



Darlington Street Gas Works, Wigan

Archaeological Watching Brief



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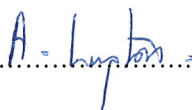
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SUMMARY

In February 2010, Oxford Archaeology North (OA North) was commissioned by WYG Environment, acting on behalf of National Grid Property Holdings, to monitor a programme of geo-technical investigations on the site of a former gas works on Darlington Street, Wigan (centred on NGR SD 58570 05200).

Wigan has long been associated with the Roman site of *Coccium*, which is recorded as lying 17 miles from Manchester in a listing of roads, which was probably compiled during the second century AD. Firm evidence for this association has, however, been lacking, although antiquarian observations and chance finds of Roman artefacts indicated that occupation of some kind had occurred in Wigan during the Roman period. In particular, the remains of a probable Roman cemetery were discovered in the present study area during the construction of the gas works on the southern edge of the town between 1822 and 1830 (Watkin 1883, 20).

In order to investigate further the antiquarian observations of a cemetery, National Grid Property Holdings requested that the geo-technical investigations were monitored by an archaeological watching brief. This was intended as a preliminary assessment to establish the potential for archaeological remains to survive *in-situ* within the site. It was anticipated that the results obtained from the watching brief could be used to inform any requirement for any future archaeological assessment of the site.

In total, 45 hand-dug and machine-excavated test pits were undertaken at various locations across the site during March 2010. The only remains of archaeological interest that were encountered at the site related to structures associated with the former gas works and no remains of Romano-British date were revealed. Although there appears to have been considerable disturbance of any deposits pre-dating the nineteenth century across much of the area, the potential remains for the presence of such horizons in the north-western part of the site, where make-up deposits appear to have raised the ground level by up to 2m.

It is concluded that any future development across most of the study area would be unlikely to have an archaeological impact, other than on the structural remains associated with the former gas works. However, in the northern part of the study area, to the west of the River Douglas, there is still some potential for buried archaeological remains of a Roman date to survive *in-situ*, which may require further investigation. Whilst the requirement and precise scope of any future works would need to be devised in consultation with the County Archaeologist for Greater Manchester, a programme of archaeological evaluation in this area may be an appropriate course of action. This should aim to establish the presence or absence of undisturbed horizons of archaeological interest that pre-date the nineteenth century and that lie at, or below, the original ground level in this area.

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Oxford Archaeology North (OA North) would like to thank Kirsten Holland of WYG Environment for commissioning and supporting the project on behalf of National Grid Property Holdings.

The watching brief was maintained by Alastair Vannan, who also compiled the report. The report was edited by Ian Miller, who was also responsible for project management.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF PROJECT

- 1.1.1 In February 2010, Oxford Archaeology North (OA North) was commissioned by WYG Environment, acting on behalf of National Grid Property Holdings, to monitor a programme of geo-technical investigation in the vicinity of Darlington Street, Wigan (centred on NGR SD 58570 05200).

1.2 LOCATION AND GEOLOGY

- 1.2.1 Wigan lies close to the western boundary of the modern county of Greater Manchester, approximately midway between the rivers Mersey and Ribble (Fig 1). The town is situated on the northern bank of the river Douglas, a tributary of the Ribble.
- 1.2.2 The geology of the Wigan area forms part of the Lancashire Coal Measures, which extend from the Mersey Valley in the south to the Amounderness Plain in the north-west (Countryside Commission 1998, 172). The solid geology comprises productive coal measures, with Bunter sandstone and marls to the south (Ordnance Survey 1951). The overlying drift geology consists of glacial and post-glacial tills, with fluvial deposits of gravel along the course of the River Douglas (Countryside Commission 1998, 128).



Plate 1: Recent aerial view of the study area

2. METHODOLOGY

2.1 WATCHING BRIEF

- 2.1.1 During the course of all earth-moving works associated with the geo-technical site investigations, a programme of field observation recorded the location, extent, and character of all surviving archaeological features and deposits. All excavation work was carried out either by hand, or using a 3.5 ton mechanical excavator fitted with a toothless ditching bucket. In total, 45 test pits were excavated across the study area (Fig 2).
- 2.1.2 All information was recorded stratigraphically with accompanying documentation (plans, sections and both colour slide and black and white print photographs, both of individual contexts and overall site shots from standard view points). Photography was undertaken with 35mm cameras on archivable black-and-white print film, as well as colour transparency, all frames including a visible, graduated metric scale. Digital photography was used extensively throughout the course of the fieldwork for presentation purposes. Photographic records were also maintained on special photographic *pro-forma* sheets.

2.2 FINDS

- 2.2.1 Finds' recovery and sampling programmes are carried out in accordance with best practice (following current Institute of Field Archaeologists guidelines), and subject to expert advice in order to minimise deterioration. However, no artefacts were recovered during the watching brief.

2.3 ARCHIVE

- 2.3.1 The results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). The original record archive of project will be deposited with Wigan Museum Service.
- 2.3.2 The Arts and Humanities Data Service (AHDS) online database *Online Access to index of Archaeological Investigations* (OASIS) will be completed as part of the archiving phase of the project.

3. HISTORICAL BACKGROUND

3.1 HISTORICAL BACKGROUND

- 3.1.1 **Prehistoric period:** there is little evidence for prehistoric activity around Wigan, and none in the vicinity of the site. Stray finds are, however, known from the wider area, including a Neolithic polished stone axe found at Gidlow (Jackson 1936, 74), a Bronze Age axe-hammer, now lost, discovered near Bottling Wood to the north-east of the site (OA North 2008), and a polished stone axe recovered from Leigh cricket ground in 1912 (Aldridge 1999).
- 3.1.2 **Romano-British period:** Wigan has long been associated with the Roman site of *Coccium*, which is recorded as lying 17 miles from Manchester in a listing of roads, known as the *Antonine Itinerary*, which was probably compiled during the second century AD (Margary 1973). Firm evidence for this association has, however, been lacking, although antiquarian observations and chance finds of Roman artefacts indicated that occupation of some kind had occurred on the site during the Roman period. During the nineteenth century, artefacts were discovered during construction works in the Wallgate, King Street and Darlington Street area (Hannavy 1990, 8), and a particular concentration of finds was identified on the higher ground around Library Street and Millgate (Hawkes 1935, 43). The remains of a probable Roman cemetery were also discovered in the present study area during the construction of a gas works on the southern edge of the town between 1822 and 1830 (Watkin 1883, 20).
- 3.1.3 It was not until archaeological excavations were carried out at the Wiend, during the 1980s, that actual settlement remains of Roman date were first identified in Wigan. These investigations revealed the remains of what has been interpreted as a Roman military industrial site, comprising a series of timber buildings, furnaces and hearths associated with a metallised road. It was considered likely that further Roman remains had existed near the summit of the hill in the town centre, but that these deposits had probably been largely destroyed by Georgian and Victorian cellars (Tindall 1983, 29-30). Whilst the results of the excavations added weight to the hypothesis that Wigan was indeed the site of *Coccium*, the nature, function and longevity of Roman settlement remained uncertain. Indeed, the main phase of intensive activity at the Wiend appears to have tailed off during the early years of the third century, and the nature of Roman activity during the third and fourth centuries remains entirely obscure.
- 3.1.4 Recent work by the Wigan Archaeological Society (WAS) has furnished information regarding the route of Roman roads in the vicinity of Wigan. One of the most important routes was the road between Wigan and Manchester, which, in general terms, is thought to take the same course as the modern A577 (Aldridge 2005). This has been investigated in several places, including Small Brook Lane, near Atherton, Hatton Fold, Amberwood Common in Higher Ince, and in Ellesmere Park (*ibid*).

- 3.1.5 **Early medieval period:** the character of occupation following the collapse of formal Roman administration in the early fifth century remains entirely obscure. Place-name evidence points to some form of native settlement (Tindall 1985, 20), and the name Wigan is thought to come either from an Old English personal name (*ibid*), or from the Saxon word *waeg*, meaning way, which is often associated with the existence of a Roman road. There is no direct evidence for activity in the study area during this period, but the name Standishgate includes the Viking word for street, ‘*gata*’ (Hannavy 2003, 15), which suggests it was a road of some significance. Folkard (1909, vii) claims that there was a church at Wigan before the Norman Conquest, but ‘of subsequent re-buildings and restorations there remains no record until 1620, when the chancel was rebuilt’. It has similarly been postulated that the settlement at Scholes originated during the ninth century (Fletcher 2005, 7), but physical evidence is lacking.
- 3.1.6 **Medieval period:** following the Norman Conquest, William I assigned most of the land between the Ribble and Mersey rivers to Roger of Poitou, who made Wigan the administrative centre of the barony of Makerfield (*op cit*, 14). Wigan is not named in the Domesday survey, but is thought to be the ‘church of the manor’ of Newton (Powell 1998, 6). Nevertheless, much of the surrounding area was probably of little importance, reflecting the expansive peat mosses that dominated the landscape (Hall *et al* 1995, 122). Wigan began to prosper during the thirteenth century, in part due to the granting of a market charter and three-day fair in 1245 (Hannavy 1990, 20). The town attained Royal Borough status a year later and gradually grew in size and prosperity. As a Royal Borough, the citizens received the rights and privileges of freemen, or burgesses, which included the right to rent burgage plots as free tenants of the lord of the manor. The size of the burgage plots was specified as five roods of land, for which an annual rent of 12d was levied (Bridgeman 1888-90, 9-10). During this period, Wigan was influenced by the control of several prominent families, including the Norrises, Banastres, Standishes, and Gerards, all of whom owned large halls and land in the vicinity. By the end of the thirteenth century, however, the Bradshaighs began to emerge as the most influential family in the region, and acquired Haigh Hall in 1295 (Fletcher 2005, 14).
- 3.1.7 By the early fourteenth century, Wigan was one of the larger chartered towns of Lancashire, together with Lancaster, Preston, Liverpool, Manchester and Warrington (White 1996, 129), as demonstrated by its assessment in the exchequer lay subsidies of 1332 (Morris 1983). During the reign of Edward III (1327-77), charters were awarded to the town for the streets to be paved. The expansion of Wigan at this time was also reflected in the construction of a bridge over the river Douglas at the bottom of Millgate, which was authorised by an Act of Parliament in 1334 (Hannavy 1990, 36).
- 3.1.8 Whilst medieval Wigan was essentially an agricultural town, industrial activity is known to have developed at an early date, such as textile manufacture, coal mining and metal working, including the production of iron, pewter and brass (Powell 1998, 8). The manufacture of felt hats was also carried out, and whilst this was originally a cottage-based industry, mills for this purpose were built

in 1782 (*op cit*). Textile production during this period was, however, dominated by the woollen industry, which was sufficiently well-established by the early fourteenth century to support three fulling mills (Hannavy 1990, 34). However, there was a significant decline in trade during the mid-fifteenth century and many burgage plots may have been wholly or partly abandoned at this time. Despite this, it is probable that the modern street pattern in the town centre reflects the medieval development of the settlement and that many of the late post-medieval properties in the historic core originated during the medieval period.

- 3.1.9 It has been suggested that the town was provided with some kind of defensive circuit during the late medieval period, possibly in the form of an earthen bank and ditch (Powell 1998, 8). The putative defences may have enclosed an irregular, oval-shaped area bounded (approximately) by the river Douglas, Dicconson Street (towards the southern end of Standishgate), New Market Street, Dorning Street and King Street (*ibid*). Wigan was certainly one of the principal boroughs in Lancashire at this time, a fact reflected in the size of the contribution the town made to Charles I's 'ship-money' levy; Wigan contributed £50 to this fund, whilst Preston, Lancaster and Liverpool contributed £40, £30 and £25 respectively (Folkard 1909, ix).
- 3.1.10 Physical remains of medieval Wigan have been uncovered in several excavations within the town centre. Cultivation soils and a timber-lined well or cistern were excavated at the Wiend (Jones and Price 1985, 29), whilst postholes and pottery dating to the fourteenth or fifteenth centuries were uncovered at Chapel Street (GMAU 1987, 2). The remains of two medieval burgage plots and a substantial town house constructed of timber were also discovered on Hallgate (GMAU 2001). The excavated burgage plots were found to be at least 5m wide, and between 30m and 40m in length.
- 3.1.11 **Post-medieval period:** in broad terms, the period from the sixteenth to eighteenth centuries was one of increased growth and prosperity for Wigan. By 1538, John Leland was able to describe the settlement as 'a paved town as big as Warrington, but better builded...' (Chandler 1993). The town probably increased in size by almost a third during the sixteenth century, attaining a population of approximately 4000 by 1600 (Hannavy 1990, 46). As a result of this population increase, new buildings appear to have been constructed in the central part of the town, infilling many of the medieval burgage tails.
- 3.1.12 In 1627, the Wigan Company of Pewterers was founded, and the town emerged as one of the most important centres for pewter production in the county (Powell 1998, 10), whilst other metal-working industries also developed (Tindall 1985, 23). In particular, the manufacture of brass products, bell founding and watch-making emerged as important industries during the seventeenth century. However, the outbreak of the Civil War in 1642 resulted in a severe check to the town's fortunes. Wigan entered the war as a Royalist stronghold, but was captured by Sir John Seaton in April 1643 and was later subjected to punitive taxation under the Commonwealth (Hannavy 2003).
- 3.1.13 It was not until the eighteenth century that the town once again achieved economic success and renewed expansion. An eyewitness account of Wigan

towards the end of the century gives the impression that development at this time was rather *ad hoc*: 'The main streets of the town are broad, but irregularly built, with a mixture of old and modern houses' (Aikin 1795, 294). The growth of Wigan during this period was largely due to the coal, iron and textile industries, and in particular the manufacture of woollen cloths, linen, calicos and checks. The town specialised in woollen bedding textiles, which were produced in cottage hand-loom shops (Powell 1998, 9). The metal-working trades continued to be of importance to the town, as illustrated by a contemporary account of 1754, which observed that Wigan was noted for the design and manufacture of clocks and for its non-ferrous metal foundries, producing small bells, candlesticks and other household goods (Berg and Berg 2001, 295). Wigan also had a flourishing pottery trade, which can be traced back on documentary evidence at least as far as the mid-seventeenth century; in 1664, the rector allowed that 'the potters of Wigan for the tyme (*sic*) being may dig clay in the waste of the said manor as heretofore potters of Wigan have used to do...' (Folkard 1909, xiv). Pottery manufacture had ceased by the early part of the nineteenth century, however, presumably due to the growth of the industry in areas such as Stoke-on-Trent and Merseyside (*op cit*).

- 3.1.14 Coal mining in the Wigan area during the medieval period had been carried out on what was essentially small-scale, open-cast sites, but by the sixteenth century mining was mostly underground (Hannavy 1990, 69). A document of 1619 provides one of the earliest references to a coal pit on Millgate itself, whereby the rector gave permission to Peter Platt to drain 'water from his coal-pit near the Millgate into the street' (Folkard 1909, xi). By the late eighteenth century, the Wigan coalfield had become the centre of the region's coal trade, and was recognised as one of the most important of the Lancashire coalfields (Farrer and Brownbill 1911, 357). This was partially on account of rich deposits of cannel coal, which burns with a bright flame and produces very little ash, and thus was in great demand for household use and invariably sold for a higher price than ordinary coal.
- 3.1.15 **Industrial period:** by the later eighteenth century, cotton was beginning to be the dominant element of the textile industry. In 1754, the Swedish industrial spy RR Angerstein noted that 'large numbers of women and children were occupied with the spinning of cotton' (Berg and Berg 2001, 295). Some 40 years later, Aiken (1795, 294) commented that 'the cotton manufactory, as in all other places, intrudes upon the old staple of the place'. Although slow by national standards, the introduction of steam-powered mills during the early part of the nineteenth century meant that the textile industry remained an important part of the local economy. At one point in the nineteenth century, the industry accounted for over 50% of the employment in the town (Hannavy 1990, 116). The new process of ring spinning was introduced in a Wigan textile mill in 1887, and from 1888 the Wigan firm of Ffarington, Eckersley & Co Ltd became for three decades the largest ring spinners in Britain (Williams with Farnie 1992, 35).
- 3.1.16 The earliest detailed survey of Wigan is provided by a map of the town drawn by Mather in 1827. This shows clearly the three main streets in Wigan, radiating out from the church, and the outlines of long plots of medieval origin

to the rear of buildings. In particular, the properties fronting onto Millgate are shown to have long burgage plots, with property boundaries extending down the bank to the river Douglas. It is of note that Mather's map shows that a meander in the river had been canalised, relative to the plan of 1712 (Plate 2). A more detailed plan of the town in the mid-nineteenth century is provided by the Ordnance Survey map of 1849, which shows considerable growth.

- 3.1.17 Further improvement of transport links, including a canal branch to Manchester and the construction of the railways, continued to enhance Wigan's productivity during the nineteenth century. The construction of the Central Station a short distance to the east of Millgate is of particular relevance. This was the third railway station to be built in Wigan, and was erected in 1892 by the Grand Central Railway Company (Hannavy 1990, 96). Its construction demanded considerable landscaping works, which included infilling the original course of the river Douglas (which was canalised into its present course) and the raising of ground levels along the western side of the Douglas Valley.
- 3.1.18 The continuing prosperity of the town meant that the population increased at a tremendous rate during the nineteenth century. Many of the inhabitants were housed in tightly-packed courts and small terraces, as shown on Ordnance Survey mapping, with the result that sanitation was often extremely poor (OA North 2008). As a result, the waterworks and gas works were improved, public swimming baths were built and roads widened and improved (*ibid*). According to Edward Baines, writing in 1825, 'the springs in the neighbourhood of Wigan are numerous' and a new baths was 'recently built' to tap the water from a spring near Scholes Bridge. The water was 'strongly impregnated with sulphur, and which, from its resemblance to the celebrated Yorkshire spa, obtained the name of "New Harrogate"' (Baines 1825, 612).
- 3.1.19 The coal industry continued to expand through the nineteenth century; by 1874 there were 140 collieries operating in the Wigan area, many of which continued in use into the twentieth century (Ashmore 1982). During the twentieth century, however, Wigan's two main industries, coal and textiles, declined, although engineering and food processing contributed increasingly to the area's economy (McNeil and Nevell 2000, 66). The Central Station was closed in 1965, and had been demolished by 1982. During the 1960s, the street plan in the vicinity of the site was remodelled through the construction of the modern ring road (OA North 2008). Of particular relevance to the present site is that part of the ring road known as River Way, which was driven across the old course of the river Douglas, immediately to the east of the development site.

4. WATCHING BRIEF

4.1 INTRODUCTION

- 4.1.1 A watching brief was maintained during the excavation of 45 test pits across the study area for geo-technical purposes (Fig 2). The test pits were excavated using a variety of geo-technical sampling approaches and were assigned alpha-numeric identifiers that related to these differing sampling methods. The pits comprised hand-dug pits (HDP), hand-digging in advance of mechanical window sampling (WS), hand-digging in advance of mechanical bore holing (BH), and mechanically excavated test pits (TP). These terms and associated abbreviations were defined by the engineers undertaking the work, and are reproduced here in order to maintain descriptive consistency with the plans and records produced by WYG. The mechanically excavated test pits took the form of rectangular trenches, and all of the other pits comprised the excavation of narrow hand-dug shafts measuring approximately 0.4m in diameter and 1.2m deep.
- 4.1.2 Most of the test pits proved to be archaeologically sterile, with a typical deposition sequence consisting of dumped layers of fuel ash and rubble that directly overlay the natural geology. This suggested that there had been severe horizontal truncation of any former soil horizons across the site, prior to the formation of made ground. The hand-dug test pits (HDP, WS, BH) were not generally deep enough to expose natural deposits, although some exhibited the typical sequence of make-up deposits overlying natural clay. The north-western part of the site, which lay immediately to the south of Ellen Street, lay considerably higher than the land in the environs of Ellen Street (Plate 2).



Plate 2: Recent aerial view of the study area facing east, showing the differential ground levels to the northern side (where the brick buildings lie) and southern side of the site

- 4.1.3 It is possible, therefore, that earlier land horizons in this specific area might have been buried when the ground level was raised. TP 103 revealed a concrete surface in this area, at a similar depth to the lower ground level to the north. This surface was not removed and it is not known whether the horizons that it overlay had been disturbed during the industrial phases of use of the site.
- 4.1.4 The only features of archaeological interest related to the former use of the sites as a gas works and comprised brick walling and surfaces in BHR 101, BH 103, BH 106, HDP 101, TP 101, TP 110, TP 114, and the probable remains of gas holders in TP 101 and TP 120. A deposit of blue-tinged slag was encountered within WS 116, and it seems possible that this was derived from bronze-working activity associated with the nineteenth-century brass foundry. Alternatively, the colour might have been the result of contaminants associated with the gas works and, therefore, samples were not retained.

4.2 TEST PIT RESULTS

- 4.2.1 **WS 102:** three separate pits were hand-dug within an area measuring 1.5m², in an attempt to avoid deposits of sandstone that prohibited the effective excavation of the initial pit location. Each pit measured 0.4m in diameter and between 0.6m and 1.2m deep. Sand and sandstone were revealed at the base of each pit, which might represent the natural bedrock in this area. This was overlain by deposits of rubble and fuel ash, which were overlain by the current surface of patchy tarmac and gravel. No features of archaeological interest were observed.
- 4.2.2 **WS 103:** this pit was hand-dug and measured up to 0.65m in diameter and 1m deep. A deposit of ceramic-brick rubble formed the lowest encountered deposit and was overlain by the current gravel surfacing. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.3 **WS 104:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. A deposit of fuel ash and rubble formed the lowest encountered deposit and was overlain by the current gravel surfacing. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.4 **WS 105:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. A deposit of fuel ash and rubble formed the lowest encountered deposit and was overlain by the current gravel surfacing. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.5 **WS 106:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. A dense deposit of mottled yellow and light grey clay and fragmented sandstone, which is likely to represent natural glacial till, was encountered at a depth of 0.8m. A deposit of light-brown clayey silt overlay this clay and underlay a deposit of fuel ash and gravel. A layer of stone and tarmac hardcore

overlay the fuel ash and supported the current gravel surfacing. No features of archaeological interest were observed.

- 4.2.6 **WS 108:** three pits were hand-dug in this area in an attempt to avoid underlying service pipes. Two of these pits revealed concrete at a depth of 0.35m, which underlay the current tarmac surfacing and associated gravel bedding layer. A third pit measured 0.4m in diameter and 1.1m deep and revealed a deposit of fuel ash underlying the concrete. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.7 **WS 109:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. A deposit of mid-brown clayey silt containing 40% gravel was encountered at a depth of 0.5m, and might represent natural glacial till. Timber was present in the site of the pit at the lowest levels, although it is not clear whether this had been inserted into a natural deposit, or whether the clayey silt had been backfilled around the timber. A deposit of fuel ash and gravel overlay the silt and underlay a layer of concrete, which supported the current gravel surfacing. No features of archaeological interest were observed.
- 4.2.8 **WS 110:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. A mixed deposit of fuel ash, concrete and brick rubble, and gravel formed the lowest encountered deposit and was overlain by a mixed deposit of greyish-yellow clay and rubble. A layer of fuel ash and rubble overlay the clay and underlay a gravel bedding layer that supported the current tarmac surfacing. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.9 **WS 111:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. A deposit of fuel ash and rubble, including red ceramic brick, yellow refractory brick, and fragments of a timber stake, formed the lowest encountered deposit and was overlain by a gravel bedding layer. This gravel supported the current tarmac surfacing. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.10 **WS 112:** this pit was hand-dug and measured 0.4m in diameter and 1m deep. A deposit of fuel ash and dark brown silt formed the lowest encountered deposit and was overlain by a layer of concrete. This concrete underlay a deposit of brick and stone rubble, which was overlain by a layer of concrete. A concrete bedding deposit overlay the concrete and was overlain by the current tarmac surfacing. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.11 **WS 113:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. A deposit of rubble, gravel, and greyish-yellow clay formed the lowest encountered deposit and was overlain by a layer of gravel and rubble. This layer was overlain by decorative gravel within a flower bed. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.

- 4.2.12 **WS 115:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. Grey and orange clay was encountered at a depth of 0.6m, which might have represented natural glacial till. This was overlain by a deposit of fuel ash, which supported the current gravel surfacing. No features of archaeological interest were observed.
- 4.2.13 **WS 116:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. The lowest encountered deposit was a deposit of fuel ash and rubble, and the base of the pit became quickly waterlogged. Some bluish-grey deposits were visible in the upper part of the pit, in association with fragments of slag. It is not clear whether these deposits represented contaminated waste associated with furnaces used in the former gasworks, or whether there might have been a connection between the deposits and the former brass foundry. Due to the potential for hazardous contaminants, samples of the slag and associated deposits were not taken. The current gravel surfacing overlay the fuel ash. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.14 **WS 121:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. The lowest encountered deposit was a deposit of fuel ash and brick rubble, which included yellow refractory bricks and fragments of ceramic pipe. This was overlain by a deposit of mid-brown humic soil, containing gravel and concrete rubble, which supported the current gravel surfacing. No features of archaeological interest were observed.
- 4.2.15 **BHR 101:** this pit was hand-dug and measured 0.5m in diameter and 1.6m deep. At a depth of 0.5m the base of the pit fell away into a void formed by the presence of a brick-built channel containing a metal pipe. The exact nature of the bricks and the pipe was unclear as a result of the restricted size of the test pit and the unstable edge of the pit. The structure measured 0.4m wide and at least 0.9m deep and is likely to have been associated with the former gasworks. A deposit of fuel ash, rubble, and humic soil overlay the brick channel and the current gravel surfacing overlay this deposit. The location of the pit was re-sited to the east of the original location in order to avoid the brick channel and, as a result of repeatedly encountering *in situ* brickwork, several unfinished pits were subsequently dug. Each pit revealed reddish-orange bricks measuring 230mm by 110mm by 70mm thick lying between 100mm and 150mm below the ground level. Due to the narrow diameter of the pits, the nature and extent of the structures could not be discerned, although they are likely to have been associated with the former gasworks. Natural geological horizons were not revealed within the pits.
- 4.2.16 **BHR 110:** this pit was hand-dug and measured 0.4m in diameter and 0.75m deep. Fragmented yellowish-orange sandstone that appears to have represented natural bedrock was encountered at a depth of 0.75m. This was overlain by a layer of gravel and brick rubble, which was overlain by a layer of sand. No features of archaeological interest were observed.
- 4.2.17 **BH 102:** this pit was hand-dug and measured 0.4m in diameter and 1.1m deep. A mixed deposit of rubble, clay, and fuel ash formed the lowest encountered deposit within the pit. This was overlain by a layer of concrete, over which the

current gravel surfacing had been laid. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.

- 4.2.18 **BH 103:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. A mixed deposit of rubble and fuel ash formed the lowest encountered deposit within the pit. This was overlain by a layer of granite setts, over which the current gravel surface had been laid. Natural geological horizons were not revealed within the pit.
- 4.2.19 **BH 104:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. A layer of rubble and fuel ash formed the lowest encountered deposit within the pit. This deposit contained a high proportion of frogged and stamped ceramic bricks and was overlain by the current gravel surface. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.20 **BH 106:** as a result of attempts to avoid obstructions, three pits were hand-dug, which measured 0.4m in diameter and varied in depth between 0.35m, 0.6m and 1.1m. Brickwork, which might have been *in-situ*, was encountered in one of the pits at a depth of 0.6m and a pipe was revealed in a second pit, at a depth of 0.35m. In each of the pits mixed deposits of rubble, fuel ash, and humic soil formed the lowest encountered deposits and were overlain by the current gravel surfacing. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.21 **BH 107:** this pit was hand-dug and measured 0.4m in diameter and 1.1m deep. The lowest encountered deposit was a layer of concrete rubble, which was overlain by a layer of tarmac. The tarmac was overlain by a layer of concrete rubble and brown humic soil, which supported the current gravel surfacing. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.22 **BH 108:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. The lowest observed deposit consisted of brown humic soil with a high concentration of rubble. This was overlain by a deposit of concrete, which supported the current gravel surfacing. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.23 **BH 109:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. The lowest observed deposit consisted of brown humic soil with a high concentration of rubble. This was overlain by a deposit of concrete rubble, which supported the current gravel surfacing. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.24 **BH 111:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. The lowest encountered deposit consisted of gravel and demolition rubble. This was overlain by a bedding layer of sand, which supported the current

concrete flagstone surface. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.

- 4.2.25 **BH 112:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. The lowest encountered deposit was a layer of ceramic-brick rubble, which was overlain by a layer of gravel and fuel ash. This layer supported the current tarmac surfacing. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.26 **HDP 101:** this pit was hand-dug and measured 0.4m in diameter and 0.75m deep. The lowest encountered deposit was part of a structure constructed with reddish-orange hand-made bricks. The brickwork was overlain by a layer of brick rubble, which supported the current gravel surfacing. Natural geological horizons were not revealed within the pit.
- 4.2.27 **HDP 102:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. The sole encountered deposit was a mixed deposit of mid-brown sandy silt containing 2% rubble and fragmented brick, which included yellow refractory brick. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.28 **HDP 103:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. The lowest encountered deposit was a layer of fuel ash containing fragments of coal. This was overlain by a mixed deposit of light-brown sandy silt containing 40% fragmented brick and 10% dust derived from crushed brick and mortar. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.29 **HDP 104:** this pit was hand-dug and measured 0.4m in diameter and 1.2m deep. The lowest encountered deposit comprised mid-brown sandy silt containing 70% stones measuring between 10mm and 50mm in diameter. A layer of greyish-brown sandy silt overlay this deposit and underlay a deposit of fuel ash. The fuel ash was overlain by mid-brown humic soil. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.30 **TP 101:** this test pit comprised a narrow machine-excavated trench that measured 3.2m long by 0.7m wide and 1.7m deep. The lowest encountered deposit within the trench appears to have been a deposit of yellow clay, which was 1.7m below the current ground level and might have represented the natural drift geology. A sandstone slab at the northern end of the trench appeared to have been set into this clay (Plate 3). This slab was approximately 0.5m wide and also lay at a depth of 1.7m. A contiguous surface of brick setts lay to the southern side of the slab and it is possible that the slab and surface represent the remains of the outer wall and base of a former gas holder. A deposit of yellowish-brown re-deposited clay overlay the sandstone slab and the brick surfacing, which was overlain by a 0.5m thick layer of concrete.



Plate 3: Northern end of TP 101, showing the sandstone slab and brick surface

- 4.2.31 A wide mass of *in-situ* brickwork, which extended beyond the width of the trench at the western side, overlay the layer of concrete. Most of the bricks measured 230mm by 110mm by 80mm, and appeared to be hand-made or press-moulded. The bricks were bonded with a very sandy and loose purplish-grey mortar and formed a structure that was seven-courses thick and constructed using a mixture of headers, stretchers, bricks laid flat, and bricks laid edge-on.
- 4.2.32 A wall of thinner bricks, measuring 230mm by 110mm by 60mm, which had orange exterior surfaces and yellow cores defined the eastern side of this structure (Plate 4). This wall was seven courses high, as exposed, and utilised alternating rows of headers and stretchers bonded with very thin spreads of pinkish-yellow lime-based mortar.



Plate 4: Northern end of TP 101, showing the brick walling (top), stacked brick mass (left) and underlying concrete layer

- 4.2.33 **TP 102:** this test pit comprised a narrow machine-excavated trench that measured 5m long by 0.6m wide and 2m deep. Contaminated water filled the base of the test pit at a depth of 1.9m and natural geological horizons were not observed. A large pipe, approximately 0.9m wide, which might have been associated with a former gas holder, was encountered at a depth of 1.2m at the south-eastern end of the trench, and this was overlain by a mixed layer of rubble, humic soil and fuel ash. The current gravel surfacing overlay the fuel ash.
- 4.2.34 **TP 103:** this test pit comprised a narrow machine-excavated trench that measured 5m long by 1.2m wide and 1.7m deep. The lowest encountered deposit in this pit was a concrete surface that lay at a depth of 1.7m below the current ground level. The concrete surface was not removed and natural geological horizons were not observed. This was overlain by a mixed layer of brick and stone rubble, and dumped waste, over which the current gravel surfacing had been laid. The ground level in this area is considerably higher than that to the north, which lies beyond the perimeter of the site. It is, therefore, possible that the area targeted by the test pit originally lay at a similarly low level before being raised to match the ground level to the south. As the level of this area has been raised by the formation of made-ground, the possibility of surviving soil horizons beneath the concrete layer should be considered.
- 4.2.35 **TP 104:** this test pit comprised a narrow machine-excavated trench that measured 3.4m long by 0.6m wide and 2.7m deep. A deposit of yellow, grey, and orange sandy clay and fragmented sandstone was encountered at a depth of 0.4m. This deposit was excavated to a depth of 2.7m and is likely to have represented natural glacial till. A layer of brick rubble immediately beneath

the modern ground surface of gravel and tarmac overlay the probable natural geology. No features of archaeological interest were observed.

- 4.2.36 **TP 106:** this test pit comprised a narrow machine-excavated trench that measured 3.2m long by 0.6m wide and 1.75m deep. A deposit of brown clay and fragmented sandstone was encountered at a depth of 0.6m. This deposit was excavated to a depth of 1.75m, and was seen to become progressively dense at increasing depths, and is likely to have represented natural glacial till. A mixed layer of black gravel and rubble overlay the probable natural and underlay the current tarmac surfacing. No features of archaeological interest were observed.
- 4.2.37 **TP 107:** this test pit comprised a narrow machine-excavated trench that measured 3.2m long by 0.6m wide and 1.7m deep. A deposit of mottled brownish-grey, orange, and grey clay and fragmented sandstone was encountered at a depth of 0.6m. This deposit was excavated to a depth of 1.7m and is likely to have represented natural glacial till. A mixed layer of rubble and fuel ash overlay the probable natural and underlay the current tarmac surfacing. No features of archaeological interest were observed.
- 4.2.38 **TP 108:** this test pit comprised a narrow machine-excavated trench that measured 3.4m long by 0.6m wide and 2m deep. A deposit of orange-brown clay and fragmented sandstone was encountered at a depth of 0.75m. This deposit was excavated to a depth of 2m and is likely to have represented natural glacial till. A mixed layer of rubble and fuel ash overlay the probable natural and underlay the current gravel surfacing. No features of archaeological interest were observed.
- 4.2.39 **TP 109:** this test pit comprised a narrow machine-excavated trench that measured 3.4m long by 0.6m wide and 3.8m deep. The lowest encountered deposit comprised a thick deposit of fuel ash that continued beyond the excavated depth of 3.8m. This deposit was overlain by a layer of tarmac, gravel, and crushed concrete. Natural geological horizons were not revealed within the pit and no features of archaeological interest were observed.
- 4.2.40 **TP 110:** this test pit comprised a narrow machine-excavated trench that measured 3.5m long, between 0.9m and 1.6m wide and 1.5m deep. A brick wall was exposed at the southern end of the trench, which was surrounded by a deposit of loose stone and brick rubble. Natural geological horizons were not revealed within the pit. It is possible that this area represented a backfilled cellar, or made-ground surrounding standing walling. The current gravel surfacing directly overlay the rubble deposit.
- 4.2.41 **TP 112:** this test pit comprised a narrow machine-excavated trench that measured 3m long by 0.6m wide and 2.4m deep. A deposit of grey and yellow clay was encountered at a depth of 1.5m that is likely to have represented a natural drift geological deposit. A deposit of fuel ash overlay the clay and was overlain by concrete rubble. The current tarmac surface overlay the concrete rubble. No features of archaeological interest were observed.

- 4.2.42 **TP 113:** this test pit comprised a narrow machine-excavated trench that measured 3.5m long by 0.6m wide and 2.3m deep. A deposit of mottled orange and yellow clay and fragmented sandstone was encountered at a depth of 1.4m. This deposit was excavated to a depth of 2.3m and is likely to have represented natural glacial till. Part of a concrete base was revealed at the southern end of the trench, overlying the clay. This concrete was overlain by a layer of fuel ash and rubble that contained lenses of yellow gravel. The current gravel surfacing overlay this fuel ash. No features of archaeological interest were observed.
- 4.2.43 **TP 114:** this test pit comprised a narrow machine-excavated trench that measured 3.2m long by 0.6m wide and 3m deep. A deposit of mottled grey and pink clay was encountered at a depth of 1.6m and grey clay was revealed at a depth of 3m, which might have represented a natural drift geological deposit. Part of a ceramic brick wall was exposed at the eastern end of the trench. This feature had been constructed using unfrogged bricks of uniform dimensions that displayed a very smooth external texture with a burnished appearance. This wall is likely to have been of twentieth-century origin. A mixed layer of brick and stone rubble, gravel, and fuel ash overlay the walling and underlay the current tarmac surfacing.
- 4.2.44 **TP 116:** this test pit comprised a narrow machine-excavated trench that measured 3.4m long by 0.6m wide and 2.55m deep. Natural clay and sandstone glacial till was revealed at a depth of 2.10m. A deposit of orange-brown clay containing ceramic brick rubble overlay the natural clay and was encountered at a depth of 0.65m. A layer of fuel ash overlay this clay and underlay a deposit of concrete. The uppermost deposit within the trench comprised the current tarmac surfacing. No features of archaeological interest were observed.
- 4.2.45 **TP 117:** this test pit comprised a narrow machine-excavated trench that measured 3m long by 0.6m wide and 1.8m deep. A deposit of grey and yellow clay and fragmented sandstone was encountered at a depth of 1.5m. This deposit was excavated to a depth of 1.8m and is likely to have represented natural glacial till. A layer of fuel ash, rubble, and concrete overlay the clay and a pipe was encountered within this layer at a depth of 1m. This deposit was overlain by gravel hardcore, which supported the current tarmac surfacing. No features of archaeological interest were observed.
- 4.2.46 **TP 118:** this test pit comprised a narrow machine-excavated trench that measured 3m long by 0.6m wide and 2.8m deep. A deposit of grey and orange clay and fragmented sandstone was encountered at a depth of 1.8m. This deposit was excavated to a depth of 2.8m and is likely to have represented natural glacial till. A layer of brownish-yellow sand with a 90% gravel component overlay the clay and underlay a layer of fuel ash and rubble. This was overlain by gravel hardcore, which supported the current tarmac surfacing. No features of archaeological interest were observed.
- 4.2.47 **TP 120:** this test pit was positioned in an attempt to expose part of one of the gas holders associated with former gas works. The pit comprised a narrow machine-excavated trench that measured 4m long by 0.6m wide and 1.2m

deep. Natural geological horizons were not revealed within the pit. The lowest encountered feature within the trench comprised a large block of sandstone, which lay 0.9m below the current ground surface. This was situated at the southern end of the trench and was overlain by a concrete structure, at a depth of 0.3m, which appeared to overlie brick hardcore. A flat-topped concrete platform, or surface, was exposed at the northern end of the trench at a depth of 0.45m. The structure measured 1.4m wide, as exposed, and as the trench became swiftly waterlogged, an inspection of the deposits at a lower level to the concrete platform or the sandstone block was difficult. It was not possible, therefore, to ascertain the stratigraphic relationship between these features. All of these features were overlain by a layer of fuel ash and rubble, which supported the current gravel surfacing.

5. CONCLUSION

5.1 IMPACT

- 5.1.1 The test pits excavated during the geo-technical site investigations did not provide any evidence for remains of archaeological interest associated with the Roman cemetery that is thought to have been located in this general area, or of a Roman road. The area to the west of the River Douglas appeared to have been subject to considerable disturbance in association with the development of the gas works during the nineteenth century. Within this area, thick deposits of rubble and fuel ash were often seen to directly overlie the clay and sandstone fragments that formed the natural drift geology. This gave the impression that there had been substantial horizontal truncation of the archaeological horizons that pre-dated the early nineteenth century in this area.
- 5.1.2 The only encountered remains to the western side of the river that remained *in-situ* comprised brick walling, a brick-built pipe conduit, and granite setts, which appear to have been associated with gas works buildings and operations, and occurred mainly in the north-western part of the site (BHR 101, BH 103, BH 106, HDP 101, TP 101, TP 110, TP 114). Sandstone blocks and a surface of brick setts were also encountered within the north-western part of the site and appear to have represented the remains of gas holders (TP 101, TP 120). The only potential for the survival of horizons of archaeological interest that pre-date the use of this part of the site as a gas works appears to be within the north-western part of the site, where the ground level has been built up extensively, and potentially sealing pre-nineteenth-century deposits (Fig 2). These deposits were not exposed during the archaeological monitoring, however, and it is possible that these might also have been subject to disturbance during the nineteenth and twentieth centuries. Indeed, the results obtained from borehole BHR 106, located immediately to the north of the large gas holder (Fig 2), indicate that the ground in this area comprises brick fill to a depth of 6m. Similarly, the results obtained from bore holes BH 107, BH 107A and BH 107B, situated to the north-east of the gas holder, all demonstrated that this part of the site comprises made ground containing fragments of brick, concrete, and ash to depths in excess of 3m. The only indication of undisturbed deposits was provided by the results obtained from bore hole BH 103, situated immediately to the east of the gas holder (Fig 2), where a deposit of firm, grey brown clay was encountered at a depth of 1.5m below the modern ground surface. Similar results were obtained from test pit TP 112 (*Section 4.2.41 above*), where a probable natural drift geological deposit was exposed at a depth of 1.5m.
- 5.1.3 To the eastern side of the River Douglas, the depositional sequence appeared to contrast slightly to that exposed to the western side of the river. Although many of the pits that were hand-dug did not extend deep enough to establish the depth of the geological natural in the eastern part of the site, several of the pits did expose natural clay and sandstone lying between approximately 0.6m and 1.5m below the current ground level. This demonstrated that, in several locations, the combined thickness of the make-up deposits lying to the eastern

side of the river was not as great as that within the western part of the site. However, the made-ground in this area directly overlay the natural deposits and there were no indications of undisturbed horizons that might have pre-dated the nineteenth or twentieth centuries. Therefore, the degree of horizontal truncation in this area appears to have been considerable.

5.2 MITIGATION

- 5.2.1 Based on the results of this watching brief, the only area that might retain some potential for undisturbed horizons that pre-date the nineteenth century is in the north-western part of the site, where the ground level appears to have been raised by up to 2m. Whilst the results obtained from some bore holes have demonstrated considerable modern disturbance in this area, the logs recovered from test pit TP 112 and bore hole BH 103 suggest that natural horizons survive at a depth of 1.5m below the modern ground surface. Although it is likely that any archaeological deposits this part of the site will have sustained some horizontal truncation, it is possible that the base of any deeply cut features, such as pits or wells, may survive.
- 5.2.2 The precise scope of a mitigation strategy for any future works would need to be devised in consultation with the County Archaeologist for Greater Manchester. However, any works within the area covered by this watching brief, that would not be anticipated to require intrusive works exceeding a depth of 1.5m, would be unlikely to impact on any remains of archaeological interest, with the exception of structural remains associated with the former gas works.
- 5.2.3 If any proposals for future development should include intrusive works in the northern part of the site, to the west of the River Douglas, that exceed a depth of 1.5m, a programme of archaeological evaluation in this area may be an appropriate course of action. This should aim to establish the presence or absence of undisturbed horizons of archaeological interest that pre-date the nineteenth century and that lie at, or below, the original ground level in this area, prior to the establishment of the gas works. If any such horizons do remain intact then the potential would remain for the survival of features of archaeological interest associated with the Roman-period cemetery and road.

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APPENDIX 1: PROJECT DESIGN

ILLUSTRATIONS

FIGURES

Figure 1: Location map

Figure 2: Test pit location plan, showing area of archaeological potential

PLATES

Plate 1: Recent aerial view of the study area

Plate 2: Recent aerial view of the study area facing east.

Plate 3: Northern end of TP 101

Plate 4: Northern end of TP 101



National Grid Property Holdings Ltd

**Darlington Street Gasworks, Wigan,
Site Investigation**

**Archaeological Monitoring Project
Design**

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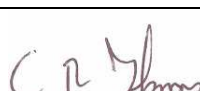
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Appendix Contents

Appendix A – Figures and Plans

Appendix B – Report Conditions



1.0 Introduction and Summary

National Grid Property Holdings propose to undertake a voluntary programme of archaeological monitoring of geotechnical and geoenvironmental investigations at the Darlington Street Gas Works site, Wigan. This archaeological monitoring is being undertaken as a preliminary assessment to determine the potential for archaeological remains to be present within the site. The results of this investigation will be used to inform the requirement, or otherwise, for any future archaeological assessment or mitigation on the site.

This project design has been prepared at the request of National Grid Property Holdings by Kirsten Holland of WYG Environment in accordance with the requirements of Norman Redhead, County Archaeologist, Greater Manchester Archaeology Unit (GMAU). This Project Design covers the above site only and relates only to the above requirement pertaining to the site in question. It does not address the archaeological requirements for any subsequent remediation works or development of further areas or phases.

The results of the monitoring described in this document will form the first stage of the archaeological mitigation works, the results informing the need and nature of any subsequent archaeological works required by GMAU.

All archaeological monitoring, excavation and reporting will be undertaken in accordance with the Code of Conduct of the Institute of Field Archaeologists (IFA) and the IFA standards and guidance. References to these documents are included at the end of the Project Design.

2.0 Site Location and Description

The Darlington Street site is located approximately 500m south-east of Wigan town centre. The site is centred on National Grid Reference 358570E, 405200N. A Site Location Plan is presented as Drawing No. A060144/01, Appendix A.

National Grid Gas (NGG) own and operate the following areas of the site:

- Gas Holder Compound (0.61Ha), located in the westerly area of the site and containing two operational gas holders;
- Gas Transmission Compound (0.22Ha), located in the south-easterly area of the site. A telecommunications mast facility is also situated in this area;



Darlington Street Gas Works, Archaeological Monitoring

- Electricity Substation (0.009Ha) and Booster House (0.004Ha) situated in the central area of the site.

The remainder of the site area (1.55Ha) is owned by National Grid Property Holdings Ltd. and is largely disused. This area of the site is generally surfaced with hardstanding and includes two disused buildings. The easterly extent of this area, situated adjacent to the site entrance point off Wilton Street, is currently used by National Grid Gas as a depot/storage area. A Site Layout Plan is presented as Drawing No. A060144/02, Appendix A.

The site slopes gently in a south-easterly direction from the gas holder compound in the westerly area of the site, down towards the gas transmission compound, located in the south-easterly area of the site. Elevations across the site range from a maximum of 37.38m AOD in the gasholder compound to a minimum of 31.61m AOD in the telecommunications mast area, located in the south-easterly corner of the site.

The central area of the site is located approximately 33.5m AOD, situated approximately 1.5m above the gas transmission compound to the south. The level changes across the site are accommodated by ramps in the road network and retaining walls (typically up to 1m high).

A detailed description of the site, structures and geological conditions is contained within the Darlington Street Data Review Report (WYG, 2010) and the reader is referred to this report for further detail.

3.0 Archaeological Background

This archaeological background is drawn from the Darlington Street Data Review Report (WYG, 2010). This report contains a detailed description of the site history pertaining to the gas works, historical mapping analysis and previous site investigation works. The reader is referred to this report for further detail.

Details concerning features of archaeological interest in the vicinity of the site are included in a document provided for review by the BG Archives, dated 1951 and published by the Institution of Gas Engineers. The introductory chapter of this publication states the following:

'The hill in the centre of Wigan...was the site of a Roman station identified as Coccium of the Antonine Itinerary. It was not a town, but a fort of military post established about the year 75 AD...Roman stones, coins and pottery have been found in the neighbourhood from time to time. It is particularly interesting to recall that a Roman urn containing a quantity of calcined



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bones was unearthed by workmen whilst digging the foundations for the Gasworks in 1822, and a portion of another urn with a quantity of burnt bones was later found nearby...'

The Entec 2003 Factual Report confirms that the westerly area of the site (encompassed by the current gasholder compound) was considered by the Greater Manchester Archaeological Unit (GMAU) to be of some archaeological interest. It is noted on historical OS maps with the area annotated as 'Roman burial urns found AD 1830'. GMAU stated that during the building of the gasworks in the 1830s between thirty and forty Roman urns were found, together with calcined bones, charcoal, carbonised animal matter and several pieces of iron. GMAU also noted that the remains of a Roman road may also be present in the vicinity, as cemeteries frequently lay adjacent to roads immediately beyond the outskirts of the occupied area.

The first gasworks buildings were constructed at the site in 1822 with gas production beginning in 1823. The gasworks was operational at the site until the 1970s when the majority of gasworks infrastructure was decommissioned and demolished. The two large gasholders (named No.1 and No.2) however remain operational to the present day in the westerly area of the site. The gas transmission compound, located in the south-easterly corner of the site was developed in the early 1970s. Since the 1970s the majority of the remaining site area has been utilised by Transco for storage and maintenance purposes which included the construction of two large steel clad buildings utilised as a garage and depot building. These two buildings are currently disused.

During the ground investigation works carried out by Entec in 2003 an experienced field archaeologist was supplied by Entec to provide an archaeological watching brief during the excavation of trial pits in the westerly area of the site in order to satisfy the requests of the GMAU for archaeological monitoring. The exploratory hole logs provided in the subsequent Entec 2003 Factual report do not indicate that any items of archaeological interest were identified in the trial pits during the ground investigation.

Consultation by Katherine Wear, WYG with Norman Redhead, GMAU in January 2010 indicated that the remainder of the gas works site was of potential archaeological interest in addition to the west of the site which was previously monitored. GMAU undertook exploratory investigations in 1981 within the gas works which identified limited areas where the original ground levels remained largely undisturbed within the site.

It is anticipated that the cemetery remains identified in the 19th century may extend across the site. Additionally the potential for associated features such as shrines, altars and mortuary enclosures remains unquantified. The alignment of the Roman road and the location of the river crossing in this area is also unknown, however it would commonly be anticipated that a cemetery site would lie alongside the road.



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Within the east of the site and east of the river the 1848 Ordnance Survey mapping indicates a cotton mill and an iron or brass foundry. There may be archaeological remains associated with these industrial sites which are of heritage interest.

4.0 Aim of the Monitoring

The overall aim of the site works is to obtain geotechnical and geoenvironmental information regarding the site. The primary aim of archaeological monitoring of geotechnical trial pits is to obtain archaeological information that will inform the requirements for further archaeological evaluation and mitigation on the site.

Specific objectives are to, where possible:

- Determine the potential for previously unrecorded archaeological remains within the site;
- Determine the survival, nature, extent, condition, period and importance of any previously unrecorded archaeological remains discovered;
- Prevent damage to significant archaeological deposits or burials when they are encountered;
- Allow detailed proposals for further evaluation and mitigation works to be developed for agreement with the County Archaeologist, GMAU.

The primary aim of the site works is to gather geotechnical information and the archaeological monitoring is secondary to this. *It is anticipated that the archaeological monitoring, recording or excavation of features should not cause significant delays to the excavation of test pits.*

Where health and safety considerations indicate that it is unsafe to enter the test pits or handle material from the test pits (e.g. contamination, section stability, depth) the archaeology must be observed and recorded from the trench edges. Stepping out of trenches or battering of trench sides will not be undertaken.

5.0 Fieldwork Methodology

The locations of the site investigations can be seen on the Proposed Exploratory Hole Location Plan SK09, Appendix A. It is proposed that 20 trial pits, 5 hand dug pits, 14 window samples and 12 boreholes will be excavated in this phase of site investigation. The locations of the site investigations have been determined



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on the basis of geotechnical and geoenvironmental considerations. The locations on the sketch are indicative and will be subject to micro-siting depending upon site ground conditions, services and permitry limitations imposed by the site operators.

Trial pits TP101, TP102 and TP 104 and window samples WS101 and WS102 are located wholly within former gas works structures and therefore potential archaeological layers within these locations will have been truncated such that the potential for archaeological remains is considered negligible. Monitoring of these locations is therefore excluded from this project design.

Window samples will require the excavation of a small hand dug inspection pit to ensure avoidance of services. These hand dug inspection pits will be monitored as appropriate by the archaeologist on site. Archaeological monitoring of the window sample cores and boreholes is not required.

The Site Investigation contractor will be responsible for locating and avoiding all services on the site. In all cases the trial pits and hand dug pits will be opened and the topsoil and recent overburden removed down to the first significant archaeological horizon. Where such work is carried out mechanically the material will be removed in successive level spits of a maximum 0.2m thickness, by the use of an appropriate machine equipped with a toothless ditching blade. Mechanical excavation may be carried out in spits of greater thickness once the archaeologist on site is satisfied that sterile sub-soils have been reached and the potential for archaeological remains to be uncovered is negligible.

Where ground conditions do not permit the use of a bladed bucket (e.g. hard standing or compacted rubble) then a toothed bucket may be used to remove this material where it is considered it will not unduly damage deposits of archaeological interest. The excavation should revert to the use of a bladed bucket as soon as is practicably possible.

All machine work will be carried out under direct archaeological supervision and the machine should be halted if significant archaeological deposits are encountered. Machine excavation may resume once recording of archaeological features has been undertaken. Direction of excavating machines must take place through the Principal Contractor's main site supervisor.

Where exposure of archaeological features indicates that the archaeological remains are significant and would require substantial recording and/or excavation it is proposed that the exposed archaeological remains are recorded and the test pit backfilled and relocated. This will avoid unnecessary disturbance to archaeological remains and delays to the project programme.



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The test pits and archaeological features will be recorded with due regard to the normal principles of stratigraphic excavation where feasible. The limitations on the levels of recording as a result of restricted access to the test pits at greater depths and restricted hand excavation due to contamination are recognised. The stratigraphy of each test pit will be recorded even if no archaeological deposits are identified.

Archaeological remains of industrial 19th and 20th century occupation related to the gas works will be subject to rapid recording. This will include a written description of the form, nature, extent, depth, survival, date and archaeological potential of the remains taken from observation of the archaeological remains. It is not anticipated that archaeological features of this date will be hand excavated and assessment will be limited to visual observation. A photographic record of the remains should be made. Measured plans, sections or sketches are not required unless it is felt that they would significantly aid later interpretation.

If archaeological remains of other post-medieval structures (such as the cotton mill and iron or brass foundry) or earlier dates are discovered then they will be examined and sampled to a degree whereby their extent, form, date, function and relationship to other features and deposits can be established as far as possible, but without significantly holding up the excavation of the test pits, or compromising health and safety considerations. This may include limited hand excavation of features where this is practicable, but may be limited to visual observations.

All archaeological features of early post-medieval or earlier dates will be recorded by means of a written description of the form, nature, extent, depth, survival, date and archaeological potential of the remains. A photographic record of the remains should be made. Measured sketches of features will be made where possible. The limitations on recording detail that can be achieved, as a result of restricted access to test pits and limited hand excavation due to contamination are recognised. Detailed measured plans and sections of features are not required for this monitoring exercise.

A comprehensive photographic record will be maintained of the excavations, trial pits and archaeological features. Colour digital photography is acceptable for this monitoring exercise.

Artefacts will noted and spot dated, but not retained unless considered a 'small find' of interest, or can not be accurately identified by the archaeologist on site.

If human remains are discovered on site then machine excavation in that area will cease. The exposed extent of the human remains will be photographed and a brief written description made of them. Their



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location and depth within the test pit will be recorded. The human remains will be left in situ, excavation will cease and the test pits will be backfilled. An alternative test pit location may be chosen and excavated if circumstances allow.

Any human remains within the proposed site fall under the scope of the 1857 Burial Act, however if the remains are left in situ then an exhumation licence is not required and the coroner need not be informed (pers. comm. Ministry of Justice). If it becomes apparent on site that reburial of the remains is not feasible due to their condition or other factors then the WYG representative and GMAU should be contacted to confirm a new methodology in line with Section 7. If remains are to be exhumed then the coroner must be notified and an exhumation licence from the Ministry of Justice obtained under the 1857 Burial Act.

No environmental samples are required to be taken from this monitoring assessment. The potential for palaeoenvironmental remains and the worth of analysis should be assessed by the archaeologist on site for future archaeological evaluation and mitigation.

The terms of the Treasure Act 1996 will be followed with regard to any finds that might fall within its purview. Any finds must be removed to a safe place and reported to the local coroner as required by the procedures as laid down in the "Code of Practice". Where removal cannot be effected on the same working day as the discovery, suitable security measures must be taken to protect the finds from theft

The extents and locations of the test pits will be mapped by the Site Investigation contractor and provided to the archaeological sub-contractor. This information will be tied into the Ordnance Survey grid and Ordnance datum.

Reinstatement of the test pits will be undertaken by, and be the responsibility of, the Site Investigation contractor.

The archaeological watching brief should be carried out in accordance with Institute for Archaeologists guidelines Standards Guidance for Archaeological Excavation (1999 rev. 2001) and Standards & Guidance for Archaeological Watching Briefs (1999 rev. 2001).

6.0 Monitoring

Monitoring does not and should take the place of proper self-regulation. The project will be monitored as necessary and practicable by WYG and GMAU, in its role as "curator" of the districts archaeology. GMAU will receive as much notice as possible of the intention to start fieldwork confirmed in writing.



The representative of GMAU will be afforded access to the site at any reasonable time. The Advisory Unit's representative will be provided with a site tour and an overview of the site by the senior archaeologist present and should be afforded the opportunity to view all test pits, any finds made that are still on site, and any records not in immediate use.

7.0 Unexpectedly Significant or Complex Remains

Should there be unexpectedly significant or complex discoveries made that warrant, in the professional judgement of the archaeologist on site, more detailed recording than is appropriate within the terms of this specification, then the archaeological contractor will urgently contact WYG with the relevant information to enable them to resolve the matter with National Grid and GMAU. This is likely to require an on-site meeting between the relevant stakeholders to review the archaeological remains on-site and identify a way forward.

Any variations to this Project Design will be put in writing and agreed by the relevant stakeholders including WYG, GMAU, on-site archaeological sub-contractor and the main Site Investigation contractor.

8.0 Post-Excavation Work and Reporting

The site archive will contain all the data collected during the monitoring exercise, including written, drawn and photographic records and finds. It will be quantified, ordered, indexed and internally consistent. Archive consolidation will be undertaken immediately following the conclusion of fieldwork.

The integrity of the primary field record will be preserved. Security copies will be maintained where appropriate.

Upon completion of the monitoring, the artefacts, and stratigraphic information shall be analysed. A post-excavation report will be prepared and include the following:

- a non-technical summary of the results of the work;
- a summary of the project's background;
- the site location;
- an account of the method;



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- the results of the monitoring, including where possible phasing and interpretation of the site sequence and an assessment of artefacts;
- a post-excavation analysis of the stratigraphic and other written, drawn and photographic records;
- a brief post-excavation analysis of each category of artefact recovered during monitoring;
- an appendix containing a list and summary descriptions of all contexts recorded;
- a summary of the contents of the project archive and its location.

The report will be supported by an overall plan of the site, accurately identifying the location of the test pits (provided by the Site Investigation contractor); supporting drawings and sketches of observed features; and photographs.

The post-excavation report will outline the archaeological significance of the deposits identified and the potential for further archaeological evaluation and mitigation work. The report will provide an interpretation of the results in relation to other sites in the region and make reference to other known archaeological sites in the close vicinity of the site.

The archaeological sub-contractor shall submit one copy of the draft report initially for review by WYG, who may also consult GMAU during this review period. The sub-contractor shall rectify any defects and make any amendments as identified by WYG and shall subsequently submit the final report within in one week of WYG's comments.

The archaeological contractor will submit copies of the report to National Grid, WYG, GMAU, and the Historic Environment Record, OASIS within an agreed timetable, notwithstanding any contractual requirements relating to confidentiality.

9.0 Archive Deposition

Before commencing any fieldwork, the archaeological contractor will notify an appropriate museum of the work taking place and take account of any requirements they have for deposition of the archive.

The archive will be retained by the contractor until the full programme of archaeological evaluation and mitigation on the site is complete, when it will be deposited with an appropriate museum. Should an



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alternative contractor be employed to continue the programme of archaeological evaluation and mitigation the archive will be transferred to them.

If no further archaeological work is undertaken on the site or there is a significant hiatus in archaeological work the archive must be deposited with an appropriate museum.

The archive will be prepared in accordance with the guidelines published in Guidelines for the preparation of excavation archives for long-term storage (1990) and Standards in the museum care of archaeological collections (1994) and the IfA Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives (2009).

The archiving of any digital data arising from the project should be undertaken in a manner consistent with professional standards and guidance (Richards and Robinson, 2000). The archaeological contractor should liaise with an appropriate digital archive repository to establish their detailed requirements and discuss the transfer of the digital archive.

The archaeological contractor should also liaise with the HER Officer, Greater Manchester Archaeological Unit, to make arrangements for digital information arising from the project to be submitted to the GMAU for HER enhancement purposes.

10.0 Programme and Timetable

The geotechnical assessment is provisionally timetabled to start the week beginning 29th February 2010 and is anticipated to last up to seven days. A verbal report will be provided to WYG on completion of the monitoring. The draft post-excavation report will be completed within two weeks of the completion of fieldwork. The final report will be submitted within one week of receiving comments on the draft report.

11.0 Contractor and Staffing

The on-site archaeological works will be undertaken by a specialist archaeological sub-contractor. The archaeological sub-contractor will be a Registered Organisation with the Institute for Archaeologists, or be expected to demonstrate that they have equivalent experience, capability and quality management systems in place. In addition the sub-contractor will be expected to fulfil the criteria to enable them to be placed on the WYG approved sub-contractors register by means of a pre-qualification questionnaire.



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The archaeological sub-contractor will be required to hold appropriate levels of Public Liability Insurance and Professional Indemnity Insurance for the project.

The sub-contracted organisation's project officer and/or site staff will be able to demonstrate experience of managing and working of sites of archaeological projects of a similar size and complexity. The archaeological sub-contractor, its proposed project team and specialists will be confirmed prior to the start of works on site. Confirmation will be sought from GMAU that the proposed team is acceptable.

12.0 Health and Safety

Health and safety will take priority over archaeological matters. All archaeologists undertaking fieldwork must comply with all Health and Safety Legislation. All archaeologists or archaeological organisations undertaking the fieldwork should ensure that they, or any proposed sub-contractors, are appropriately qualified and adequately insured to undertake such projects.

The archaeological contractor will abide by the site health and safety requirements to be prepared by the Site Investigation contractor. The Site Investigation contractor will provide site specific PPE which is required for aspects of ground contamination identified on the site. The archaeological contractor will be expected to provide standard PPE (hard hat, steel toe cap boots, high visibility vest or jacket and appropriate clothing for the weather conditions). The archaeological contractor may use the site welfare facilities of the Site Investigation contractor.

Measures will be taken by the Site Investigation contractor to locate any drainage pipes, service pipes, cables etc. which may cross any of the trench lines, and necessary measures will be taken to avoid disturbing such services.

Where health and safety considerations indicate that it is unsafe to enter the test pits (e.g. contamination, section stability, depth) the archaeology must be observed and recorded from the trench edges. Stepping out of trenches or battering of trench sides will not be undertaken.

The archaeological contractor will provide a method statement detailing their proposed working methods, including a site and activity specific risk assessment.

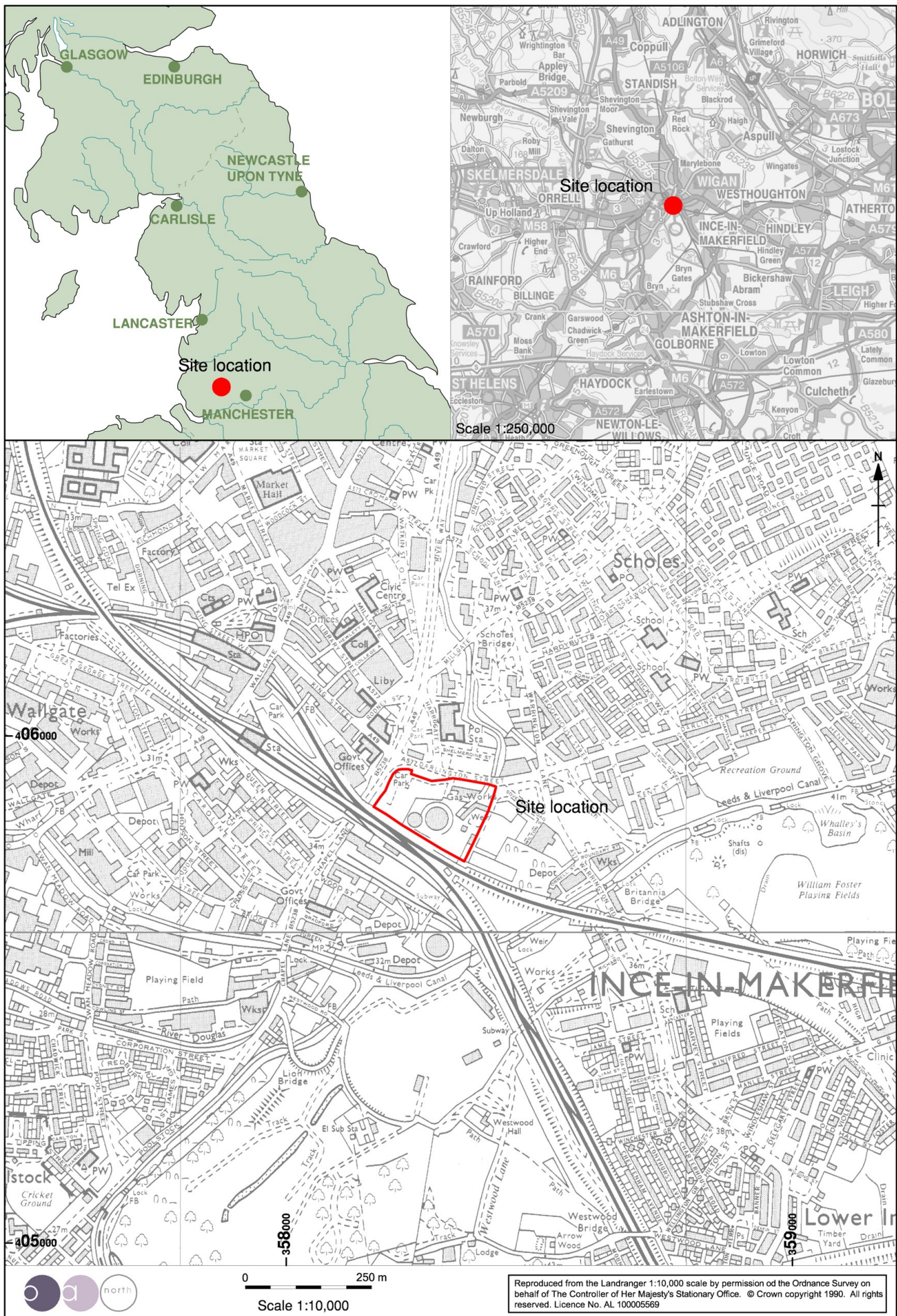


Figure 1: Site Location

