YORK ARCHAEOLOGICAL TRUST

Archaeological Investigations at
Former Heworth Gasworks Site, York

By T. Coates

YAT Assessment Report 2019/138 September 2019

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Abbreviations

AOD – Above Ordnance Datum

BGL – Below Ground Level

BGS – British Geological Survey

CBM – Ceramic Building Material

CYC – City of York Council

NGR – National Grid Reference

SMR – Strip, Map and Record

SMS – Strip, Map and Sample

WSI – Written Scheme of Investigation

YAT – York Archaeological Trust

NON-TECHNICAL SUMMARY

Between the 27th August and the 18th September 2019 York Archaeological Trust conducted a strip, map and sample at Former Heworth Gasworks, York, YO31 7TA (SE 6114 5253).

The work was undertaken for Aspect 4 Limited to fulfil a planning condition for a planning application under consideration by the City of York Council (19/00979/OUTM). The work was based on a Written Scheme of Investigation produced by YAT. The works involved soil stripping from the northernmost corner and moving south towards where an excavation was carried out by YAT in 2012 (Milsted 2012). Stripping in the northernmost area ceased once it was realised the scope of contamination was too severe to continue, or where the extent of the previous excavation was encountered.

Following discussion with the City of York Archaeologist, Claire MacRae, a programme of strip, map and sample was then undertaken to excavate the features present.

Archaeological features dating to the Roman and medieval periods were present on the site. A series of Roman ditches dating to the 2nd-3rd centuries were interspersed across the site, as well as three probable medieval furrows situated to the east of the site.

KEY PROJECT INFORMATION

Project Name	Former Heworth Gasworks, York, YO31 7TA
YAT Project No.	6158
Document Number	2019/138
Type of Project	Strip, map and sample
Client	Aspect 4 Limited
Planning Application No.	19/00979/OUTM
NGR	SE 61144 52531
Museum Accession No.	TBC
OASIS Identifier	yorkarch1-367436

REPORT INFORMATION

Version	Produced by		Edited by		Approved by	
	Initials	Date	Initials	Date	Initials	Date
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1 INTRODUCTION

Between the 27th August and the 18th September 2019 YAT conducted a strip, map and sample at Former Heworth Gasworks, York, YO31 7TA (SE 61144 52531) (Figure 1).

The work was undertaken for Aspect 4 Limited for a planning application under consideration by the CYC (19/00979/OUTM). The work was based on a Written Scheme of Investigation produced by YAT. Due to the potential levels of contamination across the site, the programme of works was initially a strip, map and record investigation. Once the site had been stripped and the area confirmed safe to excavate, a revised programme of strip, map and sample was undertaken.

In accordance with the Written Scheme of Investigation (WSI), the entire Phase 1 area was stripped by a 13-ton machine excavator down to the archaeological horizon. All archaeological features exposed were mapped and recorded, before being excavated once safe to proceed.

The aim of the strip, map and sample (SMS) was to provide a full sequence through the sites archaeological resource. This information will be added to existing knowledge already gathered through a Desk Based Assessment (McComish 2019) to inform the management of the resource during future development work.

2 METHODOLOGY

Key Aims and Objectives for the project were:

- to determine the extent, condition, character, importance and date of any archaeological remains present
- to provide information that will enable the remains to be placed within their local, regional, and national context and for an assessment of the significance of the archaeology of the proposal area to be made
- to provide information to enable the local authority to decide any requirements for further archaeological mitigation for the site

The methodology followed the revised WSI (Appendix 5), with the following changes and additional amendments:

- Where contamination was confirmed minimal, excavate features at a 10% sample for linear features and 50% for small features, or close to, dependant on levels of contamination. All archaeological features were recorded using the standardised YAT recording manual and a photographic record was collated using a 12-megapixel digital camera.
- Where the edges of contaminated areas were exposed, immediately backfill and consider that area as part of the limit of excavation.
- Finds retrieval was permitted for archaeological assessment. The finds were sealed in clear plastic mini-grip bags and were not to be opened under any circumstances. Once assessed it is recommended that the finds should be disposed of safely.

- The survey was carried out using a Leica Viva GNSS-GS16 GPS unit (accurate to 10mm).

3 LOCATION, GEOLOGY & TOPOGRAPHY

The proposal site is located at the Former Heworth Gasworks Site, York (SE 61144 52531) (Figure 1). The site is approximately 3.34 hectares in size and lies to the east of the River Foss, approximately 800m east of York Minster and 600m east of the city walls. The SMS covered a total area of 1940sq.m (Figure 2). The site is bordered to the north by Heworth Green road (the A1036), to the east by a disused railway line, to the south by Layerthorpe Road and to the west by Eboracum Way. The ground is flat and at an elevation of around 12.5m AOD.

The underlying geology is Sherwood Sandstone, a sedimentary bedrock formed approximately 237 to 272 million years ago in the Triassic and Permian Periods, when the local environment was dominated by rivers (BGS). The bedrock is overlain by superficial deposits of glaciolacustrine clay, with deposits of alluvium within the channel of the Foss (BGS).

4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Taken from DBA (McComish 2019).

4.1 Prehistoric

No finds of prehistoric date are known in the immediate vicinity of the site.

4.2 Roman Period c. AD 71-410

The site lies approximately 600m to the north-east of the Roman legionary fortress of Eboracum. A major Roman road running north-eastwards from the north-eastern gate of the fortress to Malton (Road 4, RCHM 1962, 2-3), is thought to lie beneath Heworth Green road, i.e. to the immediate north of the present study site. A second Roman road led eastwards from the fortress to Stamford Bridge (Road 3, ibid., 3); the precise location of this road within York is conjectural and while it used to be thought that this road branched off Road 4 somewhere in the vicinity of Heworth, Ottaway (2011, 160) has suggested that it ran directly to the north-eastern fortress gate.

Due to a prohibition on burial within settlements, Roman cemeteries were located beyond the limits of settled areas, often alongside major roads. This was certainly the case in the Heworth area. A cemetery comprising four cremation jars was uncovered in 1878 during the construction of the Foss Islands Branch Line railway, and a stone coffin was found 30m to the north of the cremation jar site in 1879 (RCHM 1962, 70). A second small cremation cemetery was uncovered in 1926 at the junction of Glen Road and Harcourt Street (ibid., 70). More recently, Roman pottery and burnt animal bone uncovered during archaeological works at Heworth Green (within the present study site) were interpreted as the possible remains of a disturbed Roman burial (Clark 2003, 19), while Roman pottery at Heworth Croft was interpreted as possibly originating from a cemetery (Fern 2007, 12-4).

The presence of three tile wasters from a site at Heworth Croft has been used to suggest rural tile production (Fern 2007, 12-4), but there is no other supporting evidence to confirm this.

4.3 Anglian and Anglo-Scandinavian 5th century to 1066

While the site lay beyond the limits of Anglian settlement, cemeteries of this date are known in the Heworth area. These finds are of regional importance due to the rarity of such remains within York.

A 5th-6th century cemetery (located 270m to the north of Heworth Green to the rear of Dodsworth Avenue) was uncovered in 1878 during the cutting of the Foss Islands Branch Line railway. Somewhere between 80-90 burial urns were recovered together with glass beads, gaming pieces and a pair of copper alloy tweezers (Tweddle et al. 1999, 170). Investigations undertaken in 1965 confirmed that this cemetery had been entirely destroyed by the cutting of the railway (ibid., 170).

Raine recorded that in 1879 a Saxon urn was found in a tumulus in a garden in Heworth (ibid., 173). This cannot refer to the cemetery noted above as this was in a flat field, raising the possibility that it was recovered from a garden mound located to the north of Heworth Grange, depicted on a drawing by Ridsdale Tate of 1920.

The site lay beyond the limits of settlement in the Anglo-Scandinavian period and no remains of this date are known from the immediate vicinity.

4.4 Later Medieval 1066 to mid-16th century

During the later medieval period the Heworth Green area lay between the city of York and the village of Heworth. Little evidence of medieval activity has been uncovered in any of the various archaeological investigations in the vicinity, suggesting that the area was primarily agricultural throughout this period. Ditches of medieval date were uncovered at both Heworth Green and Heworth Court which were interpreted as relating to agriculture/drainage (Clark 1003, 3; Fern 2007, 12-4). In addition, medieval plough furrows were found at Heworth Court (Timms 2004, iii)

4.5 Post-Medieval mid -16th century to mid-19th century

The vicinity of the present study site seems to have remained largely rural throughout this period. A post-medieval windmill was located at the junction of Glen Road and Harcourt Street (monument MYO2184), and it has been suggested that a mound north of the A1036 (monument MYO2273) may represent the base for a second windmill (Fern 2007, 7), though the HER lists this as a garden feature.

Heworth Moor was enclosed by an Act of Parliament in 1817 (Fern 2007, 7). Following the enclosure, a number of large villas were constructed to the north of Heworth Green road.

4.6 Modern

The history of the site in the modern period is dominated by the York Town Gas Works. A process for manufacturing gas from coal was developed in the early 19th century and remained in use until the 1970s (NGM 2019). Coal was placed in a closed tube called a retort oven and heated without oxygen. The resultant gas was passed through a condenser and purifier to remove tar and other impurities, before being stored in large tanks (ibid.).

The York Gas Company was founded in 1823 and within a year it had built a large gas works to the west of the River Foss (FAS 2001, 6). Between 1880-85 a second gas works had been built to the east of the River Foss (the present study site). In addition, a railway link from the gas works to the Foss Islands Branch Line railway had been built which incorporated a bridge over the River Foss (ibid., 6).

The various OS maps in section 7 below show how the layout of the gas works to the east of the Fiver Foss changed over time. In 1892, there was a large rectangular building linked to the railway line, to the south of this line was a large tank. By 1910 a series of additional buildings had been constructed around the main rectangular building, and a second tank had been constructed to the south of the railway line. A further smaller tank was added to the north-east of the rectangular building by 1946, and by 1952 a further three tanks were present, slightly to the east of the original boundary of the gas-works. Between 1958 and 1962 there was further expansion, with another large tank and various small rectangular buildings being present in the area to the east of the original works.

The creation of the Britannia Car Park on the western half of the original gas works by 1982 meant that many of the original buildings of the gas works were destroyed, being replaced by a new depot built on the eastern portion of the site (a large rectangular building within the present study area).

In addition to the various changes within the gas works there were some other alterations in the area in the modern era. In 1925 Heworth Green was widened by 10m removing much of the area of the former hospital of St Loy (FAS 2001, 31). In the early 21st century Eboracum Way was created along the western boundary of the present site, with blocks of flats being constructed to the west of this road (on the site of the former Britannia Car Park). Modern housing and flats were also constructed to the north of Heworth Green road.

4.7 Summary of Archaeological Investigations

The former Gasworks site was investigated by Oxford Archaeology North in 2003, when nine trenches were placed across the eastern area of the site (Clark 2003). Only three of the trenches encountered archaeology.

Archaeological features were present in Trench 2 at 1.1m BGL (below ground level) and three features were excavated within the trench. One linear feature contained 17 sherds of Roman pottery along with burnt animal remains and it was suggested that this may possibly related to a Roman burial. A curvilinear feature extending past the western side of the trench also contained abraded Roman pottery. A later feature, possibly a posthole cut into the top of the linear, contained abraded Roman and medieval pottery.

Trench 3 contained two archaeological features at 1.3m BGL. The first feature was a steep V shaped ditch or gully, and the second was a U-shaped ditch both which extended out of both the north and south sides of the trench. No finds were recovered from either feature.

Trench 6 encountered archaeology at 1.2m BGL and two archaeological features were uncovered in the base of the trench. Both features were U-shaped ditches running east/west across the trench, no finds were recovered.

No archaeological features were seen in Trenches 1 and 4, where natural deposits were between 1.1 – 1.4m BGL. In Trenches 7, 8 and 9 the level of the natural dropped quite significantly to the south between 1.9 – 2.1m BGL.

During these excavations, disposable overalls and gloves were used onsite, as well as a PID (photo-ionisation detector) being placed at the trench edge to monitor potentially harmful substances.

In 2012, an archaeological watching brief was undertaken by York Archaeological Trust in the eastern area of the site, monitoring the removal of contaminated soil (Milsted 2012). Underlying contaminated deposits were removed to a depth of 0.70 – 0.80m BGL (Figure 4). Natural geological deposits were identified around 1m BGL, overlain by an agricultural soil of 18th-19th century date. This had been disturbed by a clearance and extensive levelling, dumping and waste disposal activity associated with the 19th and 20th century development of the Gasworks. The site was then extensively levelled and turfed in the later 20th century.

5 RESULTS

5.1 Summary

The majority of the archaeology on the site represented Roman agricultural activity, dating to the 2nd and 3rd centuries AD. A total of ten ditches were present within the SMS limit of excavation. Three phases of activity were identified on the site; Roman, medieval and modern. Six of the ditches contained Roman material comprising pottery and CBM along with a fragment of slag waste material. This material was retained for archaeological assessment, though kept in sealed bags throughout the assessment process. Three of the ditches are believed to be furrows and were assigned to the medieval phase of activity due to the presence of medieval pottery in the top of the ditch fills. This material was not retained due to nearby contamination. A single ditch was assigned to the modern phase of activity.

The level of modern activity had a negative impact on the preservation of the archaeology, with large parts of the site truncated to some depth. The shallow nature of the majority of the features heavily indicated a significant level of ground erosion, either by ploughing during the medieval and post-medieval periods, or from activity relating to the gasworks. Despite the high level of modern truncation affecting the visibility of the archaeology, it could be seen that archaeological features were present across the area of excavation.

The abraded nature of the pottery recovered from the ditches suggested the date of the infilling of the Roman ditches may have occurred after the 2nd/3rd centuries AD. These finds were therefore considered to be residual, rather than a primary deposition. However, the lack of finds postdating the 2nd/3rd centuries AD strongly suggest the ditches were in use during this period or possibly earlier.

All deposits and features have been allocated individual context numbers. For example, the first feature encountered within the area was topsoil and has been allocated the number C1000. These individual events have been categorised into sets, for example, the action of the cutting of ditch C1023 and subsequent infilling, C1035, C1036 & C1037 have been assigned set S117. This has then been grouped and subsequently phased (see Section 5.2).

The highest and lowest known heights of each feature have been recorded in the context list, see Appendix 2.

Natural Deposits (Group 100)

The natural geology exposed across the site was a firm, mottled light yellowish-brown silty clay with small variations of coarse light reddish-brown silty sand.

Superficial deposits of glaciolacustrine clay were present between 0.70m – 1.05m BGL. This was between 12.27m & 12.96m AOD.

5.2 Phase 1 – Roman (Sets 114, 117, 112, 115, 116 and 113; Figures 2-4)

This phase comprised six linear ditches relating to Roman agricultural activity. Dating material recovered from the fill of the ditches suggest activity took place between the second and third centuries AD.

The ditches were located in the north-eastern and southern areas of the excavation area. Five of the features were relatively shallow (S112, S113, S114, S115 & S116), measuring between 0.13m and 0.36m in depth and between 0.77m and 1.80m wide. All of the aforementioned features contained a single homogeneous infill varying from firm light bluish-grey sandy clay to firm dark greyish-brown silty clay.

The sixth ditch (S117) (Plate 1) was more substantial with a depth of 0.74m and width of 2.00m. The initial silting at the base of this linear had a thickness of 0.51m, which suggests a prolonged period of silting and use. This was overlain by two infills of soil build up, which contained the majority of the dating evidence, including pottery and CBM. Very fragmentary remains of burnt bone were also seen, however they were not retained due to disintegration on site.

The only stratigraphic relationship present was the truncation of ditch S113 by ditch S116 in the southern part of the excavation area, however the dating evidence from both features confirm they are contemporary.

It is possible that ditch S117 was a significant field boundary, due to its depth and size, especially when compared with the contemporary shallower ditches. The remaining Roman ditches were possibly for drainage and agricultural purposes rather than field boundaries.

5.3 Phase 2 – Medieval (Sets 118, 119 and 120; Figures 2 - 4)

This phase comprised three ditches that have been assigned to the medieval period through material seen on site, and also the spatial relationship between them; however, this was not conclusive as the features were not excavated due to the presence of heavily contaminated soils nearby.

The ditches were all on the same north-east/south-west alignment and evenly spaced with a gap measuring 4.00m- 4.50m between each linear. The fills comprised light brownish-grey silty clay in which medieval pottery and CBM were seen (Plate 2).

The uniformity of these three linear features would strongly suggest they were the furrows of a medieval ‘ridge and furrow’ agricultural method of cultivation.

5.4 Phase 3 – Modern (Set 121; Figures 2 - 4)

A single modern linear (S121) was uncovered in the north-western area of the site. This was not excavated due to the high levels of contamination nearby, and the presence of plastic sheets within the fill of the feature suggested it was modern in date.

6 SUMMARY

The SMS identified remains of a possible Roman agricultural landscape, including a potential significant field boundary along with smaller drainage or internal boundary ditches. Most of the archaeological features exposed appeared to have been heavily truncated which may have been due to plough truncation from Roman occupation through to the modern period. Further

truncation has occurred from modern activity associated with the former gasworks. The high amount of truncation could explain the lack of smaller features, such as pits and postholes that may have had original shallower depths which have since been lost to more modern truncations.

Despite the site's close locality to a potential Roman cemetery, there was no evidence of cremations or inhumation burials during the investigation. Much of the pottery was domestic in character, including jars, jugs and mortaria, and combined with the presence of CBM in much of the features, suggest a domestic settlement rather than funerary landscape was located in this part of the site.

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Survey: Excavation team

CBM analysis: J. McComish

Pottery analysis: C. Jackson & A. Jenner

APPENDIX 1 – INDEX TO ARCHIVE

Item	Number of items
Context sheets	37
Levels register	0
Photographic register	0
Sample register	0
Drawing register	0
Original drawings	7
B/W photographs (films/contact sheets)	0
Colour slides (films)	0
Digital photographs	233
Written Scheme of Investigation	1
Report	1

Table 1 Index to archive

APPENDIX 2 – CONTEXT LIST

Context Number	AOD Heights	Set	Description
1000	-	123	General number for mixed topsoil and contaminated backfill
1001	-	122	Firm, dark yellowish-brown, silty clay
1002	-	100	Firm, light yellowish-brown, silty clay with small areas of coarse, light reddish-brown silty sand
1003	12.90m – 12.78m	114	Linear shape in plan, north west - south east L: 14m, W: 1.80m D: 0.15m Shallow break of slope at top Shallow concave sides Shallow break of slope from sides to base Base is flat
1004	12.97m – 12.85m	112	Linear shape in plan N-S orientation L: 1.00m slot W:1.04m D:0.36m Moderate to steep sloping sides Gradual break of slope at base Base is flat
1005	-	101	Firm, light greyish-brown, sandy clay
1006	-	102	Firm, light greyish-brown, silty clay
1007	-	103	Firm, light greyish-brown, silty-sandy clay
1008	12.61m – 12.46m	113	Linear shape in plan E-W alignment L: 1.00m slot W: 1.12m D: 0.13m Moderate break of slope at top Moderate sloping sides Gradual break of slope from sides to base Base is flat
1009	-	-	VOID
1010		113	Firm, mid-greyish-brown, silty clay Occasional - fragments of iron panning & flecks of manganese
1011	-	104	Firm, light greyish-brown, sandy silt
1012	-	115	Firm, light greyish-brown, silty clay
1013	12.89m – 12.63m	115	Linear shape in plan Roughly NW-SE alignment but curves to a N-S alignment towards the south end of the cut L: 9.50m W 0.77m D:0.30m Sharp break of slope at top Moderately concave sides Moderate break of slope from sides to base Base is concave
1014	-	121	Modern fill
1015	-	121	Cut of modern linear
1016	-	105	Firm, light yellowish-grey, sandy clay
1017	-	106	Firm, dark yellowish-brown, silty clay
1018	-	107	Firm, dark yellowish-brown, silty clay
1019	-	108	Firm, dark greyish-brown, silty clay
1020	-	109	Firm, dark brownish-grey, silty clay

Context Number	AOD Heights	Set	Description
1021	-	110	Firm, dark greyish-brown, silty clay
1022	-	111	Firm, greyish-brown silty, clay
1023	13.03m – 12.28m	117	Linear shape in plan NW-SE orientation L: 8.00m W: 2.00m D: 0.74m Truncated at top, sharp break of slope at top Moderately concave to convex to concave sides Moderate break of slope from sides to base Base is concave
1024	-	115	Firm, light yellowish-brown mottled grey silty clay Occasional - flecks of charcoal - iron panning - medium sized rounded/sub angular sandstone cobbles - Root bioturbation
1025	12.65m – 12.23m	116	Linear shape in plan, NW-SE alignment, L: 31.30m W: 1.11m D: 0.31m Sharp break of slope at top Steep, slightly concave sides Gradual break of slope at base Concave base
1026	-	116	Firm, dark bluish-grey, sandy clay
1027	-	115	Firm, mid-brownish grey, silty clay Occasional - flecks of charcoal - medium sized rounded cobbles Frequent - root bioturbation
1028	-	112	Friable, mid-brownish-mottled-grey, clayey silt Occasional - iron pan - manganese - large rounded cobbles - sub angular pebbles
1029	-	116	Firm, light greyish-brown, silty clay Occasional - iron pan - manganese - small sub angular pebbles
1030	-	114	Firm, light yellowish-greyish-brown, silty clay Occasional - flecks of charcoal - flecks of manganese - root bioturbation
1031	12.47m	118	Light, mid-brownish-grey, silty clay
1032	12.73m	119	Light, mid-brownish-grey, silty clay
1033	12.74m	120	Light, mid-brownish-grey, silty clay
1034	-	113	Firm, mid-greyish-brown, silty clay
1035	-	117	Firm, mid-orangish-brown w/mottled-grey, sandy silty clay
1036	-	117	Soft, mid-orangish-brown w/mottled-grey, silty sand
1037	12.66m	117	Firm, mid-greyish-brown, silty clay

Table 2 Context list

APPENDIX 3 – CERAMIC BUILDING MATERIAL REPORT

By Jane McComish

Introduction

This assessment relates to 6.17kg of ceramic building material (CBM) recovered from the archaeological excavations at the site of the former Heworth Gas Work (York Archaeological Trust project code 6158). The CBM was of Roman date.

Methodology

It was not possible to record the material to the standard YAT methodology (McComish 2019) as the author was specifically requested not to remove any of the items from the sealed clear plastic mini-grip bags into which it had been placed. This was because the collection was probably contaminated by hydrocarbons.

Each bag (any given bag contained sherds from a single context) was weighed and the sherds examined through the plastic. This prevent the weighing of individual sherds or the accurate assessment of the fabrics. The results are summarised by context in Table 3 below.

The data is stored on YATs internal computer system (which is backed up daily to prevent data loss) under the project code 6158.

Results

The CBM was all in a finely sorted deep red fabric interpreted as Roman. Most of the sherds were of unidentifiable forms (termed Roman brick), but there were a few sherds of roof tiles (tegulae and imbrices) together with a single sherd of box flue tile.

The tegulae at the present site ranged from 27-36mm in thickness (4 examples) with flanges 57mm thick (2 examples). A single B6 lower cutaway was present (following the classification by Warry 2006, 61). One tegula had a thumb groove adjacent to the flange. The imbrices were 16-19mm thick (3 examples), the box flue tile was 21mm thick and the Roman brick sherds ranged from 22-40mm thick (6 examples). No other features relating to manufacture (such as signatures or stamps) were present.

Summary and recommendations

All this material was typical for York as a whole. This is also a small collection with limited research potential which is mainly of use for dating the contexts concerned. No further work is recommended. None of the material was worthy of museum display.

Given the possibility of contamination it is recommended that all the material is safely discarded.

Context	Weight in grams	Number of sherds	Details
1010	200	2	Roman brick
1026	810	2	1 tegula part of flange only; 1 Roman brick
1027	975	3	1 tegula 27mm thick with flange 57mm thick and B6 lower cutaway; 1 Roman brick; 1 imbrex 19mm thick
1028	2250	11	1 tegula 33mm thick flange missing; 1 tegula 27mm thick flange broken off, groove by flange; 1 tegula 36mm thick with flange 57mm thick; 1 Roman brick 36mm thick; 7 Roman brick
1029	810	4	1 box flue 21mm thick; 1 Roman brick 18mm thick; 1 Roman brick 33mm thick; 1 Roman brick 40mm thick
1029	75	2	Roman brick
1034	125	3	1 imbrex 16mm thick; 2 Roman brick
1038	1025	3	1 imbrex 16mm thick; 1 Roman brick 22mm thick; 1 roman brick 34mm thick

Table 3 CBM in relation to context

APPENDIX 4 – POTTERY REPORT

By Clare Jackson and Anne Jenner

Introduction

Fifty-eight sherds of domestic pottery were retrieved from seven Contexts (see Table 1) during an SMR intervention at Heworth gasworks (Project 5168). These Roman sherds are probably from contexts dating to the 2nd-3rd centuries. This is not easy to determine as many of the sherds were abraded. This may be due to weathering or ploughing, as plough marks were noted on site. Although the level of abrasion may indicate a certain level of residuality there is no obvious intrusion.

Methodology

The pottery was quantified and recorded in the standard manner (see Orton, Tyers and Vince 1993; Orton and Hughes 2013). It was sorted into fabric and form groups, based on colour, firing, clay matrix, inclusions and glaze type. Where possible these groups were related to known types from the area. The number of sherds were calculated and these can be found with the archive.

Although it is generally agreed that weight and number of sherds provide the most useful index of quantity (Brooks 1987, 116) only the sherd count was concentrated on here. The approximate sherd sizes have also been noted. These are small <5cm, medium >5cm to <10cm, large >10cm at the widest point.

As the site was contaminated sherds were only viewed through sealed clear plastic bags. This means that identification was limited.

Discussion

The majority of the wares appear to be from the 2nd/3rd century. There appear to be no earlier or later wares within the assemblage. Fabrics appear to be of two main types; these are local Grey and red wares. The latter possibly from the local Ebor kilns at Apple Tree farm (Monaghan, 1997, 1138), although there were probably a number of kilns also producing these wares within York (ibid). A small number of very abraded sherds, including a bowl base, are probably samian. One sherd has a moulded decoration (see 1026).

The forms include jars, mortaria, bowls and a jug. The largest sherds come from Grey ware jars.

Recommendations

The material is unlikely to add to our knowledge of Roman pottery in York. This is particularly so as the material is often small, abraded and contaminated.

CONTEXT	NUMBER	DESCRIPTION	DATE
1026	2	1 Ebor Mortaria/bowl, large sherd; 1 samian small sherd with moulded décor	2nd Century
1027	18	9 greyware including rim; 9 Ebor sherds; all small sherds	2nd/3rd Century
1028	3	2 Ebor Mortaria, medium; 1 amphora	2nd/3rd Century
1029	4	4 Ebor-type, abraded	2nd Century
1030	4	1 samian bowl base, abraded, small to medium; 3 Ebor-type, small sherds	2nd Century
1034	1	1 greyware jar base, large sherd	2nd/3rd Century
1036	26	1 coarse greyware rim, medium sherd; 1 coarse grey ware jar/bowl base, large sherd; 1 shoulder jug, medium sherd; 1 Mortaria rim, medium sherd; 1 strap handle, medium sherd; 1 ribbed neck, medium sherd; 12 scraps; 5 Ebor ware, medium; 3 greyware, small sherds	2nd/3rd Century

Table 4 Pottery quantification

PLATES

Plate 1 Shot of SMS area, view north

Plate 2 North-west facing section 8 of ditch C1023 (S117). Scale unit 500mm

Plate 3 Shot of possible furrow C1032 (S119), view north-east. Scale unit 100mm

Plate 4 Shot of Modern feature C1015 (S121), view west. Scale unit 100mm

Plate 5 North-east facing section 2 of Ditch C1025 (S116). Scale unit 100mm

Plate 6 Working shot, view west

Plate 7 Fragments of CBM and pottery from Set 116. Scale unit 100mm

Plate 8 Fragment of samian ware with moulded decor from Set 116

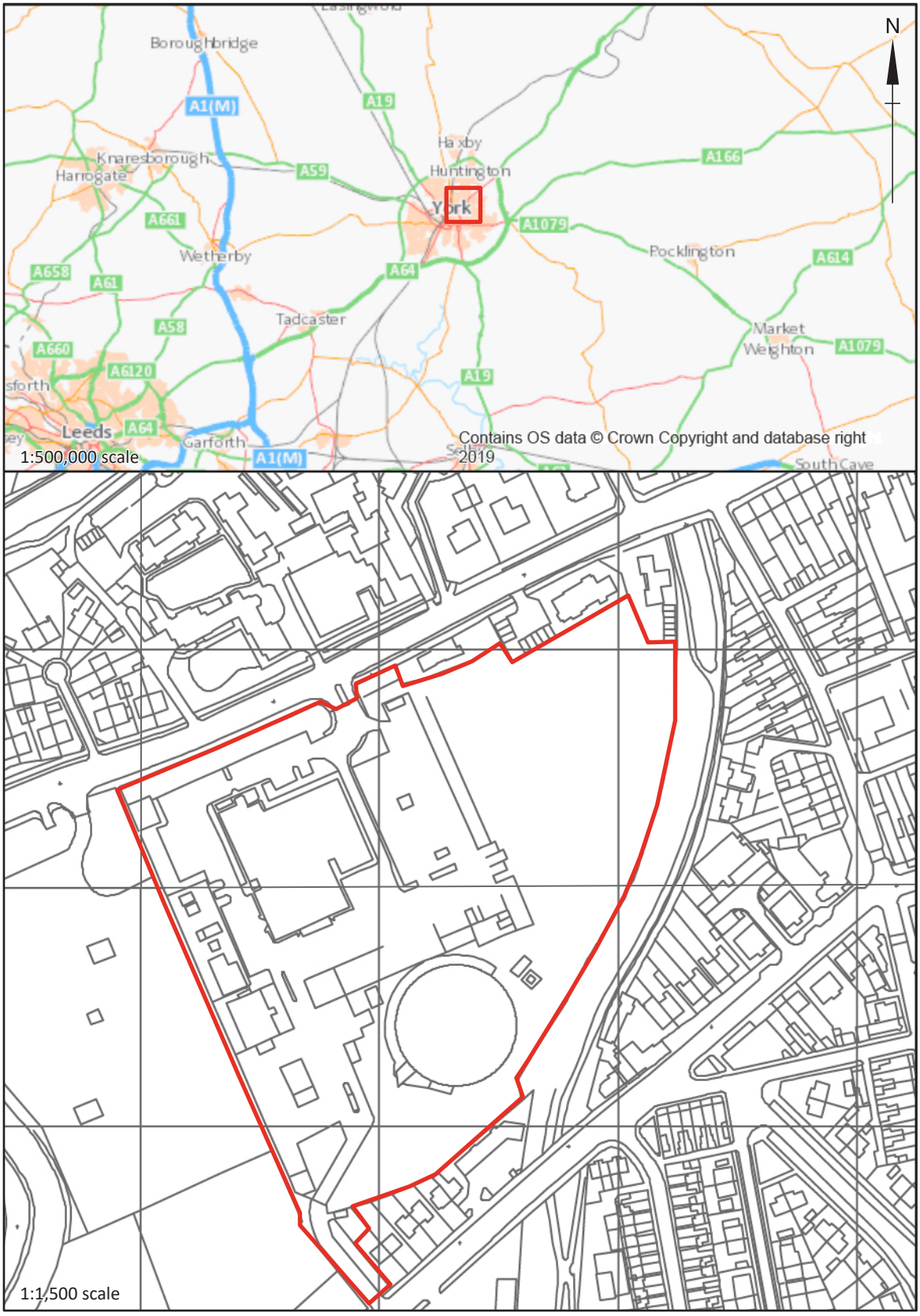

Figure 1. Site Location.

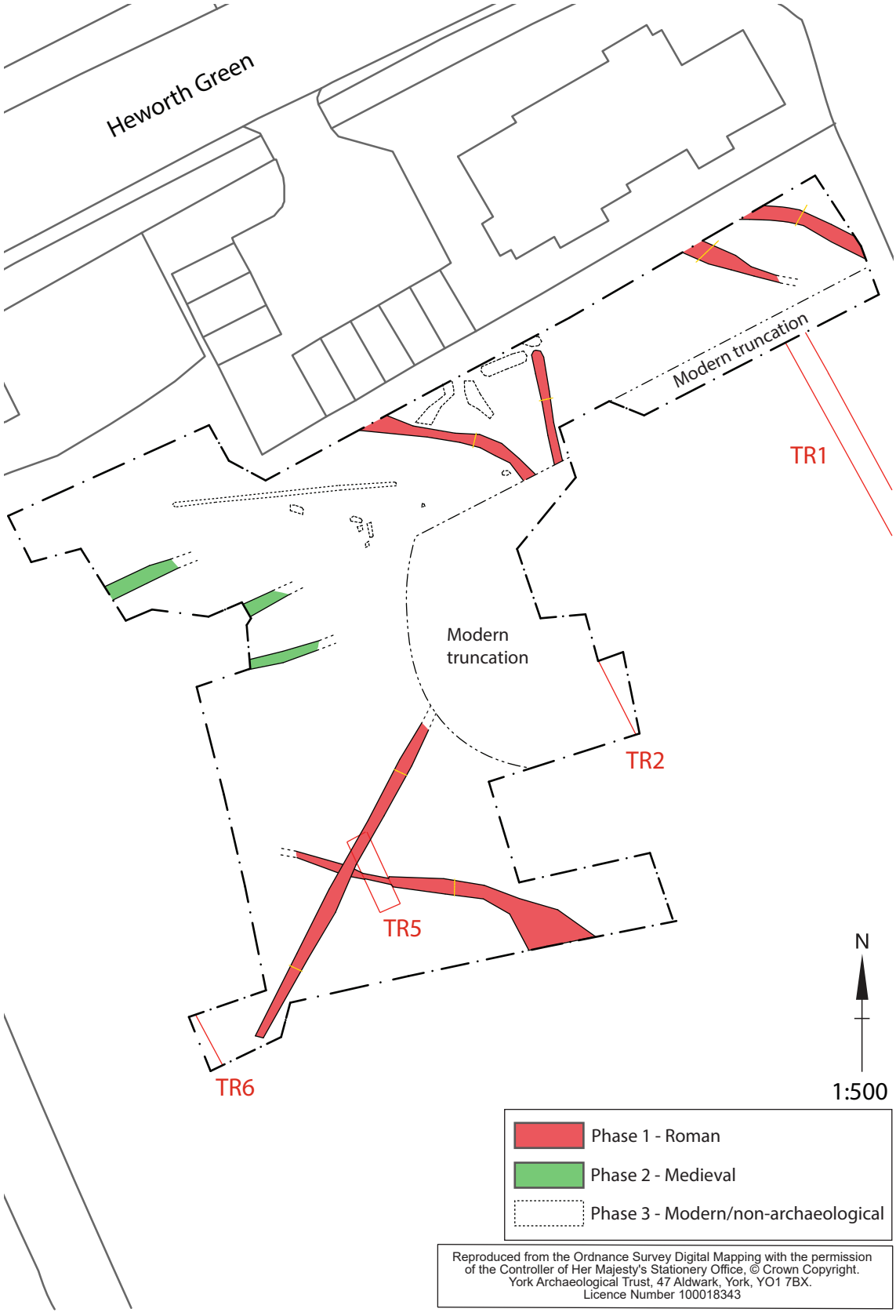

Figure 2. SMR location plan with previous evaluation trenches

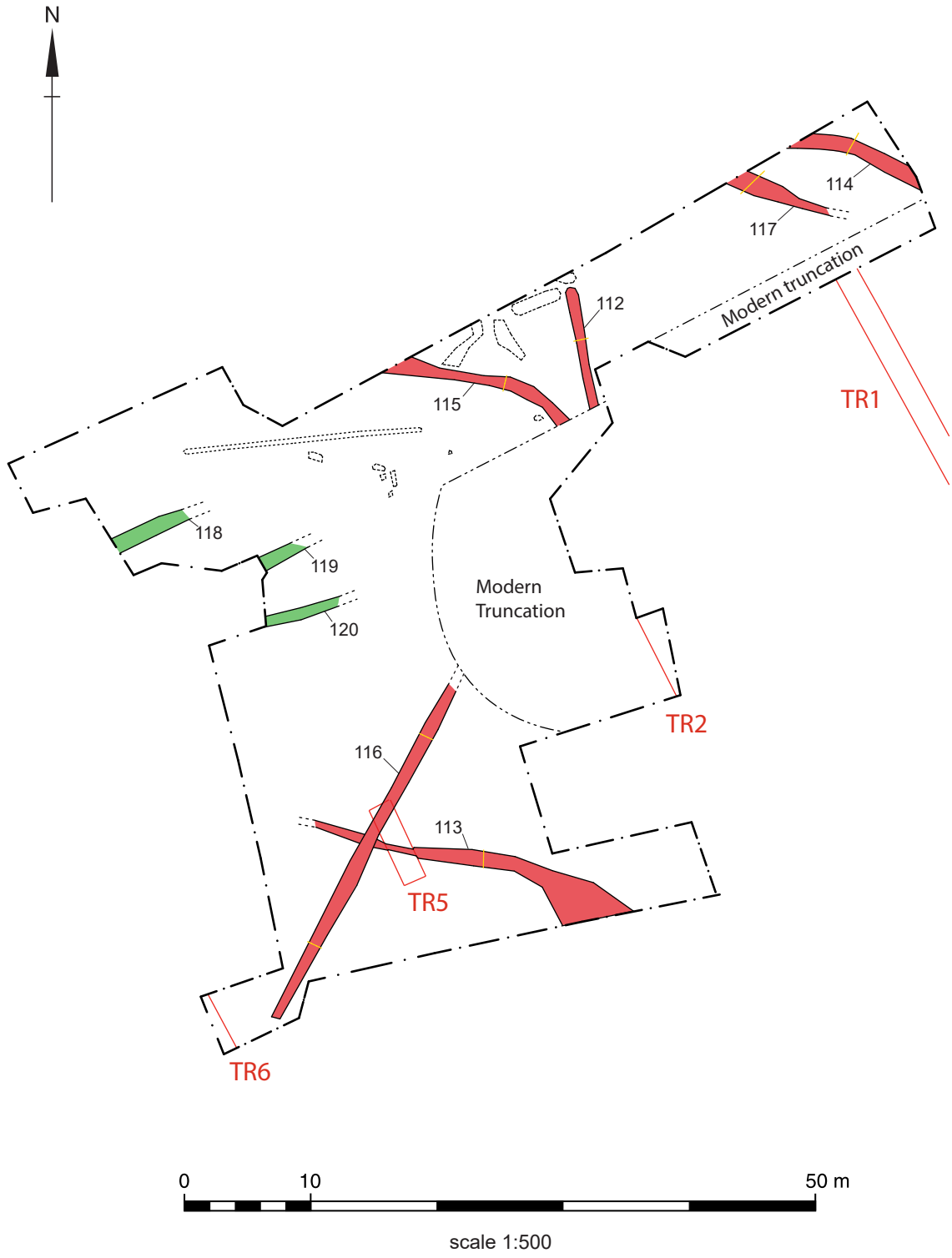

Figure 3. All features with assigned set numbers

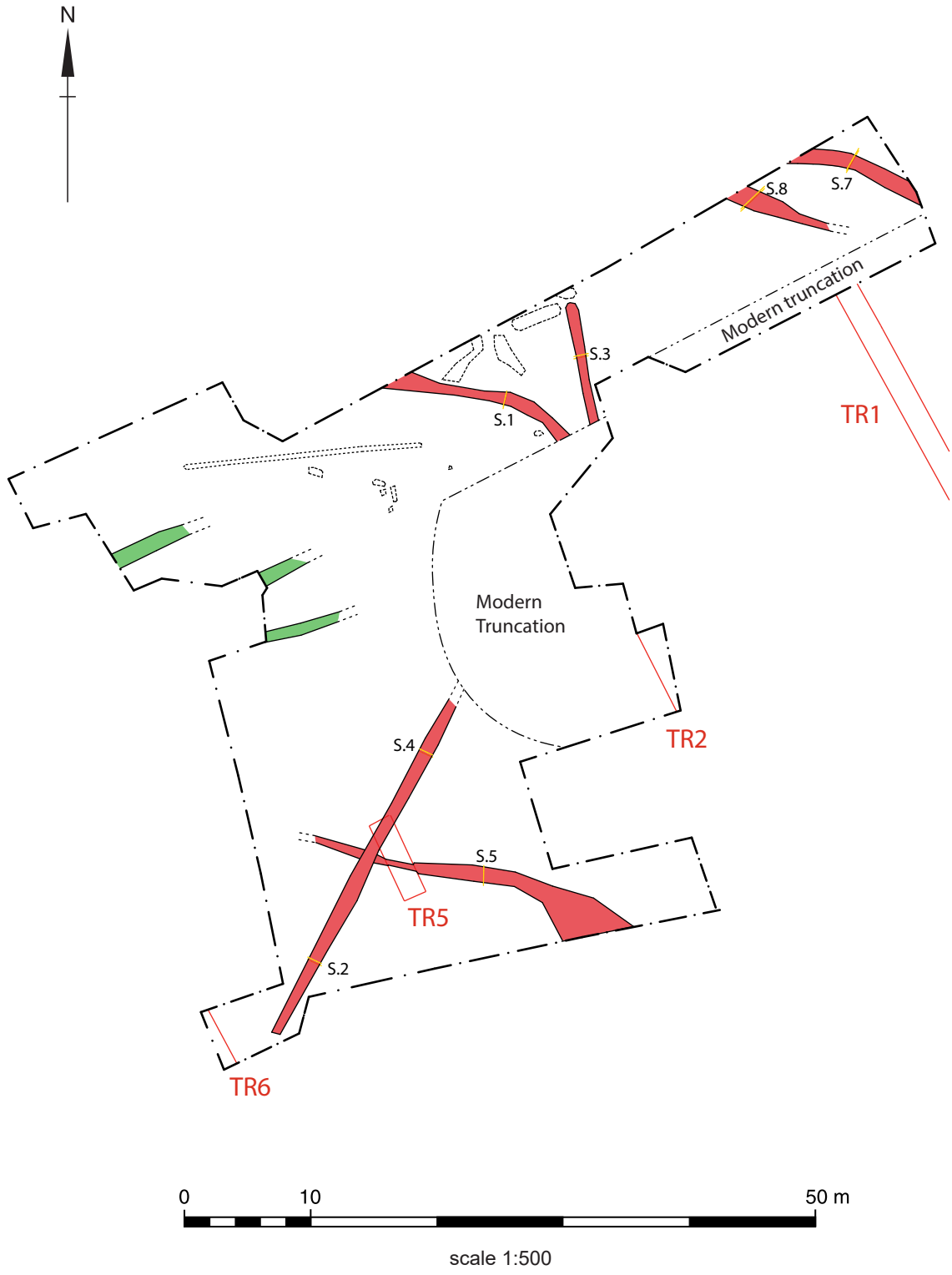

Figure 4. All recorded section locations

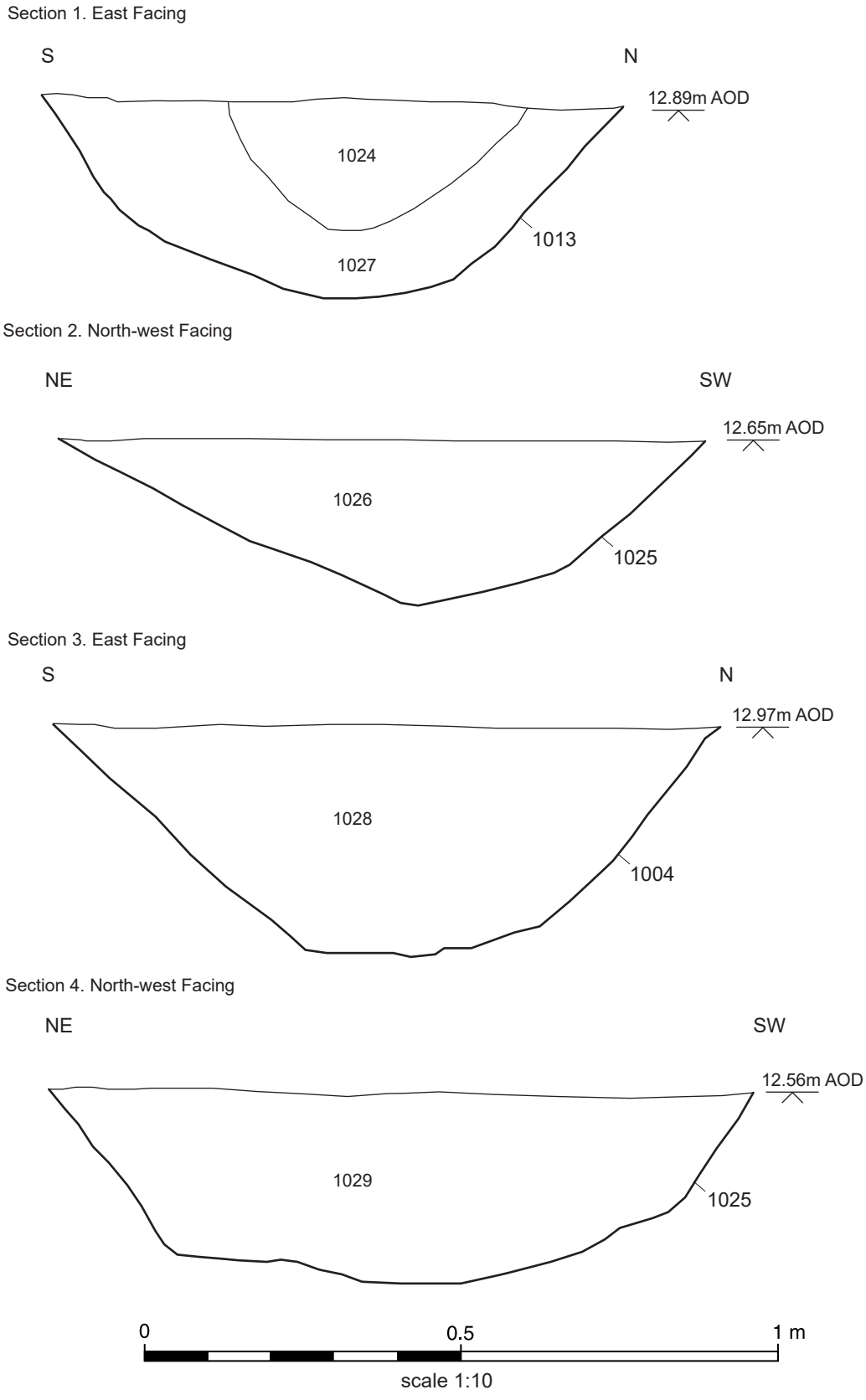

Figure 5. Ditch sections 1, 2, 3 & 4.

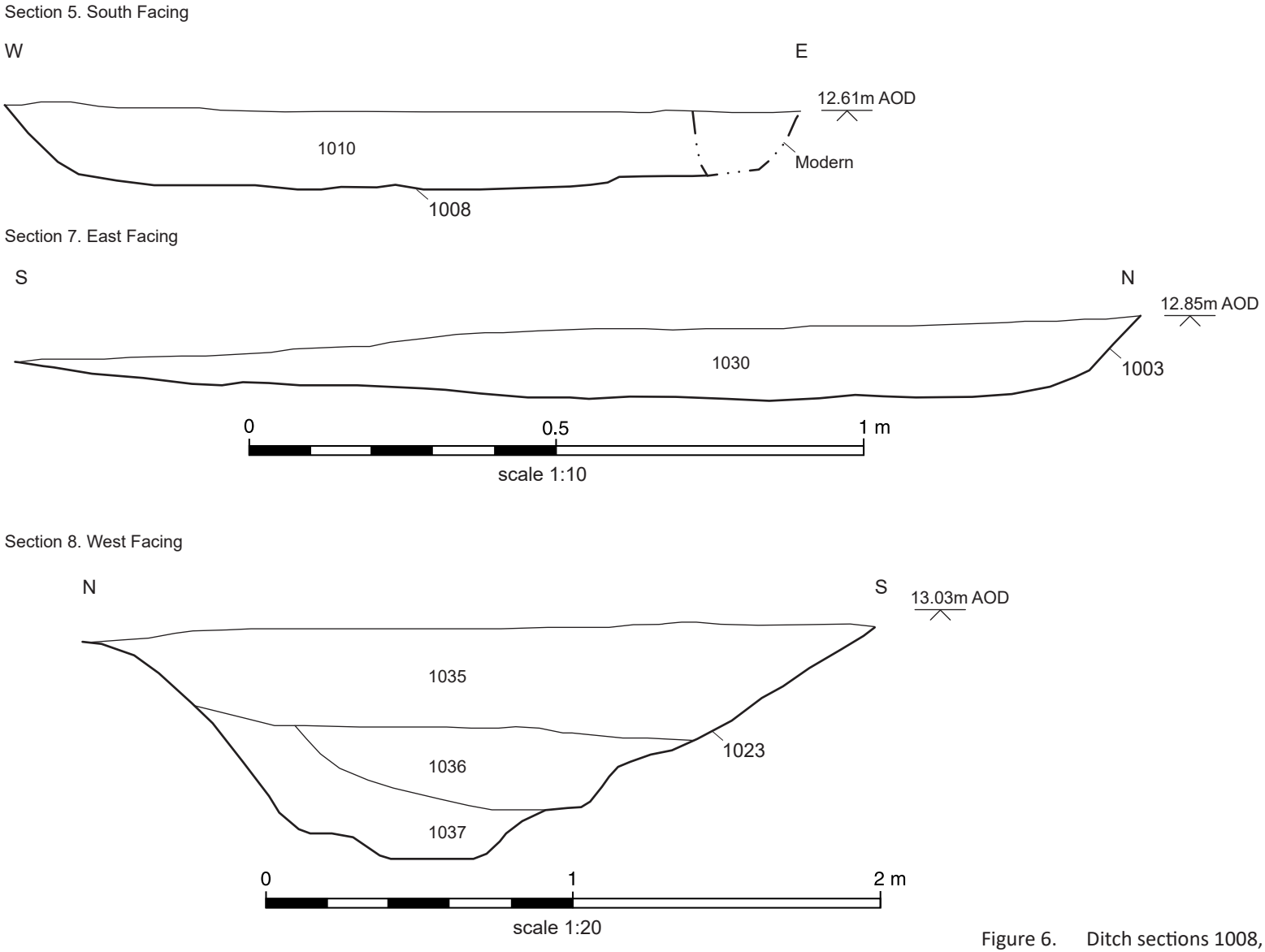

Figure 6. Ditch sections 1008, 1003 and 1023.

YORK ARCHAEOLOGICAL TRUST

WRITTEN SCHEME OF INVESTIGATION FOR AN ARCHAEOLOGICAL STRIP, MAP AND RECORD AND WATCHING BRIEF

Site Location: **Heworth Gas Works, York, YO31 7TA**

NGR: **SE 61144 52531**

Proposal: **Redevelopment of the Former Heworth Gasworks site.**

Planning ref: **19/00979/OUTM**

Prepared for: **Aspect 4 Limited**

Document Number: **2019/116**

Version	Produced by		Edited by		Approved by	
	Initials	Date	Initials	Date	Initials	Date
1	EB	06/08/2019	MS	09/08/19	MS	09/08/19
2			EB	13/08/19	MS	13/08/19
3			MS	09/09/19	MS	09/09/19

1 SUMMARY

1.1 Aspect 4 Limited has applied for planning consent regarding the former Heworth Gasworks site for redevelopment at Heworth Gas Works, York, YO31 7TA (SE 61144 52531).

1.2 Ultimately, the scheme comprises the erection of residential apartments, with retail or community use floor space. As well as 2no. gas governor compounds, site remediation, associated access, car parking, amenity space and landscaping after demolition of existing pipework, structures and telephone mast.

1.3 The following archaeological condition has been suggested by the Council's Archaeologist:

A programme of post-determination archaeological mitigation, specifically an archaeological watching brief is required on this site. The archaeological scheme comprises 3 stages of work. Each stage shall be completed and approved by the Local Planning Authority before it can be approved.

A) No demolition/development shall take place until a written scheme of investigation (WSI) has been submitted to and approved by the local planning authority in writing. For land that is included within the WSI, no demolition/development shall take place other than in accordance with the agreed WSI. The WSI should conform to standards set by CYC and the Chartered Institute for Archaeologists.

B) The site investigation and post investigation assessment shall be completed in accordance with the programme set out in the Written Scheme of Investigation approved under condition (A) and the provision made for analysis, publication and dissemination of results and archive deposition will be secured. This part of the condition shall not be discharged until these elements have been fulfilled in accordance with the programme set out in the WSI.

C) A copy of a report (or publication if required) shall be deposited with City of York Historic Environment Record to allow public dissemination of results within 2 months of completion or such other period as may be agreed in writing with the Local Planning Authority.

This condition is imposed in accordance with Section 16 of NPPF.

Reason: The site is considered to be an area of archaeological interest. Therefore, the development may affect important archaeological deposits which must be recorded prior to destruction.

Pers. Comms. August 2019. The City of York Archaeologist, Claire MacRae, stated that there shall be two phases of archaeological works. One for the land to the east of the main gas compound, which will undergo a strip, map and record, and one for the area directly within the main gasworks compound, to be observed as an archaeological watching brief.

1.4 This Written Scheme of Investigation (WSI) has been prepared in response to a Brief supplied by Claire MacRae, City of York Archaeologist . The work will be carried out in accordance with the Brief and this WSI, and according to the principles of the Chartered Institute for Archaeology (CIfA) Code of Conduct and all relevant standards and guidance.

2 SITE LOCATION & DESCRIPTION

2.1 The proposal site is located at Heworth Gas Works, York, YO31 7TA SE 61144 52531 (Figure 1).

2.2 The site is approximately 3.34 hectares in size and lies to the east of the River Foss, approximately 800m east of York Minster and 600m east of the city walls. The site is bordered

to the north by Heworth Green road (the A1036), to the east by a disused railway line, to the south by Layerthorpe Road and to the west by Eboracum Way. The ground is flat and at an elevation of around 12.5m AOD.

2.3 The underlying geology is Sherwood Sandstone, a sedimentary bedrock formed approximately 237 to 272 million years ago in the Triassic and Permian Periods, when the local environment was dominated by rivers (BGS). The bedrock is overlain by superficial deposits of glaciolacustrine clay, with deposits of alluvium within the channel of the Foss (BGS).

3 DESIGNATIONS & CONSTRAINTS

Taken from DBA (McComish 2019)

Archaeology & Heritage Designations

3.1 The site lies between three areas designated as an Area of Archaeological Importance (AAI) under Part 2 of the 1979 Ancient Monuments and Archaeological Areas Act. The irregularly shaped city centre AAI lies to the west of the River Foss. The Heworth AAI, located to the north-east of the present site area, is roughly rectangular and is bordered by the roads of Heworth Green, Beverley Gardens and Villa Grove extending slightly to the north of Arran Place. The Glen Road AAI (located to the east of the present study site) is bordered by East Parade, Harcourt Street, Glen Gardens and Fleming Avenue.

Conservation Areas

3.2 The Heworth Green/East Parade Conservation Area incorporates the A1036 street frontage, together with land to the north of the A1036, and an irregularly shaped area extending between Mill Lane and Hempland Lane.

3.3 The A1036 street frontage of the present study site lies within this conservation area.

3.4 Within the City of York Historic Characterisation Project, the site is designated as part of Area 52: Layerthorpe. This area is characterised by 20th century commercial premises interspersed with small areas of residential buildings.

Scheduled sites

3.5 There are no scheduled ancient monuments, battlefield sites, historic parks or gardens within the site boundary.

Constraints

3.6 Main access to the site is off Heworth Green Road to the north of the site. There is also a minor access point off Layerthorpe Road to the south-west corner of the site. Both of these entrances are gated and locked.

4 ARCHAEOLOGICAL INTEREST

Taken from DBA (McComish 2019)

Prehistoric

4.1 No finds of prehistoric date are known in the immediate vicinity of the site.

Roman c. AD 71-410

4.2 The site lies approximately 600m to the north-east of the Roman legionary fortress of Eboracum. A major Roman road running north-eastwards from the north-eastern gate of the fortress to Malton (Road 4, RCHM 1962, 2-3), is thought to lie beneath Heworth Green road, i.e. to the immediate north of the present study site. A second Roman road led eastwards from the fortress to Stamford Bridge (Road 3, ibid., 3); the precise location of this road within York is conjectural and while it used to be thought that this road branched off Road 4 somewhere in the vicinity of Heworth, Ottaway (2011, 160) has suggested that it ran directly to the north-eastern fortress gate.

4.3 Due to a prohibition on burial within settlements, Roman cemeteries were located beyond the limits of settled areas, often alongside major roads. This was certainly the case in the Heworth area. A cemetery comprising four cremation jars was uncovered in 1878 during the construction of the Foss Islands Branch Line railway, and a stone coffin was found 30m to the north of the cremation jar site in 1879 (RCHM 1962, 70). A second small cremation cemetery was uncovered in 1926 at the junction of Glen Road and Harcourt Street (ibid., 70). More recently, Roman pottery and burnt animal bone uncovered during archaeological works at Heworth Green (within the present study site) were interpreted as the possible remains of a disturbed Roman burial (Clark 2003, 19), while Roman pottery at Heworth Croft was interpreted as possibly originating from a cemetery (Fern 2007, 12-4).

4.4 The presence of three tile wasters from a site at Heworth Croft has been used to suggest rural tile production (Fern 2007, 12-4), but there is no other supporting evidence to confirm this.

Anglian and Anglo-Scandinavian 5th century to 1066

4.5 While the site lay beyond the limits of Anglian settlement, cemeteries of this date are known in the Heworth area. These finds are of regional importance due to the rarity of such remains within York.

4.6 A 5th-6th century cemetery (located 270m to the north of Heworth Green to the rear of Dodsworth Avenue) was uncovered in 1878 during the cutting of the Foss Islands Branch Line railway. Somewhere between 80-90 burial urns were recovered together with glass beads, gaming pieces and a pair of copper alloy tweezers (Tweddle et al. 1999, 170). Investigations undertaken in 1965 confirmed that this cemetery had been entirely destroyed by the cutting of the railway (ibid., 170).

4.7 Raine recorded that in 1879 a Saxon urn was found in a tumulus in a garden in Heworth (ibid., 173). This cannot refer to the cemetery noted above as this was in a flat field, raising the possibility that it was recovered from a garden mound located to the north of Heworth Grange, depicted on a drawing by Ridsdale Tate of 1920.

4.8 The site lay beyond the limits of settlement in the Anglo-Scandinavian period and no remains

of this date are known from the immediate vicinity.

Later Medieval 1066 to mid-16th century

4.9 During the later medieval period the Heworth Green area lay between the city of York and the village of Heworth. Little evidence of medieval activity has been uncovered in any of the various archaeological investigations in the vicinity, suggesting that the area was primarily agricultural throughout this period. Ditches of medieval date were uncovered at both Heworth Green and Heworth Court which were interpreted as relating to agriculture/drainage (Clark 1003, 3; Fern 2007, 12-4). In addition, medieval plough furrows were found at Heworth Court (Timms 2004, iii)

Post-Medieval mid -16th century to mid-19th century

4.10 The vicinity of the present study site seems to have remained largely rural throughout this period. A post-medieval windmill was located at the junction of Glen Road and Harcourt Street (monument MYO2184), and it has been suggested that a mound north of the A1036 (monument MYO2273) may represent the base for a second windmill (Fern 2007, 7), though the HER lists this as a garden feature.

4.11 Heworth Moor was enclosed by an Act of Parliament in 1817 (Fern 2007, 7). Following the enclosure, a number of large villas were constructed to the north of Heworth Green road.

Modern

4.12 The history of the site in the modern period is dominated by the York Town Gas Works. A process for manufacturing gas from coal was developed in the early 19th century and remained in use until the 1970s (NGM 2019). Coal was placed in a closed tube called a retort oven and heated without oxygen. The resultant gas was passed through a condenser and purifier to remove tar and other impurities, before being stored in large tanks (ibid.).

4.13 The York Gas Company was founded in 1823 and within a year it had built a large gas works to the west of the River Foss (FAS 2001, 6). Between 1880-85 a second gas works had been built to the east of the River Foss (the present study site). In addition, a railway link from the gas works to the Foss Islands Branch Line railway had been built which incorporated a bridge over the River Foss (ibid., 6).

4.14 The various OS maps in section 7 below show how the layout of the gas works to the east of the Fiver Foss changed over time. In 1892, there was a large rectangular building linked to the railway line, to the south of this line was a large tank. By 1910 a series of additional buildings had been constructed around the main rectangular building, and a second tank had been constructed to the south of the railway line. A further smaller tank was added to the north-east of the rectangular building by 1946, and by 1952 a further three tanks were present, slightly to the east of the original boundary of the gas-works. Between 1958 and 1962 there was further expansion, with another large tank and various small rectangular buildings being present in the area to the east of the original works.

4.15 The creation of the Britannia Car Park on the western half of the original gas works by 1982 meant that many of the original buildings of the gas works were destroyed, being replaced by a new depot built on the eastern portion of the site (a large rectangular building within the present study area).

4.16 In addition to the various changes within the gas works there were some other alterations in the area in the modern era. In 1925 Heworth Green was widened by 10m removing much of the area of the former hospital of St Loy (FAS 2001, 31). In the early 21st century Eboracum Way was created along the western boundary of the present site, with blocks of flats being constructed to the west of this road (on the site of the former Britannia Car Park). Modern housing and flats were also constructed to the north of Heworth Green road.

Previous Investigations

4.17 The former Gasworks site has previously been investigated by Oxford Archaeology East in 2003, when nine trenches were placed across the eastern area of the site (Phase 1 area). Only three of the trenches encountered archaeology across this set of evaluation work.

4.18 Trench 2 encountered archaeology at 1.1m BGL (below ground level) and three features were excavated within the trench. One linear feature appeared to contain 17 sherds of Roman pottery along with burnt animal remains and it was suggested that this may possibly related to a Roman burial. A curvilinear feature extending past the western side of the trench also contained abraded Roman pottery. A later feature, possibly a post hole cut into the top of the linear within this trench and contain abraded Roman and Medieval pottery.

4.19 Trench 3 encountered archaeology at 1.3m BGL and two possible archaeological features were uncovered with no finds present. The first feature was a steep V shaped ditch or gully, and the second was a U-shaped ditch both which extended out of both the north and south sides of the trench.

4.20 Trench 6 encountered archaeology at 1.2m BGL and two archaeological features were uncovered in the base of the trench, both of which were U shaped ditches running east/west across the trench, no finds were recovered.

4.21 Trenches 1 and 4 encountered natural deposits between 1.1 – 1.4m BGL, whereas in trenches 7, 8 and 9 the slope in natural dropped quite significantly to the south between 1.9 – 2.1m BGL.

4.22 During these excavations, disposable overalls and gloves were used onsite, as well as a PID (photo-ionisation detector) being placed at the trench edge to monitor potentially harmful substances (Oxford Archaeology East 2003).

4.23 In 2012, an archaeological watching brief was undertaken by York Archaeological Trust in the eastern area of the site, monitoring the removal of contaminated soil from the site (Milsted 2012). Underlying contaminated deposits were removed to a depth of 0.70 – 0.80m BGL (Figure 4). Natural geological deposits were identified around 1m BGL, overlain by an agricultural soil of 18th-19th century date. This had been disturbed by a clearance and extensive levelling, dumping and waste disposal activity associated with the 19th and 20th century development of the Gasworks. The site was then extensively levelled and turfed in the later 20th century.

5 AIMS

5.1 The aims of the evaluation are:

- to determine the extent, condition, character, importance and date of any

archaeological remains present
- to provide information that will enable the remains to be placed within their local, regional, and national context and for an assessment of the significance of the archaeology of the proposal area to be made
- to provide information to enable the local authority to decide any requirements for further archaeological mitigation for the site

6 ARCHAEOLOGICAL INVESTIGATION METHODOLOGY

6.1 The evaluation will comprise the following elements:

- Phase 1: Strip, map and record, followed by evaluation of archaeological features
- Reporting
- Phase 2: Watching Brief
- Reporting

Please note that further stages of work or other mitigation measures could be required by the local authority, depending upon the results of the archaeological investigation.

6.2 The Phase 1 strip, map and record will occur in the eastern area of the Gasworks site shown in Figure 2. Stripping will start at the northern edge of the site and continue south until the archaeology runs out. An extra 5m buffer zone will be stripped to ensure no further archaeology is present.

6.3 Dunelm Geotechnical & Environmental confirmed that the level of contamination in the northern part of the Phase 1 area is low, with minimal risk as long as disposable PPE suits, gloves and boot covers are used. Evaluation of archaeological features will be undertaken in areas away from visible diesel contaminants and excavation will stop if any signs or smells of contamination are present. **Archaeological features will only be excavated if deemed safe. No soil samples will be taken.**

6.4 The Phase 2 watching brief will occur to the western area within the former Gasworks area, shown in Figure 3. Any archaeological features will be recorded and any structures relating to the former gas works will be photographically recorded. Drawings may be undertaken if necessary and if safe to do so (Figure 5).

6.5 Turf, agricultural or garden soil, overburden or other superficial fill materials may be removed by a mechanical digger fitted with a toothless bucket. Mechanical excavation equipment would be used judiciously, under archaeological supervision down to the top of archaeological deposits, or the natural subsoil, whichever is first identified. If archaeological material is present machining will cease and the recording process will proceed.

6.6 For the Phase 1 strip, map and record the machine excavating the topsoil will be cleaned thoroughly before leaving the site, so as to minimise the transfer of hazardous substances.

6.7 The use of powered digging equipment may sometimes be appropriate to remove hard building materials or deep intrusions such as brick or concrete floors or footings. Powered digging equipment will only be used by the main contractors on site. This may be necessary in the Phase 2 area of the former gasworks site due to the hard standing still present.

6.8 **Staff are to wear disposable gloves, suits and boot covers, as well as appropriate site PPE at all times.**

7 RECORDING METHODOLOGY FOR STRIP, MAP AND RECORD AND WATCHING BRIEF

7.1 All archaeological features relating to the Phase 1, strip, map and record will be plotted to the measurement of local permanent features shown on published Ordnance Survey maps using an EDM Total station or GPS unit. All measurements will be accurate to +/-10cm, and the features encountered locatable on a 1:2500 Ordnance Survey map to ensure our interventions can be independently relocated in the future.

7.2 Archaeological contexts will be allocated unique numerical identifiers and described in full on a pro forma context record sheet in accordance with conventional archaeological record methods. All records will be checked and indexes of records compiled.

7.3 All site photography will follow accepted archaeological photography guidelines. Work in progress, general views, groups of contexts or features, individual contexts and sections will be digitally photographed.

7.4 Areas devoid of archaeological material will be photographed and recorded as being archaeologically sterile. The natural stratigraphic sequence within these areas will be recorded.

7.5 During the Phase 2 watching brief, significant archaeology will be photographed and recorded using the standard YAT pro-forma.

7.6 Should human remains be discovered they will be left *in-situ*, covered and protected pending notification of the discovery to Claire MacRae, City of York Archaeologist and the submission to the Ministry of Justice of an application for excavation. Exhumation of human remains will take place in compliance with environmental health regulations and only with a valid licence from the Ministry of Justice. An osteoarchaeologist will be available to give advice on site.

- **Disarticulated** human remains will be identified and quantified on site. If trenches are to be immediately backfilled the remains will be left in the ground. If the excavations are to remain open for any length of time disarticulated remains will be removed and boxed, for later reburial in, or as close as possible to, the location of their discovery.
- If **articulated** remains are encountered, these will be excavated in accordance with recognised guidelines and retained for assessment.
- Any grave goods or coffin furniture will be retained for further assessment.

7.7 Human remains will be removed in accordance with the Burial Act 1857 and the Ministry of Justice exhumation licence, and with the guidance of CIfA Technical Paper 13 (1993) and APABE (2017).

8 RECORDING METHODOLOGY FOR EXCAVATION

8.1 All archaeological features will be recorded using standardised pro forma record sheets. Plans, sections and elevations will be drawn as appropriate and a comprehensive photographic record will be made where archaeological features are encountered.

8.2 Archaeological contexts will be planned at a basic scale of 1:50, with individual features

requiring greater detail being planned at a scale of 1:20. Larger scales will be utilised as appropriate. Sections drawings will be made at a basic scale of 1:10 or 1:20 depending on the size of the feature. All drawings will be related to Ordnance Datum. Where it aids interpretation, structural remains will also be recorded in elevation.

8.3 Archaeological contexts will be allocated unique numerical identifiers and described in full on a pro forma context record sheet in accordance with conventional archaeological record methods. All records will be checked and indexes of records compiled.

8.4 All site photography will follow accepted archaeological photography guidelines. Work in progress, general views, groups of contexts or features, individual contexts and sections will be digitally photographed using a 12 megapixel camera.

8.5 Areas devoid of archaeological material will be photographed and recorded as being archaeologically sterile. The natural stratigraphic sequence within these areas will be recorded.

8.6 All finds will be collected and handled following the guidance set out in the CIfA guidance for archaeological materials. Unstratified material will not be kept unless it is of exceptional intrinsic interest. Material discarded as a consequence of this policy will be described and quantified in the field. Finds of particular interest or fragility will be retrieved as Small Finds, and located on plans. Other finds, finds within the topsoil, and dense/discrete deposits of finds will be collected as Bulk Finds, from discrete contexts, bagged by material type. Any dense/discrete deposits will have their limits defined on the appropriate plan.

8.7 All artefacts and ecofacts will be appropriately packaged and stored under optimum conditions, as detailed in the RESCUE/UKIC publication *First Aid for Finds,* and recording systems must be compatible with the recipient museum. **If deemed unsafe, finds will not be handled, and will be bagged and clearly marked 'contaminated'.** All finds that fall within the purview of the Treasure Act (1996) will be reported to HM Coroner according to the procedures outlined in the Act, after discussion with the client and the local authority.

8.8 No samples will be taken.

8.9 Should human remains be discovered they will be left *in-situ*, covered and protected pending notification of the discovery to Claire MacRae and the submission to the Ministry of Justice of an application for excavation. Exhumation of human remains will take place in compliance with environmental health regulations and only with a valid licence from the Ministry of Justice. An osteoarchaeologist will be available to give advice on site.

- Any **disarticulated** human remains that are found will be recovered and removed in appropriate packaging. If trenches are to be immediately backfilled the remains will be left in the ground. If the excavations are to remain open for any length of time disarticulated remains will be removed and boxed, [for later reburial in, or as close as possible to, the location of their discovery.
- Any **articulated** human remains that are found will be excavated in accordance with recognised guidelines (see 7.10) and retained for assessment.
- Any grave goods or coffin furniture will be retained for further assessment.

8.10 Human remains will be removed in accordance with the Burial Act 1857 and the Ministry of Justice exhumation licence, and with the guidance of CIfA Technical Paper 13 (1993) and APABE

(2017).

9 SPECIALIST ASSESSMENT

9.1 The stratigraphic information and artefacts will be assessed as to their potential and significance for further analysis and study. The material will be quantified (counted and weighted). **If deemed unsafe, finds will not be handled, and will be bagged and clearly marked 'contaminated'. A visual inspection through the bag will be undertaken.** Specialists will undertake a rapid scan of all excavated material. Ceramic spot dates will be given. Appropriately detailed specialist reports will be included in the report.

9.2 Materials considered vulnerable should be selected for stabilisation after specialist recording. Where intervention is necessary, consideration must be given to possible investigative procedures (e.g. glass composition studies, residues on or in pottery, and mineral-preserved organic material). Allowance will be made for preliminary conservation and stabilization of all objects and a written assessment of long-term conservation and storage needs will be produced. Once assessed, all material will be packed and stored in optimum conditions, in accordance with Watkinson and Neal (1998), CIfA (2014) and Museums and Galleries (1992).

9.3 All finds will be cleaned, marked and labelled as appropriate **and only if deemed safe to do so**, prior to assessment. **If deemed unsafe, finds will not be washed, and will be bagged and clearly marked 'contaminated'.** For ceramic assemblages, any recognised local pottery reference collections and relevant fabric Codes will be used.

9.4 Allowance will be made for the recovery of material suitable for scientific dating and contingency sums will be made available to undertake such dating, if necessary. This will be decided in consultation with Claire MacRae.

10 REPORT & ARCHIVE PREPARATION

10.1 Upon completion of the site work, a report will be prepared to include the following:

a) A non-technical summary of the results of the work.

b) An introduction which will include the planning reference number, grid reference and dates when the fieldwork took place.

c) An account of the methodology and detailed results of the operation, describing structural data, archaeological features, associated finds and environmental data, and a conclusion and discussion.

d) A selection of photographs and drawings, including a detailed plan of the site accurately identifying the areas monitored, selected feature drawings from the GPS, and selected artefacts, and phased feature plans where appropriate.

e) Specialist artefact and environmental reports where undertaken, and a context list/index.

f) Details of archive location and destination (with accession number, where known), together with a context list and catalogue of what is contained in that archive.

g) A copy of the key OASIS form details

h) Copies of the Brief and WSI

i) Additional photographic images may be supplied on a CDROM appended to the report

10.2 The report will be submitted in digital format to the commissioning body as well as direct to Claire MacRae for planning purposes and inclusion into the York HER.

10.3 A field archive will be compiled consisting of all primary written documents, plans, sections and photographs. Catalogues of contexts, finds, soil samples, plans, sections and photographs will be produced. York Archaeological Trust will liaise with the Yorkshire Museum prior to the commencement of fieldwork to establish the detailed curatorial requirements of the museum and discuss archive transfer and to complete the relevant museum forms. The relevant museum curator would be afforded access to visit the site and discuss the project results.

10.4 The owner of the Intellectual Property Rights (IPR) in the information and documentation arising from the work, would grant a licence to the Local Authority and the museum accepting the archive to use such documentation for their statutory functions and provide copies to third parties as an incidental to such functions. Under the Environmental Information Regulations (EIR), such documentation is required to be made available to enquirers if it meets the test of public interest. Any information disclosure issues would be resolved between the client and the archaeological contractor before completion of the work. EIR requirements do not affect IPR.

10.5 Upon completion of the project an OASIS form will be completed at http://ads.ahds.ac.uk/project/oasis/.

11 POST-EXCAVATION ANALYSIS & PUBLICATION

11.1 The information contained in the investigation report will enable decisions to be taken regarding the future treatment of the archaeology of the development site and any material recovered during the investigations.

11.2 If further archaeological investigations (mitigation) take place, any further analyses (as recommended by the specialists, and following agreement with Claire MacRae) may be incorporated into the post-excavation stage of the mitigation programme unless such analysis are required to provide information to enable a suitable mitigation strategy to be devised. Such analysis will form a new piece of work to be commissioned.

11.3 In the event that no further fieldwork takes place on the site, a full programme of post excavation analysis and publication of artefactual and scientific material from the evaluation may be required. Where this is required, this work will be a new piece of work to be commissioned.

11.4 If further site works do not take place, allowance will be made for the preparation and publication in a local and/or national journal of a short summary on the results of the investigation and of the location and material held within the site archive.

12 HEALTH AND SAFETY

12.1 Health and safety issues will take priority over archaeological matters and all archaeologists will comply with relevant Health and Safety Legislation.

12.2 Extra PPE, white disposable hazard suits, extra disposable gloves may be required due to the contaminated soils, a contingency for this will be added to the risk assessment, along with appropriate disposal procedures for used suits and gloves.

12.3 A Risk Assessment will be prepared prior to the start of site works.

13 PRE-START REQUIREMENTS

13.1 The client will be responsible for ensuring site access has been secured prior to the commencement of site works, and that the perimeter of the site is secure.

13.2 The client will provide York Archaeological Trust with up to date service plans and will be responsible for ensuring services have been disconnected, where appropriate.

13.3 The client will be responsible for ensuring that any existing reports (e.g. ground investigation, borehole logs, contamination reports) are made available to York Archaeological Trust prior to the commencement of work on site.

14 REINSTATEMENT

14.1 Following excavation and recording the spoil will be backfilled unless requested otherwise. The backfill material will be levelled and compressed as far as possible with the mechanical excavator bucket, but will not be compressed to a specification. York Archaeological Trust are not responsible for reinstating any surfaces, including reseeding, unless specifically commissioned by the client who will provide a suitable specification for the work.

15 TIMETABLE & STAFFING

15.1 The timetable will be as agreed with the client.

15.2 Specialist staff available for this work:

- Human Remains – Malin Holst, York Osteology Ltd
- Palaeoenvironmental remains – John Carrott, Palaeoecology Research Services ltd
- Head of Curatorial Services – Christine McDonnell, YAT
- Finds Researcher – Nicky Rogers, Freelance
- Pottery Researcher – Anne Jenner, YAT
- Finds Officers – Nienke Van Doorne, YAT
- Archaeometallurgy & Industrial Residues – Rachel Cubitt and Dr Rod Mackenzie, Freelance
- Conservation – Ian Panter, YAT

16 MONITORING OF ARCHAEOLOGICAL FIELDWORK

16.1 As a minimum requirement, Claire MacRae City of York Archaeologist will be given a minimum of one week's notice of work commencing on site, and will be afforded the opportunity to visit the site during and prior to completion of the on-site works so that the general stratigraphy of the site can be assessed and to discuss the requirement any further phases of archaeological

work. York Archaeological Trust will notify City of York Archaeologist Claire MacRae of any discoveries of archaeological significance so that site visits can be made, as necessary. Any changes to this agreed WSI will only be made in consultation with Claire MacRae City of York Archaeologist.

16.2 With the client's agreement illustrated notices will be displayed on site to explain the nature of the works.

17 COPYRIGHT

17.1 York Archaeological Trust retain the copyright on this document. It has been prepared expressly for Aspect 4 Limited, and may not be passed to third parties for use or for the purpose of gathering quotations.

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For current Historic England guidance documents see:

https://historicengland.org.uk/advice/latest-guidance/

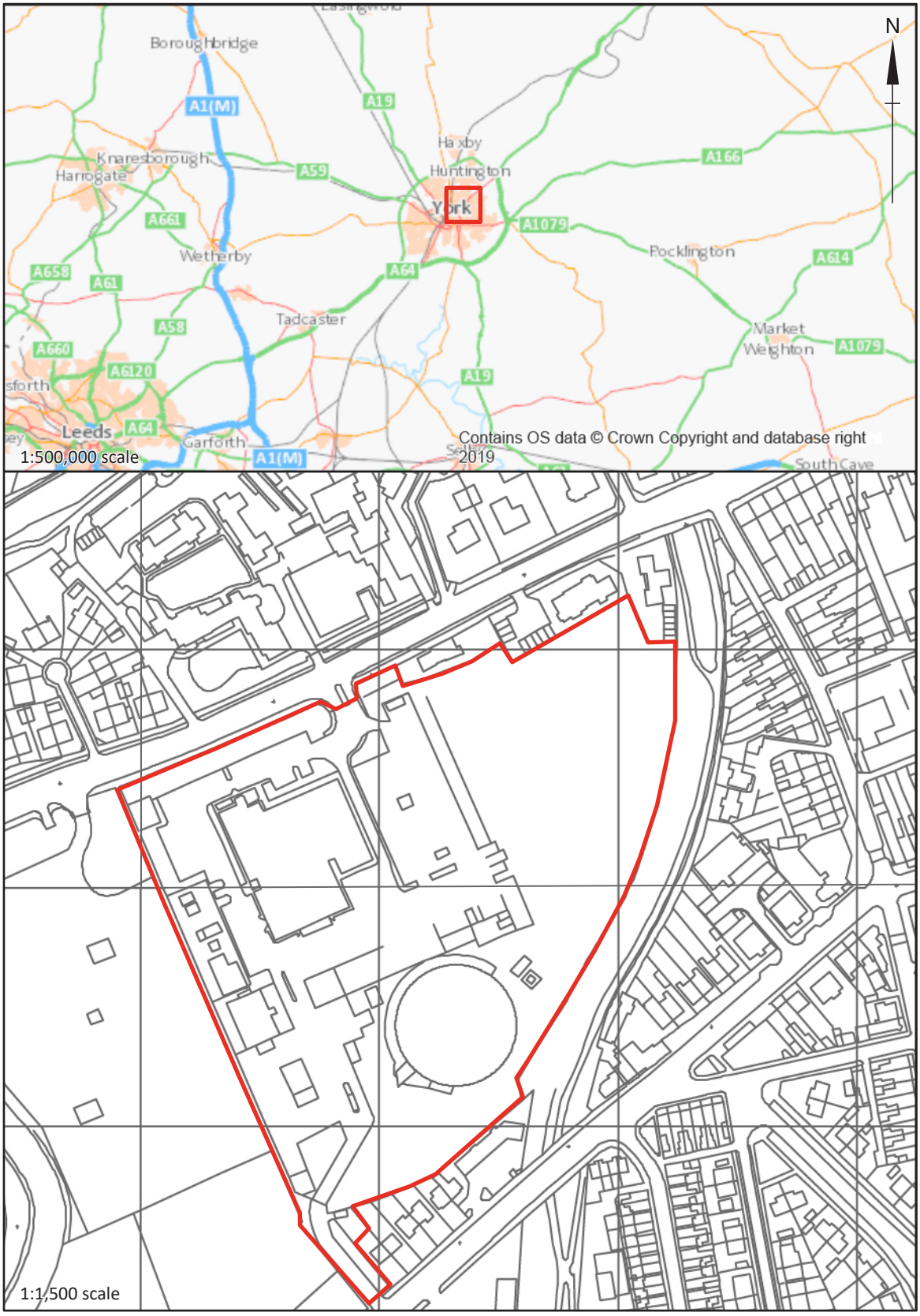


Figure 1. Site Location.

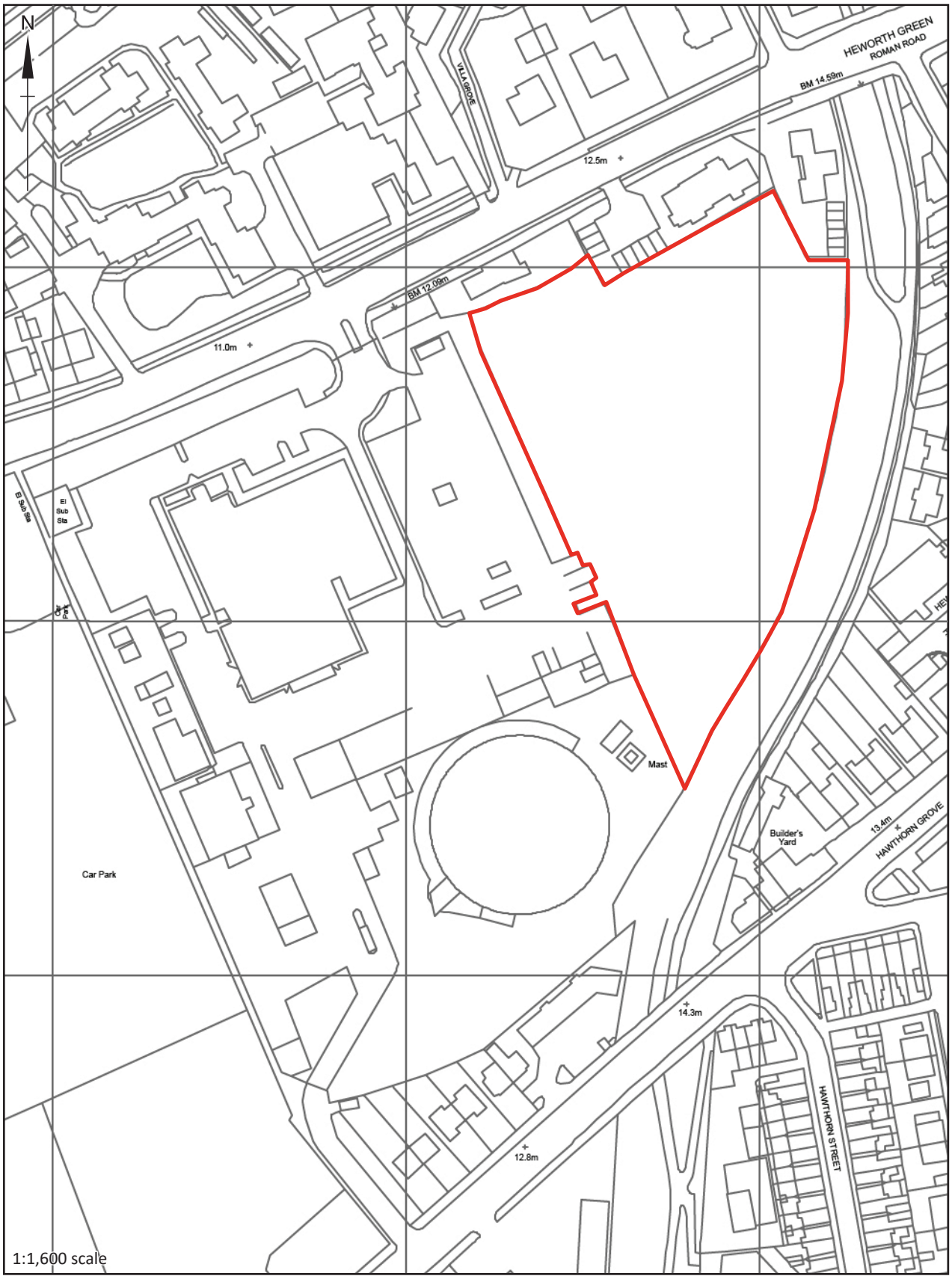


Figure 2. Works Location showing Phase 1 strip, map and record area.

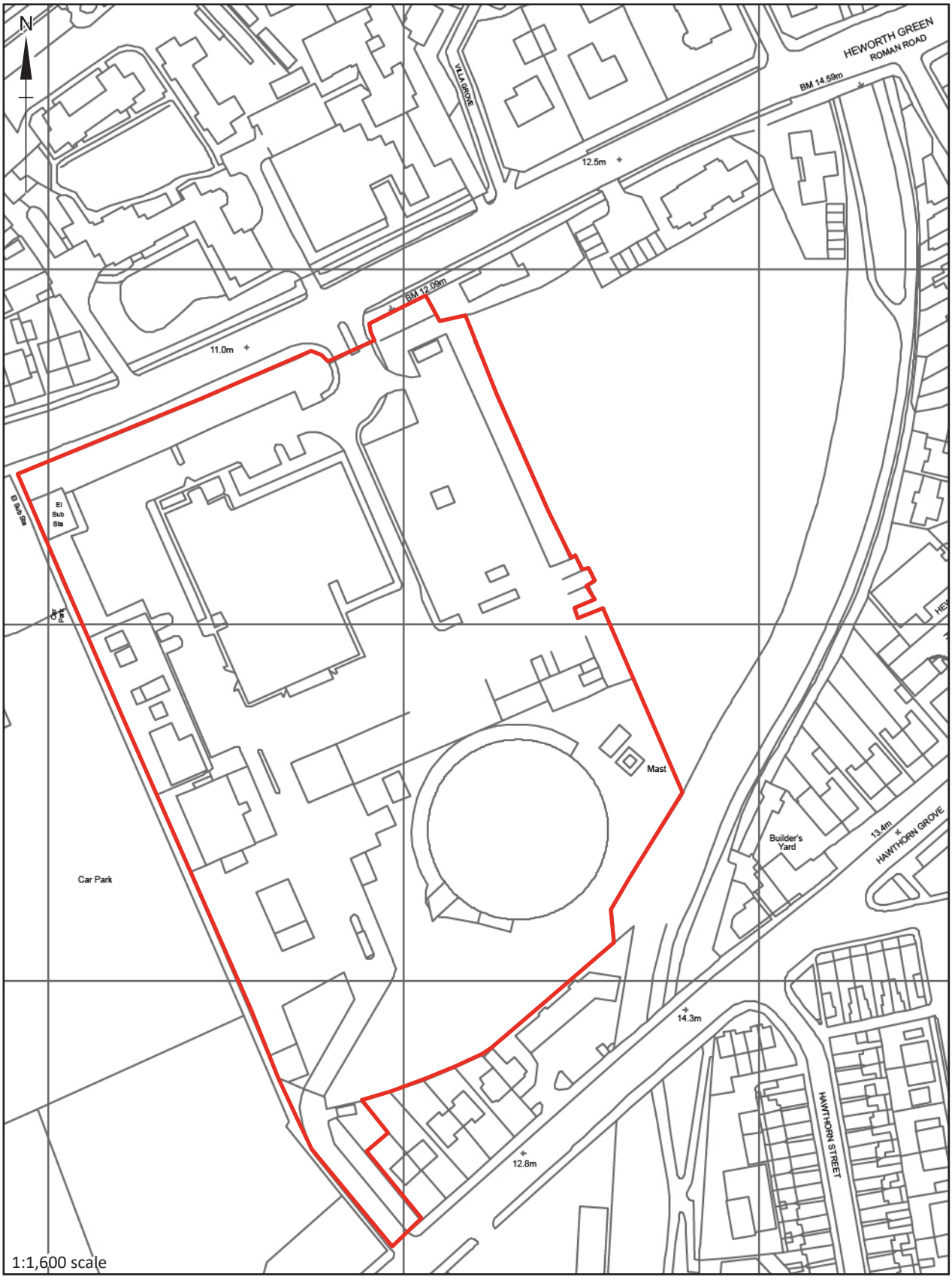
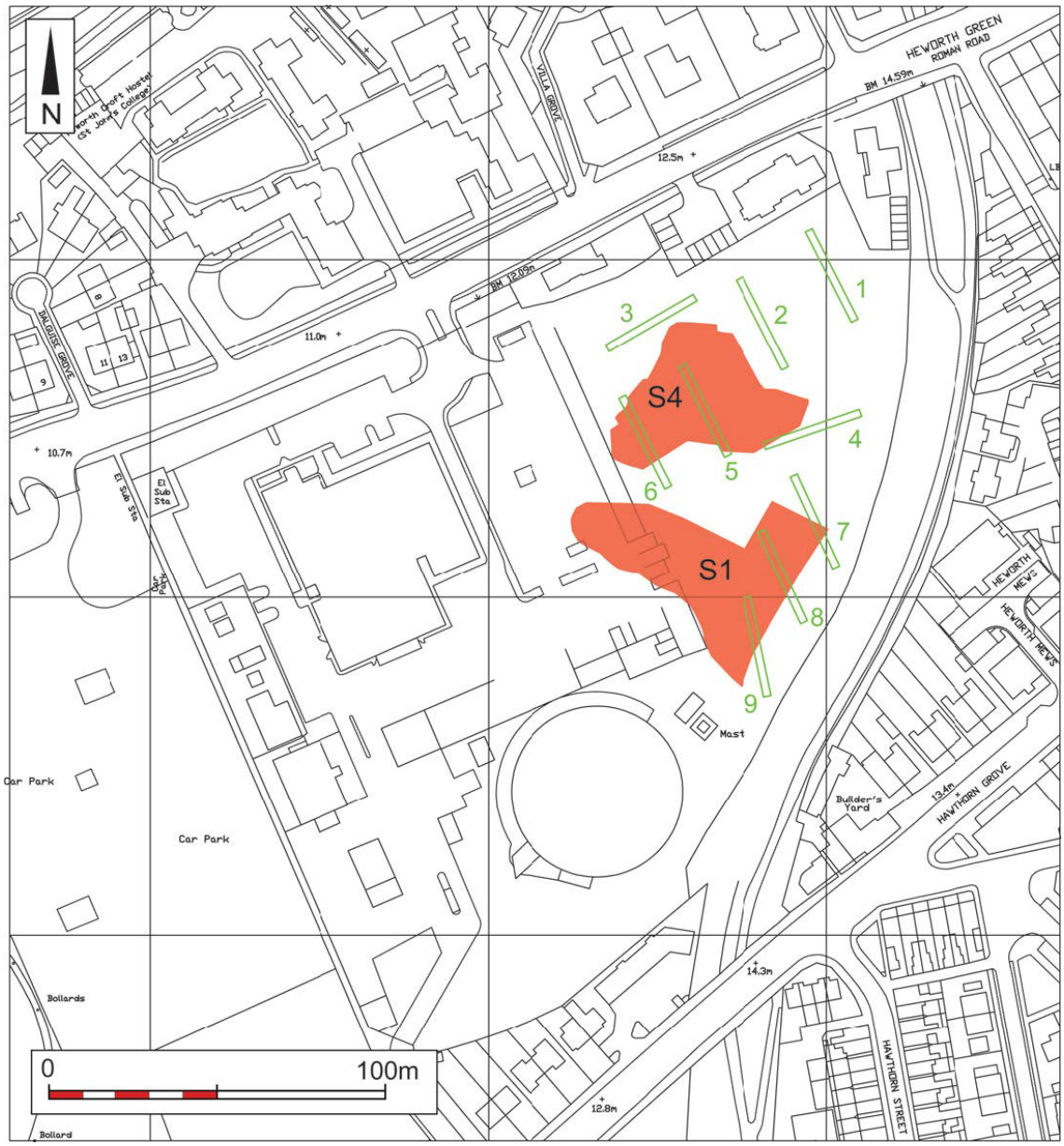


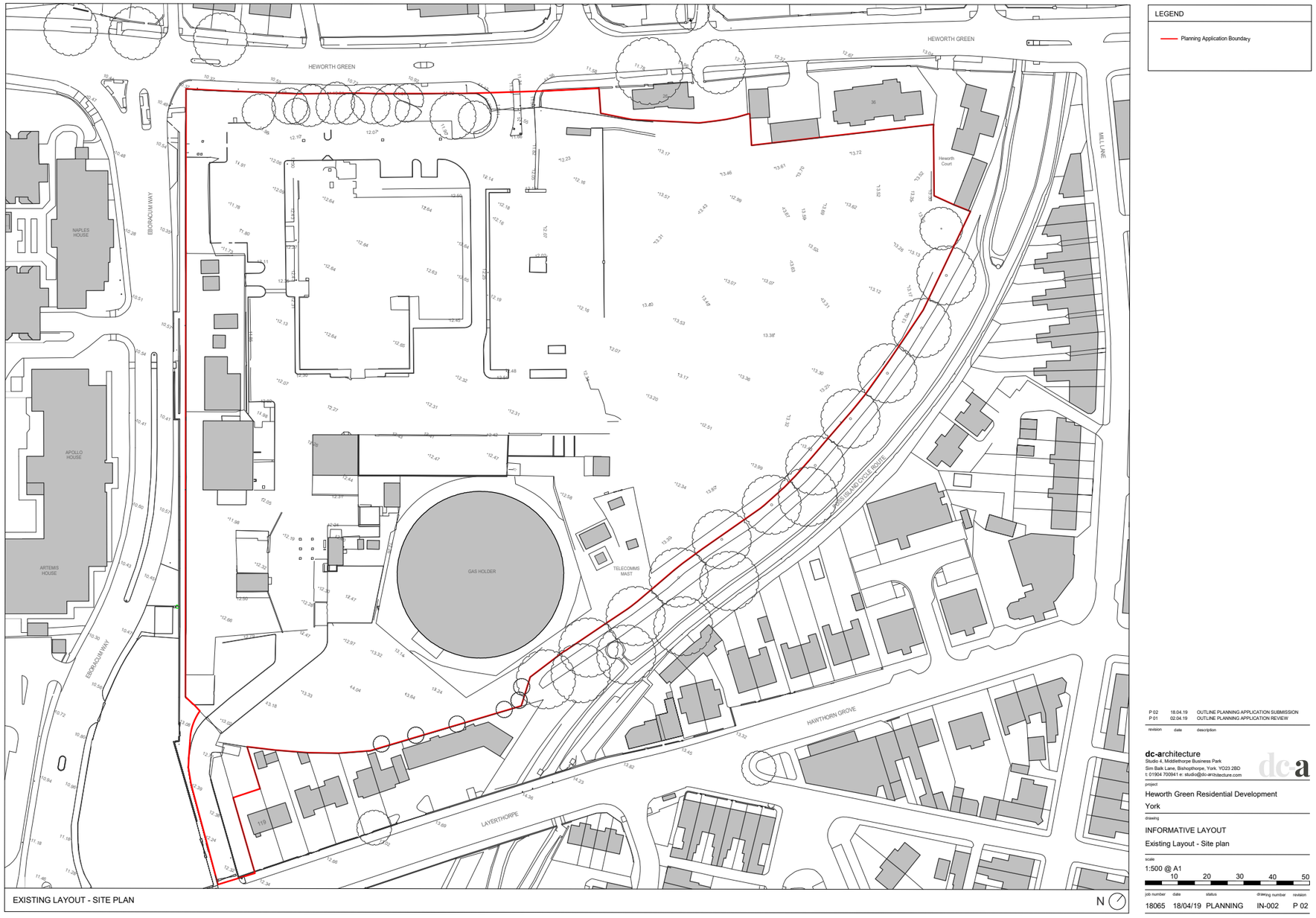
Figure 3. Works Location showing Phase 2 watching brief area.



Taken from: Figure 3 2012 excavation areas (red) with 2003 evaluation trenches (green)
Reproduced from the Ordnance Survey Digital Mapping with permission of the Controller of Her Majesty's Stationery Office. Crown copyright. Licence # 100018343

Two areas, S1 and S4, were reduced by a 20 ton mechanical excavator to remove contaminated material associated with the former gas works at Heworth Green.

Figure 4. Map of previous archaeological investigations onsite (Milsted, 2012).



LEGEND

Planning Application Boundary

revision	date	description
P 02	18.04.19	OUTLINE PLANNING APPLICATION SUBMISSION
P 01	02.04.19	OUTLINE PLANNING APPLICATION REVIEW

dc-architecture
Studio 4, Middlethorpe Business Park
Sim Balk Lane, Bishopthorpe, York. YO23 2BD
t: 01904 700941 e: studio@dc-architecture.com

project
Heworth Green Residential Development
York

drawing
INFORMATIVE LAYOUT
Existing Layout - Site plan

scale
1:500 @ A1
10 20 30 40 50

job number	date	status	drawing number	revision
18065	18/04/19	PLANNING	IN-002	P 02

Figure 5. Site Area with Gas works buildings and features marked (Supplied by Client).

YORK ARCHAEOLOGICAL TRUST

York Archaeological Trust undertakes a wide range of urban and rural archaeological consultancies, surveys, evaluations, assessments and excavations for commercial, academic and charitable clients. We manage projects, provide professional advice and fieldwork to ensure a high quality, cost effective archaeological and heritage service. Our staff have a considerable depth and variety of professional experience and an international reputation for research, development and maximising the public, educational and commercial benefits of archaeology. Based in York, Sheffield, Nottingham and Glasgow the Trust's services are available throughout Britain and beyond.

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