Stocksbridge Steel Works, Stocksbridge, Sheffield, South Yorkshire

Archaeological watching brief

Remains of a furnace within the watching brief Area A, Stocksbridge Steel Works, looking north-west.

ARS Ltd Report 2014/125
October 2014
OASIS ID: archaeol5 – 192802

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Archaeological Research Services Ltd

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EXECUTIVE SUMMARY

Archaeological Research Services Ltd was commissioned by Henry Boot Construction Ltd to undertake an archaeological watching brief between April and October 2014 at Stocksbridge Steel Works, Stocksbridge, Sheffield, South Yorkshire, as part of a planning condition. The watching brief related to the ground-works following the demolition of an amalgamated warehouse which was the subject of a building recording, as well as additional ground-work monitoring and recording of two further areas within the proposed development site. The results of the archaeological watching brief related to the ground-works at Stocksbridge Steel Works revealed a series of structural features and deposits. A summary of the results is provided below.

Area A

The excavation revealed several archaeological features whose locations were sub-divided into seven areas. Division A-1 exposed the remains of a former Second World War Air Raid Shelter composed of a sandstone vaulted chamber and a brick shaft with later stud and brick partitions which might have been used as a store or similar function subsequent to its original purpose. Divisions A-2 and A-5 contained substantial structural remains which appear to be part of a late 19th century large stone-built range that might have accommodated railway machinery. This large range would have been demolished in the 1920s prior to the construction of a large warehouse (the recently demolished Building A) although most of the former stone masonry would have been utilised as foundation for the warehouse. Division A-3 contained the remains of a possible brick-built furnace although this was heavily truncated by the construction of underground pits. These remains might have originally consisted of an apsidal chamber with an outer flue that might have been part of a steel furnace such as a regenerative or reverberatory type fuelled with gas. Division A-4 exposed the remains of a chimney flue and an associated brick structure with an underground chamber. The pertinent chimney appears depicted on the Ordnance Survey maps issued in 1893, 1905 and 1931. Division A-6 revealed a substantial brick structure which appears to be the basal remains of a well-preserved furnace with several ash pits and linking channels. The furnace abutted a sandstone wall which appeared to have been the remains of a late 19th century large stone-built range located within the area recently occupied by Building A. Division A-7 uncovered a large section of the culverted Porter or Little Don River which was redirected and culverted through the works in the late 19th century.

Area B

Area B was located at the junction between Hunshelf Road and Ford Lane where a bridge was originally positioned over the Porter or Little Don River prior to its diversion in the late 19th century. A series of shallow service trenches were excavated although no significant archaeological remains were revealed except for the remnants of an earlier road surface composed of sandstone paving setts. However, a manhole positioned to the east of Hunshelf Road and within an oil tank enclosure was inspected during the watching brief which contains large water pipes running across and beyond the road junction. The manhole consists of a brick-built structure abutting a stone-built vaulted chamber which appears to be the remains of the former bridge rather than being an underground continuous culverted duct. The putative bridge face bears a high resemblance with an artist's impression of the bridge produced in c.1807.

Area C

Area C did not identified any significant archaeological features, deposits or artefacts as a layer of granular and cohesive made ground was found throughout the pertinent area with an overall thickness of greater than 3 metres.

1 INTRODUCTION

1.1 Scope of work

1.1.1 A planning application (planning reference 11/02480/FUL and 09/02819/FUL) for the re-development of Stocksbridge Steel Works, Stocksbridge, Sheffield, South Yorkshire (NGR: SK 27223 98534, Fig. 1) has been granted subject to conditions specified by South Yorkshire Archaeology Service (SYAS). These conditions ensure that arrangements are made to record, or preserve *in situ*, any significant archaeological remains present on the development site, as mitigation.

1.1.2 The archaeological context of the site and the significance of the surviving heritage assets have been considered in a series of desk-based studies and archaeological trial-trenching evaluation (May & Jessop 2004; Herring 2008, Flitcroft 2011) as highlighted in the Written Scheme of Investigation (WSI) prepared by CgMs Consulting which is included in Appendix II. The aforementioned studies and archaeological fieldwork formed part of the planning conditions. Further revised study concerned with the history of the site is incorporated within an archaeological building recording report submitted to SYAS as part of the planning condition under consideration here (Mora-Ottomano 2014). These documents should, therefore, be used in conjunction with this report. An additional archaeological watching brief was undertaken during the ground-works related to the demolition of the recorded buildings and two further areas within the re-development site as specified in the WSI.

1.1.3 This report deals with the archaeological watching brief which has been carried out under the *National Planning Policy Framework (NPPF)* (DCLG 2012). The NPPF sets out the Government's planning policies for England and how these are expected to be applied. It sets out the Government's requirements for the planning system only to the extent that it is relevant, proportionate and necessary to do so. The purpose of the NPPF is to contribute to the achievement of *sustainable development*, which includes "…*contributing to, protecting and enhancing our natural, built and historic environment*…" (DCLG 2012, 30).

1.2 Location, land use and geology

1.2.1 The site is located to the north of Stocksbridge in South Yorkshire, 15km north-west of Sheffield. The site is centred on National Grid Reference SK 275 984 and forms part of the former Samuel Fox & Company Ltd steelworks complex. The site is in an area where mining activity has taken place. There are many small coalpits and sandstone quarries in the area marked on the Ordnance Survey maps and it is known from the Coal Authority that coal seams have been worked at shallow depths.

1.2.2 The site is located on a long narrow site in the floor of the Little Don or Porter River which by 1880 had been culverted, and diverted, through the site to accommodate the expanding Stocksbridge Works.

1.2.3 The geology of the site is Upper Carboniferous Lower Coal Measures underlying alluvium (British Geological Survey). Made ground is known to be present on some parts of the site associated with the levelling of the valley bottom, the diversion of the river and

previous development. The southern part of the site rises up the lower slopes of the southern valley side to Manchester Road.

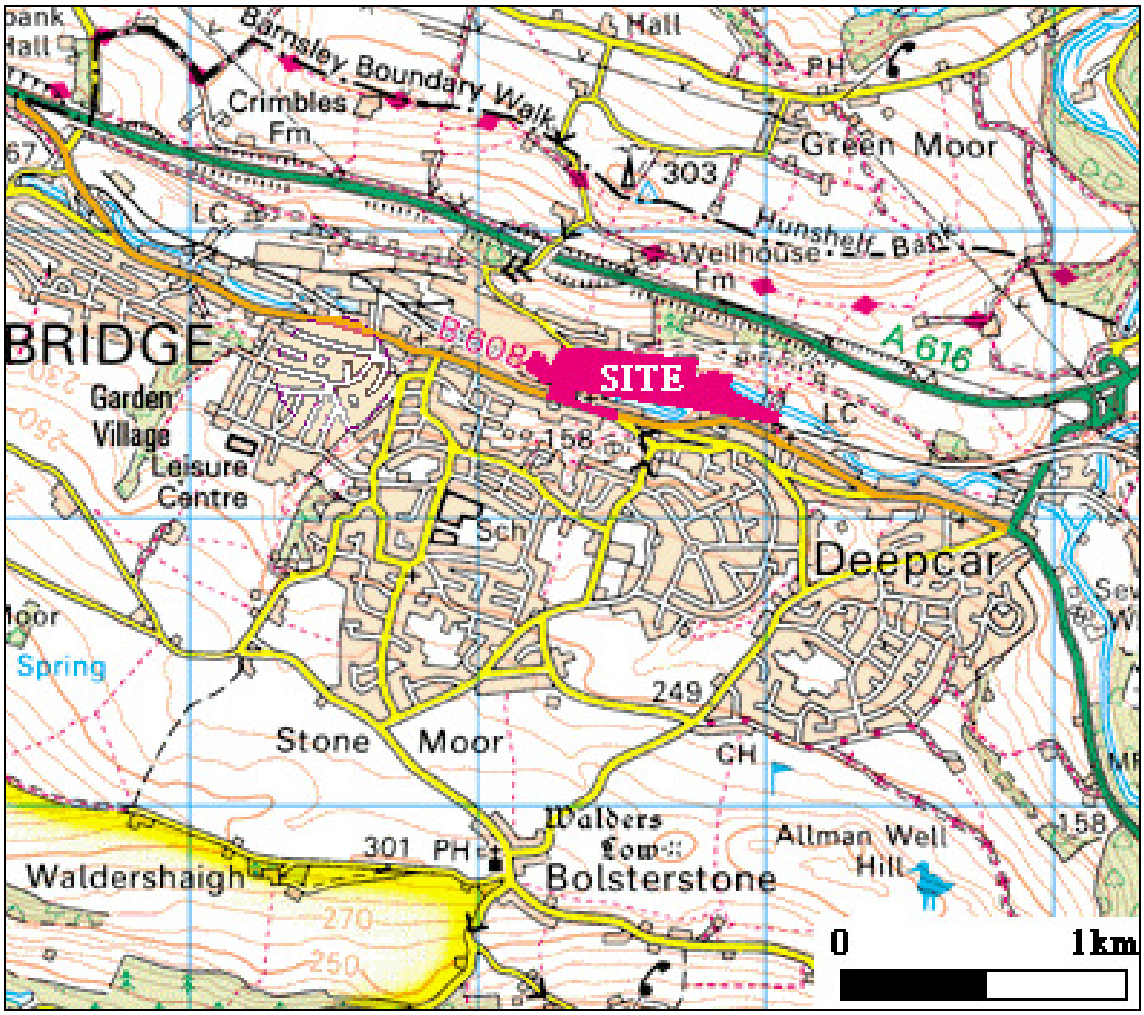

Figure 1: General site location.
(Ordnance Survey Data © Crown copyright. All rights reserved. Licence No. 100045420)

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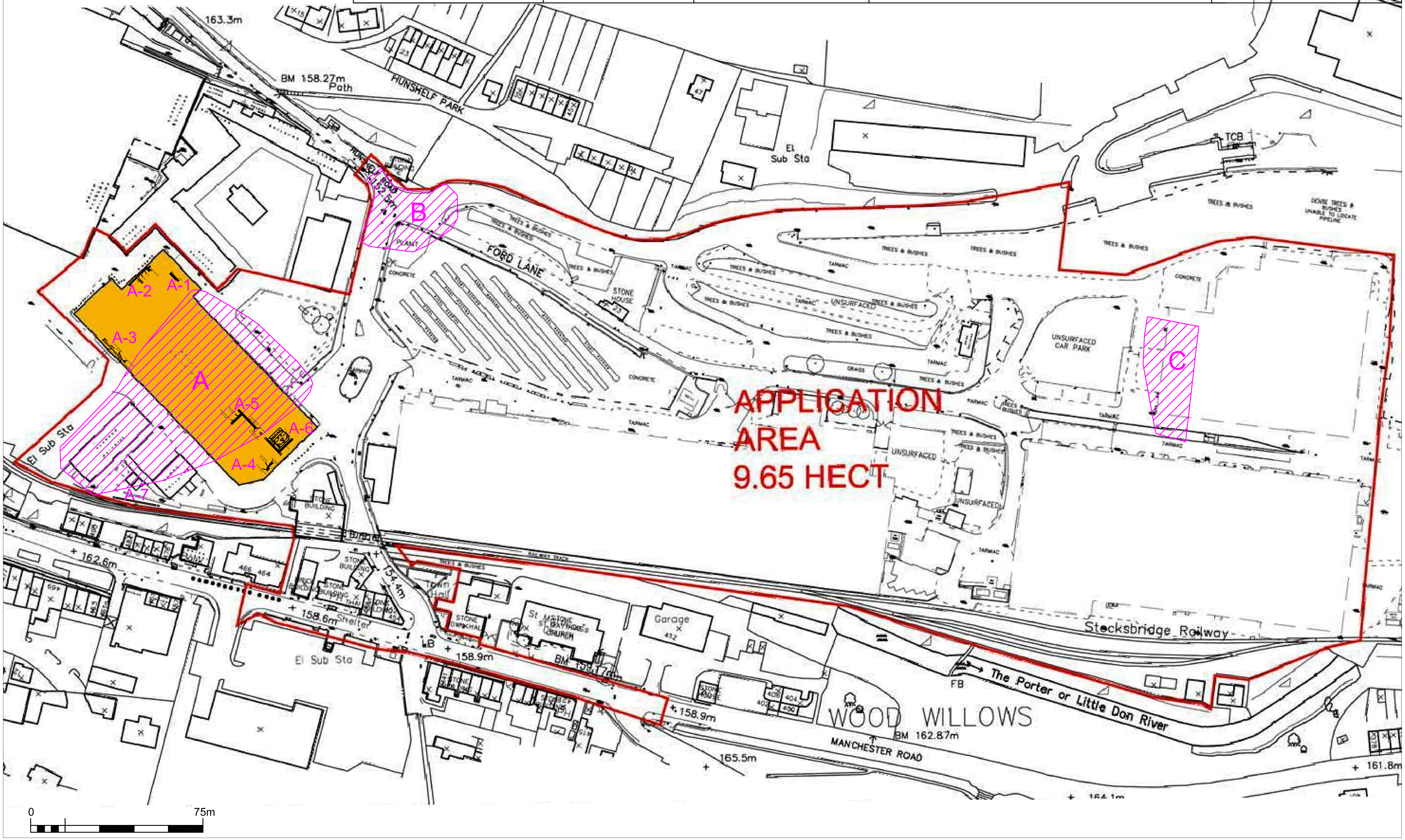
Site Code: STS'14 watching brief
Drawing Ref:
Date: 26-08-2014
Drawn: AMO
Scale: 1:1500@A3

Figure 2:
Plan of the site showing the watching brief areas and buildings recorded prior to their demolition

Key:
Watching brief areas
A-1 Additional sub-divisions
Area of building recording



2 AIMS AND OBJECTIVES

2.1 The overall aim of the programme of archaeological works is to identify and make a record of any significant archaeological evidence affected by the development, and advance understanding of its significance in line with the provisions of the NPPF and the requirements of the planning condition. Full account of specific objectives is provided within the WSI (Appendix II).

3 METHODOLOGY

3.1 A detailed project design (WSI) was prepared by CgMs Consulting which was subsequently approved by SYAS (Appendix II) which outlines the methodology employed. The archaeological watching brief was carried out by Alvaro Mora-Ottomano (BA Hons, MSc) of ARS Ltd who is a corporate member of the Institute for Archaeologists (AIfA 5297) and the Institute of Historic Building Conservation (2583AFF).

3.2 All aspects of the archaeological watching brief followed the standards outlined in the Institute for Archaeologists' *Standard and Guidance for an Archaeological Watching Brief* (IfA 2013a) and the *Code of Conduct* (IfA 2013b).

3.3 A risk assessment was undertaken before commencement of the work and health and safety regulations were adhered to at all times.

4 HISTORICAL BACKGROUND

4.1 The historical background of Stocksbridge Steel Works has been considered in a series of desk-based studies and archaeological trial-trenching evaluation as highlighted in the WSI prepared by CgMs Consulting (Appendix II). The aforementioned studies and archaeological fieldwork formed part of the planning conditions and thus should be used in conjunction with this report. The assessment includes a concise historical and archaeological background of the site, supplemented by cartographic and pictographic records. Further revised study concerned with the history of the site is incorporated within an archaeological building recording report submitted to SYAS as part of the planning condition concerned here (Mora-Ottomano 2014). These documents should thus be used in conjunction with this report.

5 RESULTS

The watching brief was undertaken in three areas within the Stocksbridge Steel Works site whose location is shown on plan (Fig. 2). The results are divided into the three main areas including additional sections investigated beyond the established boundaries. The archaeological records are included in Appendix I.

5.1 Area A

5.1.1 This area was located within the footprint of a warehouse, composed of three amalgamated buildings, which was the subject of a building recording prior to their

demolition as part of the planning condition (Mora-Ottomano 2014). However, the watching brief extended beyond the boundary of the initial area specified in the WSI as the entire buildings' footprint projected beyond the established boundary which was the subject of a systematic demolition. Ground-work excavations associated with the demolition entailed a maximum of two metres in depth throughout the interior of the buildings. The excavation revealed several archaeological features whose locations were sub-divided into six areas (A-1 to A-6). Further archaeological monitoring and recording was undertaken beyond the southern side of the proposed watching brief boundary as archaeological remains were uncovered along the railway line to the south-east of Area A (A-7). The location of the archaeological features was plotted on plans (Drawings 1 – 3).

Division A-1

5.1.2 Following the demolition of the standing structure, the stratigraphic sequence encountered during the watching brief consisted of a concrete floor surface, with an overall thickness of 150mm. Directly beneath this concrete floor there was a thick layer of made-ground used as bedding for the concrete floor. These layers were present across the entirety of the demolished amalgamated warehouse structure representing the overburden. The interior contained a large number of underground concrete pits which were identified during the building recording.

5.1.3 The building recording identified an Air Raid Shelter towards the north-western side of the external wall of the larger structure (Building A) of the amalgamated warehouse. This was not accessed due to safety restrictions; however the demolition ground-works exposed the shelter along the wall referred to which was composed of a sandstone vaulted chamber (101) and a brick shaft (102) (Fig. 3). The brick shaft contained the observed vertical access to the shelter through an attached metal ladder. The south-western wall of the shelter was partially dismantled. This enabled viewing the construction design and the interior although access to the chamber was not permitted (Figs 4 and 5). The chamber was constructed with a double skin of regular sandstone blocks creating a segmental arched vault which extended towards the north-east and may even link with the adjacent building of the current TATA Works. There are later stud and brick partitions inside the chamber indicating that the underground chamber might have been used as a store or similar function subsequent to its original purpose. Although health and safety restrictions hindered the study of this feature, its location and approximate location were established. The uppermost level of the arched *extrado* was positioned below the concrete floor. The highest point of the chamber measured 2 metres between the floor and the apex of the vault.

5.1.4 The Air Raid Shelter would have been built during the Second World War and thus its construction might have had an effect on the masonry of the building above which was erected in the mid 1920s. It is worth noting that the area that would have been affected by such a construction contained an above-ground extension as indicated by the 1959 Ordnance Survey map.

Figure 3: General view of the Air Raid Shelter, looking north-east (scale 1m).

Figure 4: Vaulted stone chamber (101) and brick shaft (102), looking north-east (scale 1m).

Figure 5: Detail of the interior, looking north-east.

Division A-2

5.1.5 Along the north-western wall of the demolished Building A, a long section of sandstone wall (103) with at least a return, although truncated, towards the south-east was identified immediately beneath the former masonry (Figs 6 – 9). This wall also contains two openings (104) and (105) which appear to be later insertions that might have acted as chutes. The openings have standard single bullnose brick jambs, RSJ lintels and splayed metal sheeting sills (Fig. 10). There is also a brick return wall which extended towards the south-east although mostly truncated. These features were identified immediately beneath the concrete floor of the building above.

5.1.6 The truncated south-eastern return of sandstone wall (103) enabled its width (900mm) and a height of approximately 2 metres to be established, although its base extended to a lower level. The construction consisted of regular hewn sandstone blocks built to courses and bonded with lime mortar. These remains appear to be part of a late 19th century large stone-built range located within the area recently occupied by Building A which might have accommodated railway machinery within the ground floor as indicated by pictographic records (Mora-Ottomano 2014, 12, 20 and 21). This large range would have been demolished in the 1920s prior to the construction of Building A, although most of the former substantial stone masonry would have been utilised as foundations for the later brick structure of Building A.

Figure 6: General view of sandstone wall (103) with brick chutes (104) and (105), looking west (scale 1m).

Figure 7: Sandstone wall (103) with truncated brick return (106), looking west (scale 1m).

Figure 8: General view of the chutes, looking north-west (scale 2m).

Figure 9: Truncated northern return of sandstone wall (103), looking north-west (scale 1m).

Figure 10: Detail of chute, looking north-west (scale 1m).

Division A-3

5.1.7 Directly underneath the floor surface and towards the north-western side of the external wall of the recently demolished Building C, the remains of a possible brick-built furnace was uncovered (Fig. 11). The remains were heavily truncated by the construction of underground pits that were documented within the previous building recording. Despite its truncation, the large majority of the structure appears to run beyond the area of excavation and beneath a current road of the Works which is proposed to be retained.

5.1.8 The structure consists of a long (although interrupted by a later truncation towards the central area of the extant remains) vaulted flue (107) built with fire yellow bricks. The flue is mostly truncated, however it curved southwards underneath the excavated area where its construction was almost undisturbed. The flue measured approximately 1.40 metres in height and 800mm in width. The construction of the flue consisted of two veneers of bricks with twelve courses up to the springing course of an integral semi-circular brick vault. It also contained a brick floor (110) which consisted of a single brick veneer laid in bed. The brickwork was composed of standards fire clay yellow bricks (9" x 4½" x 3") bonded with orangey lime mortar, which has suffered thermal discolouration, and laid in English bond (Figs 12 and 13). The area best preserved, containing the almost intact arched vault with opposed brick walls creating the flue channel, was backfilled with secondary deposits (108) and (109), composed mainly of rubble and demolition debris (Fig. 14).

5.1.9 A projected line of the curved parallel brick walls towards the south-eastern edge of the structure, may lead to an apsidal shape which would indicate that there is an internal chamber to the south-west underneath the adjacent road. This putative chamber surrounded

by an outer flue might have been part of a steel furnace such as a regenerative or reverberatory type fuelled with gas. It is worth noting the thermal alteration around the flue caused by the high temperature reached during the pyro-technological process undertaken by the former furnace.

5.1.10 A short section of a brick wall (111) was also recognised abutting the south-eastern edge of the furnace. This wall was identified 1.30 metres below the concrete floor level and was composed of six courses of standard orangey bricks laid in English bond (Fig. 15). The base of the brickwork represented a former clay floor surface (112) blackened by fuel such as coal or coke. However, this structure was considerably truncated by the aforementioned underground pits and thus its original character remains unknown although it is likely that it was associated with the possible furnace.

Figure 11: Location of furnace in Division A-3, looking south (scale 1m).

Figure 12: General view of furnace, looking south-west (scale 1m).

Figure 13: Vaulted flue (107) and floor (110), looking south-east (scale 1m).

Figure 14: Detail of vaulted flue with backfills (108) and (109), looking south (scale 1m).

Figure 15: Vaulted flue (107) abutted by a later brick wall (111), looking south (scale 1m).

Division A-4

5.1.11 The remains of a chimney flue and associated brick structure were partially uncovered in close proximity and parallel to the south-eastern external wall of demolished Building B (Fig. 16). These structural remains appear to have been substantially truncated by a large pit which was positioned inside Building B. The pertinent chimney appears depicted on the Ordnance Survey maps issued in 1893, 1905 and 1931. The chimney flue consisted of a double veneer of standard orangey bricks bonded with lime mortar and contained a semi-circular arched vault. It measured 1.50 metres in height and 750mm in width. The arch's *extrado* was found at 500mm below the concrete floor of the demolished Building B which overlay a mid brown silty clay made-ground layer over the brick arch. The surviving flue was backfilled by a later demolition deposit (116) although the basal section contained primary residual ashy deposits (114) and (115) (Figs 17 – 20).

5.1.12 The brickwork (117) parallel to the external wall of Building B was found at 1 metre below the present concrete floor level and consisted of a series of projecting standard brick courses creating a vaulted structure supported by a large RSJ beam. Nine courses were identified yielded an approximate height of 700mm (Fig. 21). A void beneath the beam was perceived although it was mostly backfilled with demolition and rubble material (Fig. 22). The function of this underground chamber was not established due to the limited preservation and exposure; however it is likely that it might have been associated to the former late 19th century chimney.

Figure 16: General view of Division A-4 with the remains of a chimney flue (arrow), looking east.

Figure 17: Chimney flue (113) abutted by a later brick-built structure (117), looking east (scale 1m).

Figure 18: Arched chimney flue (113), looking east (scale 1m).

Figure 19: Detail of segmental arch with demolition backfill (116), looking east (scale 300mm).

Figure 20: Detail of the base with fills (114) and (115), looking east (scale 300mm).

Figure 21: Brick-built structure (117) supported by a large RSJ beam, looking south-east (scale 1m).

Figure 22: Detail of the RSJ beam with a void beneath (arrow), looking south-east (scale 1m).

Division A-5

5.1.13 A long section of a substantial sandstone wall (119) aligned north-west to south-east was found immediately beneath the concrete floor of the recently demolished buildings with a later partition (118) wall projecting towards the south-west (Fig. 23). The main wall was partially truncated by a large concrete base of an RSJ stanchion which supported the roof structure of the adjoining Buildings A and B (Fig. 24). The construction of this wall (Figs 25 and 26) bore high resemblance with the stone wall (103) identified in Division A-2 and might have also been the remains of a late 19th century large stone-built range located within the area recently occupied by Building A as indicated by pictographic records (Mora-Ottomano 2014, 12, 20 and 21).

5.1.14 The later partition wall (118) was also built with sandstone blocks similar to the masonry of the main structure (119). This will not be affected by the development as it was identified at a depth of approximately 2 metres below the demolished concrete floor where the current ground-works stops (Fig. 27).

Figure 23: General view of sandstone wall (119) with a later partition wall (118), looking north-east (scale 1m).

Figure 24: Detail of partition wall (118), looking north-west (scale 1m).

Figure 25: Wall (119) truncated by a concrete base of an RSJ stanchion (arrow), looking north (scale 1m).

Figure 26: Detailed view of wall (119), looking north (scale 1m).

Figure 27: Sectional view of wall (119), looking north-west (scale 30mmm).

Division A-6

5.1.15 Towards the south-eastern end of the recently demolished Building A, a substantial brick structure was uncovered at 2 metres below the present ground level of the combined warehouse structure, although this area was recently occupied by a large underground pit with an approximate depth of 1 metre. The brick structure uncovered appears to be the basal remains of a well-preserved furnace (121) with several ash pits and linking channels (Figs 28 and 29). The majority of the remains uncovered represented a platform from where former structures, such as a chimney stack, would have projected upright as indicated by clear and continuous scars within the brickwork. The ash pits and linking channel were mostly backfilled with demolition rubble although a railway joist that might have originally been utilised as a structural element of the furnace was identified within the pit channel (Fig. 30). Nevertheless, one pit was investigated down to its brick floor at 500mm deep. The excavation revealed that, towards the basal area of the pit, a primary ashy thin deposit (122) was still present (Figs 31 – 33). The excavation also established that the structural remains consisted of six courses of machine-made orangey bricks with one frogged bed (9½" x 4½" x 3") and bonded with cement.

5.1.16 The surface of the basal area of a former furnace was found mostly covered with large steel plates some of which contained small circular holes (Fig. 34). Of note were several steel bars with securing pins which might have been inserted through the holes within the plates, although the bars were much longer than the pits (Figs 35 – 37). Perhaps the plates might have been positioned higher as part of a cellar floor supported by metal joists as rails were present amongst the rubble, but the present platform appears to have been a surface. Although parallel pits are elements of crucible furnaces, these shallow and often even opposed types were not of a crucible furnace but possibly of another type of steel furnace.

5.1.17 The furnace (121) abutted a sandstone wall (120) to the south-west which although hardly exposed, it represented the continuation of wall (119) identified within the adjacent Division A-5 which appeared to have been the remains of a late 19th century large stone-built range located within the area recently occupied by Building A as indicated by pictographic records. This wall also returns towards the north-east at a right angle although it might have also carried on straight to the south-east as ephemeral remains of it were also discerned within the limit of excavation (Figs 38 and 39).

Figure 28: General view of the remains of furnace (121), looking west (scale 1m).

Figure 29: Basal section of former furnace (121), looking north-west (scale 2 x 1m).

Figure 30: Railway steel joist inside the ash pit channel, looking south (scale 1m).

Figure 31: Ash pit channel, looking south-east (scale 1m).

Figure 32: Detail of ash pit and primary deposit (122), looking south-east (scale 300mm).

Figure 33: Section through primary deposit (122), looking south-east (scale 300mm).

Figure 34: General view of dismantled steel sheets, looking east.

Figure 35: Steel bars with square washer and sliding pin.

Figure 36: Detailed view of the sliding pin.

Figure 37: Sample bricks from furnace (122) and miscellaneous artefacts from the ash pits (scale 300mm).

Figure 38: Wall (120), looking east (scale 1m).

Figure 39: Wall (120) extending beyond the south-eastern limit of excavation, looking south-east (scale 1m).

Division A-7

5.1.18 Along the railway line that forms part of the south-western boundary of the proposed development site a long service trench exposed the uppermost masonry of the culverted Porter or Little Don River at approximately 1 metre below the ground level. The river was redirected and culverted through the works in the late 19th century. The masonry consisted of regular sandstone blocks bonded with lime mortar and a total of 17 metres were exposed along the trench (Figs 40 and 41). The structure is intended to be retained as the river still runs through it.

Figure 40: General view of the culvert, looking south-east (scale 1m).

Figure 41: Detail of the culvert's masonry, looking north (scale 1m).

5.2 Area B

5.2.1 This area was located at the junction between Hunshelf Road and Ford Lane where a bridge was originally positioned over the Porter or Little Don River prior to its diversion in the late 19th century as indicated by cartographic records supplied in previous desk-based assessments (May & Jessop 2004; Herring 2008, Flitcroft 2011). Indeed, the Stocksbridge Works Plan issued in 1848 illustrates the original meandering course of the river with a bridge across it. However, the Stocksbridge Works Plan issued in 1880 depicts the river considerably redirected and culverted through the works.

5.2.2 The uppermost surface of the road junction was situated at a height of 152.5 metres AOD. It is worth noting that although the course of the river was considerably diverted, early Ordnance Survey maps contain the label 'Stock Bridge' within the location where it would have crossed the original course of the river. This may indicate that the bridge might have been present at least until the mid 20th century, as the 1959 edition does not include the pertinent label and neither the subsequent editions.

5.2.3 A series of shallow service trenches were excavated in October 2014; however, no significant archaeological remains were revealed except for the remnants of an earlier road surface composed of sandstone paving setts positioned immediately beneath the present road at approximately 350mm below the tarmac surface (Figs 42 and 43).

5.2.4 Although Area B is supposed to be located over the site of the former bridge, accurate GIS calculations indicate that the bridge was positioned slightly outside the southern

boundary of Area B produced in the WSI. However, a manhole positioned to the east of Hunshelf Road and within an oil tank enclosure was inspected during the watching brief which contains large water pipes running across and beyond the road junction. The manhole is a brick-built structure abutting a stone-built vaulted chamber which appears to be the remains of the former bridge (Figs 44 and 45). The exposed remains consist of up to five courses of squared sandstone blocks above a dressed arch whose *extrado* is positioned at *c.*1.50 metres below the present ground surface.

5.2.5 Although access to the manhole was not possible as the structure is devoid of a fixed ladder and contains deep water, a close photographic record was undertaken by lowering a camera mounted on a pole with a self-timer setting which enabled viewing part of the vaulted chamber which extends beyond the manhole brick-built structure. The voussoirs of the arch are decorated with rough rock-facing rustication with sanded edges whose intrados consist of closed picked dressing. Stone dressed in the rock-faced manner are usually used in buildings as quoins, plinths, etc. to give an appearance of strength and solidity. The arch also contains a slightly larger key-stone (Fig. 46). These architectural features are typical of a bridge rather than a culvert. Moreover, the relevant wall represents a faced structure which would have lead to a depression or channel such as a waterway rather than being an underground continuous culverted duct. The putative bridge face bears high resemblance with the artist's impression of *c.*1807 provided in a previous DBA (Herring 2008, Plate 1).

5.2.6 The soffit of the putative bridge is composed of standard orangey bricks bonded with grey mortar with frequent charcoal flakes and laid in stretcher bond flush with the voussoirs (Fig. 47). This type of brickwork may date to the 19th century although later rebuilt/repaired work cannot be ruled out as the bridge would have been standing until the mid 20th century as indicated by cartographic records despite the redirection of the river. The location of Area B with the service trenches and manhole with the exposed bridge's wall is shown on plan (Drawing 4). Furthermore, extracts of earlier cartographic records showing the relevant watching brief have also been arranged on plans (Drawings 5 and 6).

Figure 42: General view of service trench across Hunshelf Road, looking north-west.

Figure 43: Remains of an earlier road surface, looking south-west (scale 300mm).

Figure 44: General view of the manhole, looking east.

Figure 45: Manhole abutting an earlier stone-built arched structure, looking west.

Figure 46: Detail of arch's keystone and voussoirs, looking west.

Figure 47: Arch's extrado and internal view of the vaulted chamber, looking west.

5.3 Area C

5.3.1 This area was located approximately 100 metres north-east of the former mid 19th century Hunshelf Corn Mill and within the western side of a large warehouse which was built in the mid 20th century and enlarged in the 1970s as indicated by cartographic records supplied in previous desk-based assessments as part of the planning condition. The records also show that the area consisted of an enclosed field prior to the aforementioned development.

5.3.2 The ground-works undertaken within this area did not identify any significant archaeological features, deposits or artefacts as a layer of granular and cohesive made ground was found throughout the pertinent area with an overall thickness of greater than 3 metres (Fig. 48). A geotechnical survey, undertaken by Sub Surface North East Ltd (2010) based on test-pits and bore holes, also identified a comparable stratigraphic sequence. Moreover, the area is potentially affected by former mining activities as at least one mine shaft has been plotted within the centre of Area C (*ibid.*).

5.3.3 The area is fairly flat with an overall height of 152 metres AOD. The made ground layer represents a flat terraced platform, designed to accommodate former buildings, whose southern edge was partially retained by a sloping revetment with slabs over the surface (Fig. 49).

Figure 48: General view of Area C, looking north (scale 1m).

Figure 49: Sloping revetment along the southern edge of Area C, looking east (scale 1m).

6 CONCLUSION

6.1 The archaeological watching brief related to the ground-works at Stocksbridge Steel Works revealed a series of structural features and deposits. A summary of the results is provided below according to the areas and sub-divisions if present.

Area A

6.2 The excavation revealed several archaeological features whose locations were sub-divided into six areas (A-1 to A-6). Further archaeological monitoring and recording was undertaken beyond the southern side of the proposed watching brief boundary as archaeological remains were uncovered along the railway line to the south-east of Area A (A-7).

6.3 Division A-1 exposed the remains of a former Air Raid Shelter composed of a sandstone vaulted chamber and a brick shaft with later stud and brick partitions inside the shelter indicating that the underground chamber might have been used as a store or similar function subsequent to its original purpose. The Air Raid Shelter would have been built during the Second World War and thus its construction might have had an effect on the masonry of the building above which was erected in the mid 1920s.

6.4 Divisions A-2 and A-5 contained substantial structural remains which appear to be part of a late 19th century large stone-built range located within the area recently occupied by

Building A which might have accommodated railway machinery within the ground floor as indicated by pictographic records. This large range would have been demolished in the 1920s prior to the construction of Building A although most of the former substantial stone masonry would have been utilised as foundations for the later brick structure of Building A.

6.5 Division A-3 contained the remains of a possible brick-built furnace, although it was heavily truncated by the construction of underground pits of the recently demolished Building C. Despite its truncation, the large majority of the structure appears to run beyond the area of excavation and beneath a current road of the Works which is proposed to be retained. A projected line of the curved parallel brick walls towards the south-eastern edge of the structure may lead to an apsidal shape which would indicate that there is an internal chamber to the south-west underneath the adjacent road. This putative chamber surrounded by an outer flue might have been part of a steel furnace such as a regenerative or reverberatory type fuelled with gas. It is worth noting the thermal alteration around the flue caused by the high temperature reached during the pyro-technological process undertaken by the former furnace.

6.6 Division A-4 exposed the remains of a chimney flue and associated brick structure containing an underground chamber. These remains were substantially truncated by a large pit within Building B. The pertinent chimney appears depicted on the Ordnance Survey maps issued in 1893, 1905 and 1931.

6.7 Division A-6 revealed a substantial brick structure at 2 metres below the present ground level of the combined warehouse structure recently demolished although this area was recently occupied by a large underground pit with an approximate depth of 1 metre. The brick structure uncovered appears to be the basal remains of a well-preserved furnace with several ash pits and linking channels. The furnace abutted a sandstone wall which appeared to have been the remains of a late 19th century large stone-built range located within the area recently occupied by Building A as indicated by pictographic records.

6.8 Division A-7 along the railway line that forms part of the south-western boundary of the proposed development site uncovered a large section of the culverted Porter or Little Don River at approximately 1 metre below the ground level. The river was redirected and culverted through the works in the late 19th century.

Area B

6.9 Area B was located at the junction between Hunshelf Road and Ford Lane where a bridge was originally positioned over the Porter or Little Don River prior to its diversion in the late 19th century. A series of shallow service trenches were excavated although no significant archaeological remains were revealed except for the remnants of an earlier road surface composed of sandstone paving setts.

6.10 However, a manhole positioned to the east of Hunshelf Road and within an oil tank enclosure was inspected during the watching brief which contains large water pipes running across and beyond the road junction. The manhole consists of a brick-built structure abutting a stone-built vaulted chamber which appears to be the remains of the former bridge rather than being an underground continuous culverted duct. The putative bridge face bears high resemblance with the artist's impression of *c.*1807 provided in the aforementioned DBA.

Area C

6.11 Area C did not identify any significant archaeological features, deposits or artefacts as a layer of granular and cohesive made ground was found throughout the pertinent area with an overall thickness of greater than 3 metres.

7 PUBLICITY, CONFIDENTIALITY AND COPYRIGHT

7.1 Any publicity will be handled by the client.

7.2 Archaeological Research Services Ltd will retain the copyright of all documentary and photographic material under the Copyright, Designs and Patent Act (1988).

8 STATEMENT OF INDEMNITY

8.1 All statements and opinions contained within this report arising from the works undertaken are offered in good faith and compiled according to professional standards. No responsibility can be accepted by the author/s of the report for any errors of fact or opinion resulting from data supplied by any third party, or for loss or other consequence arising from decisions or actions made upon the basis of facts or opinions expressed in any such report(s), howsoever such facts and opinions may have been derived.

9 ARCHIVE DEPOSITION

A digital and paper archive will be prepared by ARS Ltd, consisting of all primary written documents, plans, sections, photographs and electronic data, which will be deposited at Sheffield Museum in November 2014.

10 ACKNOWLEDGEMENTS

10.1 Archaeological Research Services Ltd would like to thank all those involved with the archaeological project, especially Glyn Smith and David Goddard of Henry Boot Construction Ltd for commissioning the work, the project officers of Henry Boot Construction Ltd involved within the watching brief area (Chris, Shaun and Rob); and Jim McNeil of South Yorkshire Archaeology Service for monitoring and providing advice throughout the project.

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APPENDIX I: ARCHAEOLOGICAL RECORDS

N

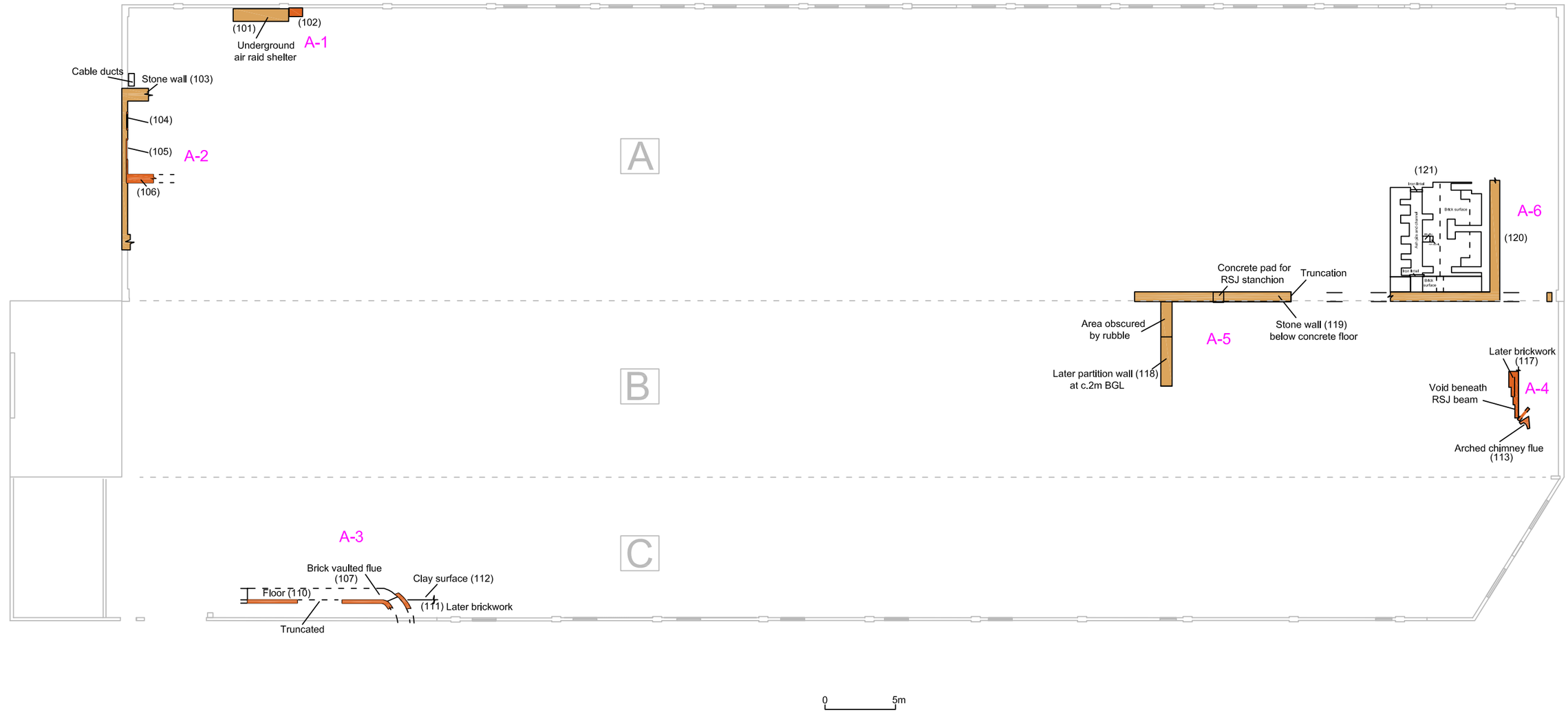
Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

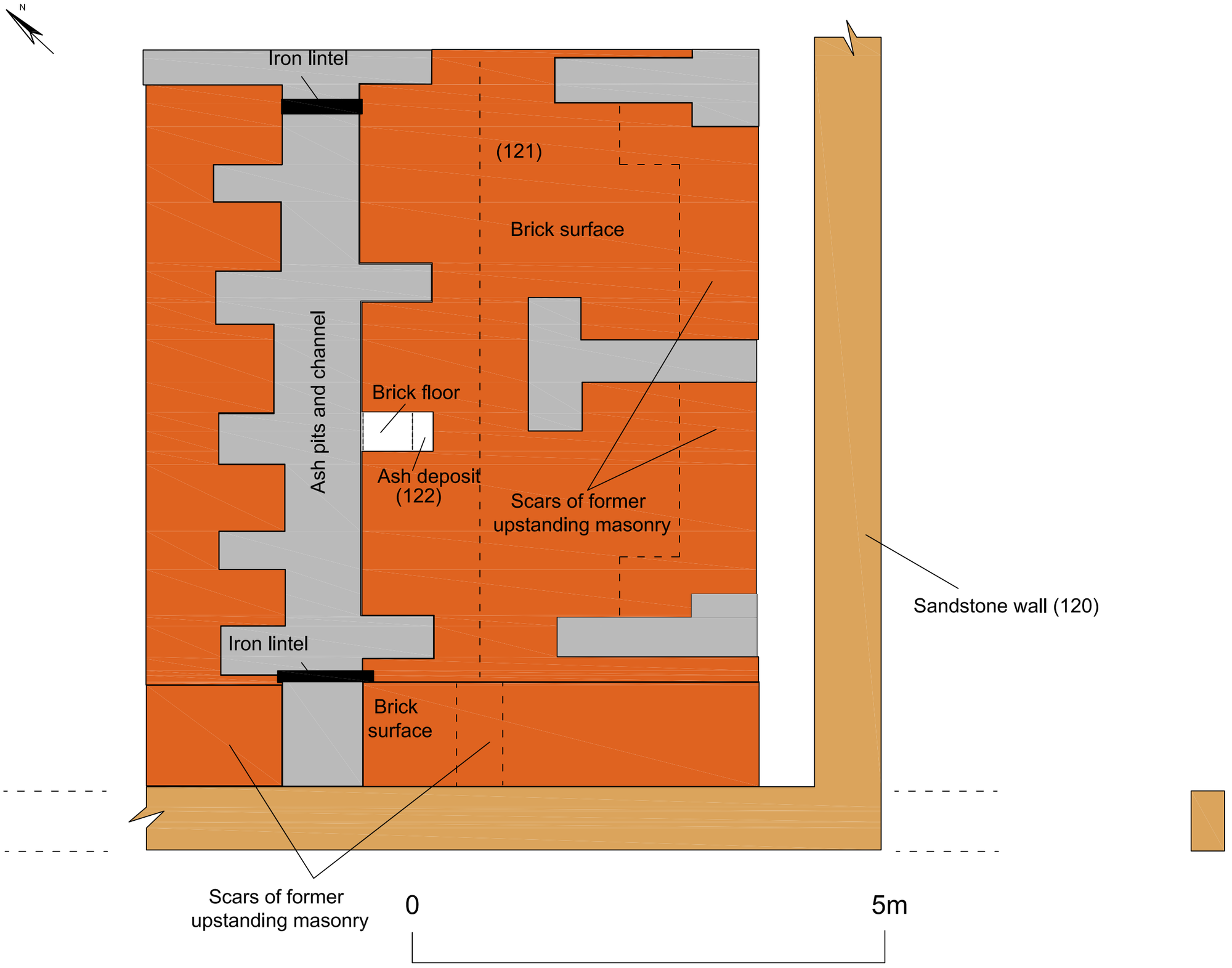
Site Code: STS'14 watching brief
Drawing Ref:
Date: 26-08-2014
Drawn: AMO
Scale: 1:300@A3

Drawing 1: Archaeological features within sub-divisions A1 to A-6

Key:

A-1
Recently demolished buildings
Sub-divisions
Sandstone wall
Brickwork





Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

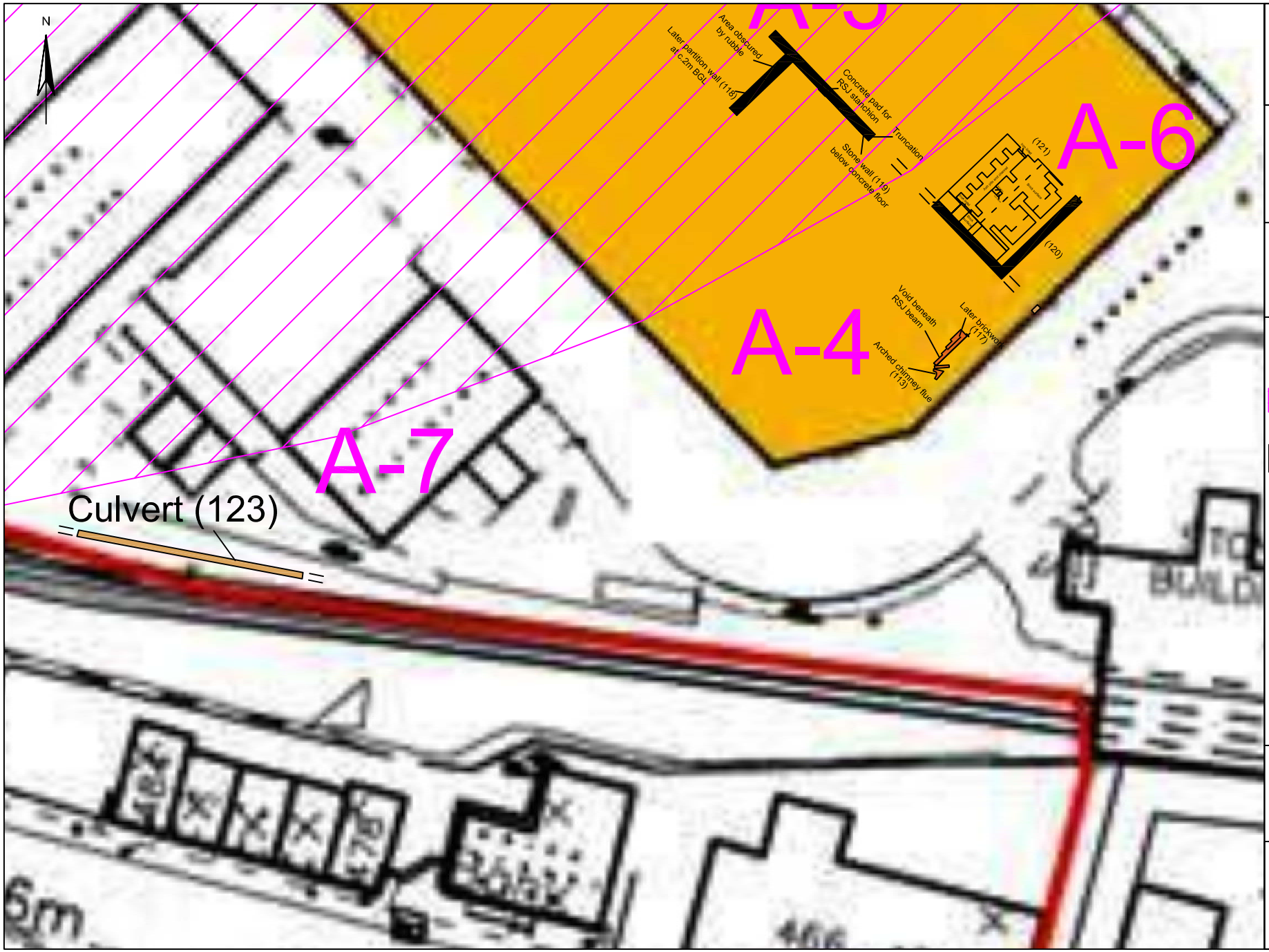
Site Code: STS'14 watching brief
Drawing Ref:
Date: 26-08-2014
Drawn: AMO
Scale: 1:40@A3

Drawing 2:
Plan of Division A-6

Key:

- Sandstone wall
- Brickwork
- Ash pits and channel

Notes:



Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Site Code: STS'14
watching brief
Drawing Ref:
Date: 26-0- 2014
Drawn: AMO
Scale: 1:400@A4

Drawing 3:
Division 7 of watching brief Area A showing an uncovered section of the culverted Little Don or Porter River

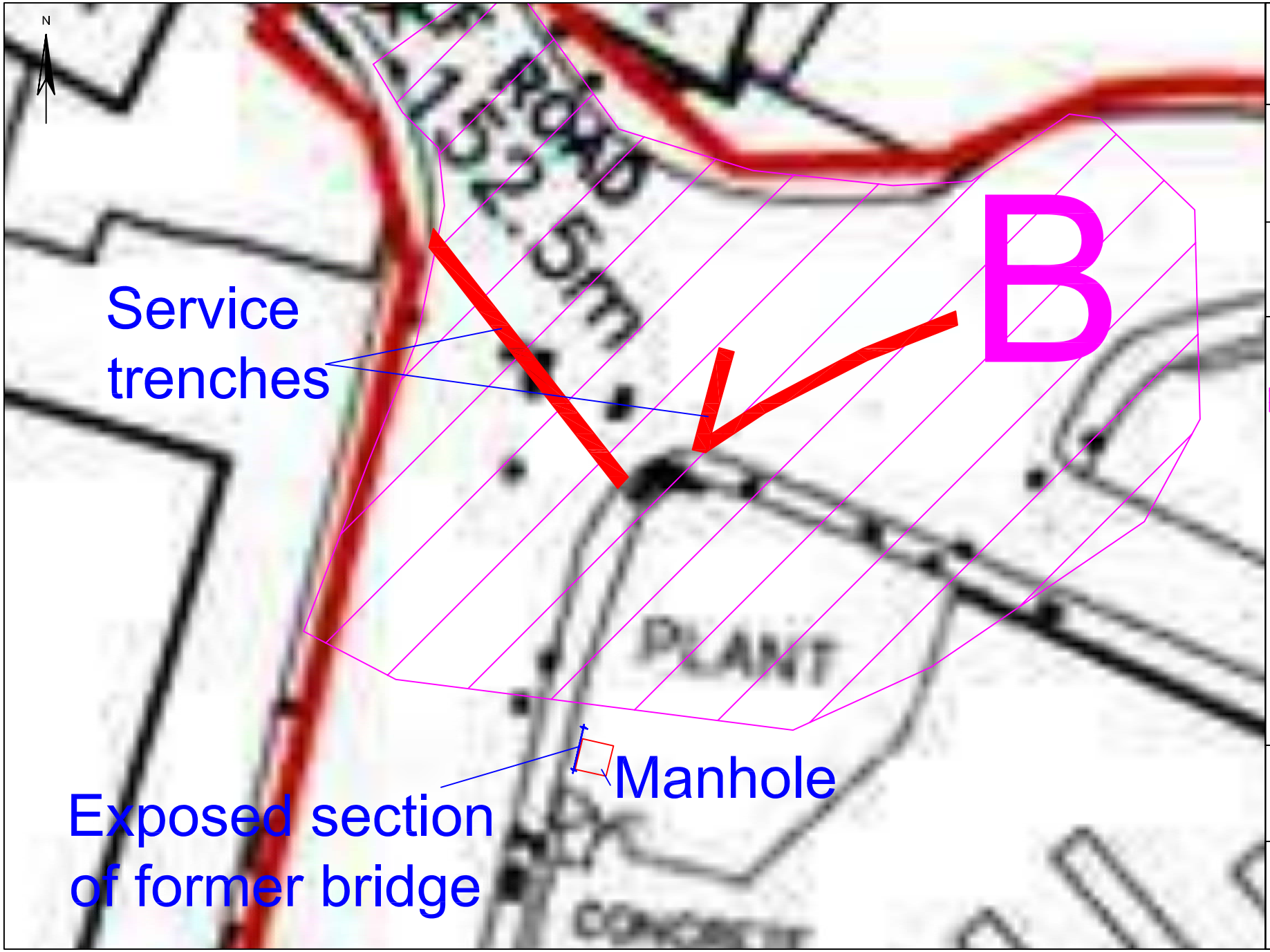
Key:

Watching brief areas

A-1 Additional sub-divisions

Area of building recording

Notes:



Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

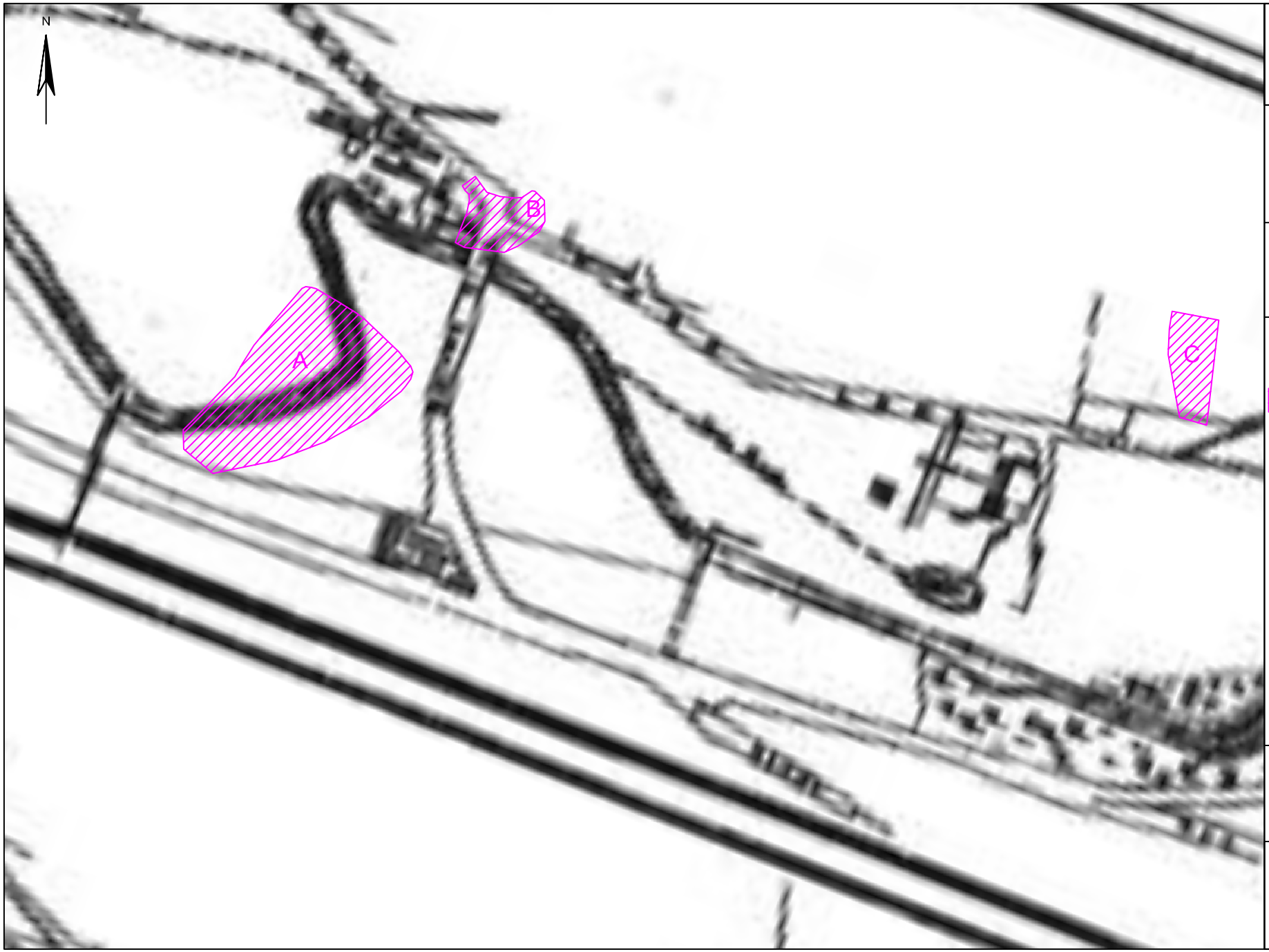
Site Code: STS'14
watching brief
Drawing Ref:
Date: 26-10- 2014
Drawn: AMO
Scale: 1:250@A4

Drawing 4:
Area B showing the location of the manhole which includes a section of the former bridge

Key:

Watching brief area

Notes:



Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

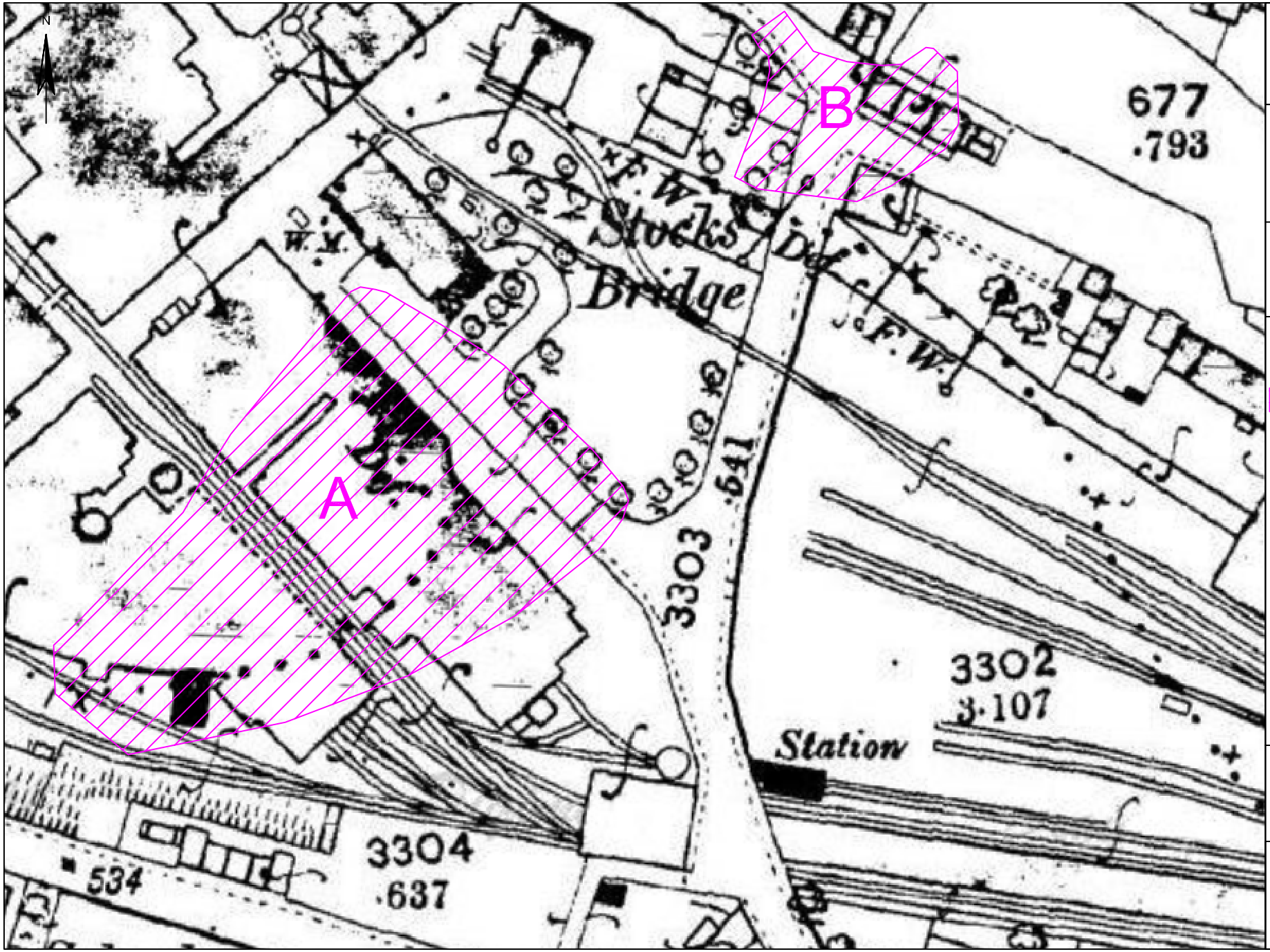
Site Code: STS'14
watching brief
Drawing Ref:
Date: 26-10- 2014
Drawn: AMO
Scale: 1:2500@A4

Drawing 5:
Watching brief areas over an extract of the 1848 plan of the Works (reproduced from a desk-based assessment previously submitted)

Key:

Watching brief areas

Notes:



Archaeological Research Services Ltd
Angel House
Portland Square
Bakewell
Derbyshire
DE45 1HB

Site Code: STS'14
watching brief
Drawing Ref:
Date: 26-10- 2014
Drawn: AMO
Scale: 1:1000@A4

Drawing 6:
Watching brief areas A and B over an extract of the 1893 Ordnance Survey map

Key:

Watching brief areas

Notes:

APPENDIX II: SPECIFICATIONS AND OASIS FORM

WRITTEN SCHEME OF INVESTIGATION
For
ARCHAEOLOGICAL WORKS

MIXED USE DEVELOPENT, STOCKSBRIDGE

Planning refs
09/02819/FUL & 11/02480/FUL;
12/02926/FUL

Condition 30; Condition 39

OCTOBER 2012, amended JANUARY 2013

Planning • Heritage
Specialist & Independent Advisors to the Property Industry

Local Planning Authority:
Sheffield City Council

Site centred at:
NGR 275 984

Author:
Myk Flitcroft BA MSc MI*f*A

Approved by:
Simon Mortimer

Report Status:
FINAL

Issue Date:
30 January 2013

CgMs Ref:
MF/8722/04

Contents

1 INTRODUCTION AND PROJECT CONTEXT

1.0 This Written Scheme of Investigation sets out a programme of archaeological works to be implemented at the former Corus and Outo Kumpu Works, Stocksbridge, Sheffield; hereafter referred to as 'the Site' (NGR SK 275 984, see Figure 1).

1.1 Planning permission has been granted for mixed use redevelopment of the site (Sheffield City Council planning refs 09/02819/FUL & 11/02480/FUL). Condition 30 of both planning permissions relates to management of archaeological issues.

1.2 Planning permission has also been granted for a warehouse and test-centre development at the site (planning ref 12/02926/FUL). Condition 39 of this permission relates to management of archaeological issues.

1.3 The archaeological planning conditions attached to all three consents state::
'No development, including demolition or ground remediation, shall take place until the applicant, their agent, or their successor in title, has secured the implementation of a programme of archaeological work (including building recording), in accordance with a written scheme of investigation that has been submitted to, and approved in writing by, the Local Planning Authority'

The planning conditions are imposed "*to ensure that arrangements are made to record, or preserve in situ, considerable archaeological remains present on the development site, as mitigation*."

1.4 This WSI has been prepared to address the pre-commencement requirements of the planning conditions. It sets out the proposed scope of archaeological works to be undertaken and the methodology for both on-site investigation and recording and off-site reporting and publication of the findings of the archaeological investigations.

1.5 This Written Scheme of Investigation has been produced by Myk Flitcroft of CgMs consulting on behalf of Stocksbridge Regeneration Company Ltd. It is submitted pursuant to the discharge of planning condition 30 attached to planning permissions 09/02819/FUL and 11/02480/FUL, and condition 39 attached to planning permission 12/02926/FUL. It is subject to approval by the Local Planning Authority, Sheffield City Council.

2 EXISTING KNOWLEDGE AND DEVELOPMENT IMPACTS

Heritage Potential

2.1 The archaeological context of the site and the significance of surviving heritage assets has been considered in a series of desk-based studies undertaken between 2004 and 2011, and small-scale trial trenching carried out in 2008:

- *"Archaeological desk-based Appraisal and buildings Appraisal of Stocksbridge Steelworks"* ARCUS 2004 (report reference 837.1)
- *"Desk-based Assessment. Land at Outo Kumpu Site, Stocksbridge"* CgMs 2008 (report reference 8722/08/01)
- *"Archaeological Desk-based Assessment. Land at Stocksbridge, South Yorkshire"* CgMs 2011 (ref 8722/2011/01)
- *"Archaeological Trial Trenching at Stocksbridge Steelworks"* Stoke on Trench Archaeology 2008 (report ref 229)
- *"Desk-based Archaeological Assessment. Stocksbridge Test Facility & Warehouse (Sites 1 & 2)"* CgMs 2011 (ref 12286)

2.2 From the information presented in the 2008 desk-based assessment and its updates in 2011, two undesignated heritage assets can be identified within the development site: the 19th and 20th century Stocksbridge Steel Works, and the 19th century Hunshelf Corn Mill.

2.3 The recorded sites of other 18th and 19th century industrial mills pre-dating the establishment of Stocksbridge Steel Works lie to the west of the development site. The former 'Stocks Bridge' over the River Little Don is believed to lie a short distance northwest of the development site.

2.4 The valley of the River Little Don, or Porter, is considered to have a high potential overall for the presence of pre-19th century remains, with prehistoric finds in the 'original' river valley being particularly significant. However the potential for the presence of such early archaeological remains within the development site itself is considered to be low as a result of the extensive steelworks development

2.5 The significance of the ***Stocksbridge Steel Works*** relates principally to the evidential and historical value of the structures and buildings in relation to understand the development of the specialist steel industry. The demolition of standing buildings within the development site by their owners has removed much of the evidential interest. However two steelworks buildings still stand within the site: a red brick works building immediately west of Hunshelf Road, and a taller metal-clad building attached to

its southern side. The brick building has been variously identified as a former railway shed (ARCUS report 2004) and a sheet steel mill building (CgMs report ref 12286, 2011). The metal-clad building to the south appears to date from the 1930s redevelopment of the steelworks site.

2.6 The sites of the former crucible furnaces (1860s-1940s), tyre mill (1880-1930s) and wire works (1930s-) are also located in the vicinity of the brick and metal clad buildings; below-ground archaeological evidence for these earlier parts of the steelworks may survive.

2.7 The significance of any surviving evidence for ***Hunshelf Corn Mill*** or other identified structure pre-dating the Steel Works relates to the evidential value of any surviving below-ground archaeological remains and their potential to inform on the industrial development of this area.

Impact of works

2.8 Development within the site is not considered to impact on the significance of any heritage assets outside the site boundary.

2.9 The impact on the significance of heritage assets within the development site is limited. The trial trenching carried out in 2008 demonstrated extensive disturbance of below-ground remains and truncation of earlier deposits and structures. Groundworks for the new development are not anticipated to affect extensive archaeological remains associated with Hunshelf Corn Mill or other features pre-dating Stocksbridge Steel Works. Localised impacts may however occur.

2.10 Demolition of many of the former steelworks buildings in 2009 has removed much of the archaeological interest that previously existed. The two surviving buildings within the development site retain some evidential value for individual parts of the steel production process.

3 PROJECT AIMS AND OBJECTIVES

3.1 The overall aim of the programme of archaeological works is to identify and make a record of any significant archaeological evidence affected by the development, and advance understanding of its significance in line with the provisions of the national planning policy framework and the requirements of the planning condition.

3.2 The objectives of the programme of works are:

- to mitigate the loss of significance resulting from demolition of remaining former steelworks buildings within the site by generating a record of the buildings;
- to mitigate the loss of significance caused by initial demolition and remediation works in identified parts of the site by archaeological monitoring of works and identification of any below-ground archaeological features exposed;
- to ensure the appropriate investigation and recording of any archaeological remains encountered;
- to advance understanding of the significance of such archaeological remains through appropriate publication of the findings;
- to produce a site archive for deposition with an appropriate museum and to provide information for accession to the South Yorkshire SMR

3.3 This WSI conforms to the requirements of the National Planning Policy Framework. It has been designed in accordance with current best archaeological practice and the appropriate national standards and guidelines including:

- Code of Conduct (Institute of Field Archaeologists, 2000);
- Standard and Guidance for the archaeological investigation & recording of standing buildings or structures (Institute for Archaeologists, I*f*A, 2008);
- Standard and Guidance for Archaeological Watching Briefs (Institute for Archaeologists I*f*A, 2008);
- Standard and Guidance for Archaeological Excavation (Institute for Archaeologists IfA, 1994, revised 2008)
- Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives (Institute for Archaeologists, 2010)

4 STRATEGY

4.1 The strategy to manage the potential implications of works across the development site is summarised below. Detailed methodological statements are provided in subsequent sections. The programme of archaeological works has two strands of fieldwork: recording of surviving former steelworks buildings within the development site; and archaeological monitoring of development groundworks within identified areas of greater archaeological potential.

4.2 ***Building Recording:*** Many of the former steelworks buildings were demolished (lawfully) by the site owners in 2009. The loss of these buildings without the previously intended building recording work will mean that interpretation will be based on a review of any existing archive documentary sources and plans. The two surviving former steelworks buildings within the site, the red brick works building west of Hunshelf Road and attached metal-framed works building, will be subject to a programme of archaeological investigation and recording prior to demolition. These buildings are highlighted in Figure 2. The record of these buildings will be interpreted and analysed in the context of the former steelworks complex – to the extent possible utilising all available records and sources.

4.3 ***Archaeological Monitoring:*** Extensive areas of below-ground archaeology are not anticipated to be exposed or affected by the development. In order to confirm this assessment and to ensure that no areas of near-surface archaeological remains are affected, initial development works will be subject to archaeological observation and monitoring.

4.4 Archaeological monitoring of demolition and remediation works, and subsequent development groundworks where necessary, will be undertaken within the areas of the former crucible furnaces, and in the parts of the development site closest to the recorded site of Stock's Bridge and the former Hunshelf Corn Mill. These areas are indicated as 'A', 'B', and 'C' on Figure 2. Precise schedules for monitoring work will be established after review of details relating to foundation design and remediation submitted separately under other planning conditions. Development works elsewhere within the site will not be subject to any archaeological monitoring.

4.5 If potentially significant archaeological remains are identified in the course of the monitoring, provision is made to pause groundworks in the affected area(s) until a strategy either to protect or fully establish their character and condition has been agreed with the LPA, and the agreed strategy has been implemented as necessary.

4.6 A ***report*** will be prepared following completion of the archaeological fieldwork, or each substantive phase of development groundworks, which details the findings of the archaeological investigation.

4.7 On completion of the building recording, and on completion of the archaeological monitoring fieldwork, the data will be ordered into project ***archive***, and deposited with a local archive facility in order to ensure the long-term preservation of the archaeological information and safeguard the heritage interest.

5 METHODS FOR RECORDING STANDING BUILDINGS

General

5.1 The record of the buildings will broadly follow the specification for a Level 2 survey (as defined in English Heritage guidance), and will consist of (i) an archival photographic record of the buildings prior to & during demolition and their context; (ii) production of a measured floor plan and sections through the main building; (iii) a basic descriptive record of the buildings to identify their location, age, and type/function; and (iv) the compiled archive.

5.2 The results of the fieldwork are to be documented both in the form of an illustrated report and with the ordered archive with consideration for a short published account in a suitable journal.

Site Photographs

5.3 The photographic record will comprise black and white 35 mm negatives processed to contact prints. An appropriate photographic scale will be used where practicable.

5.4 This black and white record will be supplemented with hi-resolution digital photography to allow ease of inclusion in the illustrated report and use in presentations if necessary. Digital photographs will be taken on a high quality camera of at least 6-megapixel capacity and at the lowest compression rate. JPEG format should be used. All digital images should also be recorded on a register and metadata should be included in the final archive. Details of the digital camera used will be included within the final report.

5.5 The aim of the photographic survey is to visually record the form of the building before demolition. It will record the spatial qualities and character of the buildings as well as specific details.

5.6 The photographic record will include

- General site views and exteriors showing the context and interrelationships of the building and its setting. This will use a combination of perpendicular and oblique shots to show elevational treatments and relationship to other buildings.
- A detailed record of the interior of the buildings and any fixtures and fittings.

5.7 A register of photographs detailing the subject, date, film/shot, orientation of view and site details will be maintained and referenced to the written description and site drawings. Each film will be individually numbered.

5.8 If at all possible natural light and a firm tripod should be used to capture internal spaces. If this is not practical flash photography may be used but the methods will be assessed carefully depending on the scale of the space or detail being photographed.

5.9 General exterior and interior views where the subject matter includes common scale references (doors, windows, ceiling heights, chairs or furniture) will not normally include a photographic scale. A metric photographic scale will be employed for certain detail photographs of specific features or areas of interest that do not have a broader visual context within the image. The scale will be positioned so as not to be intrusive. The areas of detailed photographs will be included in the general photographs.

Site Drawings

5.10 The buildings and structures within the Site will be located on an appropriately scaled Ordnance Survey map.

5.11 Measured drawings of the main floor plans will be undertaken during the photographic recording. Hard copies of the survey, at an appropriate scale, will be drawn from site and form the baseline onto which details of fixtures and fitting of importance, should they be identified, can be added. This will include a measured survey producing floor plans of each level and up to two cross sections through the structure. These will be created on site using a disto and tablet pc and will be surveyed in accordance with English Heritage guidelines.

5.12 Floor plans will be at a scale of 1:50 and will be annotated with archaeological information where relevant. Cross sections will be at a scale of 1:50. These drawings will form the basis of the drawings used to illustrate the report.

5.13 Any additional structural details may be drawn as required if they are identified within the fieldwork recording and contribute to the overall archaeological record of the site.

Written Account

5.14 The written record will provide a very basic description of the age, fabric, form and function of the buildings. It will summarise the historical development of the site already identified within the map regression contained in the desk-based assessment. It will be fully cross referenced to the photographic archive, which will form the principal record.

Reporting

5.15 A report on the results of the building recording will be produced within three weeks of the completion of the on-site recording. The report will address the aims of the building recording programme. It will describe the buildings and structures and their

development, present the buildings in the context of a detailed map regression illustrating the development of the steelworks complex, and include photographs from company archive and documentary sources as appropriate. The report will outline the limitations to the extent of building recording work that was possible.

5.16 As a minimum the Building Recording report will include the following elements:-

- A non-technical summary
- Acknowledgements
- Contents list
- Introduction and Methodology
- Background history of the buildings and structures from available documentary sources and previous surveys
- Description of the buildings and structures and their development
- A full index to the project archive
- Publication proposal
- Bibliography
- Site location plan
- Floor plans and cross sections of the building, marked up with archaeological observations where appropriate
- A selection of the photographic record
- Photographic registers and photographic viewpoint plans

Archive

5.17 The archive will comprise the photographs (digital and print), negatives, and photographic fabric archive CD/DVD, film index and plan, together with a copy of the report. The use of solid state media will also be employed.

5.18 Prints will be reproduced at a minimum of 5" by 4" where required and/or appropriate and labelled on the reverse using indelible ink with the film and frame number, date and photographer's name, together with the site code, name and grid reference. The photographs will be mounted in archival quality sleeves.

5.19 A further copy of the full report will be submitted on CD-ROM/DVD-ROM, alongside a full photographic fabric archive image collection, and, where appropriate, a thumbnail index viewing system to aid users at a later date.

5.20 The archive, including a copy of the report, will be compiled, indexed and then offered for deposition with a suitable store; such as Sheffield City Archives.

5.21 Details of the project and a digital copy of the final report will be submitted to the Archaeology Data Service (ADS) through OASIS (Online AccesS to the Index of archaeological investigationS).

6 METHODS FOR ARCHAEOLOGICAL OBSERVATION & MONITORING

Fieldwork methods

6.1 A suitably qualified professional archaeologist will monitor demolition and remediation works within the identified areas of greatest archaeological potential, and subsequent excavation where deeper groundworks are required.

6.2 Adequate facilities will be provided by the developer and groundworks contractor for archaeological staff to observe groundworks operations in progress and to facilitate the identification of any archaeological remains exposed.

6.3 If supervision of these groundworks identifies the presence of archaeological features or remains, measures will be put in place to prevent any further damage until the features or remains have been adequately investigated and recorded by the archaeologist, in line with the strategy established in 4.0 above and the methods and standards set out below.

6.4 Where no archaeological features have been exposed by the initial groundworks or more pertinently where it can be demonstrated that survival and depth of burial conditions are such that the potential for further archaeological discoveries is little or nothing, representations may be made to the LPA's archaeological advisors to have the archaeological fieldwork suspended.

On-site Recording Methods & Standards

6.5 A photographic record (primarily monochrome film & colour slide, supplemented by digital photographs) will be maintained during the course of the fieldwork and will include:

- the site prior to commencement of fieldwork;
- the site during work, showing specific stages of fieldwork;
- the layout of any archaeological features;
- individual features and, where appropriate, their sections;
- groups of features where their relationship is important.

6.6 All archaeological features exposed will be recorded in plan. Where the preferred approach of preservation in situ is not feasible and further archaeological investigation and recording is warranted, the following sampling levels and recording methods provide a guide to typical practice. The actual sample excavated on site will be determined in negotiation with the LPA's archaeological advisors as required and appropriate.

Feature Class	*Proportion to be excavated*
Layers/ deposits/horizontal stratigraphy relating to industrial activity [e.g. hearths, furnaces, floor surfaces, floor make-up deposits…]	100% of deposit
Linear features (ditches/gullies…) associated with structural remains	20% of fill potentially increased to 50% (minimum sample 1m section)
Pre-modern linear features not associated with structural remains	20% of fill (minimum sample 1m section)
Pits associated with agricultural & other activities	50% of fill in first instance
Post-built structures of pre-modern date	100% of each post-hole fill
Human burials, cremations & other deposits relating to funerary activity	100% of fill/deposit

6.7 The site plan will relate all archaeological features exposed to the National Grid and levels will be expressed relative to Ordnance Datum. Data capture for site plans will be by measured survey, electronic distance measurement, or a combination of techniques. Data-capture for site plans will as standard be capable of reproduction at a scale of 1:50; more complex features or areas of complex archaeological remains will be recorded at greater resolution (for reproduction at 1:10, or 1:20 as necessary). The sections of excavated archaeological features will be recorded by measured drawing at an appropriate scale (normally 1:10 or 1:20).

6.8 All archaeological features or deposits encountered will be described fully on pro-forma individual context recording sheets, using standard methods of the archaeological contractor appointed. A stratigraphic matrix will be compiled to record the relationships of any archaeological features or deposits encountered and to indicate those features or deposits requiring further stratigraphic clarification by excavation.

6.9 All artefacts will be treated in accordance with UKIC guidelines, First Aid for Finds (1998). All finds will be bagged and labelled according to the individual deposit from which they were recovered, ready for later cleaning and analysis.

6.10 All registered finds will be processed and packaged according to standards of good practice. In accordance with current English Heritage guidelines, all iron objects, a selection of non-ferrous artefacts (including all coins) and a sample of any industrial debris relating to metallurgy will be submitted for X-radiography and stabilisation where appropriate.

Post-fieldwork reporting

6.11 Following completion of the archaeological fieldwork, or on completion of any substantive phase of the development, a programme of post-excavation assessment, analysis (if warranted) and reporting will be undertaken.

6.12 If archaeological features or deposits are exposed this programme will comprise the following:

- checking of drawn and written records during and on completion of fieldwork;
- production of a stratigraphic matrix of the archaeological deposits and features present on the site, if appropriate;
- cataloguing of photographic material and labeling of slides that will be mounted on appropriate hangers;
- cleaning, marking, bagging and labelling of finds according to the individual deposits from which they were recovered. Any finds requiring specialist treatment and conservation will be sent for appropriate treatment. Finds will be identified and dated by appropriate specialists;

6.13 Unless otherwise agreed with SYAS, a report detailing the findings of the archaeological fieldwork will be prepared within four months of the completion of site works (dependant on receiving specialist reports) and will consist of:

- a title page detailing site address, site code and accession number, NGR, author/originating body, client's name and address;
- full contents listing;
- a non-technical summary
- Introduction;
- Planning background;
- Archaeological and historical background;
- Methodology;
- Results;
- Discussion/conclusion;
- Artefactual, contextual and environmental descriptions/assessments;
- Colour photographs and scale drawings as appropriate;
- Bibliography
- the OASIS reference and summary form

6.14 A draft copy of the report will be supplied to SYAS for comment. Following approval of the draft report, one copy of the approved report will be provided to the LPA to demonstrate compliance with the planning condition, one hard copy and one digital copy will be supplied to South Yorkshire SMR.

6.15 Notes or articles describing the results of the fieldwork will be submitted for publication to 'Archaeology in South Yorkshire' and/or national journals, dependant on the nature of the results. A copy of any such works will be sent to South Yorkshire Archaeological Service, Should significant remains be exposed the archaeological contractor will be

required to present a paper at South Yorkshire Archaeology day. They may also give talks to Local societies and interest groups

Archive

6.16 An ordered archive of both object and paper elements will be prepared, according to the recommendations in Archaeological Archives. A guide to best practice in creation, compilation, transfer and curation (AAF 2007); and Standards in the Museum Care of Archaeological Collections (Museums and Galleries Commission 1992). The archive will, if possible, be deposited in an appropriate local museum.

6.17 The archive, including a copy of the report, will be compiled, indexed and then offered for deposition with a suitable store; such as Sheffield City Archives.

6.18 Details of the project and a digital copy of the final report will be submitted to the Archaeology Data Service (ADS) through OASIS (Online AccesS to the Index of archaeological investigationS).

7 TIMETABLE & PERSONNEL

7.1 The archaeological works will be undertaken on behalf of the developer by a professional archaeological contractor. CgMs Consulting will oversee implementation of the project on behalf of the developer.

7.2 Myk Flitcroft of CgMs Consulting will be in overall charge of the archaeological project. Details of the appointed fieldwork contractor will be provided prior to the commencement of works. Actual staff resources will be managed to ensure successful implementation of the programme of works. CVs of key personnel and specialists will be provided to South Yorkshire Archaeology Service on request.

7.3 A confirmed timetable for the archaeological works will be provided to the LPA and their archaeological advisors in advance of work commencing.

8 MONITORING

8.1 The aims of monitoring are to ensure that the archaeological works are undertaken within the limits set by this specification, and to the satisfaction of the Local Planning Authority.

8.2 CgMs will monitor implementation of the programme of works on behalf of the developers.

8.3 South Yorkshire Archaeology Service (SYAS) will be given notice of when work is due to commence and will be free to visit the site by prior arrangement with CgMs. SYAS will monitor implementation of the programme of works on behalf of the Local Planning Authority and evaluate the work being undertaken on site against the methodology detailed in this specification.

8.4 SYAS will also be responsible for considering any changes to the specification of works; any such alterations will be agreed in writing with the relevant parties prior to commencement of on site works, or at the earliest available opportunity.

9 INSURANCE

9.1 The archaeological contractor will hold Public Liability Insurance to the minimum value of £5m and Professional Indemnity Insurance to the minimum of £5m and Profession.

10 HEALTH and SAFETY

10.1 All works will be in compliance with the Health and Safety at Work Act (1974) and all applicable regulations and Codes of Practice and the Construction Design Management Regulations 2007. All archaeological staff will undertake their operations in accordance with safe working practices.

10.2 The principal contractor's health and safety policy will be followed. It is recognised that some areas of the buildings or areas of remediation may be partially or wholly inaccessible due to safety restrictions; any such areas will be fully identified within the report in order to understand the limitations of the record.

10.3 A site specific risk assessment and safety plan will be prepared before the start of the project and will be updated through the project as required.

10.4 If significant new hazards are identified a specific risk assessment will be undertaken and recorded. Control measures will be implemented as required in response to specific hazards.

10.5 Safe working will take priority over the desire to record archaeological features or remains, and where it is considered that recording is dangerous, any such features or remains will be recorded by photography, at a safe distance.

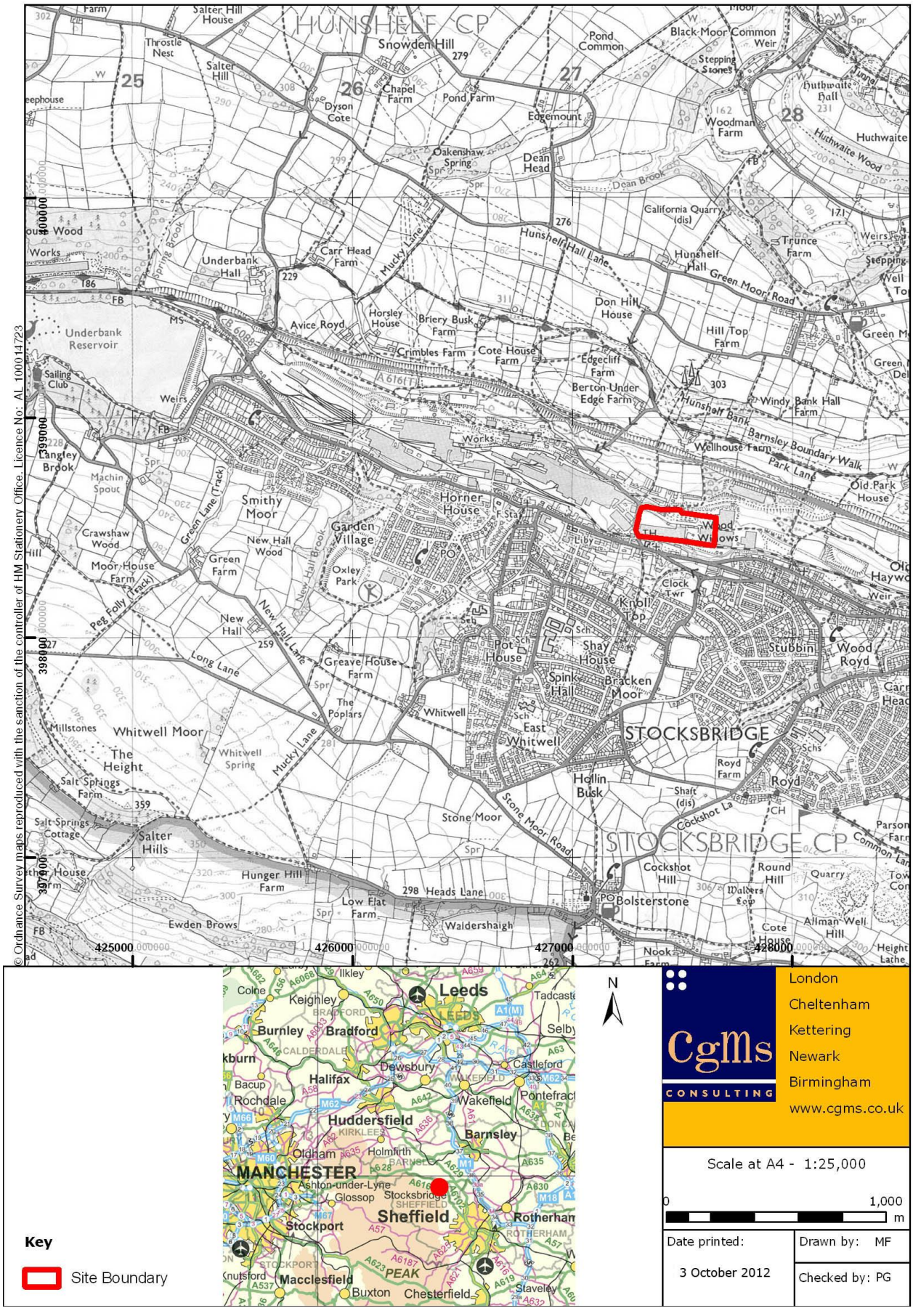
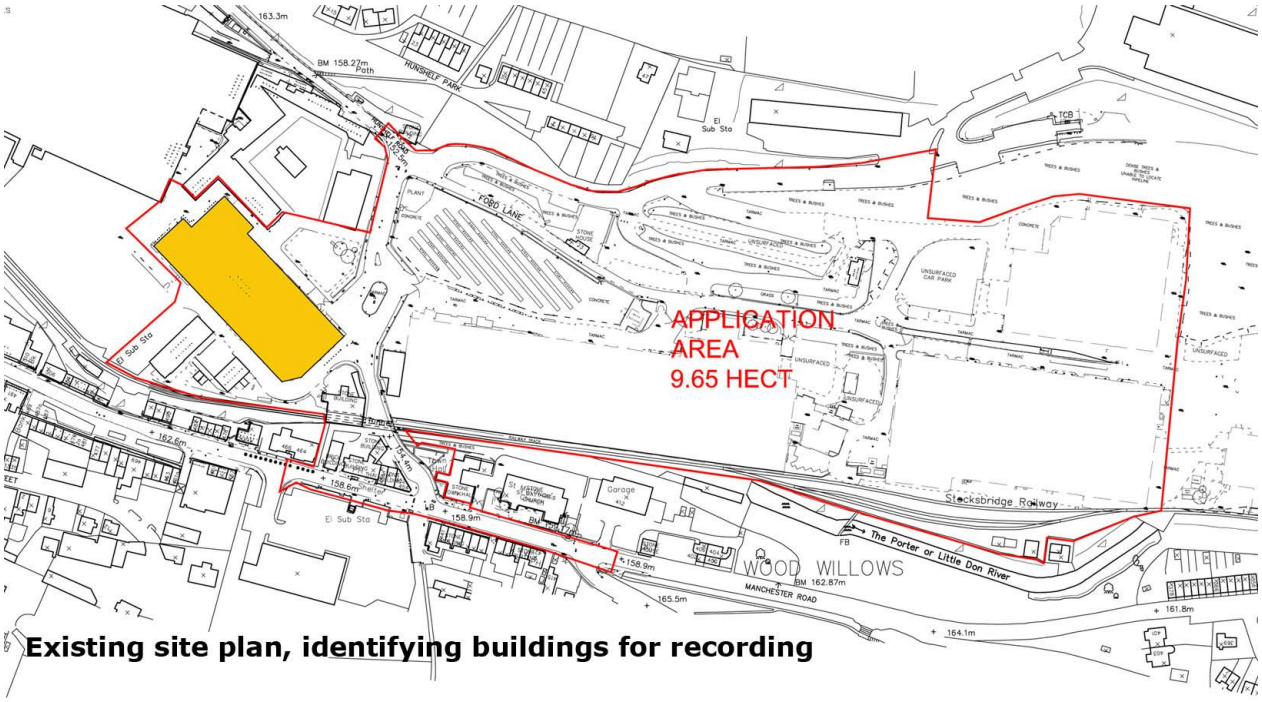
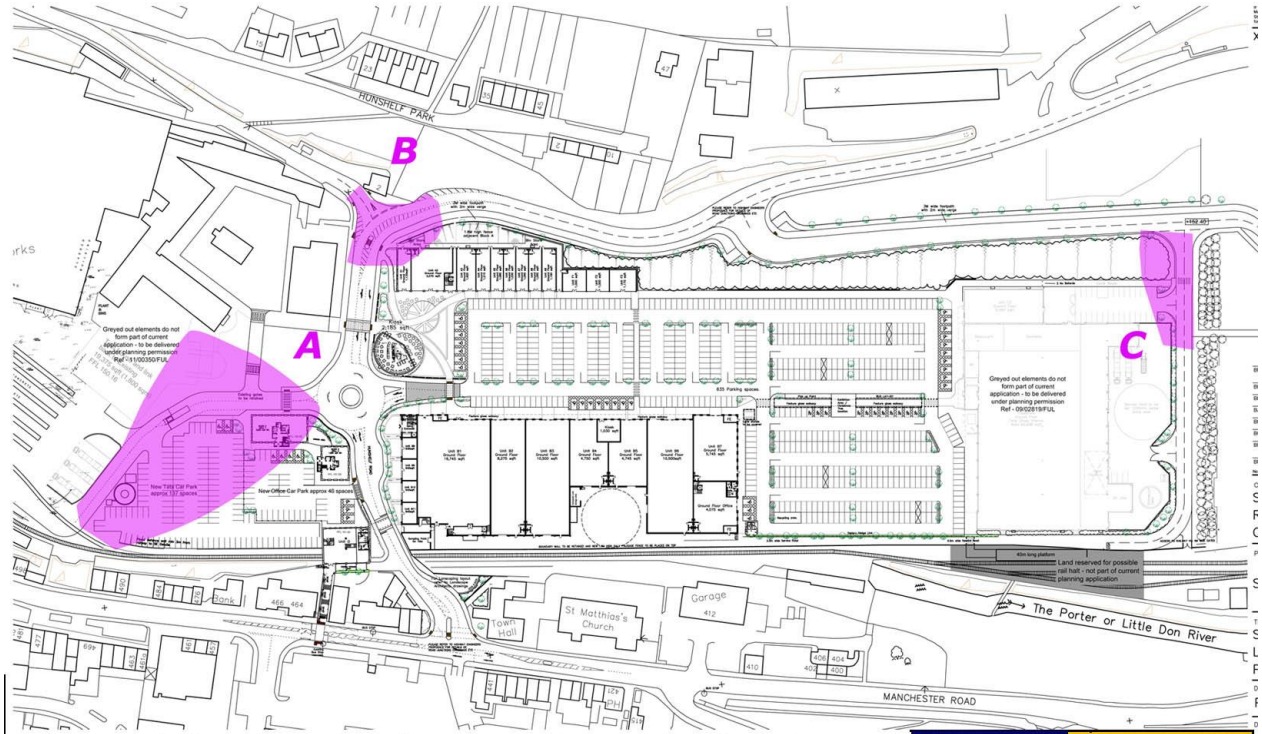


Figure 1: Site Location



Existing site plan, identifying buildings for recording



Proposed site plan, showing areas for monitoring

CgMs CONSULTING
London
Cheltenham
Kettering
Newark
Birmingham
www.cgms.co.uk

Date printed:	Drawn by: MF
3 October 2012	Checked by: PG

Figure 2: Locations of areas for archaeological investigation and recording

OASIS DATA COLLECTION FORM: England

List of Projects | Manage Projects | Search Projects | New project | Change your details | HER coverage | Change country | Log out

Printable version

OASIS ID: archaeol5-192802

Project details

Project name	Stocksbridge Steel Works, Stocksbridge, South Yorkshire. Archaeological watching brief
Short description of the project	watching brief at the current TATA site revaling several masonry remains of former structures of the works dating from the late 19th century through to the first quarter of the 20th century, including a possible furnace
Project dates	Start: 10-04-2014 End: 10-10-2014
Previous/future work	Yes / No
Type of project	Recording project
Monument type	INDUSTRIAL STRUCTURES Post Medieval
Significant Finds	NONE None
Investigation type	"Watching Brief"
Prompt	Planning condition

Project location

Country	England
Site location	SOUTH YORKSHIRE SHEFFIELD STOCKSBRIDGE Stocksbridge Steel Works, Stocksbridge
Study area	1000.00 Square metres
Site coordinates	SK 2747 9853 53.4825204021 -1.58600354068 53 28 57 N 001 35 09 W Point

Project creators

Name of Organisation	Archaeological Research Services Ltd
Project brief originator	CgMs Consulting
Project design originator	Archaeological Research Services Ltd
Project director/manager	Robin Holgate
Project supervisor	Alvaro Mora-Ottomano

Project archives

Physical Archive Exists?	No
Digital Archive Exists?	No
Paper Archive recipient	Sheffield City Museum and Mappin Art Gallery
Paper Contents	"none"
Paper Media available	"Photograph","Plan","Report"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Stocksbridge Steel Works, Stocksbridge, South Yorkshire. Archaeological watching brief
Author(s)/Editor(s)	Mora-Ottomano, A.
Date	2014
Issuer or publisher	Archaeological Research Services Ltd
Place of issue or publication	Bakewell

Entered by	Alvaro Mora-Ottomano (alvaro@archaeologicalresearchservices.com)
Entered on	16 October 2014

OASIS: