Sheaf Square

Sheffield

South Yorkshire

Archaeological Watching Brief

Contents

Summary

An archaeological watching brief at Sheaf Square, Sheffield, investigated the area around the previous ASWYAS archaeological excavation to the west of the Midland Station that investigated the remains of the New Tilt forge (Lee 2006). This previous investigation revealed the late 18th-century forge building and conduits to be cut by later 19th-century retaining walls and a culvert. The continuation of these features was investigated in this watching brief, including the removal of the culvert. The watching brief revealed further culverts associated with the conduits, and the continuation of the station access road across the site. This was arched towards the west.

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1. Introduction

1.1 Archaeological Services WYAS was commissioned by Interserve Project Services Ltd on behalf of Sheffield City Council to undertake an archaeological watching brief at Sheaf Square, Sheffield (Fig. 1). This was during the redevelopment of Sheaf Square and the Midland Station frontage as part of the Sheffield Station Masterplan project, which includes the construction of a sculpture, the 'Cutting Edge', and a large water cascade. The watching brief followed a series of excavations in an area of car parking to the west of the station frontage, and aimed to monitor further ground works around this site. These excavations have been extensively reported elsewhere (Lee 2006) and should be consulted in conjunction with this report.

1.2 The site is located in central Sheffield on the south-east side of the city centre (centred NGR SK 35775 86925, Fig. 1), and consisted of a small triangular area of car parking located directly in front of the Midland Station, the area exposed on the site of the former Sheaf House building (Area A) and an area to the west in the former pavement and road (Area B, Fig. 2). The site was bounded by Sheaf Street to the north and west, Dyson House, which had not yet been demolished, to the south, and the Midland Station forecourt area to the east.

1.3 The archaeological watching brief consisted of a series of monitoring visits to the site between 25th August and 20th September 2005. In Area A this involved a reduction in level around the previous excavation area, further reduction in the imprint of the water cascade and the replacement of a large culvert within the previous excavation area. Monitoring in Area B observed the excavation of a large test pit to remove solid obstructions to facilitate the piling for the Cutting Edge foundations. The work was monitored by Dinah Saich of the South Yorkshire Archaeology Service (SYAS).

1.4 The maximum excavation depth was to 51.90m OD within Area A where natural clay was observed. The original ground level around Area B was approximately 57.91m OD with excavations to a maximum of *c.*53.81m OD. The underlying geology of the site is of Lower Coal Measures associated with a narrow band of alluvium (British Geological Survey 1974).

2. Historical and Archaeological Background

2.1 The site, previously open meadows adjacent to the River Sheaf, was first occupied by the Old Tilt forge that was founded in 1732-3 (Crossley 1989, location shown in Fig. 3). A large dam extended to the south of the forge to where it drew its water from the nearby Porter Brook. As the name suggests, the tilt forge would have contained tilt hammers that were powered by a water wheel and used for forging blades and larger edged steel tools. The Tilt Dam was augmented with the Bamforth Dam to the north-east in 1780 constructed from a former meander of the River Sheaf after straightening. This new dam served as a reserve supply for other mills and forges to the north. In 1793-4 the New Tilt was constructed to the east of the original tilt, by now known as the

Old Tilt, and drew its water from the same dam. By 1808 the Old Tilt had been demolished and Tayler's map of 1832 shows a possible extension to the side of the main forge building. Records show that some of the building contents was sold off in 1825, including anvils, a beam, hammer heads and a fly wheel and the building is referred to as a tilt and sawmill in 1830 (Crossley 1989). The first edition Ordnance Survey map of 1850 shows extensions to the original forge building which by now was referred to as 'Pond Street Saw Mills'. The works was closed in 1855-6 and the dam drained in advance of the construction of the new Midland Station, completed in 1870. The second edition Ordnance Survey map of 1889 shows the station access road across the site with yards either side (Fig. 3). By 1905 the yards to the north had been filled in for a new station extension forecourt. The railway yards to the south of the station access road were filled in with the construction of Sheaf House in the early 1960s along with a realignment and redevelopment of Sheaf Street and Sheaf Square.

2.2 An archaeological excavation was carried out by Archaeological Services WYAS (ASWYAS) in 2004 which targeted the remains of the New Tilt in a small area of former car parking in front of the Midland Station (Lee 2006). This revealed part of the wheel pit dam and building of the New Tilt forge constructed in 1793-4 (Phase 1). Remains of a possible extension to the building (Phase 2) were scant apart from a series of water conduits of unclear function adjacent to the wheel pit. Some artefactual evidence of bone cutting and button making was recovered, suggesting the later use of the building greatly diversified from its original function as a tilt forge. The earlier forge structures were cut by later 19th century retaining walls, including the wall for the new station access road (Fig. 3), and a large culvert (Phase 3). The site was overlain by considerable layers of made ground which contained large quantities of industrial and domestic artefacts. The area of the excavation was restricted by roads, pavements and buildings which have since been demolished or altered.

3. Aim and Method

3.1 The aim of the watching brief was to investigate the areas around the previous excavation trench (Fig. 2) during the redevelopment of the site, and specifically to record any features exposed below Culvert 133 within the former excavation trench during replacement.

3.2 The previous excavation trench had been backfilled with rubble hardcore to stabilise the area after ASWYAS had left the site in 2004. Sheaf House was demolished by the developer in 2005 and the structural remains removed from site. The tarmac and very upper levels of made ground had been removed prior to ASWYAS presence on site. Further layers of made ground in Area A around the previous excavation were removed by the developer with a 360° mechanical excavator fitted with a toothless bucket under archaeological supervision to an average depth of 54m OD. Deeper excavation at the eastern end of the proposed water cascade was facilitated by sheet piling and the battering back of the excavated edge (Fig. 2). The large retaining wall from the excavation was removed to the same level. Part of the north-west wall of the

former Sheaf House was retained to form part of the water cascade structure, although the internal concrete ring beam foundations (Fig. 2) were removed to 54m OD level. The large brick culvert (Context 133, Lee 2006) located in the previous excavation trench had to be exposed and the section that was to be below the water cascade structure replaced. This was exposed by machine fitted with a toothless bucket and the resulting features were cleaned and recorded to ASWYAS standard methods. The remains exposed were left *in-situ* as they were below the lower level of the new culvert pipe.

3.3 Area B was excavated to remove potential obstructions prior to piling for the Cutting Edge. The continuation of the retaining walls located in Area A were found below the road and removed by a mechanical excavator. The lower arched area of the former raised roadway had been mass filled with concrete which was removed with a pecker. The excavation was very deep and was not entered due to health and safety considerations. Photographs and sketches had to be made from the side. The excavations were backfilled after the concrete had been removed.

3.4 The piling for the new structures was not monitored, after consultation with SYAS, as the drilling method used provides little potential for the recovery of finds or differentiation of deposits.

4. Results

4.1 A general plan of the watching brief area is shown in Figure 2 and is overlain in Figure 3 with the second edition Ordnance Survey map. A detailed plan of Areas A and B is shown in Figure 4. The plan of the features located below the Culvert is shown in relation to the features recorded during the excavation in Figure 5.

4.2 Area A (Fig. 4)

4.2.1 The investigation of Area A consisted of the broader area under the footprint of the former Sheaf House building in the south of the site and the deeper excavation to the north for the pump house of the proposed water cascade. The area was reduced in level to 54m OD initially, and the northern area was then reduced further after the installation of sheet piles.

4.2.2 The general strip in the footprint of the former Sheaf House revealed the remains of a large stone retaining wall (500) that ran parallel to the similar large retaining wall (155) found previously in the excavation to the north (Fig. 4, Plate 1). The walls were of the same large ashlar block construction and formed a raised roadway to the Midland Station. Wall 155 was faced to the north and Wall 500 to the south. The station was completed in 1870 therefore the walls must date to between 1855-6 and 1870. Mixed made ground deposits (506) were encountered to the north of Wall 500 that were used to build up the central area of the raised roadway. These consisted of mixed yellowy brown silty clay with frequent sandstone and occasional ceramic building material fragments. These were similar to the made ground deposits at around 54m OD

that were recorded in the previous excavation trench (Contexts 280, 283 and 276, fig. 20, S.41 in Lee 2006).

4.2.3 Similar deposits were encountered to the north of Wall 155 extending beyond the former excavation trench, the edges of which were clearly visible due to the recent rubble backfill. The level of the watching brief strip was down to approximately the level of the former yard surface centred on 54m OD (Context 105, fig. 17, S.2; fig. 18, S.16; fig. 19, S.17 in Lee 2006). The majority of the reduced excavation within the sheet piles was within the recent backfill of the previous excavation trench and no more archaeology was disturbed.

4.2.4 Excavation during the watching brief did extend further to the north-east beyond the previous excavation trench where the continuation of the made ground was observed. The stratigraphy at the north end of the watching brief area was similar to that recorded in the excavation with a tarmac and cobbled surface overlaying mixed made ground layers (fig. 17, Lee 2006). The base of these layers was not reached and natural deposits were not located. A large stone grinding wheel (108) was found within made ground Layer 105 (Lee 2006) in the eastern side of the watching brief excavations (Fig. 4, Plate 2). The large sandstone grinding wheel was 1.495m (59 inches) in diameter and 215mm (8.5 inches) wide with a central axle hole 115mm in diameter. The grinding edge had been tooled with a 'VV' pattern, although a large radial crack around the circumference perhaps indicates why it had been discarded. Indeed the grinding wheel split in two when moved by machine. The wheel was not retained and was left on site due to its large size. This was agreed with Sheffield Museum and SYAS (D. Saich pers. comm.).

4.2.5 The area to the south of Wall 500 was stripped to 54m OD revealing a compacted gritty coal and ash surface (505) at a height of approximately 54.30m OD (Fig. 4). This was similar in nature and level to the compacted coal surface (105) located to the north of Wall 155 during the previous excavation. This indicates that the yards to the north and south of the raised roadway were at similar levels. A disturbed large brick wall foundation (504), that was cut by the concrete foundations of the former Sheaf House, was also revealed in the southern part of Area A (Fig. 4). A total length of 22m of the foundation was exposed which were 1.05m in width and 0.5m in height. The lower part of the structure was left *in-situ*. A small area of granite sets (507) was also located to the south of Wall 500 at 54.19m OD (Fig. 4). A 2.3m by 1.2m area was observed although the area around the sets was disturbed perhaps suggesting previous removal. This suggests that at least part of the area to the south of Wall 500 was cobbled. Pre-dating Sheaf House, but post dating the Tilt Dam the wall and cobbles probably relate to the former railway sidings that date to between *c.*1870 and the early 1960s.

The Conduits (Fig. 5)

4.2.6 The truncated remains of several features were revealed when the large brick culvert 133 was removed by machine and the resulting area cleaned by hand (Fig. 5). Part of the sidewall of the wheel pit (509), the continuation of the lower gulley of Conduit A and several brick culverts were located (512, 515 and 516).

4.2.7 The remains of the sidewall of the wheel pit (509) consisted of a large flat stone setting or top of a wall that was observed in plan (Fig. 5, Plate 3). It appeared to consist of a single roughly squared and shaped sandstone block, although heavy lime mortaring may have obscured joins between stones. Only the top 0.1m in height of the stonework was exposed as the remains were to be left *in-situ*. A slight lip was evident on the wheel pit side. The stone work corresponded to the south-east wall of the wheel pit that was exposed during the previous excavation, and was aligned with stonewalls 208 and 249 in Phase 1 (Lee 2006), although its full extent was not clear.

4.2.8 The remains of two brick culverts that appeared to pre-date the Conduits were located (512, 515 and 516, Fig. 5, Plate 4). Culvert 512 and 515 appear to represent the same linear brick culvert that survived at one course high. The culvert was later cut by channel 513 that represents a continuation of Conduit B to the north-east. Further excavation of these features was not undertaken during the watching brief as they were to be left *in-situ*. The excavation of Conduit B is detailed in the excavation report (Lee 2006, section 5). A continuation and change of orientation of the culvert to the south-east is represented by Culvert 516.

4.2.9 The remains of the central base gulley (510) within Conduit A was located although it was heavily cut by the culvert. The small 'U' shaped gulley survived at 0.18m in width and 0.07m in depth and was filled with firm brown gritty clay (511, S1, Fig. 5). Fragments of clay pipe stem and part of a copper alloy rivet head were recovered (see Section 5.2). The gulley represents the remains of the conduit channel that survived below the later culvert. The gulley was cut into natural clay.

4.2.10 The remains of a stonewall (517) was located in the south-east end of the watching brief area. The wall was 0.26m in width and the mortared stones were faced on both sides. The wall appeared to end adjacent to Culvert 516, and probably represented a continuation of Wall 386 to the south-east that formed the side of Conduit B. The wall was observed in plan, the full extent was not exposed and the remains were left *in-situ.*

4.3 Area B (Fig. 4)

4.3.1 Area B consisted of the trial excavations by machine to remove obstructions for piling (Fig. 2 and 4). This resulted in a rectangular machine excavated trial pit that was too deep to enter due to health and safety considerations and features were recorded from the top.

4.3.2 Walls 155 and 500 continued into Area B from the east and were of the same construction. The walls continued to the west into the excavation section. Excavations revealed a large arch (508) which continued through the width of the raised roadway (Plate 5). The depth of excavations hindered accurate recording of the arch although a schematic section is shown in Figure 4. The arch was located onto stone piers *c.*1m high constructed from large shaped ashlar blocks and spanned approximately 6.5m. The low brick arch was *c.*2m high in total and constructed from bricks faced with stone in the wall elevation (Plate 5). The arch had been mass filled with concrete, probably with the construction of Sheaf House in the 1960s, which had to be removed with a

breaker. This further hindered the recording of the arch. The arch structure and concrete was removed by machine to a depth of 4.1m below ground level (58.81m OD). Some stone sets were noted *in-situ* at around this level which probably correspond to the cobble surface 507 identified in Area A to the east. No excavation was carried out below the cobble level within Area B.

5. Artefact Record

5.1 **The Pottery** by Chris Cumberpatch

Introduction

5.1.1 A small pottery assemblage was recovered during the watching brief stage of the site and the pottery recovered from the previous excavation has been the subject of a more substantial report (Cumberpatch 2006). Details of the types of pottery recovered are given in the original report and this should be read in conjunction with the present report. All of the Pottery was recovered during the machine excavation of made ground deposits in Area A (Fig. 2) and is summarised in Table 1 (Appendix III).

Discussion

5.1.2 The pottery types identified were generally similar to those described in the first report on the site. Tablewares and utilitarian wares were both present and none of the material could be dated to a period earlier than the mid 19th century. The range of transfer printed designs resembled those from other parts of the site as did the range of vessel types and forms. The only maker's mark identified (B & H) was not definitely attributable to a specific manufacturer as several different Staffordshire firms used these initials (Godden 1991). All were active in the latter part of the 19th century which would be appropriate both for the date range for the site as previously established on the basis of the larger assemblage from the main phase of the excavation and also on the basis of the character of the pottery forming the present assemblage. It seems probable that this group of material falls into the third phase of activity on the site (c. 1855 – 1905), as outlined in the earlier report.

5.2 **Other Finds** by Daniel Lee

Introduction

5.2.1 Seven other finds were recovered during the watching brief and these are catalogued in Table 2 below. Four finds were from Context 511, the remains of a small gully in the base of Conduit A (Fig. 5). They consist of three plain fragments of clay tobacco pipe (two stem and one bowl fragment), and a possible fragment of copper alloy rivet head comparable to those recovered from the same feature within the excavation (Lee 2006). The clay pipe

assemblage from the previous excavation of the conduit fills have indicated a deposition date of 1830-1860 (White 2006, Context 139, 410, fig. 38, Cat. 63). The limited clay pipe assemblage recovered from the watching brief investigation does not refine this date further.

5.2.2 Unstratified finds included a waste piece of cut bone from cutlery handle scale manufacturing (Plate 6) and the base of a possible scent or decorative bottle from Area A. An unstratified fragment of a grooved grinding wheel was recovered from Area B (Plate 7). The fragment is approximately a third of a 7.5 inch diameter wheel that would have been 9 inches wide with a series of quarter inch grooves in the grinding surface. The grey composite ?graphite fabric is unusual and no comparisons are known (Ken Hawley pers. comm.). Small grooved wheels were used for grinding razors but where commonly made of stone or later from reconstituted coke. The function for the wheel is unknown as although fairly dense, the fabric is relatively soft and perhaps more suitable for polishing rather than grinding. It most likely dates from the mid to late 19th century.

Type	Context	No.	Weight	Description	Date
Clay pipe	511	3	6g	Plain stem frag, bore 5/64, stem frag coated in purple ferrous slag, plain bowl frag, no marks/dec	19th C
Copper Alloy	511	1	<1g	Sub semi-circular small flattish piece, possible part of rivet head	19th C
Worked Bone	U/S Area A	1	11g	Cutlery handle scale. Flat rectangular section of a large mammalian long bone cut on all sides bar one with circular saw marks visible, uncut side is rounded external face of bone, waste off cut from cutlery handle scale manufacturing, (L=82mm, W=20mm, Th=9mm max), Plate 6	18th – 19th C
Glass	U/S Area A	1	56g	Bottle base, Pale blue glass fabric without tears, formed from two part mould, slight concave kick up on base, oval cross section (max. base diameter 44mm), base of small sent or decorative bottle	19th – E 20th C
Grinding wheel	U/S Area B	1	2.8 Kg	Grinding wheel fragment, rounded external surface with six grooves visible more heavily worn to one side, ends flat, dense non-ferrous metal like fabric, (L=230mm, W=170mm, Th 92mm, grooves= 7mm deep max. original diameter =190mm or 7.5”),Plate 7	mid to late 19th – E 20th C

Table 2. Catalogue of other artefacts (clay pipe, copper alloy, bone, glass, grinding wheel)

6. Conclusion

6.1 The watching brief within and around the footprint of Sheaf House and within the previous excavation site (Lee 2006) revealed the continuation of archaeological features in the area. The removal of a large brick culvert 133 for reinstatement within the former excavation trench revealed stonework relating to the former New Tilt wheel pit and early brick culverts (Phase 1, 1793 to *c.*1830, Lee 2006) and the continuation of Conduits A and B (Phase 2,

*c.*1830 to *c.*1855). The remains of these were recorded and left *in-situ* below the culvert reinstatement.

6.2 A raised roadway was located within Area A defined by two large stone walls (Walls 155 and 500) which formed a former access road to the railway station. The roadway is clearly depicted on the Ordnance Survey map of 1889 (Fig. 3) and was constructed between 1855 and 1870 when the station was completed. These walls continued into Area B of the watching brief where the remains of a stone arch was identified, suggesting that the roadway structure was arched at the base at the western end towards the Midland Station Hotel. Remains of the Old Tilt were not located in the excavation in Area B and it is likely that these were only disturbed by piling. The exact location of the Old Tilt is not known although a rough location has been transferred from a historical plan perhaps with several meters degree of error (Fig. 3). It is entirely possible that the potential remains of the Old Tilt were not disturbed during this development and they remain *in-situ* below several meters of made ground below the road. Evidence suggested that the area to the south of the station roadway was cobbled and contained further wall structures relating to the former railway sidings. The railway sidings were in use from *c.*1870 to the 1960s when Sheaf House was constructed. This has now been demolished during the present redevelopment.

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Cartography

Information in this report has been drawn from the following historical sources:

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1808 Fairbank, W. & J., 'A Map of The Town and Environs of Sheffield' (She S1311L, Sheffield Archives)

1832 Tayler, J., 'A Map of The Town and Environs of Sheffield in the West Riding of the county of York', (She S 9L(6), Sheffield Archives)

1850 OS 1st edition, 25 inch to 1 mile, Sheet 294.26 (Sheffield Local Studies)

1889 OS 10' to 1 mile, Sheet 294.12.2 (Sheffield Local Studies)

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Daniel Lee	All other finds	ASWYAS

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Appendix I

Inventory of primary archive

File no.	Description	Quantity
1	Context register	1
1	Context cards	19
1	Drawing sheets	5
1	Photographic films (colour slide and black and white)	3
1	Development site plans	2

Appendix II

Inventory of contexts

Context	Area	Description
105	A	Layer- compacted coal surface from excavation
155	A	Wall- raised roadway north wall from previous excavation
500	A/B	Wall- raised roadway south wall
501	A	Wall 500 capping
502	A	Brick layer
503	A	Modern overburden
504	A	Brick wall
505	A	Layer – surface (similar to 105 in excavation)
506	A	Made ground between Walls 155 and 500
507	A	Cobble surface
508	A	Grindstone (within 105)
509	A	Stone wall
510	A	Cut of Gulley
511	A	Fill of 510
512	A	Culvert
513	A	Cut of channel
514	A	Fill of 513
515	A	Culvert
516	A	Culvert
517	A	Wall
518	B	Arch within Wall 500/155

Appendix III

Inventory of artefacts

Fabric	Area	Context	Quantity	Details
Pottery	A	108	15	See specialist report, Table 1
	A	U/S	22	
Total			37	
Clay pipe	A	511	3	See specialist report, Table 2
Copper Alloy	A	511	1	
Worked Bone	A	U/S	1	
Glass	A	U/S	1	
Grinding wheel	B	U/S	1	
Total			7	