer	Firm, dark – mid black brown silty sand with abundant clinker, slag and CBM	0.98m - ?
1005	Layer	Loose, white mortar and CBM	0.88m – 0.98m
1006	Structure	Wall, 2 courses wide on a concrete footing aligned NW – SE. Concrete footing was approximately 0.91m in width	0.00m – 1.10m
1007	Structure	Yard surface consisting of smooth, machine made, yellow and orange bricks. No bonding, is evident, bricks appear to have been laid and then had earth swept into the cracks External yard surface	0.95m – 1.10m
1008	Structure	Footprint of brick structure of unknown function. Possible firebox	1.03m - ?
1009	Structure	Same as 1006 but is aligned NE - SW	0.00m – 1.10m
1010	Layer	Firm, dark blackish grey, silt with very abundant cinder, ash, clinker and iron slag	0.83m – 1.18m
1011	Layer	Friable, light pinkish orange, coarse silty sand	1.18m - ?
1012	Structure	Four, yellow sandstone blocks with two holes punched into the upper surface aligned east – west Footings for tramway	1.05m – 1.15m
1013	Layer	Same as 1010	1.10m - ?
1014	Layer	Firm – friable, dark greyish black, coarse sandy ashy silt with frequent ceramic building material, brick fragments, clinker, cinder and iron fragments	0.90m – 1.20m
1015	Structure	Large, structural wall footing. Foundation for foundry outbuilding	1.08m
1016	Fill	Mid – dark orangish brown, coarse sandy silt with frequent large fragments of ceramic building material, ash, cinder and clinker. Fill of 1018	0.17m – 0.58m
1017	Fill	Dark - mid, blackish/bluish grey coarse sandy silt with frequent fragments of ceramic building material, ash, cinder and clinker. Fill of 1018	0.58m – 0.82m
1018	Cut	V-shaped truncation only revealed in north-east facing section of Trench 1 Cut of unknown function although probably relates to the demolition of outbuildings that previously occupied this location. Filled by 1016 and 1017	0.17m – 0..82m

Trench 2

Maximum dimensions: Length: 4.00m Width: 3.00m Depth: 2.30m

Orientation: N - S

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
2000	Topsoil	Friable – loose, mid – dark clayey silt with abundant bioturbation, rounded – sub angular pebbles and brick fragments	0.00m – 0.10m
2001	Subsoil/ demolition layer	Friable, light greyish blue silty clay with abundant angular – sub angular stone and brick fragments with rare - occasional bioturbation	0.10m – 0.26m
2002	Demolition layer	Friable, dark blackish brown, coarse ashy silty sand with frequent angular – sub angular brick fragments, charcoal and tile and rare bioturbation	0.26m – 062m
2003	Demolition layer	Loose, mid –dark blackish grey ash and charcoal	0.62m – 0.74m
2004	Demolition layer	Loose – firm, light orange yellow crushed brick fragments and other ceramic building material Primary demolition layer?	0.74m – 2.00m
2005	Structure	Brick wall, 2 courses in height, 1.16m in length running off into section. Mortared with light-mid grey, loose sand and grit. North-east – south-west alignment	0.60m – 0.80m
2006	Alluvium	Pliable, mid brownish grey, fine sandy silty clay with occasional – frequent organic inclusions. Possible fill of palaeochannel.	2.00m - ?

Trench 4

Maximum dimensions: Length: 10.00m Width: 1.80m Depth: 1.10m – 2.10m

Orientation: NW - SE

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
4000	Concrete	Double reinforced concrete	0.00m – 0.15m
4001	Layer	Loose – friable, dark black ashy silt with very abundant charcoal and coal fragments and occasional CBM	0.15m – 0.35m
4002	Layer	Loose, mid – dark blackish brown/ grey sandy clayey silt with abundant CBM and occasional charcoal fragments and sandstone	0.50m – 0.90m
4003	Layer	Very firm, mid – dark blackish brown metalled surface of slag, cinder, ash, charcoal and iron fragments in a clayey silt matrix Internal metalled floor surface	0.90m – 1.45m
4004	Fill	Firm – friable, mid – dark blackish grey coarse sandy clayey silt with frequent slag, cinder, ash, charcoal and iron fragments Fill of 4005	0.90m – 1.70m
4005	Cut	Linear cut on a north – south alignment. Steep sided in section with a U-shaped, concave base.	0.15m – 1.70m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
		Filled by 4004 Robber trench of tramway	
4006	Layer	Loose – friable, mid – dark bluish blackish grey silty ash layer with frequent charcoal fragments	1.45m – 1.70m
4007	Alluvium	Pliable, light orangish brown, silty clay	1.70m - ?

Appendix 2 Technical information

The archive

The archive consists of:

22	Context records AS1
3	Field progress reports AS2
1	Photographic records AS3
91	Digital photographs
1	Drawing number catalogues AS4
4	Scale drawings
1	Context number catalogues AS5
3	Trench record sheets AS41
1	Copy of this report (bound hard copy)

The project archive is intended to be placed at:

Dudley Museum and Art Gallery
St James's Road
Dudley
West Midlands
DY1 1HU
Tel. Dudley (01384) 815575
Fax Dudley (01384) 815576

Appendix 3 Evaluation Phase 2 - Trench 3

Nick Daffern

With contributions by Dennis Williams

1. Methods

1.1.1 Fieldwork strategy

Fieldwork was undertaken on 18 and 19 September 2012.

One trench (Trench 3) was excavated, measuring approximately 17m in length by 1.80m in width to a maximum depth of 1.20m. The location of the trench is indicated in Figure 2.

1.1.2 Artefact recovery policy

The artefact recovery policy conformed to standard Service practice (Worcestershire Archaeology 2012b; appendix 2). In the event, all artefacts were identified on site to be of later post-medieval and modern date and discarded, with the exception of a sample of bricks (see Section 3.5 below).

1.2 Brickwork methodology, by Dennis Williams

In total, twenty bricks (or part bricks) were recovered as samples of building material from the site. Details of brick shapes and sizes were recorded on an Access database and compared with the in-house reference series (Worcestershire Archaeology 2012c). Measurements below are given in Imperial units in line with sizes having originally been so designated.

2. Results

2.1 Structural analysis

The trench location and recorded features are shown in Figures 2 and 4.

2.1.1 Phase 1: Natural deposits

No natural deposits were encountered during the evaluation; this was due in the main to the height at which the archaeology was encountered (*c* 0.30 - 0.40m below ground surface).

2.1.2 Phase 2: Post-medieval/modern

All of the deposits encountered during the evaluation can be assigned to this site phase consisting either of in-situ deposits relating to Bradley's Old Foundry and its associated structures or the subsequent disuse, demolition and levelling.

The most notable features were brick platforms/surfaces, 3004 and 3005, encountered between 64.56m AOD and 64.71m AOD. Both were in excess of 2.90m in length and approximately 2m in width, although their full plan was not exposed (Plates 17, 18 and 19). Both were aligned north to south and were separated by a deposit of rubble infill 3006. The extent of this infill was also not fully exposed but it is hypothesised that it and the smaller exposure of infill in the south-western end of the trench, 3008, are the backfill of a foundry pit or firebox, whilst the brick surfaces are the working floor of the foundry. This hypothesis of 'hot-working' occurring within close proximity to these surfaces is supported by the use of firebricks within the construction and also the frequent presence of discolouration or distortion to the bricks which is almost certainly a result of tremendous heat.

Abutting the north facing end of brick platform/ surface 3004 was wall 3002. It was evident from the relationship between the two structures that 3002 is a later addition, probably an ancillary structure to the main working surfaces of the foundry. This later character was also reflected in a change in coursing style with 3004 being Stretcher Bond whilst 3002 was English Bond (Plates 20 and 21).

Wall 3001 to the north was constructed from brick of a similar type to 3002 and the coursing was the same. It is therefore hypothesised that 3001 and 3002 are of the same construction phase, with 3001 marking the northernmost wall of the ancillary structure (Plates 22 and 23)

A metal pipe 3003 on an east to west alignment appears to be truncating wall 3002 although the cut for this pipe, 3007, was not identified as truncating the overlying backfill of the foundry and therefore it is hypothesised that this pipe was an addition to the ancillary structure, possibly a water pipe relating to the function of the foundry (Plate 19).

The entire complex of structures and infill was sealed by a heavily mixed and disturbed soil layer containing extremely frequent complete and fragmented brick and ceramic building material remains and frequent clinker, ash and iron waste. This deposit has been heavily bioturbated after the abandonment and growth over the site by dense scrubby woodland.

2.2 Brick Analysis, by Dennis Williams

The ordinary building bricks were 4¼in wide by 9in long, and without frogs or maker's stamps, but some bore traces of a coarse lime mortar, and varied in thickness from 2⅝-3in. There were also fireclay bricks with a thickness of 2½in, with lengths 8¾-9in, and widths in the range 4-4¼in, and some of these showed mortar with a high sand content; some (3005) showed signs of use as refractory material (one was stamped 'RUFFORD, STOURBRIDGE'). A few of these fireclay bricks were tapered in width to a minimum of 3½in, presumably for use as part of an arched or round kiln structure. Another had a curved 'bull nose' end.

The bricks found at this site are consistent with the former presence of industrial buildings, which accommodated some type of high-temperature processing. The observation of lime mortar on the building bricks, together with comparison of sizes with the brick type series, suggests construction and industrial activity from a late 18th or early 19th century date onwards.

Stourbridge fireclay was world renowned in the 19th century and the area became a focus for the production of firebricks. This is reflected in one of the samples as it contained the makers mark "Rufford, Stourbridge". Rufford and Co., based at Hungary Hill, Stourbridge, was a manufacturer of brick and glazed wares with particular emphasis on products requiring heat resistance, including firebricks. One source (Black Country Bugle 2010) quotes Rufford and Co. being established in 1802 although the source and therefore the reliability of this claim are unknown. It is certain they were operating on a national scale by 1846 when the firm achieved the manufacture of a one piece porcelain bath for the Society of Arts (Cockeram 1998; pers comm Shona Robson-Glyde).

3. Synthesis

3.1 Post medieval/modern

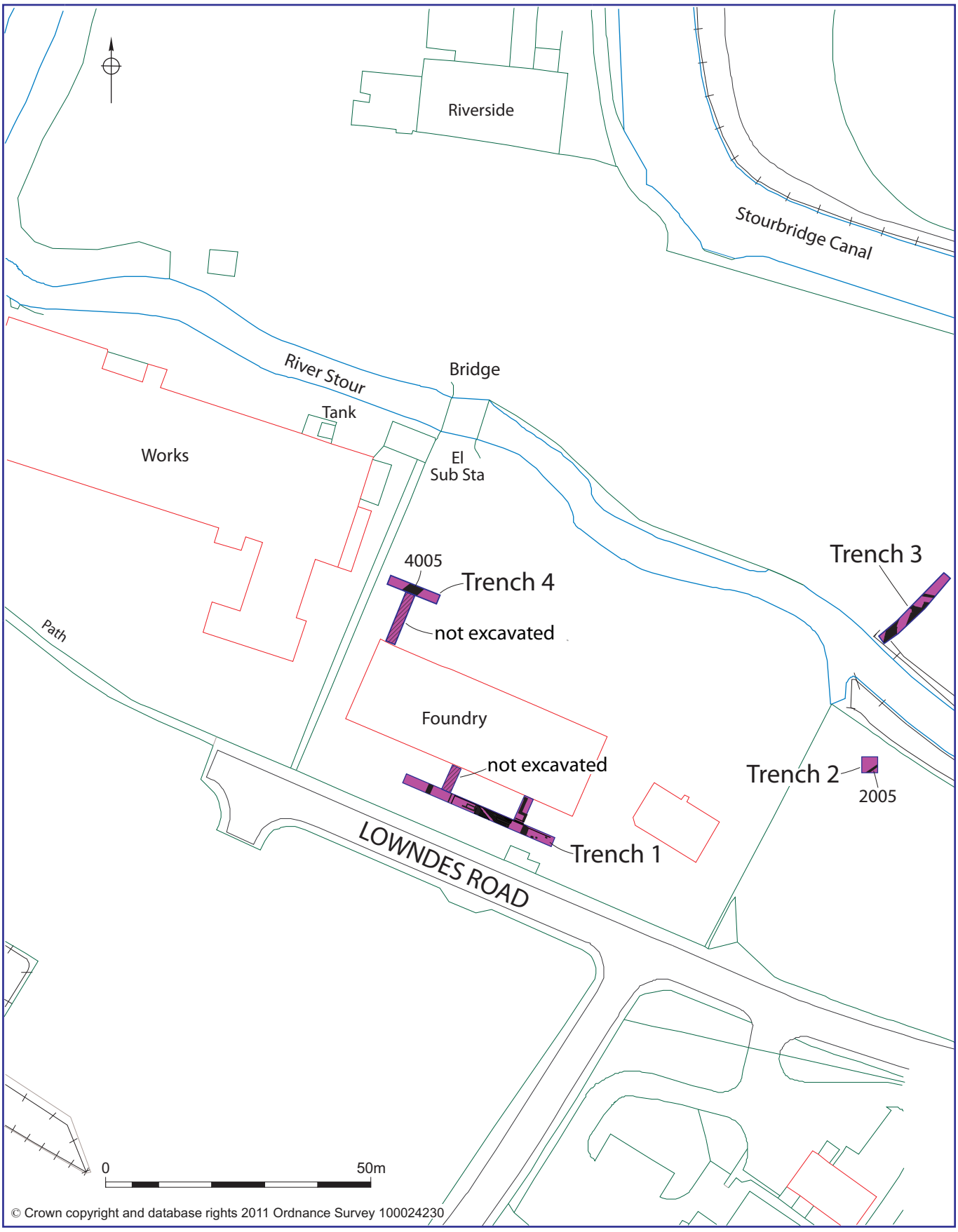
The structural remains encountered upon the site can be assigned to the early 19th century Bradley's Old Foundry which was constructed in the period immediately after 1808. These remains included structural elements of outbuildings, including walls and internal floor surfaces. Drawings from 1821 onwards illustrate that the Old Foundry was aligned north to south on a peninsula that was surrounded on the west, south and east sides by the course of the River Stour. The furnace was arranged on an octagonal plan form with three furnaces and a central crane post (EDP 2012a, 7 – 9).

It is unclear exactly what structures are represented by the remains exposed within Trench 3 and how they relate to the cartographic sources, but it is hypothesised that they are likely to be the internal working surfaces of the foundry and the infilled foundry pits. At their shallowest, they lay at 0.35m below the present ground surface to the south-west and 0.15m to the north-east.

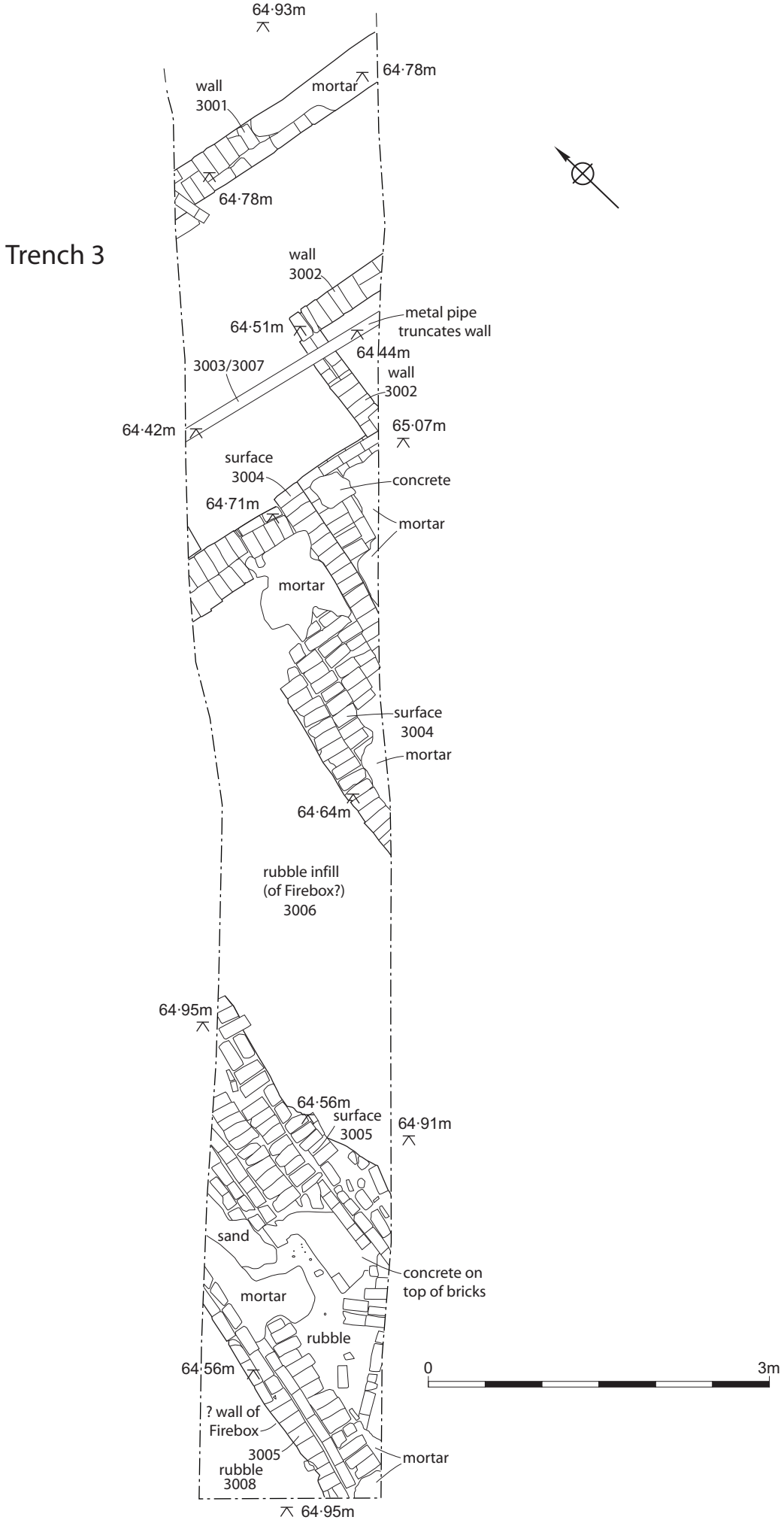
4. Additional Bibliography

Worcestershire Archaeology, 2012c. Brick reference series, unpublished.

Figures



Trench location plan *Figure 2*



Plan of Trench 3 *Figure 4*

Plates

Plate 17 Brick platforms/ surfaces 3004 and 3005 and infills 3006 and 3008, looking north-east

Plate 18 Brick platforms/ surfaces 3005, looking north-east

Plate 19 Brick platforms/ surfaces 3004 and 3005, wall 3002 and pipe 3003, looking south-west

Plate 20 Wall 3002 abutting brick platform/ surface 3004, looking south

Plate 21 Wall 3002 abutting brick platform/ surface 3004, looking south

Plate 22 Wall 3001, looking south-west

Plate 23 Wall 3001, looking south-west

Appendix 4 - Watching Brief Phase

Richard Bradley and Michael Nicholson

With contributions by Dennis Williams

1 Background

1.1 Reasons for the project

Supplementary to the two phases of evaluation discussed above (P3863), an archaeological watching brief was undertaken across the site of the Rastrick and Fosters New Foundry during construction and ground works for the Lion Medical Centre. The planning background to the development is discussed earlier in this report.

The project conforms to the *Standard and guidance for an archaeological watching brief* (IfA 2008) and to a project proposal (including detailed specification) produced for this phase of work (WA 2012d).

2 Aims

The aims and scope of the watching brief were to observe and record any archaeological deposits encountered during ground reduction works for the stone mats and the drainage trenches (foul and surface water) around the extant foundry building. The ground works also incorporated the excavation and removal of two areas of hydrocarbon contaminated soils, defined as Remediation Areas 'A' and 'B' (Figure 5).

As with the earlier phases of work, a number of historic and archaeological elements were identified across the site to be considered whilst site works were undertaken. These included:

- Rastrick and Foster's New Foundry (Grade II* listed building);
- The former chimney and furnace structures located on the south side of Rastrick and Foster's New Foundry;
- The former rail/tramways across the site;
- The former loam and blacking mills;
- The site of Bradley's Old Foundry in the north-east corner;
- A palaeochannel associated with the former course of the Stour; and
- The potential for remains of unmapped buried structures associated with the historic use of the site.

3 Methods

3.1 Personnel

The watching-brief phase of the project was undertaken by Richard Bradley BA (hons.); MA; AIfA, who joined Worcestershire Archaeology in 2008 and has been practicing archaeology since 2005, and Mike Nicholson BSc (hons.), who joined Worcestershire Archaeology in 2008 when he started working in archaeological practice. Graham Arnold BA (hons.); MSc. also worked on the project during the fieldwork stage. The project manager responsible for the quality of the project was Tom Vaughan BA (hons.); MA; AIfA. Illustrations were prepared by Carolyn Hunt and Dennis Williams contributed the finds analysis.

3.2 Fieldwork strategy

Fieldwork was undertaken intermittently, following the progress of the construction team, between 31 October 2012 and 22 October 2013. The Worcestershire Archaeology project number is P3980. The site code will be issued by the curator upon submission of this completed report to the HER.

The excavations of a number of different areas associated with the ground reduction and drainage elements of the construction project were monitored during the course of the works, all of varying sizes and depths (see below; Fig 5). Observation and recording of archaeological deposits was undertaken during and after machine excavation, being restricted by the programme of works and the progress of the on site contractors.

In some situations, recording of structures and deposits necessitated a short delay to the ground works and this was carried out successfully.

Where excavation or cleaning of features or deposits was required, it was undertaken by hand and archaeological remains were recorded according to standard Worcestershire Archaeology practice (WA 2012b). A number of brick samples from significant structures were kept for analysis, although most of the other artefactual remains on site were identified as modern in origin and not retained.

3.3 Statement of confidence in the methods and results

In one instance, site programming constraints prevented full observation of an area owing to excavation taking place over the weekend. In places, access was not made due to health and safety issues arising from trench depths and stability of sides so recording took place from above. However, as these were rare occurrences, the effect on the overall aims of this phase of work was negligible and the methods adopted allow a high degree of confidence that the aims of the project have been achieved.

3.4 Structural analysis

All fieldwork records were checked and cross-referenced. Analysis was effected through a combination of structural and artefactual evidence, allied to the information derived from other sources.

3.5 Artefact methodology, by Dennis Williams

3.5.1 Artefact recovery policy

The artefact recovery policy conformed to standard WA practice (2012b; appendix 2). In the event, all artefacts were identified on site to be of later post-medieval and modern date and were therefore discarded, with the exception of a sample of bricks (Section 3.5.2 below).

3.5.2 Brickwork methodology

Six brick samples were taken during the watching brief and these were recovered in accordance with standard WA practice (*ibid.*). Two bricks came from structure (109), one brick fragment from floor surface (114), two bricks from structure 120, and one from wall foundation (128). They were representative of the brickwork used in each of these constructions.

The bricks were cleaned and then examined, quantified and dated by Shona Robson-Glyde, WA's Historic Building Archaeologist, who subsequently undertook a search of the Worcestershire Brick Type Series and additional reference material held by the WA (2012c). All information was recorded on *pro forma* sheets.

3.6 Environmental archaeology methodology

3.6.1 Sampling policy

The environmental sampling strategy conformed to standard WA practice (2012b). In the event, due to the nature of the material present on site, no deposits were identified which were considered suitable for environmental analysis.

4 Structural analysis

The areas of ground works observed and archaeological features recorded are shown in Figure 5. The results of the structural analysis are presented below in sections divided up by the construction works observed, rather than by phase, as all of the archaeological features encountered were either post-medieval or modern.

4.1.1 Area of ground reduction works

Ground reduction works were undertaken on the west and south side of the extant foundry building. A main area of around 50m in length and 10m in width was observed that went across the area sampled in evaluation Trench 1, excavated in June 2012. This trench had been particularly abundant in archaeological remains in the form of structures and surfaces associated with the Rastrick and Foster's New Foundry, found at around

0.95-1.10m below the ground surface. During the course of the ground reduction works however, the maximum depth reached was 0.80m so these structural elements remained undisturbed and should still be preserved *in situ*.

Additional features did appear above this depth in some parts of the ground reduction. Adjacent to the south-west corner of the foundry, the heavily disturbed and damaged remains of a structure were encountered that may once have been an ancillary building as part of the foundry workings. This consisted of a north-west to south-east aligned brick wall (101) running parallel to the foundry, associated with a surface (102) constructed from a mix of regular and fire bricks (Plate 28). Though the bricks may have been re-used from elsewhere, rather than being in a primary context, they appeared to have been subjected to high temperatures and could potentially have been the working surface of an outbuilding which is shown in this location on the 1st edition Ordnance Survey map (Figure 6). Only approximately 1m² of the brickwork was seen and the full extent and form of this structure was not clear due to truncation however, so the purpose of the building remains unknown.

Other structures were also revealed in the course of the ground reduction, although these were mainly of modern origin and had been only recently demolished. A large rectangular structure built from regular insulation bricks (103) was found at the eastern end of the area and correlated with a wall found in evaluation Trench 1 (as context 1006). Only the upper part of it was seen here, but during the evaluation is was shown to be built on concrete footings and to truncate the earlier foundry features. It is not visible on maps until after the 1960's and it is known that new buildings were constructed on the south side of the foundry in the 1970's (EDP 2012). This structure is clearly one of these that survived until demolition in 2005 and appears on a number of modern photographs of the site.

A further modern building was slightly to the south of this structure adjacent to the boundary wall of the site, built of a mix of insulation bricks and concrete (105). This is mapped from the 1960's onwards, and was also clearly demolished in 2005.

Maximum dimensions: Length: 50m Width: 26m Depth: 0.80m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
100	Layer	Made ground of modern origin. Loose, mixed mid-brownish grey silty sand with brick rubble, concrete, plastic, iron, CBM etc., overlain by patchy tarmac and areas of concrete. Also contains services, bioturbation and patches of hydrocarbon rich soil.	Variable: 0.00-0.80m maximum
101	Structure	Brick structure, probable wall, full extent not seen. Regular smooth bricks 230mm x 110mm x unknown depth, pink cement mortar bonding.	0.70m+
102	Structure	Brick surface, full extent unknown. Regular brick and firebrick mix, 230mm x 110mm x 65mm, whitish grey mortar bonding. Heavily damaged.	0.65m+
103	Structure	Brick wall forming modern rectangular building, visible on surface. Machine made frogged and regular insulation bricks, 220mm x 110mm x 70mm, with pinkish orange sandy mortar.	0.00-0.70m+
104	Fill	Infill of structure (103). Soft and loose light orangey brown silty sand with frequent bricks, stone, iron slag, charcoal, glass, CBM.	0.00-0.70m+
105	Structure	Brick walling and concrete floor forming remains of small modern building. Machine made frogged and regular insulation bricks, 220mm x 110mm x 70mm, with pinkish orange sandy mortar.	0.00-0.50m+
106	Fill	Infill of structure (105). Loose dark grey black silty sand with abundant demolition rubble, plastic, polystyrene, metal pipes and cables.	0.00-0.50m+

4.1.2 Remediation Area A

A small area of contaminated ground, 15m by 7.5m in size, identified as 'Remediation Area A', was removed in the north-west part of the site. The footings of a modern structure built from breeze blocks and concrete (111) were revealed that truncated an earlier brick structure (109), abutted by a series of lenses of industrial waste material 0.50m in depth (113). This structure extended beyond the limits of excavation to the west and was directly in line with the route across the cast iron bridge, a locally listed structure (HER 7240) that once carried a railway track from the canal side wharf to the foundry building. By virtue of this position, it would have been very obstructive for a building to be present on the site when this railway was in use, from 1857 to at least 1885, and an earlier tramway was also thought to use this route from the 1820's (EDP 2012). The mapping shows that the main part of this is just outside the eastern end of a factory building here in the later 19th or 20th century, so it is therefore possible that this walling is actually the footing for an earlier building that predates the railway. It may also be the case that this was part of the supporting structural remains for the railway or tramway itself as it crossed the bridge. The brick sizes support these possible interpretations as they are indicative of a later 18th or early 19th century date for construction (pers. comm. Shona Robson-Glyde), as does the presence of the industrial waste material built up against the east side of the wall which implies that the building was here during the main period of activity at the foundry.

Maximum dimensions: Length: 15mWidth: 7.5mDepth: 1.30m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
107	Fill	Infill of structure (109). Loose dark blackish grey silty sand with abundant brick rubble, iron and charcoal. Truncated by modern building (111).	0.30-1.30m
108	Fill	Backfill of construction cut [110]. Loose dark greyish black sandy silt with abundant slag and charcoal.	1.00-1.30m
109	Structure	Brick structure of regular unfrogged bricks, 235mm x 110mm x 75mm, in stretcher bond with greyish white concrete mortar bonding. Truncated by modern building (111).	0.30-1.30m
110	Cut	Construction cut for foundations of (109).	1.00-1.30m
111	Structure	Breeze block and concrete modern structure truncating earlier building (109)	0.00-0.60m
112	Layer	Made ground through which [110] is cut. Loose mixed dark orange brown silty sand, with frequent charcoal and slag.	Unknown
113	Layer	Series of layers of industrial material abutting wall (109). Loose mixed lenses of light orange brown and mid blackish grey silty sand with frequent brick, charcoal and CBM pieces.	0.30-1.00m

4.1.3 Remediation Area B

Contaminated ground in 'Remediation Area B' was removed from a large triangular space north-east of the foundry building. Material was removed down to a depth of 1.20m. In the south-west corner of this excavation, a brick surface and wall were observed in section. The wall (122) was constructed of red bricks and appeared to be slightly curved. The brick surface (121) clearly abutted this wall and was bedded onto an orange sandy material (123). It appears that this was the surviving structural evidence of an ancillary building mapped in this location on the 1st edition Ordnance Survey map. The building was visible on maps here up until the 1950's and had a curving part on its western and eastern sides. Although it was not readily identifiable as to what the function of this building was, it is thought to have been built as part of a range of

possible fitting and blacksmith shops along this side of the building in the mid 19th century (EDP 2012). Additional elements of this were revealed in the drainage trench excavations on the northern side of the foundry (Section 4.1.5 below).

Further to the east of the area, an elongated rectangular brick structure was revealed, with what appeared to be entrance passage ways at either end (125). This was not removed during the remediation works here, so should still remain *in situ.* The building was 9.80m in length and 2.55m in width and over 0.70m in depth, with at least 10 courses of brickwork visible in English Garden Wall bond (Plate 27). It had been infilled with demolition rubble (126) containing railway tracks and frequent concrete blocks, some of such a size that they must have been moved by machine or perhaps a crane. The function of this structure was not clear, but its shape and size may indicate that it was used as an inspection pit or as a defined space for the running of machinery in a linear or wheel format. There is no building of this shape in this location on any of the historic mapping from the 1820s until the later 20th century, but rather it occupies the site of the gasometer, constructed here in the mid 19th century and demolished at some point between 1919 and 1938 (EDP 2012). A similar feature does appear to be mapped slightly to the south-west on a differing alignment however (Figure 6). Therefore, it is possible that this structure was a base element of the gasometer building and that it is the only bit to have survived the levelling in this part of the site in the earlier 20th century, or perhaps was a precursor to the similar elongated rectangular structure mapped on the 1st edition Ordnance Survey, just to the south-west. If this was the case it would have to pre-date the construction of the gasometer, but the brick sizes indicate that it is probably contemporary with the use of the gasometer, being dated to the mid 19th century. It is possible then that this structure may have been a sunken or underground area for piping or where shaft mechanisms were housed that operated the machinery of the gasometer itself.

Maximum dimensions: Length: 35mWidth: 23m Depth: 1.20m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
121	Structure	Brick surface inside building (122). Mixed brick and firebrick, some are 230mm x 110mm x 70mm, others 220mm x 100mm x 60mm, laid in bed of sand (123).	0.20-0.31m
122	Structure	Wall structure forming outside of ancillary building. Regular red bricks 230mm x 110mm x 70mm with whitish concrete mortar.	0.10-0.94m
123	Layer	Sandy layer forming bedding material for surface (121). Soft and loose mid orange sand with occasional pea grit.	0.31-0.37m
124	Layer	Made ground, cut by wall (122) and under surface (121). Soft and loose mixed dark blackish grey sandy silt with frequent bricks, charcoal, ash and clinker.	0.20-1.20m+
125	Structure	Rectangular brick structure effectively made of two halves, bricks 230mm x 110mm x 70mm in regular English Garden Wall bond with whitish concrete mortar.	0.20-0.90m+
126	Fill	Infill of structure (125). Demolition rubble in a loose dark brown silty sand matrix. Frequent bricks, concrete, iron and rail tracks.	0.20-0.90m+

4.1.4 Drainage trench to the south of the foundry

A trench for foul water drainage was excavated along the southern boundary of the site in two stages. This was around 50m in length, 2m in width, and up to 3m in depth, where natural alluvial clays were reached at 2.11m below the ground surface (119).

At the south-east end of the trench part of a brick floor surface was revealed (114) that appeared to be the internal working floor of an ancillary building (Plate 24). It showed evidence of slag melted onto the surface

and was sealed by a dark greyish black sandy ash deposit (116), as well as being bedded into an earlier black ashy layer below it (117). It is possible that this represents the remains of a building shown on the 1st edition Ordnance Survey map to have the railway track that ran around the back of the building entering into it at the south-east corner of the foundry (Figure 6).

The surface abutted the main boundary wall of the foundry complex (115), built of red bricks in English Garden Wall bond and surviving extant for at least 3m in height. Where exposed, the boundary wall was seen to have supporting buttresses keyed into the brickwork and to have been built upon large sandstone blocks sitting on the natural clays.

Due to the depth of the drainage excavations in this area it was not possible to enter the trench, but along its section a number of archaeological features were observed. This included a heavily damaged possible firebox feature built out of a mix of standard and fire bricks with iron fittings (120; Plate 25), which was abutted by the ashy layer (117) below the nearby brick floor surface (114). Brick samples from this feature were stamped 'Perrens and Harrison', a fire-brick and clay manufacturing company operating out of Lye in the mid to late 19th century (Billing 1855). A series of sandstone blocks with drilled holes were also found in amongst the made ground (100) in this area, similar to those recovered in evaluation Trench 1 (Plate 26). These were undoubtedly once part of the railway that ran around the foundry building and mentioned above. This was built using 632 stone blocks and 316 yards of rails and then removed sometime after 1885 (EDP 2012). No evidence of the rails once attached to the blocks was recovered.

Maximum dimensions: Length: 50mWidth: 2m Depth: 2.30m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
114	Structure	Brick floor surface, abutting wall (115). Brick and firebrick mix on side in stretcher bond, some half or broken bricks, maximum size 230mm x 110mm x 65mm. No bonding material present.	1.00-1.11m
115	Structure	Brick boundary wall of foundry site, upstanding in many places. Regular bricks in English Garden Wall bond, 220mm x 110mm x 70mm with whiteish cement mortar. Foundations sit on sandstone blocks.	0.00-3.00m
116	Layer	Burnt rake-out layer overlying floor (114). Loose dark grey black silty candy ash material with abundant charcoal and slag.	0.88-1.00m
117	Layer	Burnt layer into which floor surface (114) is bedded into. Loose dark grey black silty sandy ashy material.	1.11-1.31m
118	Layer	Mixed made ground under layer (117) and abutting wall (115). Loose mixed mid orangey grey sandy rubble with frequent bricks, ash, charcoal and clinker.	1.31-2.11m
119	Natural	Natural alluvial clays. Soft mid brownish grey sandy clay.	2.11m+
120	Structure	Brick structure seen in section, possible firebox, comprised of mixed firebricks and iron. Max brick size 230mm x 110mm x 65mm. Some are 235mm x 90mm x 65mm.	0.50-1.15m

4.1.5 Drainage trenches to the north of the foundry

Two trenches for foul water drainage and storm run off were excavated to the north of the foundry. Both trenches were around 108m in length, between 1.6m and 2m in width and up to 1.4 m in depth. They ran as a pair in parallel with the north side of the foundry building (orientated north-west to south-east), before merging into one trench and turning approximately 90º (orientated north-east to south-west), against the newly constructed annex building of the medical centre.

The foul water drainage required additional spur trenches (10 in total), originating against each building at the current ground surface and inclined down towards the trench base. Drainpipe connections from both buildings to the storm pipe did not require any further excavation.

Modern backfill (127) of the previously excavated 'Remediation Area B' was initially encountered at the south-east end of the trench, along with a brick wall (122) and associated internal brick floor surface (121) that had been recorded during earlier work (Section 4.1.3 above).

During excavation it was discovered that a north-west to south-east orientated section of wall (128) existed in the middle of both trenches (seen as heavily disturbed brickwork on the surface) and only truncated when foul pipe spurs to the foundry building were excavated. This wall was clearly a continuation of structure (122) and marked the edge of the ancillary building mapped in this location from the 1st edition Ordnance Survey map until the 1950s (Figure 6). The western wall of the structure, which, given its location, was expected to be truncated by the storm trench, was not seen during excavation. It is probable that this had been removed at an earlier date as a lot of modern concrete and disturbance was visible in this area.

In the internal and external area of the building marked by wall (128) a mix of made-ground layers of industrial material were observed to have been cut through by the structure. This included a rubble-rich ashy deposit (129), a sandy levelling layer (130) and a deposit of black ash and clinker (131). The observable part of the internal brick floor surface (121) seen here was found above these deposits, suggesting that the building was later in date than the initial industrial workings at the new foundry. This correlates well with the map evidence. No other structural features or archaeological deposits were seen in the drainage trenches on this side of the building.

Maximum dimensions: Length: 108m Width: 2m Depth: 1.40m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
127	Fill	Loose blackish brown sandy clay with brick, concrete and hardcore. Modern, imported material backfilling previously dug Remediation Area B.	0.00m+
128	Structure	Wall foundation for ancillary building on northern side of foundry, same as structure (122). Seven courses visible, bricks 234mm x 110mm x 71mm in size.	0.10-0.67m
129	Layer	Moderately compact dark brownish black sandy silt with frequent rubble, clinker and ash. Accumulation of material used as made-ground, possibly cut by structure (128). Same layer as (124).	0.20-0.70m
130	Layer	Soft orangey red sand layer deposited across area as levelling beneath made ground (129). Seen on both sides of wall (129).	0.40-0.90m
131	Layer	Moderately compact black ash and clinker layer with CBM rubble, found below layer (130). Probably several lenses of similar material dumped across the area.	0.55-0.95m

4.2 Brick analysis, by Dennis Williams

The sample bricks from structure 109 were both mould made, with highly fired blue-grey fabrics, and bore traces of a good quality lime mortar. A single red brick from wall foundation 128 was also moulded, and had lime mortar adhering. The dimensions (see Table below) and fabrics of these bricks date them to 1784-1850, the period during which the Brick Tax was imposed.

The remaining samples were all of refractory brick, a material widely produced in Stourbridge during the 19th century, using light-coloured fireclays. A large fragment taken from floor surface 114 tapered slightly in width, but was probably intended as a rectangular brick. In the absence of a maker's stamp, this could have a

broad 19th century date range. The two firebricks from structure 120 (probably a firebox) were tapered, for use in an arched or round structure. One, which was partly vitrified at its wide end, bore the maker's stamp of 'Perrens & Harrison, Stourbridge', a company known to have been trading at Lye in the second half of the 19th century (Billings 1855).

Context	Dimensions (inches)		
	Length	Width	Depth
109	9	4¼	3
109	9	4¼	3
114	Incomplete	4¼	2¾
120	9	3½ - 4½	2½
120	8 (reduced by vitrification at one end)	3½ - 4¼	2½
128	9	4¼	3

Dimensions of brick samples

5 Synthesis

5.1 Natural deposits

The natural clays revealed during the deeper excavation of the drainage trench on the south side of the foundry are likely to be resultant from floodplain sedimentation associated with the nearby River Stour. This probably represents a series of flooding events of unknown date that have occurred across the area and these have little or low potential for the recovery of palaeoenvironmental remains. In this watching brief, the alluvial deposit was observed at such a depth it could not be safely accessed for sampling and therefore no attempt was made.

5.2 Post-medieval/modern

All of the structural remains and the associated deposits found across the site during the watching-brief can be attributed to the post-medieval and modern periods. The majority of the features appeared to relate to use and development of the post 1820 Grade II* listed New Foundry in various forms, from its initial conception to modern re-use of the building. The exception to this may be the structure revealed during work in 'Remediation Area A', which was potentially of late 18th century or early 19th century construction.

Where surviving, the remains were substantial and in a good state of preservation and the majority can be correlated with buildings indicated on the historic map evidence. Some walls were directly visible on the surface of the site. Disturbance, levelling and modern truncation had damaged a number of features, but most were still identifiable and *in situ,* excepting the stone blocks that were part of the robbed out railway that once ran around the foundry. The first documented use of railway transport on the site is from 1857 and it disappears from cartographic sources between 1885 and 1903, suggesting it was removed during this period (EDP 2012). Part of this railway had been observed in Trench 1 of the evaluation, but much of the archaeology encountered during the earlier trenching, particularly that undertaken on the south side of the building, remained undisturbed during the watching-brief work and should have survived the current redevelopment of the site.

Whilst the foundry building itself is of national significance, the associated archaeology uncovered here is significant on a more local level. Although a wide area of the site was covered, there were only limited observations possible here because of the nature of the groundworks; in some cases this was restricted in depth and in others in width. When considered in relation to the cartographic and documentary evidence

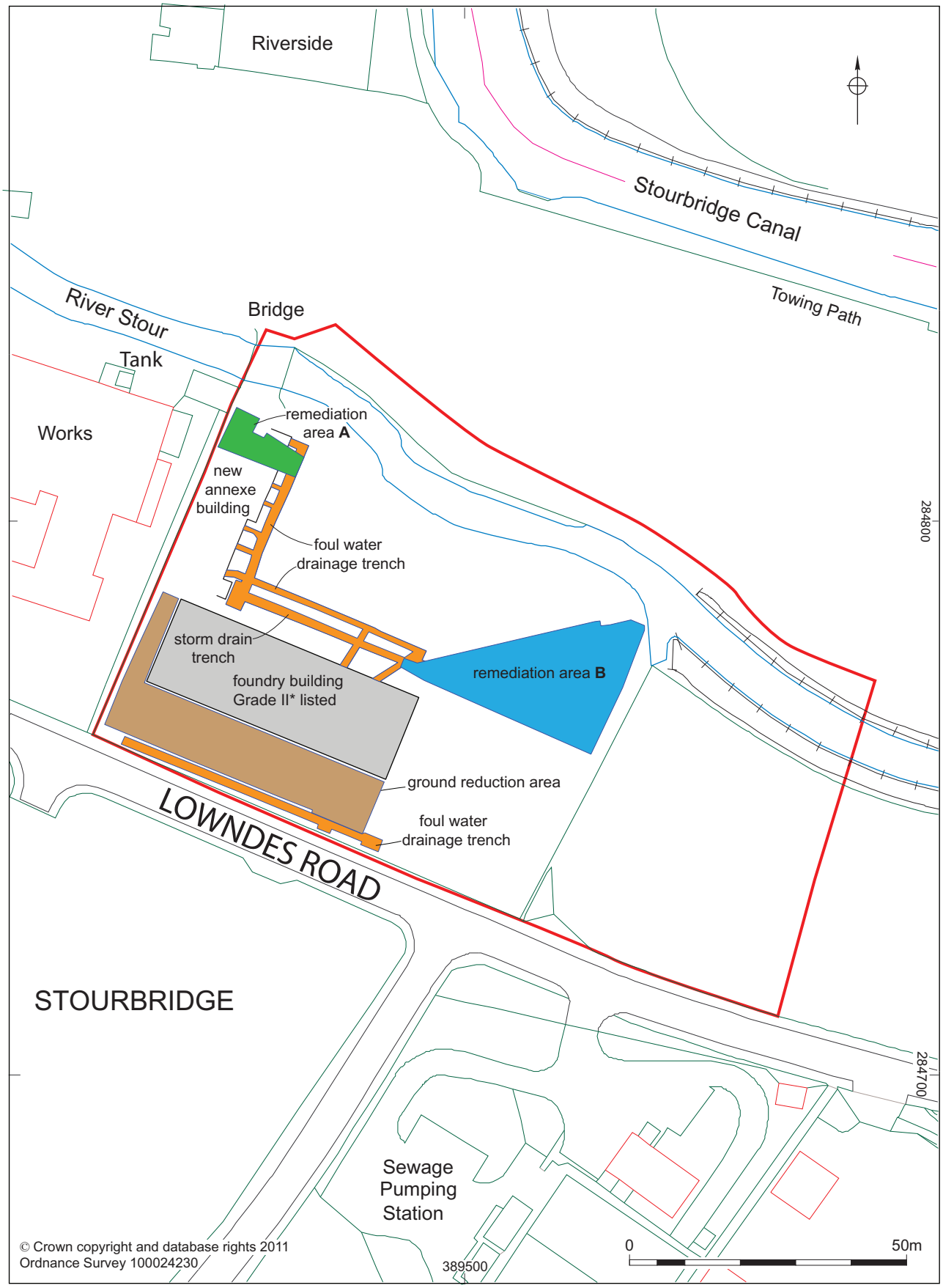
available, the watching-brief has not revealed significant new information about the use of the site. It has however, demonstrated the level of survival of structures around the foundry and facilitated an improved understanding of the date and type of the buildings associated with the foundry and the wider industrial complex.

6 Additional Bibliography

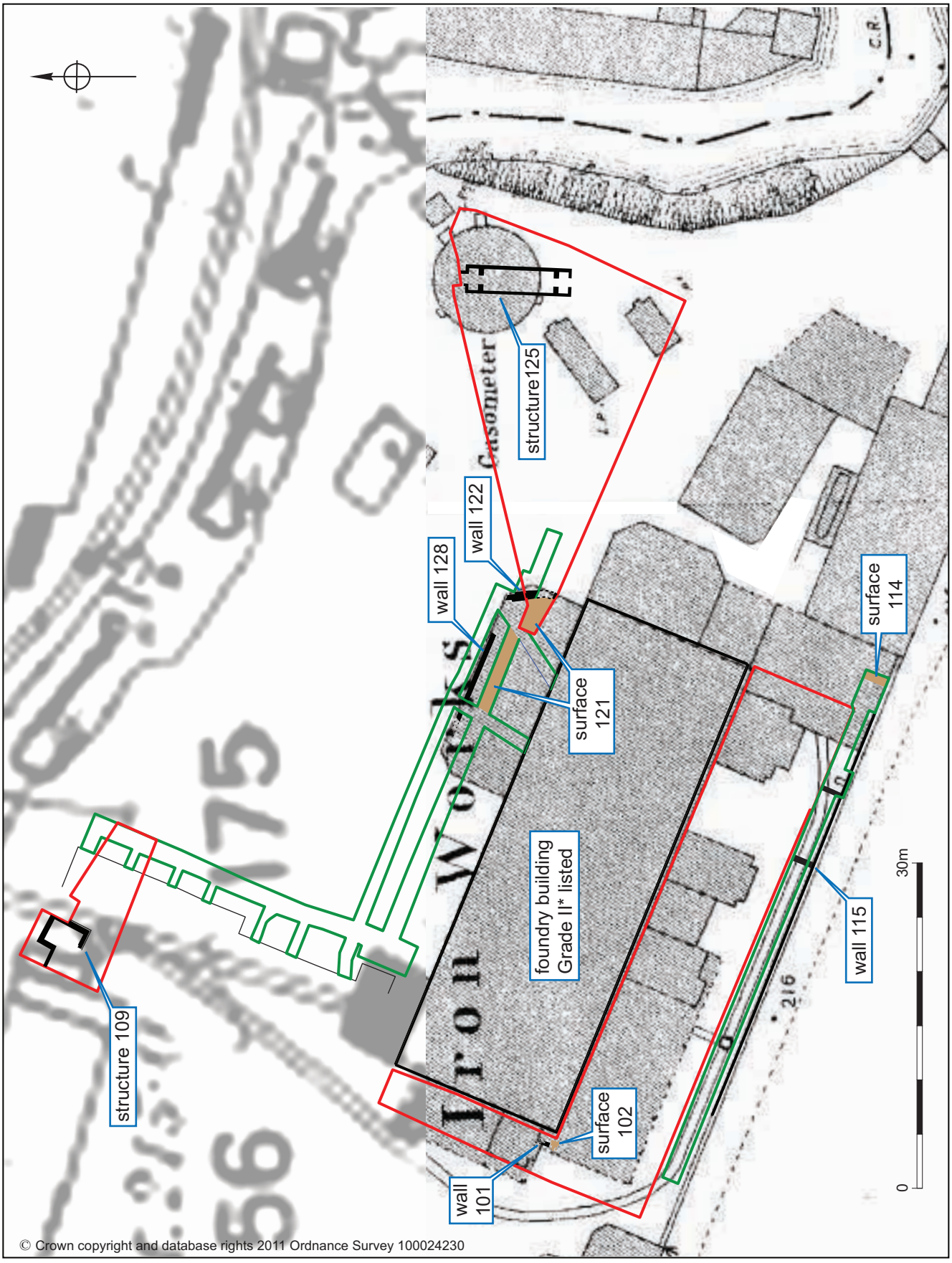
Billing, M, 1855 *Directory and gazetteer of the County of Worcester,* Billing

WA 2012d *Proposal for an archaeological watching brief at Lion Medical Centre, Lowndes Road, Stourbridge, West Midlands*, Worcestershire Archaeology, Worcestershire County Council, unpublished document dated 24 October 2012, **P3980**

Figures



Trench location plan *Figure 5*



Location of features observed over 1st edition OS map *Figure 6*

Plates

Plate 24: Brick floor surface 114 found in the drainage trench on the south side of the foundry

Plate 25: Possible firebox feature 120 in the drainage trench on the south side of the foundry

Plate 26: Sandstone block for railway found in made ground

Plate 27: Rectangular structure 125 found in 'Remediation Area B'

Plate 28: Wall 101 and surface 102