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Archaeological Desk-based Study Heworth Gas Works

By J. M. McComish

YAT Desk-based Assessment Report 2019/18 February 2019



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Abbreviations

ADS	Archaeological Data Service
AOD	Above Ordnance Datum
BGL	Below Ground Level
BGS	British Geological Society
FAS	Field Archaeology Specialists Ltd
HER	Historic Environment Record
MAP	MAP Archaeological Consultancy
MGA	Mike Griffiths and Associates
NAA	Northern Archaeological Associates
NGM	National Gas Museum
OAN	Oxford Archaeology North
OS	Ordnance Survey
OSA	On Site Archaeology
YAT	York Archaeological Trust

NON-TECHNICAL SUMMARY

In February 2019 York Archaeological Trust prepared a desk-based assessment and recommendations for further investigation for a site at Heworth Gas Works, York (SE 61144 52531). The work was undertaken for Aspect 4 Limited.

The assessment has shown that the site offers the potential to yield evidence for Roman burials, but it is unlikely that there will be significant remains of 5th to 19th century date present. The remains of the gas works will be present across the western half of the site.

Any further investigation will be constrained by industrial contamination across this site. A borehole survey is recommended as the safest means of refining the baseline information.

KEY PROJECT INFORMATION

Project Name	Heworth Gas Works, York.
YAT Project No.	6125
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1 INTRODUCTION

In February 2019 York Archaeological Trust prepared a desk-based assessment for a site at Heworth Gas Works, York (SE 61144 52531). The work was undertaken for Aspect 4 Limited.

The assessment has shown that the site offers the potential to yield evidence for Roman burials, but it is unlikely that there will be significant remains of 5th to 19th century date present. The remains of the gas works will be present across the western half of the site.

It should be noted that the gas works may have caused significant ground contamination and this could make the excavation of any archaeological remains highly problematic.

2 METHODOLOGY

The bulk of the data was collated using a search of the York Historic Environment Record (HER) with a search radius of 200m from the centre of the site. In addition, a search was made of the YAT Gazetteer and of relevant publications. The searches yielded a total of 19 monuments and 2 conservation areas (Appendix 1), together with 23 archaeological events (Appendix 2). The reference numbers given in Appendix 2 include any HER reference numbers (in the form EYO, DYO, SYO or MYO), or the museum accession code (in the form YORYM: **** or YORAT: ****), or the YAT project code. The various archaeological events are briefly described in Section 9 below.

3 LOCATION, GEOLOGY & TOPOGRAPHY

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.

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 LEGISLATION & GUIDANCE

4.1 National Planning Policy Framework

In March 2012 the Government published the National Planning Policy Framework (NPPF) in an effort to make the overall planning system less complex and more accessible. This document was revised and re-issued in July 2018. In this document Chapter 16 titled "Conserving and enhancing the historic environment" deals with archaeological and historical issues. This section supersedes the previous planning legislation, Planning Policy Statement 5: "Planning for the Historic Environment" (PPS5). However, in a revision note published by English Heritage in June 2012 it is stated that "the PPS5 Practice Guide remains a valid and Government endorsed document pending the results of a review of guidance supporting national planning policy". It also states that "the policies in the NPPF are very similar and the intent is the same, so the Practice Guide remains almost entirely relevant and useful in the application of the NPPF".

The relevant paragraphs of NPPF Chapter 16 are 184 – 202.

4.2 Local Planning Policy

The Local Plan

The 'Local Plan' for York sets strategic priorities for the whole of the city and forms the basis for planning decisions. It sets out the opportunities and policies on what will (or will not) be permitted and where, including new homes and businesses. In 2005 a draft Local Plan document was approved for development management purposes to inform planning decisions. City of York Council have since submitted a new City of York Local Plan to the Secretary of State for Housing Communities and Local Government on 25th May 2018. The new Local Plan will be fully compliant with the NPPF and other relevant statutes and once adopted, will determine how the city develops over the next 15 years.

5 DESIGNATIONS & CONSTRAINTS

5.1 Archaeology & Heritage Designations

The present study 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 study site, 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.

5.2 Conservation Areas

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.

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

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.

5.3 Scheduled sites

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

5.4 Listed Buildings

Listed buildings in the vicinity include a summerhouse at 19 Heworth Court, Heworth Croft, 26 Heworth Green, 44 Heworth Green, 46 Heworth Green and 48-50 Heworth Green, all of which are of 19th century date.

6 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

6.1 Prehistoric

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

6.2 Roman 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.

6.3 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 place-name Heworth derives from the Anglo-Saxon meaning 'high enclosure', suggesting that the village, located slightly to the east of the present site, was located on the highest land available (Griffiths 2003, 3) presumably to avoid lower lying marshy ground. Documentary evidence shows that prior to the Norman Conquest Heworth was held by Onn, son of Gamel and Watheof, son of Siward, Earl of Northumberland (*ibid.*, 3).

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.

6.4 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)

The only medieval building thought to have been present in the area was a hospital dedicated to St Loy, located on the eastern side of Monk Bridge, which is mentioned in Francis Drake's 1736 publication *Eboracum* (VCH 1961, 365). Evidence from a will of 1428 suggests that this was a leper hospital (FAS 2001, 4). Many leper houses in medieval England were located on major routes into towns to enable the collection of alms from travellers. Examples of this type include Banbury, Chester, Dunwich, Glasgow, Kings Lynn, Leicester, Newport Pagnell, Oxford, Wallingford, Whitby, Wymondham (Rawcliffe 2006, 308 and 311) and in York (Evans 1992).

The precise location of the St Loy hospital is unclear, but two medieval ditches on the site of the Britannia Car Park, located to the immediate west of the present study site, were interpreted as the southern boundary of this hospital (FAS 2001, iii, 23-6). It has also been suggested that portions of a post-medieval public house named The Woodman, located to the east of Monk Bridge, could have derived from the hospital buildings (*ibid.*, 34)

6.5 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 (as shown on Plate 1).

6.6 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 River 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 (Plate 2). 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 (Plate 3). A further smaller tank was added to the north-east of the rectangular building by 1946 (Plate 4), and by 1952 a further three tanks were present, slightly to the east of the original boundary of the gas-works (Plate 5). 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.

7 HISTORIC MAP REGRESSION

The maps of York pre-dating the 1850s often show only the historic core of the city, so there is therefore little cartographic evidence for the present study site prior to the mid-19th century.

The earliest detailed map of the area was published by the OS in 1853 (Plate 1). This map shows the present study site subdivided into a number of fields, with three small buildings fronting onto Heworth Green road.

The site of the medieval hospital of St Loy is indicated together with The Woodman public house (located to the west of the present site). To the north of Heworth Green road there were two villas, the first labelled Queen's Villa and the second Heworth Grange (with an associated summer house), both of which were set back from the road within gardens. Some blocks of housing were present to either side of Layerthorpe (to the south of the present study site). The area bordered by Scarborough Road, Mill Lane and East Parade (to the immediate east of the present study site) is shown with terraced housing, though the street frontage of East Parade was not entirely infilled with buildings at this time. The process of industrialisation had begun with a Gas Works being present to the west of the River Foss and a pottery for common earthenware to the north of Heworth Grange.

By 1889 (Plate 2) the gas works west of the Foss had expanded, and a second gas works had been constructed on the present site (Plate 2). The Woodman public house had been demolished and replaced with a sanitation engineering works fronting onto Heworth Green road. The Foss Islands Branch Line railway had been constructed (this railway borders the present study site on the eastern side). The gas works had its own railway line which was connected into the Foss Islands Branch Line, and included a bridge over the River Foss.

On the 1889 map the easternmost building of the former Queen's Villa is labelled Heworth Croft while the westernmost buildings have been expanded and renamed Crown Cottages. A new

house labelled New Villa had been constructed to the west of Heworth Grange. There had been considerable development of terraced housing both along Huntington Road and to either side of Layerthorpe. A Roman cemetery is labelled in the area between the Foss Islands Branch Line and Dodsworth Avenue, while the area to the south of Layerthorpe is labelled as a clay pit and brick field.

By 1907 (Plate 3) there had been further expansion of the gas works buildings to either side of the River Foss, with new storage tanks. The area of the present study to the immediate east of the gas works is shown as four fields.

The 1907 map shows that the area between Huntington Road and the River Foss had entirely infilled with buildings and that further terraced housing had been built on either side of the Mill Lane frontage. Crown Cottages had expanded, and the former New Villa is labelled Stannerton. The new streets of Hawthorne Street, Harcourt Street and Glen Road together with associated buildings had been established south of Layerthorpe. The pottery north of Heworth Grange is no longer labelled as such, but a large laundry had been built on Dodsworth Avenue. Both a stone cist and a Roman cemetery are labelled in the Dodsworth Avenue area.

The area rapidly developed over the next 14 years, as indicated by the 1931 OS map (Plate 4). The gas works buildings on both sides of the River Foss had expanded further, but the former sanitation engineering works had been demolished. The northernmost two fields to the east of the gas works had been converted into allotment gardens. A footpath is shown between the gas works and allotments.

The area to the south of Layerthorpe is shown entirely infilled with housing fronting onto the existing streets and onto the new road of Fifth Avenue. Additional buildings had been constructed to the north of Heworth Green road, including one labelled Dalguise House. The former Stannerton was labelled Edenheys, while the site of the former summerhouse was shown as earthworks. A large building had been constructed in the triangular plot of land between the River Foss, Foss Islands Road and Heworth Green road.

Further development occurred by 1938 with the laying out of Irwin Avenue together with building plots fronting both this street and the northern side of Heworth Green west of Dodsworth Avenue (Plate 5).

The pattern of land use remained largely unaltered from then until 1950 (Plate 6). The only changes being that the allotment gardens on the present study site had reduced in size. A small railway siding had been inserted to the east of the gas works together with a new gas storage tank. To the north of the present site both Dalguise House and Edenheys had been replaced with cul-de-sacs known as Dalguise Court and Villa Grove, both lined with associated housing. This pattern of land use remained unchanged on the 1958 1:10560 OS map.

By 1962 (OS 1:1250 map) most of the gas works to the west of the Foss had been demolished, but new buildings had been constructed within the gas works on the present study site. In addition, the allotment gardens had gone out of use being replaced by open land. The railway line had also gone out of use, with the branches leading to the gas works being largely removed. A new road, Hyrst Grove, lined on both sides with housing had been inserted to the north of Heworth Green road.

Between 1972-82 (OS 1:10000 map) the western half of the gas works site to the east of the River Foss had been converted into a car park with a road to the east. The area of the former allotments was now within the boundary of the gas works. A new depot building had been constructed in the gas works site. All trace of the railway lines leading to the gas works had been removed, though the cutting for the main branch line was still present.

College buildings had been constructed between the roads of Heworth Croft and Villa Grove. The large building in the triangular plot of land between the River Foss, Foss Islands Road and Heworth Green road had been demolished and the laundry on Dosedworth Avenue was no longer labelled as such. The pattern seen on the 1972-82 map remained largely unaltered on the 1992 OS 1:10000 map.

The principal change since 1992 has been the replacement of the car park with blocks of flats. The road to the east of these flats (the present Eboracum Way) was widened, and the southern end of this road was diverted from its previous course to form a four-way junction with Hallfield Road/Layerthorpe/Hawthorn Grove. New housing has also been inserted near the junction of Hawthorn Grove and Mill Lane.

8 WALK OVER SURVEY

A walkover survey was undertaken on the 11/2/2019 at 2pm. The weather at the time was sunny, but there had been heavy rain over the preceding week. The site is discussed as a number of zones.

Zone A (Plates 7-8) – this comprises a small roughly rectangular area at the extreme south-western portion of the site bordered by Eboracum Way to the west, Hawthorn Grove to the south, and housing to the east, with the northern side forming part of the former gas works site. This area is bordered by metal fencing adjacent to Eboracum Way and by fencing on the southern and eastern sides. The area contains a mound of spoil with rough grass and there are occasional trees along the eastern side.

Zone B (Plates 9-15) – This comprises a roughly rectangular area immediately adjacent to Eboracum Way over the northernmost two-thirds of the site. This area is a compound, surrounded on all sides by fencing, which contains a number of brick buildings (Plates 9-10) together with a major pipeline which runs parallel to Eboracum Way.

The street frontage on the western side is bordered by iron fencing (painted blue) with additional higher barbed wire fencing to the immediate east (Plate 11). There is a hazard warning sign on this fencing. The eastern side, which lies within the gas works site is bordered by mesh fencing topped with barbed wire (Plate 10). Despite this fencing the site has clearly been subjected to some vandalism, as graffiti is present on the western walling of the main building in this compound (Plate 12).

The main building within the compound is at the southern end of this zone. This has windows at first floor level, which are still present on the western side (Plate 12) but have been boarded up on the eastern side (Plate 13). To the north of this are four small rectangular brick buildings (Plate 10). The area between the buildings contains various items such as street signage and plastic bollards (Plates 10 and 14). A major pipeline enters the ground close to the northern end

of this zone (Plate 15) and runs well above ground level along the western side of the site (Plates 9 and 15), before going below ground again at the southern end of this zone.

Zone C (Plates 16-20) – This is a small rectangular area adjacent to the Heworth Green street frontage which is infilled with trees/shrubs (Plate 16). The street frontage is bordered by iron fencing painted blue (Plate 17) with clear hazard warning signage (Plate 18). There are clearly services running immediately to the north of the site along the street frontage as two green metal service boxes (Plate 19) and one grey service box (Plate 20) are present. In addition, a bus stop is present on the street.

Zone D (Plates 21-32) – This is a roughly square area forming the central portion of the site. It is bordered to the west by Zone B, to the north by Zone C, to the east by Zone E and to the south by Zone F. The entire area comprises tarmac roadways, car parking areas, and the plinths of demolished buildings. The largest of these plinths occupies most of the central portion of Zone D.

The street frontage of this area comprises the main access gates for the site (Plate 21), which provided separate entry and exit ways into the gas works. The gates are currently padlocked. The remainder of the street frontage is a brick wall with trees behind (Plate 22). Views across Zone D are given on Plates 23-26. This portion of the site is clearly crossed by service trenches as electric lamp-posts (Plate 26), manhole covers (Plate 27) and metal caps (Plate 28) are present.

On the large building plinth there are a number of capped metal pipes (Plate 29). The plinth is also strewn with demolition rubble in places (Plate 30). There are metal bollards adjacent to former roadways through the site (Plate 31), and a metal bike shed is located behind the street frontage to the immediate east of the entrance gates (Plate 32).

Zone E (Plates 33-37) – This zone is a roughly triangular area at the eastern side of the site. It is bordered on the eastern and northern sides by housing and to the west by Zone D. This area is at a slightly higher level than Zone D (Plate 33) the ground being slightly mounded up. The entire area is covered by grass and occasional shrubs/roots. There are occasional wooden posts (Plate 34-5) across this area. The ground level is undulating (Plates 36-7), clearly reflecting the works undertaken at the site in 2012. The deeper undulations were filled with rainwater.

Zone F (Plates 39-45) - This zone is the southernmost portion of the site bordered by Eboracum Way to the west, Zone A to the south-west, housing to the south, the former Foss Islands Branch Line railway on the south-eastern side and by Zones D and E to the north and north-east respectively.

This area is dominated by a large circular gas storage tank (Plates 38-9) with two associated metal stairways. The tank is surrounded on all sides by mesh fencing. The remaining ground surface is of tarmac. The area to the immediate north of the gas tank (Plate 40) comprised a number of low brick walls from demolished buildings and metal fences. These had clearly been subjected to vandalism, being covered with graffiti. To the west of the gas storage tank was a modern metal building (Plates 41-2). A portacabin and a metal shed, which was open at the time of the visit, were also present to the west of the gas storage tank (Plates 43-4). To the immediate east of the gas storage tank were small cabins behind metal fencing (Plate 45).

9 PREVIOUS ARCHAEOLOGICAL INTERVENTIONS

The various archaeological events are described below in the order in which they occurred. The reference numbers given are those of Appendix 2.

1. Aerial photograph

General view of the area taken in 1936.

2. Lowther Street/Huntington Road. Watching brief by YAT.

Natural deposits and post-medieval alluvium were observed.

3. 51 Heworth Green. Watching brief by YAT.

An 18th century drain and modern garden soil were present. There was no trace of the nearby Roman cemetery (YAT Gazetteer).

4. 1 Villa Grove, Heworth. Watching brief by YAT.

Modern garden soil was observed (YAT Gazetteer).

5. Heworth Green Railway Bridge. Watching brief by YAT.

Modern deposits were observed to a depth of 1m BGL in a contractor's trench (YAT Gazetteer).

6. Britannia Car Park. Archaeological evaluation by FAS.

Site monitoring of test pits and boreholes was undertaken, which showed that the car park surface overlay deposits relating to the demolition of the gas works, beneath which were natural deposits (Timms 2000, 7-9).

7. Britannia Car Park. Archaeological evaluation by FAS in association with MGA.

Four trenches were excavated and groundworks at the site were monitored. This showed that the site had been severely damaged by the gas works and that it was heavily contaminated with industrial pollutants, preventing detailed archaeological recording over much of the site. Despite this disturbance, two medieval ditches were found that were interpreted as the southern boundary of the hospital of St Loy, together with a ditch of 17th century date and portions of The Woodman public house (FAS 2001, iii, 23-6)

8. Sainsbury's Foss Bank. Assessment by YAT.

A desk-based study included the site of the gas works west of the River Foss.

9. 31 Hawthorn Grove. Evaluation by MGA.

There is no report for this site at the HER, details of the project are therefore unknown.

10. Britannia Car Park. Management plan by MAP.

Scheme of works for the site.

11. Former VW Garage, Layerthorpe, York. Archaeological evaluation by YAT.

Six trenches on the site revealed evidence of 19th century housing and modern levelling deposits. Nothing of archaeological significance was found (Evans 2001).

12. Heworth Croft. Scheme for archaeological recording by MGA.

This document comprises detailed proposals for the excavation and recording of 10 trenches in the area of St Johns College to the north of Heworth Green road.

13. Heworth Croft. Architectural survey by FAS.

An architectural survey of the buildings of Heworth Croft.

14. Heworth Green. Archaeological evaluation by OAN.

An archaeological evaluation on the former Transco depot comprised nine trenches. These yielded a small group of features of Roman date interpreted as possibly relating to the nearby Roman cemetery, together with two ditches and a post-hole of medieval date interpreted as relating to agriculture. The site had been levelled up with modern rubble up to 0.8m thick (Clark 2003, 3). This site lies within the present study site.

15. 24 Heworth Green, York, Yorkshire. Appraisal and management plan by Drivers Jonas

This was a method statement for future works at the site.

16. Land at Heworth Green. Management plan by Rob Bourne.

This was a method statement for proposed works.

17. Heworth Green. Watching brief by NAA.

The watching brief identified a sequence of deposits which in order of occurrence were flood deposits, a brick-built sewer, further flood deposits, a second sewer, a brick structure with a flagged stone floor, and a tar like deposit relating to the gas works. Nothing of medieval or earlier date was present (Bartlett 2004, 1).

18. Heworth Croft. Evaluation by FAS.

Roman features including a truncated pit were present as were medieval plough furrows aligned NW-SE. A buried horticultural soil of post-medieval date was also present (Timms 2004, iii).

19. 1 Mill Lane, Heworth Green. Watching brief by OSA.

The watching brief was undertaken in relation to the insertion of a patio. It revealed natural deposits, a medieval soil horizon and modern clay layers (Kausmally 2004, 3).

20. Minster Engineering Works, Dennison Street. Archaeological evaluation by MAP.

The excavation of three trenches at the site revealed 19-20th century building footings and dumps. Nothing of archaeological significance was found (MAP 2004, 3, 11-2).

21. Heworth Green. Watching brief by MAP

No features of archaeological interest were present (MAP 2006).

22. Heworth Croft. Watching brief by Fern Archaeology.

Roman artefacts were present indicating activity in the vicinity. These artefacts included three tile wasters which were interpreted as possibly being indicative of rural tile production. A medieval ditch was present which may relate to Wardmote Court Brook, which is mentioned in documents of 1575-86. Post-medieval soils and 18th century or later ceramic drainage pipes were also present (Fern 2007, 12-4).

23. York Gas Works, Heworth. Watching brief by YAT.

Natural deposits were overlain by agricultural soil of 18th-19th century date. This soil was extensively disturbed by features relating to the gas works (Milsted 2012, 1). A considerable degree of contamination was present in the soils under observation, including benzene, acids and cyanide (ibid., 2). This watching brief lay within the present study site.

10 POTENTIAL ARCHAEOLOGICAL IMPACT ACROSS THE DEVELOPMENT SITE

The site can be divided in two in terms of the probable survival of archaeological deposits. The western half of the site was clearly extensively damaged by the construction of the various gas-works buildings, and this will undoubtedly have led to the removal of most archaeological deposits in the area. This portion of the site will almost certainly be heavily contaminated with industrial pollutants, which would make the archaeological investigation of any surviving remains in this area highly problematic.

The eastern portion of the site was used for agriculture, allotments and recreation and is not damaged by modern buildings. As a result the survival of archaeological deposits will almost certainly be better in this portion of the site. Despite the lack of buildings relating to the gas works this portion of the site was also contaminated with industrial pollutants (Milsted 2012, 9), so again archaeological excavation would be problematic.

10.1 Glacial and post-glacial deposits

Naturally occurring deposits have been seen on a number of sites in the area and will almost certainly be encountered within the present study site. The two previous archaeological interventions at the site suggest that the upper surface of these deposits is at between 0.73m 1.15m BGL (Clark 2003, 12-4; Milsted 2012, 4).

10.2 Prehistoric

Given the total absence of finds of this date from the vicinity it is unlikely that any remains of this period will be present, though there is always the possibility that stray artefactual items (notably flints) will be recovered.

10.3 Roman

Given that Roman cemeteries have been found to the north and south-east of the present site, and that a feature interpreted as the remains of a grave was uncovered in the eastern portion of the site (Clark 2003, 3), there is a strong possibility that Roman burials may be present.

With regards to the western half of the site any such burials may well have been entirely destroyed by the various gas works buildings. Burials in the eastern portion of the site would probably be located in the area closest to Heworth Green or in the south-easternmost corner of the plot of land (closest to the known Roman cemeteries in the area).

The archaeological excavation of burials is covered by specific legislation (the Disused Burial Grounds (Amendment) Act 1981) and it requires time and care. It also necessitates specific analyses (osteo-archaeological analysis of the bones and art-historical analysis of any associated grave goods) and as such is a time-consuming and potentially costly procedure.

10.4 Anglian and Anglo-Scandinavian

It is unlikely that any remains of this date lie within the study site. Given that Anglian burials have been found in the vicinity there is, however, a slight possibility of stray artefactual finds.

10.5 Later Medieval

The area was probably largely rural at this stage. Features of this date relating to agriculture/drainage clearly survive on the eastern portion of the present site (Clark 2003, 3), and more would undoubtedly be uncovered should any large-scale redevelopment take place. While such features would indicate the location of field divisions, and possibly of ridge and furrow plough lines, they would be of lesser archaeological importance than any surviving Roman remains at the site.

10.6 Post-Medieval

Any remains of this date are probably of a similar nature to those of medieval date, i.e. features relating to agriculture and drainage.

10.7 Modern

The succession of buildings relating to the gas works at the site is well known from the series of OS maps of the area. While such buildings would be of interest in relation to the study of industrial archaeology, there is the issue of industrial pollution. It is clear from the works undertaken on the adjacent Britannia Car Park, and from the watching brief undertaken at the present site (Milsted 2012) that levels of industrial contamination are high; this would make the investigation of any gas works related buildings extremely hazardous.

11 CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER INVESTIGATION AND MITIGATION

11.1 Conclusions

The City of York Council would have to be consulted with regards to the small portion of the site lying within the Heworth Conservation area. This area is shown as open ground on all of the OS maps from the 1850s to the present, and as such it is unlikely that any structural features of archaeological note survive in this area, though remains of an agricultural nature may be present. The area is within this conservation area to protect the trees along the street frontage.

With regards to the gas works, the by-products of coal-gas production (such as residual hydrocarbons, cyanide and heavy metals) are extremely hazardous and this site will pose severe Health and Safety problems. The contaminants may also have affected ground-water at the site, which would again make excavation hazardous. Monitoring of Volatile Organic Compounds such as benzene would also be merited, especially within any surviving structures. It is also possible that sulphates may have weathered out of concrete buildings associated with the gas works.

Precautions would need to be set in place to ensure the Health and Safety of anyone working on the archaeological excavation of the site (or for that matter any groundworks). Advice would be needed from relevant bodies (such as the Health and Safety Executive) to determine precisely how any such archaeological excavation could proceed.

11.2 Further investigation

It would be of value to carefully superimpose all earlier OS maps of the site onto the present OS map to determine the precise locations of the gas works buildings, including any storage tanks. This would provide a detailed idea of the areas that would almost certainly be devoid of Roman to post-medieval archaeological features, thereby cutting down the level of archaeological monitoring/work required.

Such a map overlay would also identify structures relating to the gas works that may be of interest for research, such as retort ovens and settlement tanks, which could be evaluated. Any such works could only be undertaken subject to stringent Health and Safety measures being in place, it is even possible that in some areas archaeological works would be impossible due to ground contamination.

Any further Site Investigation (SI) works to determine the level of contamination should be archaeologically monitored. SI works such as machine-excavated test-pits and boreholes, providing suitable precautions are in place, could provide sufficient information without the need for further archaeological investigation.

If further archaeological evaluation is required it is recommended that these be restricted to solely mechanically-excavated investigations. The eastern part of the site has already been investigated (Clark, 2003; Milsted 2012). The western area could benefit from a series of small trial trenches in areas identified in the proposed map-regression as never having been occupied by gas works structures. This would allow for an assessment of what, if anything, may be present there.

It may also be useful to undertake two perpendicularly aligned transects of windowless-sample boreholes across the western area to inform a basic site-wide deposit model, but this would be strictly subject to prior SI works to assess contamination and below-ground structures such as tanks.

11.3 Mitigation

The present baseline does not allow for a detailed mitigation strategy to be proposed. With the current level of data, a watching brief during SI works and subsequent development is recommended as a minimum requirement but further evaluation would help confirm this.

Should significant archaeology, such as Roman burials or medieval occupation, be identified, excavation would be required, subject to acceptable mitigation of risk from contamination.

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Figure 3 were prepared by K. Smith

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APPENDIX 1 – GAZETTEER OF MONUMENTS AND CONSERVATION AREAS WITHIN THE STUDY AREA

Table 1 Gazetteer of monuments and conservation areas within the study area

Number	Site Name	Date	Reference
1	Remnant of Railway Bridge	Late 19 th century	MYO313
2	Pipeline cast concrete supporting bridge from gas works	20 th century	MYO314
3	Monk Bridge	1924-6	MYO315
4	48 and 50 Heworth Green House	Early-mid 19 th century	MYO1418 DYO997
5	Heworth Croft House and coach house	Mid-19 th century	MYO1430 DYO1009
6	19 Heworth Croft Summerhouse	Early 19 th century	MYO1431 DYO1010
7	26 Heworth Green House	Early to mid-19 th century	MYO1432 DYO1011
8	44 Heworth Green House	Mid-19 th century	MYO1433 DYO1012
9	46 Heworth Green House	Early-mid 19 th century	MYO1434 DYO1013
10	Foss Navigation Canalisation of river	1793	MYO2045
11	Heworth Windmill mound	Post medieval	MYO2184
12	Mound, Heworth Court Garden feature	18-19 th century	MYO2273
13	Roman cemetery	Roman	MYO3330
14	Ridge and Furrow seen on aerial photograph of 1936	Undated	MYO3499
15	York to Scarborough turnpike road	1752	MYO3502
16	St Loy's Hospital Possible site of	Medieval	MYO3505

Number	Site Name	Date	Reference
17	Foss Islands Branch Line railway	1879	MYO3507
18	Roman road.	Roman	MYO4191
19	Roman cemetery uncovered in 1926	Roman	MYO4194
20	Conservation Area 1 The historic core of York	Multi-period	DYO1700
21	Conservation Area 5 Heworth Green/East Parade	Multi-period	DYO1703

APPENDIX 2 – GAZETTEER OF ARCHAEOLOGICAL EVENTS WITHIN THE STUDY AREA**Table 2 Gazetteer of archaeological within the study area**

Number	Site Name	Date	Reference
1	Aerial photograph	1936	EYO4719
2	Lowther Street/Huntington Road. Watching brief	1991	EYO3595-6 YORYM: 1977.1008
3	51 Heworth Green, York. Watching brief	1983	YORYM: 1983.39
4	1 Villa Grove, Heworth, York. Watching brief	1985	YORYM: 1985.1037
5	Heworth Green Railway Bridge, York. Watching Brief	1989	YORYM: 1989.1021
6	Britannia Car Park. Evaluation	2000	EYO5924, EYO5479, SYO1541
7	Britannia Car Park. Evaluation	2001	EYO490, SYO696
8	Sainsbury's Foss Bank. DBA	2000	EYO290 YORAT: 2000.4
9	31 Hawthorn Grove. Evaluation	2000	EYO417
10	Britannia Car Park. Management Plan	2003	EYO256
11	Former VW Garage, Layerthorpe. Evaluation	2001	EYO519, EYO616, SYO725_CYC340 YORYM: 2001.10750
12	Heworth Croft. Site works methodology	2003	EYO626, SYO436
13	Heworth Croft. Architectural survey	2003	EYO228
14	Heworth Green. Evaluation	2003	EYO306, SYO512
15	24 Heworth Green. Appraisal and management plan	2003	EYO240
16	Land at Heworth. Management plan	2003	EYO257
17	Heworth Green. Watching Brief	2004	EYO631, SYO836
18	Heworth Croft. Evaluation	2004	EYO661, EYO625, EYO328

Number	Site Name	Date	Reference
19	1 Mill Lane. Watching brief	2004	EYO633, SYO838
20	Minster Engineering Works. Evaluation	2004	EYO630, SYO835
21	Heworth Green. Watching brief	2006	EYO807
22	Heworth Croft. Watching brief	2007	EYO836, SYO1041
23	Heworth Gas Works. Watching brief	2012	YAT project 5582

PLATES



Plate 1 The six inch to one mile OS map, surveyed 1846-1851 published 1853 (not to scale)

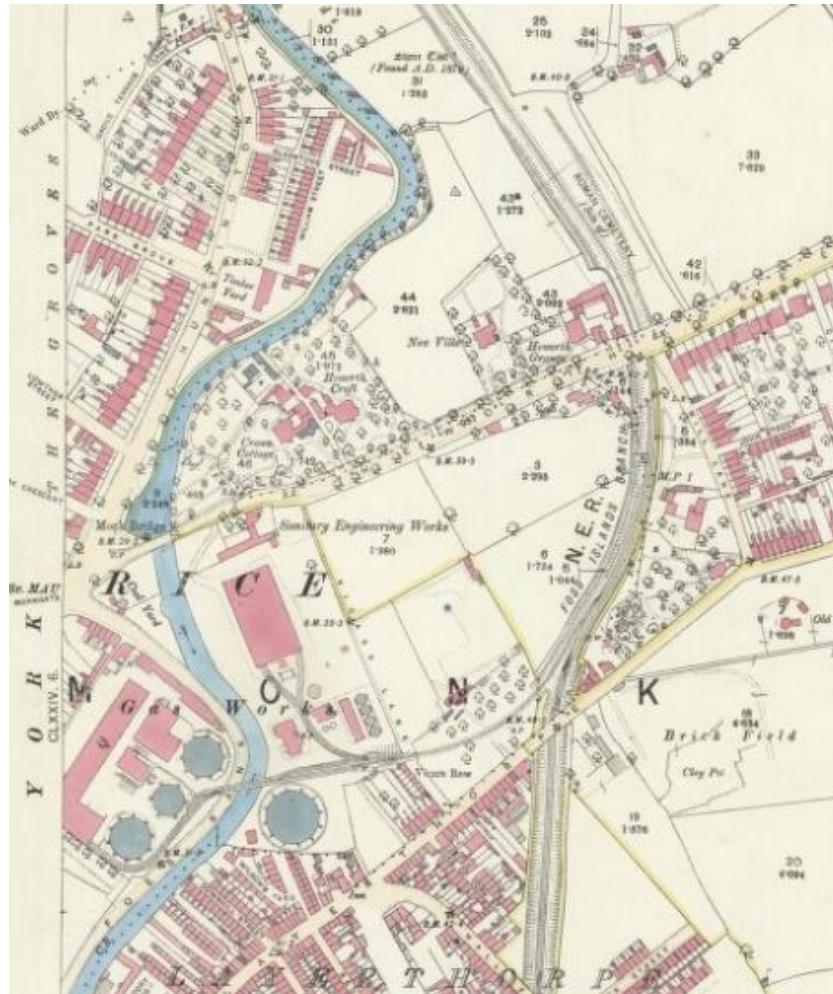


Plate 2 The 25 inch OS map, surveyed 1889 published 1892 (not to scale)



Plate 3 The six inch to one mile OS map, revised 1907 published 1910 (not to scale)



Plate 4 The six inch to one mile OS map, revised 1929 published 1931 (not to scale)



Plate 5 The six inch to one mile OS map, revised 1938 published 1946 (not to scale)



Plate 6 The six inch to one mile OS map, revised 1950 published 1952 (not to scale)



Plate 7 Zone A facing south-east



Plate 8 Zone A facing east



Plate 9 Zone B facing north-east



Plate 10 Zone B buildings facing west



Plate 11 Fencing on the western side of Zone B



Plate 12 Zone B facing east. Graffiti on the main building and the major pipeline.



Plate 13 Zone B buildings facing north-west



Plate 14 Zone B buildings facing west



Plate 15 The northern end of the major pipeline in Zone B facing east



Plate 16 Zone C facing north



Plate 17 Zone C fencing facing south-east



Plate 18 Zone C warning signage facing south



Plate 19 Zone C street frontage facing south-east



Plate 20 Zone C street frontage facing south-east



Plate 21 Zone D the metal access gates for the site facing south-east



Plate 22 Zone D street frontage facing east



Plate 23 Zone D facing south-east



Plate 24 Zone D facing south



Plate 25 Zone D facing south



Plate 26 Zone D facing south



Plate 27 The westernmost road of Zone D facing north



Plate 28 The westernmost road of Zone D facing north



Plate 29 Metal pipes on the building plinth of Zone D facing east



Plate 30 Debris on the building plinth of Zone D facing south-east



Plate 31 Metal bollards at the edge of the northernmost roadway of Zone D facing east



Plate 32 The bike sheds in Zone D facing north



Plate 33 Zone E facing west



Plate 34 Zone E facing south-east



Plate 35 Zone E facing east



Plate 36 Zone E facing south



Plate 37 Zone E facing south



Plate 38 Zone F the gas storage tank facing west



Plate 39 Zone F the gas storage tank facing south-west



Plate 40 The area to the immediate north of the gas storage tank facing west



Plate 41 the metal buildings to the west of the gas storage tank facing east



Plate 42 the metal buildings to the west of the gas storage tank facing north-east



Plate 43 A portacabin to the west of the gas storage tank



Plate 44 An open metal shed to the west of the gas storage tank facing east



Plate 45 Small cabins to the east of the gas storage tank

FIGURES

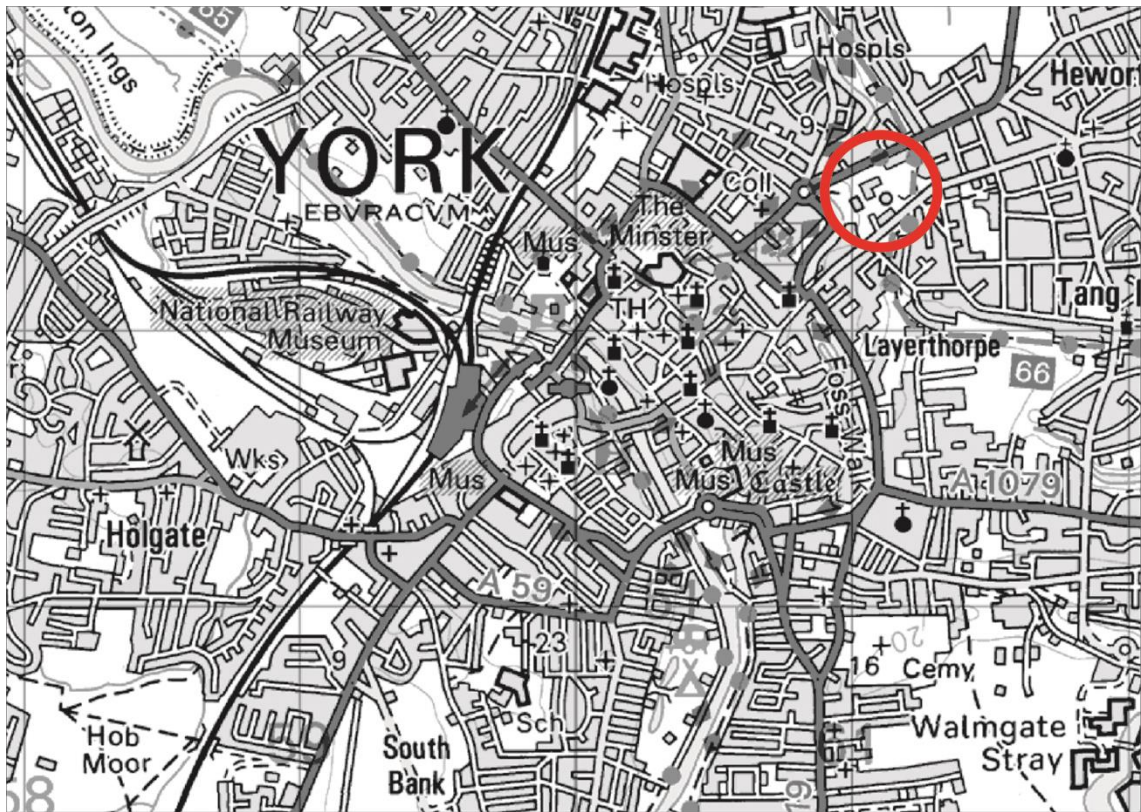


Figure 1 The location of the present study site

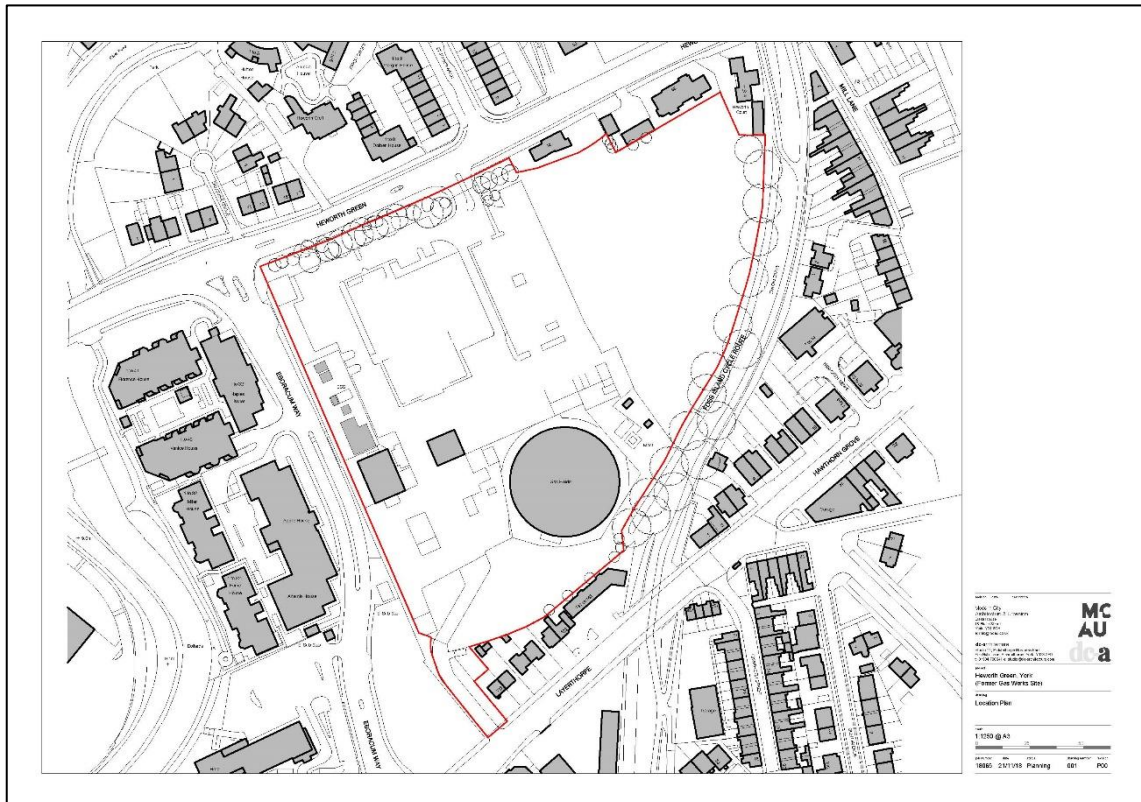


Figure 2 The location of the present study site (supplied by the client)

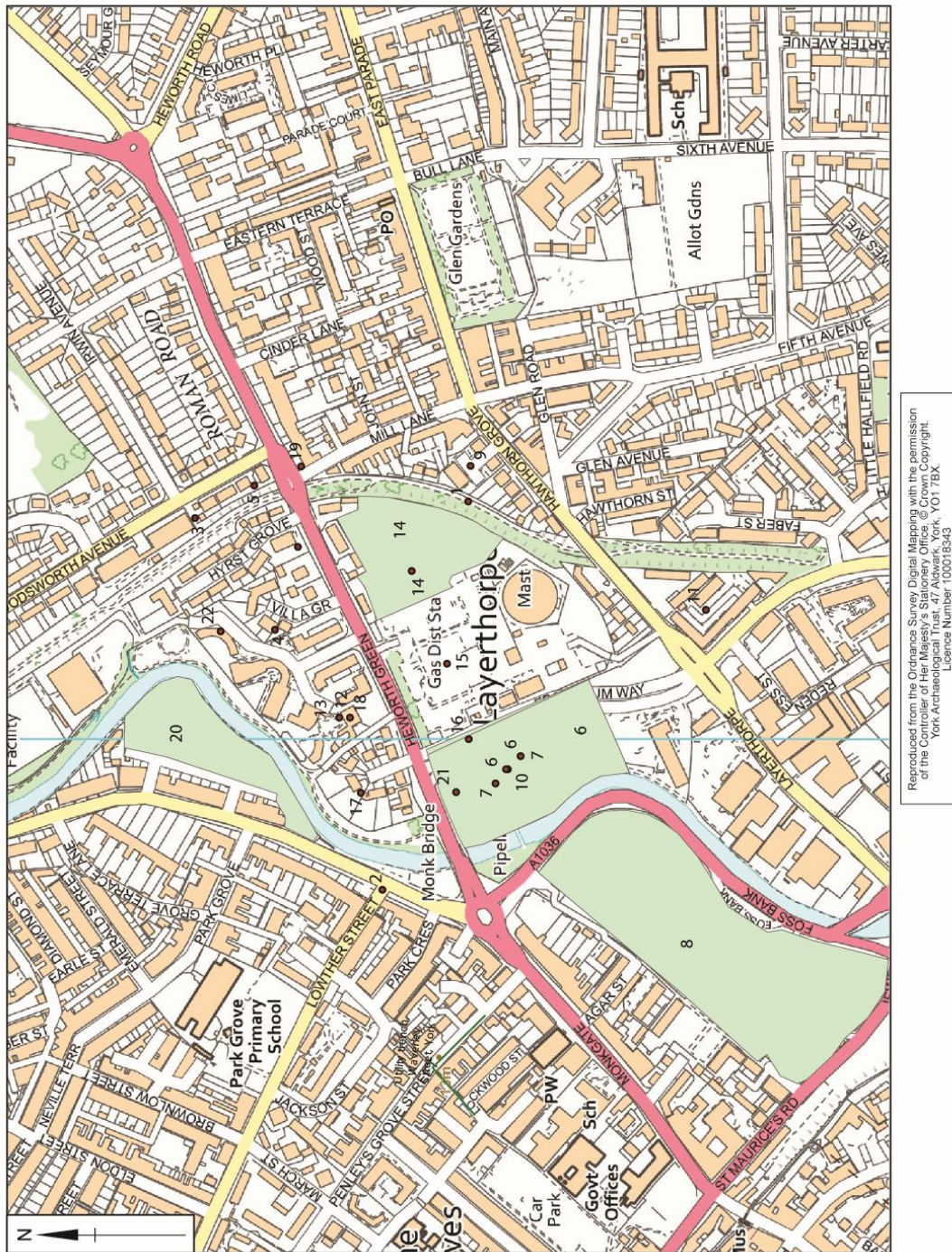


Figure 3 The location of archaeological events in the study area (not to scale)



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