ROUGHLEE PUMPING STATION, Lancashire

Archaeological Desk-Based Assessment and Walkover Survey

Oxford Archaeology North

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SUMMARY

Following a request by United Utilities Ltd, Oxford Archaeology North (OA North) undertook a desk-based assessment and field walkover survey in August 2003, of the proposed route of a pumping station and sewer situated between Roughlee and Blacko, Lancashire (SD 8466740769 to SD 8600941248). The desk-based assessment covered a 500m wide corridor of land centred on the proposed route and involved a study of primary and secondary records held within the Lancashire Sites and Monuments Record and the Lancashire County Record Office. This was intended not only to identify potential archaeological sites recorded in early documents and on maps, but also to provide an historical context for the general area. The ensuing walkover survey covered a 100m wide corridor of land and was intended to identify any surface features of potential archaeological interest not identified in the desk-based assessment and to note the condition of those already known sites.

Ten existing SMR sites were recorded from within the study area. The majority of the sites are post-medieval and include a 17th century aisled barn, a bloomery, a cotton mill, and two wells. Of the remaining sites, four are earthwork sites, one of which is thought to be the site of a medieval vaccary, there is also the site of a quarry, a housing platform, and a field boundary; all of uncertain date. Two further quarry sites were recorded through observation of cartographic sources. The walkover survey identified 13 additional sites. They included several former field boundaries, ditches, banks and tracks, all of which were probably of post-medieval origin. A possible housing platform was identified, close to the confluence of Pendle Water and Blacko Water, as well as the possible site of an early stone-built structure.

Several sites are considered to be under sufficient threat as to warrant further archaeological mitigation. A topographic survey followed by an evaluation is recommended for Site **22**, a possible medieval vaccary, and Site **6**, a possible quarry. A topographic survey followed by watching brief is recommended for the field containing Site **10**, a shallow circular depression, and Site **11**, a semi-circular earthwork and linear depression.

ACKNOWLEDGEMENTS

Oxford Archaeology North would like to extend thanks to United Utilities Ltd for commisioning the work. Thanks are also due to the staff of the Lancashire County Record Office and SMR Office in Preston for their patience and helpfulness.

The desk-based assessment and walkover survey was undertaken by Anthony Lee. The report was written by Anthony Lee and edited by Alison Plummer and Emily Mercer. The drawings were produced by Emma Carter and the project was managed by Alison Plummer.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

1.1.1 Oxford Archaeology North (OA North) undertook a programme of archaeological assessment, requested by the Lancashire County Archaeological Service (LCAS), on behalf of United Utilities Ltd. The work was carried out in advance of the proposed upgrade of the pumping station and sewer situated between Roughlee and Blacko, Lancashire (SD 84667 40769 to SD 85009 41248) (Fig 1). The area to be affected is approximately 1.3km in length and includes several archaeological sites, including the possible site of a medieval vaccary. The study was intended to rapidly appraise the likely archaeological value of the specified area, and to locate and record potentially interesting or important features in the landscape, whether or not they were visible as surface remains. To this end, available documentary and map sources were consulted. All work was carried out in accordance with a project design (*Appendix 2*) prepared by OA North.

1.1.2 The desk-based assessment was undertaken to establish the likely density of sites of archaeological interest within the area of the development. This consisted of a search of both published and unpublished records relating to the history and archaeology of the area, as well as any original documents and relevant maps held in the Lancashire County Record Office (LCRO) in Preston. The Lancashire Sites and Monuments Record (SMR) in Preston, was also consulted.

1.1.3 The rapid identification walkover survey took place following the desk-based assessment and comprised the systematic inspection of the pipeline corridor and its immediate environs.

1.1.4 This report sets out the results of the work outlining the findings, followed by a statement of the archaeological potential of the area, an assessment of the impact of the proposed development, and recommendations for further work. This is complimented by a gazetteer of sites (*Appendix 3*), both new to the record and formerly known, and a bibliography.

2. METHODOLOGY

2.1 PROJECT DESIGN

2.1.1 A project design was submitted by OA North (*Appendix 2*), in response to a request from United Utilities Ltd for an archaeological assessment of the study area, in accordance with a brief prepared LCAS (*Appendix 1*). Following the acceptance of the project design by LCAS, OA North was commissioned to undertake the work. The project design was adhered to in full, and the work was consistent with the relevant standards and procedures of the Institute of Field Archaeologists.

2.2 DESK-BASED ASSESSMENT

2.2.1 Several archives were consulted; principally the LCRO in Preston and the SMR, also in Preston, as well as OA North's own extensive library and portfolio of previous work within the region. A limited corridor of approximately 500 metres centred on the pipeline was examined, with the emphasis being on sites which would be directly affected by the pipeline.

2.2.2 ***Sites and Monuments Record (SMR):*** the Lancashire Sites and Monuments Record is a database of archaeological sites within the county and maintained by Lancashire County Council in Preston. A brief record including a grid reference and description was obtained from the SMR for the various sites within the study area and several aerial photographs were examined with reference to the SMR.

2.2.3 ***County Record Office (Preston):*** the County Record Office in Preston was visited primarily to consult any original documents relating to the study area, although there were few with any specific relevance. Historic maps, particularly early edition Ordnance Survey maps were more useful, especially given the large size of the study area. Several secondary sources and archaeological or historical journals were also consulted.

2.2.4 ***OA North:*** Oxford Archaeology North has carried out a considerable amount of fieldwork throughout Lancashire, and has an extensive archive of secondary sources and assessment reports. These were also consulted.

2.3 WALKOVER SURVEY

2.3.1 Fieldwalking for the walkover survey was undertaken in the designated fields, in systematic transects. The width of the transects varied dependent upon the conditions in each field but were typically 50m wide. The archaeological features identified were tied into the relevant Ordnance Survey map sheet, and sites identified during the walkover have been included in the gazetteer (*Appendix 3*).

2.4 GAZETTEER OF SITES

2.4.1 All of the information concerning archaeological sites in the affected area has been collated into a gazetteer (*Appendix 3*), which provides a summary description of each site including details of the location, origin and character. Locations are given as twelve-figure National Grid References where possible. An assessment has been given of the interpretation and archaeological potential of each site, and the likelihood of being impacted upon by the proposed development. The sites have been marked onto a location map to illustrate their position (Fig 2).

2.5 ARCHIVE

2.5.1 A full professional archive has been compiled in accordance with the project design (*Appendix 2*), and in accordance with current IFA and English Heritage guidelines (English Heritage 1991). The paper and digital archive will be deposited in the Lancashire County Record Office, Preston, on completion of the project.

3. BACKGROUND

3.1 LOCATION

3.1.1 The pipeline route is situated in east Lancashire, north of Barrowford. It is orientated roughly east–west and begins close to North Farm, Roughlee. For a portion of its length it runs alongside Pendle Water before terminating on Gisburn Road, Blacko (Fig 1).

3.2 GEOLOGY AND TOPOGRAPHY

3.2.1 The area is defined by the Countryside Agency as the Lancashire Valleys (Countryside Commission 1998) with numerous tributaries eventually becoming part of the River Calder. The region is also characterised by several reservoirs, which in the past have provided water sources for transportation and industrial activity. The large millstone grit outcrop known as Pendle Hill, situated to the west, dominates the skyline. The land is typically 200m OD.

3.2.2 The solid geology of the region comprises mostly sedimentary rocks of the Pendle, Warley Wise, Kinderscout and Gorpley or Revidge Grits. These are predominantly sandstones and other resources, such as limestone, are found to the north-west beyond the study area. The overlying drift geology is essentially post-glacial deposits, predominantly boulder clay with some areas of sands or gravels (Countryside Commission 1998) The soils are mapped by the Ordnance Survey Soil Survey of England and Wales (1983), are predominantly of the Brickfield 3 series, which are cambic stagnogle. In addition, there are small areas of the Fladbury 3 series, a pelo-alluvial gley and the Blackwood series, which is a typical sandy gley soil.

3.3 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

3.3.1 ***Prehistory***: evidence of man's activity in Lancashire during the Mesolithic and Neolithic periods is comprised mostly of lithic finds and evidence from pollen data, which seems to show activity is concentrated around the lowlands and in riverine environments (Middleton 1996). At Boulsworth, near Trawden (7km to the south-east of the study area), appears to have been a Mesolithic camp site was known from the evidence of flints and hazelnuts, implying sufficient time spent at the site to forage and eat (Harrison 1988, 4).

3.3.2 Bronze Age sites, identified from evidence such as metal finds, also show a lowland and riverine distribution. However, the lithic finds from this period have mostly been casual finds and are generally not well located (Middleton 1996). Blackey notes that "some years ago, a boy showed me a fine and large specimen of a flint hammer, which had been found in the stream at Roughlee. It was in an almost perfect state." (Blackey, 1929, 2).

3.3.3 In the Iron Age, the area seems to have come under the aegis of the Brigantes tribe (Cunliffe 1991). There are no known remains of the Iron Age within the environs of the study area but it is notoriously difficult to identify such sites, in part due to a lack of distinct material culture (Haselgrove 1996, 64). In

addition, hillforts, which are typically attributed to this period, are a relatively uncommon form of settlement in the North West (Hartley and Fitts 1988, 5-6). Iron Age evidence from the region consists almost exclusively of earthworks, both defensive and agricultural. Castercliffe Hill Fort is a defensive site located to the north-east of Nelson, although it is thought possibly to originate in the late Bronze Age (Challis and Harding 1975; Haselgrove 1996, 61). Pollen data from the various wetland areas show widespread forest clearance, which seems to indicate a possible increase in arable activity during this period, and the expansion into wider areas of land, both lowland and upland (Middleton *et al* 1995).

3.3.4 ***Roman:*** a Roman presence in the region is clearly attested by the camps and forts situated in the region. The nearest fort was at Elslack (known as Burwen Castle), which was situated 12km to the north-east of the study area. Elslack fort dates from the first century AD, after which it was rebuilt in stone. In the fourth century it was enlarged and effectively re-fortified, in order to provide a better defence against raiders from the coast utilising the Aire gap (Garlick 1988, 27). The fort at Slack lies 15km to the south-east of the study area and its development parallels that at Elslack. An earlier fort was rebuilt in stone during the Trajanic to Hadrian period, but this apparently went out of use about AD 140 (*op cit*, 28). The fort at Ilkley is 30km away to the north-east and had a more complex history. Again, it was built in the first century, but not in use during the Hadrianic period, it was re-occupied in the mid second century and destroyed in *c*AD 197, before a new fort was built of stone in the third century (*op cit*, 26).

3.3.5 Linking these forts and camps was a road system, instigated during the Roman period but intermittently made use of in the following periods. A south-west/north-east road ran from Ribchester to Elslack and joined the south-east/north-west road from Ilkley to Long Preston. The former passes some 6km north of the study area. In addition, there is a conjectured road running south-east from Elslack towards Leeds. The routes are outlined by Margary (1957), to which they are referred to as 72a, 722 and 721 respectively. Various antiquarians (eg Baines 1824, 617) have traced other routes and there is some suggestion that Colne may have been situated near to a Roman route (Harrison 1988, 7).

3.3.6 The general area has produced a considerable number of Roman coins. Several hoards and single find spots are known, including those at Wheatley Lane, Catlow, Emmett, Barrowford and in general in the Colne, Whalley, and Burnley areas (Shotter 1990). Within this region there is also evidence for settled domestic activity, as seen by the presence of the putative 'villa' site, a type of site unusual in this region, at Kirk Sink, Gargrave, located 10km to the north of the study area. The finds show it to be a fully functional farmstead, complete with bath house, in use until the late fourth century (Garlick 1988, 45).

3.3.7 ***Early Medieval:*** as is the case throughout the North West, evidence for early medieval activity is limited. From the early-mid seventh century onwards, Lancashire became part of the kingdom of Northumbria, the southern extent of

which was probably on the Mersey (Colgrave and Mynors 1940). Place-name evidence gives some indications of areas influenced by Anglian lordship but there is little other evidence for this (Kenyon 1991).

3.3.8 By the later ninth and tenth centuries, Scandinavian/Hiberno-Norse cultural and political influences influenced the area and there is some indication of Christian activity in the region from the stone sculptures known from Whalley parish (Newman, RM 1996). A plain cross dating to this Anglo-Scandinavian period is known from Foulridge; although not found in a religious context, it may represent an indication of the extent of Whalley parish (Kenyon 1991, 102).

3.3.9 Whilst the name of Barrowford is first written as '*Barouforde*' the name has been suggested to derive from 'barrow', indicating a burial mound, and 'ford', meaning bridge. However, it is more likely that the first part of the name comes from *bearo*, which is Old English for grove, and the name would thus be interpreted as the ford by the grove (Ekwall 1922). Other early names in the region include Pendle which derives from the Old English for 'hill' (Newman, RM 1996, 95).

3.3.10 ***Medieval:*** following the Norman Conquest the growth in documentary sources has meant that the townships of Colne, Foulridge and Barrowford become evident in the history of the region. Colne and Foulridge were townships in the parish of Whalley, whereas Barrowford was part of the manor of Clitheroe. In addition, to the south-west of the study area, the modern town of Nelson occupies the site of the old manor of Marsden. The Domesday book records these lands as "waste" and they were granted as part of the Hundred of Blackburnshire, to the Norman knight Roger de Poitou, who built Clitheroe Castle (Blackey, 1929, 14) He was succeeded by Roger de Lacy and with the marriage of his only surviving daughter these lands became, and remained, a part of the Duchy of Lancaster until the Restoration of Charles II in 1660. They were then bestowed on George Monk, Duke of Albemarle, as a reward for his services to the King, and after his death in 1670 they passed through the house of Montague to that of the Clitheroe Estate Company (*ibid*).

3.3.11 The 'Compostus' or yearly account of Pendle Forest, presented in 1296, tells that Henry de Lacy, Earl of Lincoln, had then 29 cattle breeding farms or vaccaries (Blackey 1929, 15). Over each vaccary was a bailiff who was in charge of cowherds. The cowherds sheltered in 'booths', which became the first settlements in the district. The account includes the first mention of Blackay (Blacko), and Barouford (Barrowford).

3.3.12 A great change occurred in 1506 when Royal Commissioners surveyed, partitioned, and let the 19 vaccaries in the area to tenants. These holdings were the origin of the present system of farms, and many of the place names have continued without appreciable change during the last 400 years. This breaking up of the Kings forest into a system of small farms and cottages was called the 'disafforestation'. The new farms were gradually created by the cultivation of the waste forest land, and the large amount of common land remaining was used by the different tenants to pasture their cattle (*op cit*, 16).

3.3.13 Medieval townships in the uplands were often composed of a scatter of hamlets or isolated farmsteads and associated field systems. The overall pattern was rather dispersed although an increased density of occupation would be associated with more desirable land and resources, such as at the lowland to upland interface. At this interface, where there was access to upland moors, there would have been the more isolated farmsteads used as vaccaries (Newman R, 1996). To a certain degree this pattern can still be seen in the landscape to the present day.

3.3.14 ***Post-medieval***: the majority of the population in the towns of the region, including Barrowford, Higherford, Colne and Foulridge, was engaged largely in the processing, manufacture, and distribution of textiles, initially woollens (Walton 1987) and, subsequently, cotton. The earliest evidence of a mill is a fulling mill in Colne in about 1300 (Harrison 1988, 16). There are also references to corn mills up until the sixteenth century in Foulridge (Wightman nd) and in Colne (Harrison 1988, 22). The processing and manufacture of woollen goods in the early period was carried out at a smaller, often domestic, scale. With the advent of technological progress in the form of the Spinning Jenny (late 1700s) and the steam power looms, it became more economical and efficient to carry out all the activities at one central place and attract a work force to it. Woollen mills predominated the area until the early nineteenth century, when cotton became more common and several of the mills were converted to this use. For example, by 1824 there were only three woollen mills and 22 cotton mills in Colne, the latter producing 12,600 pieces of calico a week for use by printers in Manchester (Baines 1824, 618); this figure is comparable with the other levels of production in nearby towns. This resulted in larger mills being built or added to, the setting up of weaving sheds, and the construction of the classic terraced houses for mill workers and the overall expansion of urban areas (Walton 1987). These characteristics still dominate the townscapes of the region today. Numerous sources provide details of the population figures from the sixteenth century onwards, as well as information on economic activities. As an example, the census shows that Foulridge's population was 833 in 1801, rose to 1498 in 1841, declined to 877 in 1891 and then increased sharply again to 1373 in 1901 (Wightman nd), and has remained reasonably stable since then.

3.3.15 In order to serve the industries in the area, the transport network developed into a complex system, connecting various modes of transport and serving many locations. Thus it had a significant impact on the landscape of the study area. The turnpike road network was well established by the mid eighteenth century: such roads are found centred around Colne, and running to Skipton, Haworth, Blackburn and Broughton, but around 1873 the system of tolls went out of use (Harrison 1988, 80). There is surviving evidence of the turnpikes in the form of toll booths, often seen as mulitfaceted buildings on roadsides, as can clearly be seen on the A682 through Barrowford.

3.3.16 In the eighteenth and early nineteenth centuries the canals through Lancashire were developed and linked with suitable river systems (Hadfield 1984). The study area is bisected by the Leeds and Liverpool canal and the Burnley to Foulridge section was opened at various stages between 1794 and 1846. The Foulridge tunnel itself was opened in 1796 after a building programme of five

years and, despite several collapses, is still functional today. The canal was originally for transporting raw materials and was related to the expansion of heavy and extractive industries, such as slate, lime and coal. They were eventually superseded by the railways, which developed rapidly during the mid-nineteenth century. The study area was bisected by the Lancashire and Yorkshire line between Colne and Skipton, in full operation by 1851. Since its heyday in the early twentieth century, the route went out of use and was dismantled in 1970.

3.3.17 In recent years the road system has seen major modifications with the M65 extension eastwards, which links to the M6 to the west and now passes the study area to the south. With such a communication system throughout the county there has been continued development of the economy, moving away from primary industrial processing towards secondary forms of manufacturing, distribution and retailing.

4. ASSESSMENT RESULTS

Table 1: *Sites identified by documentary sources and SMR*

Site	Period	Name/Type	Impact
14	Post-medieval	Great Stonedge Farm	Unaffected
15	Unknown	Earthworks	Unaffected
16	Medieval/post-medieval	Well	Unaffected
17	Post-medieval	Quarry	Unaffected
18	Post-medieval	Wells	Unaffected
19	Unknown	Earthworks	Unaffected
20	Medieval/post-medieval	Field boundary, quarry, gravel pit.	Unaffected
21	Medieval/post-medieval	Field boundary	Unaffected
22	Medieval	Vaccary	Directly affected
23	Post-medieval	Bloomery	Unaffected
24	Post-medieval	Weaving mill	Unaffected
25	Post-medieval	Quarry	Unaffected
26	Post-medieval	Quarry	Unaffected

4.1 SITES AND MONUMENTS RECORD

4.1.1 Eleven sites are recorded by the SMR within the immediate vicinity of the proposed pipeline route (Sites **14-24**). The majority of the sites are post-medieval and include a 17th century aisled barn, a bloomery, a cotton mill, and two wells. Of the remaining sites, four are earthwork sites; one of which is thought to be the site of a medieval vaccary, there is also the site of a quarry; a housing platform and a field boundary all of uncertain date.

4.2 DOCUMENTARY AND CARTOGRAPHIC SOURCES

4.2.1 Examination of purely documentary sources proved useful only in fixing the general area into an historical context. Unfortunately, a tithe map of the study area was found to have never existed. However, cartographic sources in the form of first and second edition Ordnance Survey (OS) maps revealed the sites of two former quarries (Sites **25, 26**). Site **25** was observed on the first edition

6'' OS map (1848), and so must have existed since before 1848. Site **26** was observed on the first edition 25'' OS map (1895), but not on the 1848 map, providing an inception year somewhere between these two dates. By the time the OS second edition 25'' map was published in 1912, both sites were recorded as "old quarry".

5. WALKOVER SURVEY RESULTS

5.1 INTRODUCTION

5.1.1 The walkover field survey was undertaken along the proposed route of the pipeline, encompassing an area 100m each side of the projected easement. There main aim of the fieldwork was to identify rapidly and record the existence, location and extent of any previously unrecorded sites (Fig 2). Liaison for site access was undertaken by United Utilities Ltd.

5.2 IDENTIFIED SITES

5.2.1 Site 1 was a former field boundary, which survived as a low partially earthfast bank with occasional hedgerow trees running parallel to Pendle Water on the south side. Site 2, located further south, was probably an interrupted continuation of Site 1.

5.2.2 Site **3** and Site **12** were small, grassy mounds which appeared to be the result of the installation of an existing plastic water main crossing Pendle Water.

5.2.3 Site **4** was a low bank which was probably formed by the digging of the ditch, which it follows along its north side.

5.2.4 Site **5**, a barn was in a good state of repair and was situated immediately north of the site of the western terminus of the proposed pipeline route.

5.2.5 Site **6** was located close to Site **20** (SMR Site 11220), and may have been the site of another quarry. The mounds may have been formed by the upcast from the quarrying, with the former trackway providing a supply route to the nearby road.

5.2.6 The concrete floor, Site **7**, was almost certainly the remnants of a small gatehouse or shed and was late post-medieval or modern.

5.2.7 The banked earthwork, Site **8**, is certainly a man-made feature and would benefit from further investigation. The site was situated on the north side of the confluence of Pendle Water and Blacko Water.

5.2.8 The shallow, circular depression which formed Site **10** may be the result of quarrying activity, or merely a natural dip in the topography.

5.2.9 Site **11** comprised a semi-circular earthwork and linear depression. The earthwork was only visible when looking upon it from the north, and was of uncertain function or date. The linear depression may have been formed by a former watercourse or may have been the route of a track.

5.2.10 The group of exposed boulders (Site **13**), was located amongst a wide scatter of exposed boulders, observed on the north side of Pendle Water. The Site was interesting as some of these boulders formed a small rectangular shape, thus

appearing to have been deliberately positioned. There is, therefore, a slight possibility that the site is the remnants of an ancient structure, although it would be difficult to assume this with greater confidence unless further examination was undertaken.

Table 2: *Sites identified by walkover survey*

Site	Period	Name/Type	Impact
1	Medieval/post-medieval	Field boundary	Unaffected
2	Medieval/post-medieval	Field boundary/ bank	Unaffected
3	Modern	Artificial mound	Unaffected
4	Medieval/ post-medieval	Field boundary/ bank	Unaffected
5	Post-medieval	Barn	Unaffected
6	Post-medieval	Trackway/ ditches	Directly affected
7	Post-medieval/ modern	Concrete foundation	Unaffected
8	Unknown	Earthworks	Unknown
9	Post-medieval	Trough	Unaffected
10	Unknown	Possible pit/quarry	Directly affected
11	Unknown	Earthwork	Directly affected
12	Modern	Artificial mound	Unaffected
13	Unknown	Structural remains	Unaffected

6. IMPACT AND RECOMMENDATIONS

6.1 THE DEVELOPMENT AREA

6.1.1 The majority of sites identified by the desk-based assessment will not be affected by the construction of the pipeline, due to their distance from the easement. However, several sites are potentially at risk of destruction and deserve mention in this chapter.

6.1.2 Site **22** (SMR Site 18836) is the most high profile of the potentially affected locations, being the probable site of a medieval vaccary. The proposed pipeline will cut through the southern part of the field, and damage to the visible earthworks and any sub-surface resource is likely.

6.1.3 Most of the sites identified during the walkover survey are also considered to be situated at a distance from the proposed route, which is great enough to ensure they remain undisturbed and therefore warrant no further concern. However, Site **6** will be disturbed and without further investigation the nature of the site will remain unknown. The proposed route also passes through the field containing Sites **10** and **11** and a disturbance of these earthworks is likely. Sites **3** and **12** may be disturbed, but were recorded as being modern features of little consequence. The bank running along the north side of Pendle Water (Site **2**) is also likely to be truncated at the point which it is to be crossed by the sewer.

6.2 RECOMMENDATIONS

6.2.1 Following the results of the desk-based assessment and walkover survey, several recommendations for further archaeological work are hereby given. A topographical survey followed by an evaluation should be undertaken of Site **22** in order to understand the degree of preservation of this possible medieval vaccary site.

6.2.2 A topographical survey and evaluation of Site **6** is also recommended, with a watching brief being maintained if the topsoil is to be stripped prior to the evaluation. The evaluation should be undertaken along the exact route of the pipeline.

6.2.3 A topographical survey is recommended for the field containing Sites **10** and **11**, followed by a watching brief of the field during the topsoil stripping and pipe installation phases of work.

6.2.4 The topographical surveys should be carried out prior to the evaluation and any topsoil stripping or field drain installations. The evaluations should take place along the exact course of the pipeline route and should precede any field drain installations. This would prevent unnecessary ground disturbance and provide a 'window' to observe any archaeology under threat. Should the evaluations be carried out after the topsoil stripping exercise, then a watching brief should be mantained during the topsoil removal.

6.2.5 Despite the thorough investigation of the study area by both desk-based assessment and walkover survey, there is a possibility that sub-surface archaeological remains may be disturbed, of which we have yet no knowledge. Experience shows that some archaeological sites often show no physical trace above ground, and only become evident when excavation reaches the subsoil. Sites were often occupied, abandoned and forgotten, long before the first mapmakers surveyed the country. It is therefore recommended that a permanent presence watching brief be undertaken, of the entire length of pipeline not covered by other archaeological works, during the topsoil stripping phase.

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8. ILLUSTRATIONS

LIST OF FIGURES

PLATES

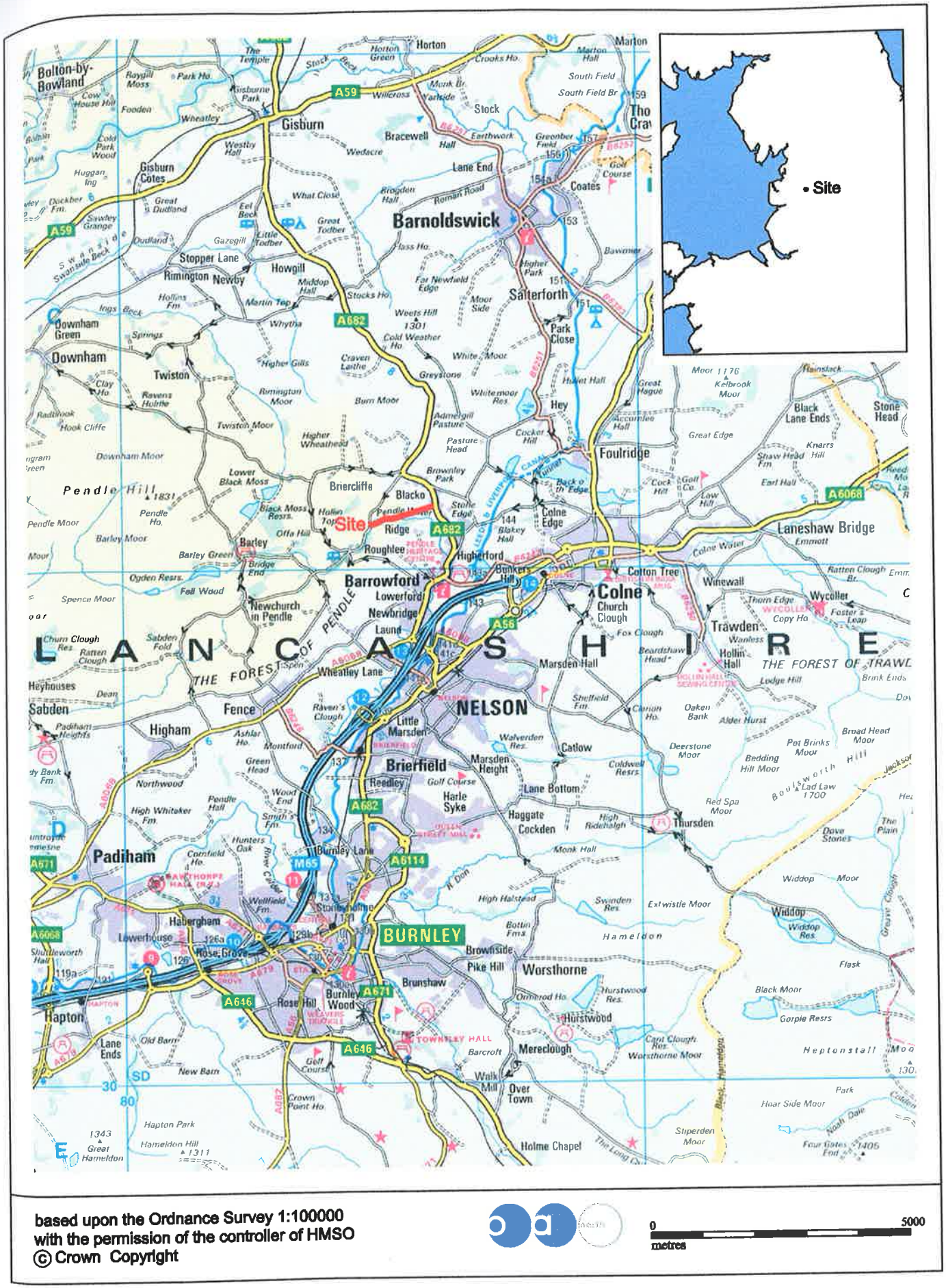
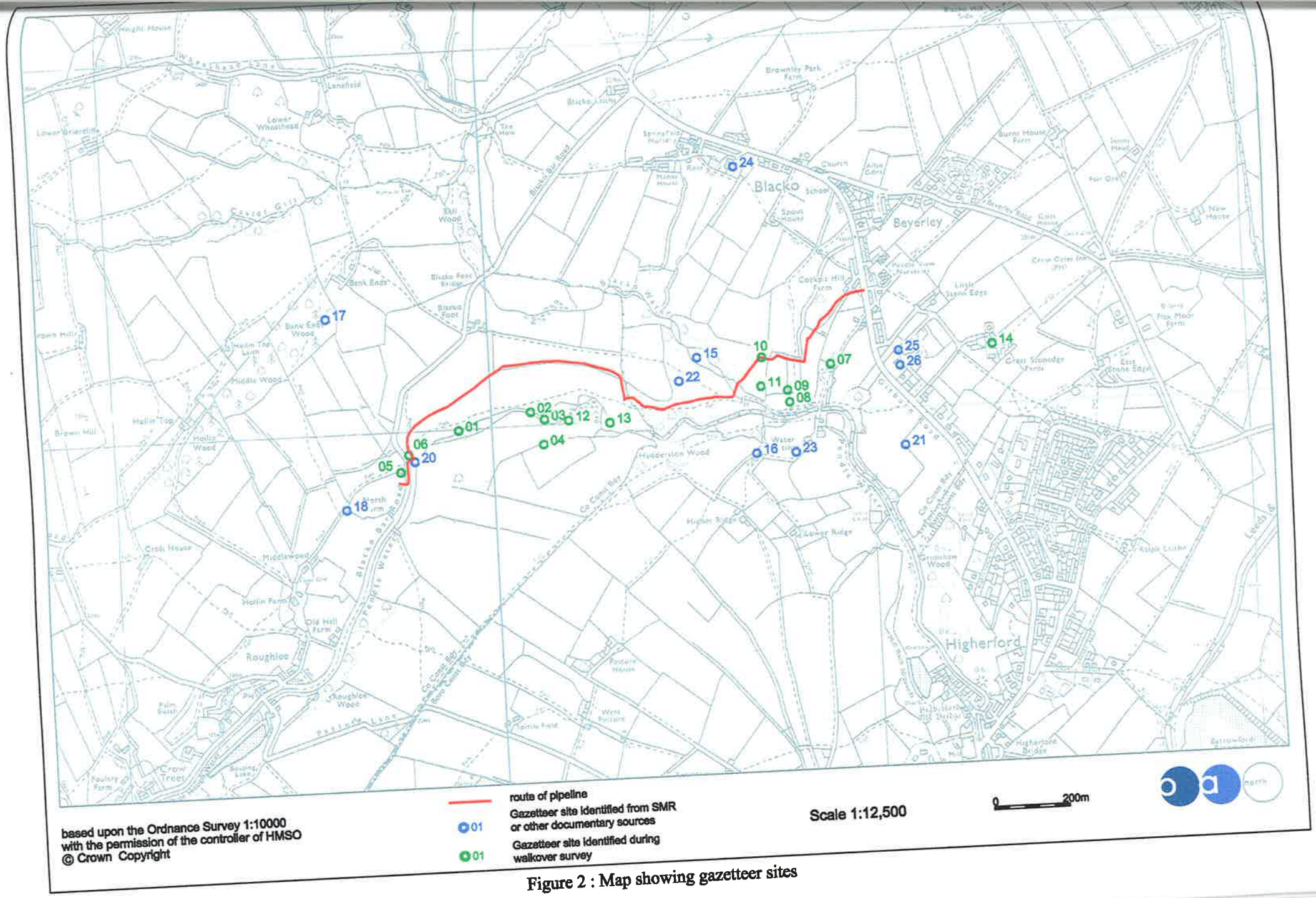


Figure 1: Location Map



based upon the Ordnance Survey 1:10000
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route of pipeline

01 Gazetteer site identified from SMR or other documentary sources

01 Gazetteer site identified during walkover survey

Scale 1:12,500

Figure 2 : Map showing gazetteer sites

Plate 1: Site **8**, looking east

Plate 2: Site **8**, looking north-east

Plate 3: Site **11**, looking south

Plate 4: Site **9**, looking east

Plate 5: Site **13**, looking west

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Plate 7: Sites **19, 22,** (SMR Site 11219 aerial photograph)

APPENDIX 1: PROJECT BRIEF

Roughlee Pumping Station and Sewer
Brief for Archaeological Assessment

1 Introduction

1.1 United Utilities is proposing to upgrade the pumping station and sewer between Roughlee and Blacko (SD 8466740769 – SD 8600941248). As is usual practice, the application was forwarded to the Lancashire County Archaeological Service (LCAS) for comment and advice.

1.2 The proposed line of the sewer crosses an area of archaeological interest at about SD 855411, which may well relate to the medieval vaccary at Water Meetings. It has been recommended that a desk-based appraisal and walk-over survey of the areas affected by the works be carried out. This brief is intended to set out the main requirements for that work.

2 The Site

2.1 The proposed line of the sewer runs from behind North Farm Cottage, Blacko Bar Road, Roughlee (SD 8466740769), to a connection at Gisburn Road (A682), Blacko (SD 8600941248). The pipeline passes through an area northwest of Water Meetings Farm (SD 855411 ac) where a number of earthworks have been recorded and which may relate to a medieval vaccary here. An appropriate extract from the Lancashire Sites and Monuments Record is appended.

2.2 The Historic Landscape Characterisation report classifies this area as 'Ancient Enclosure' although there are areas of 'Post Medieval Enclosure' immediately adjacent. There has been little change in the field patterns here since the publication of the OS first edition 1:10,560 mapping (sheet Lancs 48, 1848).

2.3 It is possible that the area was utilised or occupied in the prehistoric or Romano-British periods, as remains of these dates have been found in the wider area, but there are no known sites of these dates in the immediate vicinity of the pipe route.

2.4 No professional archaeological work has been undertaken in this area, although the Sites and Monuments Record does indicate that the Pendle Archaeological Group undertook an excavation here in 1986. The earliest dateable artifact recovered was of the 17th century.

3 Archaeological Implications

3.1 Whilst the existence of the earthworks and the occurrence of an excavation are noted on the Sites and Monuments Record, there is insufficient detail to permit a full understanding of the archaeology of the area. It seems possible that the earthworks noted

above relate to a medieval vaccary site, but their full extent and character are not known, and details of the subsurface archaeology are missing.

3.2 Construction of a new sewer and pumping station will result in the destruction of any remains that survive, although the refurbishment of existing facilities will have a more restricted impact. A desk-based archaeological assessment followed by an archaeological a rapid walkover survey should be undertaken so that informed decisions may be made.

3.3 Whilst the likelihood cannot be estimated at this point, the discovery of important remains on the site may require further archaeological investigation and this brief may therefore represent the one of a number of stages of archaeological work, designed to minimise the impact of development on the archaeological heritage. A potential full programme of work may include the following elements:

- initial assessment of documentary and other sources, rapid walkover survey
- evaluation of site, including geophysical survey and other field investigations
- preservation of remains, recording, or other mitigation works
- monitoring of development works
- creation and deposition of final report and archive

3 The Brief

3.1 An archaeological desk-based assessment and walk-over survey of the site of the proposed pumping station and the route of the proposed sewer at Roughlee shall be carried out. This work is intended to assess the archaeological potential of the site for the planning purposes specified in PPG 16 and should not be seen as pure research. All archaeological work shall be undertaken by the most appropriate methods that comply with the Code of Conduct, Standards, and Guidance of the Institute of Field Archaeologists (IFA); the British Archaeologists and Developers Liaison Group Code of Practice; and appropriate policy statements from the Association of County Archaeological Officers and English Heritage. Where necessary clarification should be sought from the County Archaeology Service. Procedures set out in the English Heritage document Management of Archaeological Projects, 2nd edition, shall also be followed where appropriate.

3.2 A rapid desk based assessment of the site, utilising known sources of information, as set out in the appropriate IFA Standard shall be undertaken. This shall cover a corridor of at least 250m each side of the proposed pipeline route and pumping station site.

3.3 A rapid walkover survey of the route of the proposed pipeline should be carried out, and the location and approximate extent of any archaeological features noted on a map at 1:1250 scale. This shall cover a corridor of at least 150m each side of the proposed pipeline route and pumping station site. A rapid inspection of any existing structures along the route should be carried out, and a brief description and assessment of those structures compiled. Where appropriate photographs, sketch plans, or other illustrative material should be included.

3.4 A report should be produced, describing the work undertaken, the results achieved and conclusions drawn from those results. A copy of this brief and the approved project design should be included as appendices.

3.5 The report shall be completed and submitted within six weeks after completion of the excavations unless otherwise agreed with all parties. A paper and a CD-Rom copy of the report shall be deposited with the Lancashire Sites and Monuments Record, and the National Monuments Record according to the agreement reached below.

3.6 A full archive shall be created to the appropriate professional standards, and deposited according to the agreement reached below.

4 General

4.1 The director of the project shall be a full member of the Institute of Field Archaeologists.

4.2 A full and complete project design detailing how the archaeological work is to be undertaken, the name of the project director, the proposed staffing levels and the proposed programme of work, shall be produced prior to the commencement of the project. This design shall be to the appropriate IFA standard. The archaeological contractor may wish to refer to sections of this brief, rather than to transcribe them. Costings shall be submitted under a separate cover to the project design.

4.3 Deleted

4.4 Before the fieldwork commences, agreement shall be reached with the site owners concerning the deposition of the archive, and the provision of copies of the report for the County Sites and Monuments Record and the National Archaeological Record. Costings shall reflect the capital cost of the deposition of the archive. Whilst the site owners have property rights over finds, objects shall normally be deposited in a Museums and Galleries Commission approved archaeological museum, either on loan or by donation.

4.5 The archaeological work shall be monitored by the LCAS. The archaeological contractor shall contact the LCAS to discuss and arrange this monitoring at least 14 days before the commencement of the project.

4.6 This brief shall not be altered without the express consent of the LCAS. It allows some flexibility in approach, but deviations from the agreed project design shall be discussed and agreed in advance with LCAS. A copy of the brief on computer disc can be supplied upon request.

4.7 The document entitled "General Conditions for Appropriate Archaeological Contractors in Lancashire" is in use as a model of expected practices and procedures. A copy of that document is attached as Appendix One.

5 Further Information

5.1 Further queries regarding the archaeological content of this brief or the General Conditions can be addressed to the Lancashire County Archaeology Service, Tel. 01772 531550, Fax 01772 531550.

ppendix 1
ancashire County Council
eneral Conditions for Archaeological Contractors

rganisations and individuals wishing to be included on the County Council's list of rchaeological Contractors are requested to fulfil the general conditions below, which provide a odel for best practice and professional conduct in archaeological work. The County Council will equire the fulfilment of these conditions in its own contracts. Other clients are advised that it is heir responsibility to satisfy themselves that their contractors meet al relevant standards.

1. Professional Standards

1.1 Contractors shall work to the standards of professional conduct outlined in the Institute of Field Archaeologists Code of Conduct, the IFA Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology, and the British Archaeologists and Developers Liaison Group Code of Practice.

1.2 Contractors should be either IFA Registered Organisations or individual corporate members of the IFA. In addition Project Directors should be recognised in an appropriate Area of Competence by the IFA.

1.3 Contractors with a significant backlog of unpublished projects will not usually be included on the list.

1.4 Where students or trainees are employed on a project, their ratio to professional staff shall not normally exceed 1:2.

1.5. In the case of dispute over matters of professional conduct or practice, arbitration will normally be sought through the IFA or the British Archaeologists and Clients Liaison Group.

2. Finance

2.1 Contractors shall make available at the request of the County Council a recent set of audited accounts.

3. Insurance

3.1 Contractors shall hold a current certificate of Public Liability and (where relevant) Employers Liability insurance, and shall produce it at the request of the County Council.

4. Health and Safety

4.1 Contractors shall comply with the requirements of all relevant Health and Safety legislation.

4.2 Site procedures shall be in accordance with the guidance set out in the Health and Safety Manual of the Standing Conference of Archaeological Unit Managers.

5. Project Design

5.1 Individual projects shall be designed in accordance with a brief provided by the County Archaeology Service. Before commencement of a project, Contractors shall submit a written project design for agreement with the County Council

6. Sub-Contracting

6.1 The names of proposed Sub-Contractors shall be included in the Project Design. All such Sub-Contractors shall be required to fulfil the General Conditions for Contractors.

7. Form of Contract

7.1 Before commencement of a project, the Contractor shall enter into a written agreement with the Client. It is recommended that such agreements should be in conformity with the IFA Model Contract for Archaeological Services or such other form as approved by the County Council.

8. Project Monitoring

8.1 The County Council may make arrangements for the monitoring of archaeological progress throughout the project.

8.2 Contractors shall provide the County Council with an outline programme of work. Any modification to this programme, due to unforeseen or other circumstances, shall be agreed with the Council. It is recommended that Project Designs include a contingency factor to allow for such circumstances.

9. Publication

9.1 Publication shall be in a form and to a timetable to be agreed on completion of the site archive and narrative. A copy of the site narrative and publication synopsis shall be lodged with the County Sites and Monuments Record.

9.2 Whilst acknowledging the need for confidentiality in some instances, a summary of the archaeological information resulting from a project should normally enter the public domain within six months of the completion of fieldwork.

10. Archive

10.1 Archive deposition shall take place according to a timetable to be agreed on completion of the site archive and narrative.

10.2 The site archive, including finds and environmental material, shall be conserved and stored according to the UKIC *Guidelines for the preparation of excavation archives for long-term storage* (1990) and the Museums and Galleries Commission *Standards in the Museum Care of Archaeological Collections* (1992), "Standards for the preparation and transfer of archaeological archives".

10.3 The archive shall be deposited as soon as is practicable in a Registered Museum fulfilling the HBMC/MGC Eligibility Criteria for the Grant Aided Storage of Excavation Archives. This will normally be the Lancashire County Museums Service (artefact and environmental collections and their documentation), or the County Record Office (site documentation).

10.4 Any material not to be archived, such as unstable material or items to be retained by the landowner, shall be fully analysed and reported upon.

10.5 A copy of the reproducible elements of the site archive should be deposited in the National Archaeological Record.

11. Acknowledgement

11.1 Lancashire County Council shall be acknowledged in all publicity - including media releases, site displays, exhibitions and publications - arising from the project, and any such publicity should be agreed in advance with the County Council.

All enquiries regarding these conditions should be addressed to:

The County Planning Officer
Lancashire County Council
Planning Department
PO Box 160
East Cliff County Offices
PRESTON
Lancashire
PR1 3EX

APPENDIX 2: PROJECT DESIGN

Oxford
Archaeology
North

June 2003

ROUGHLEE PUMPING STATION AND SEWER LANCASHIRE

ARCHAEOLOGICAL DESK-BASED ASSESSMENT AND WALKOVER SURVEY PROJECT DESIGN

Proposals
The following project design is offered in response to a request by United Utilities for an archaeological desk-based assessment and walkover survey in advance of construction of a new sewer and pumping station between Roughlee and Blacko, Lancashire.

1. INTRODUCTION

1.1 United Utilities (hereafter the client) is proposing to upgrade the pumping station and sewer situated between Roughlee and Blacko, Lancashire (SD 8466740769 to SD 8600941248). The proposed line of the sewer crosses the site of a medieval vaccary and the Lancashire County Archaeology Service (LCAS) has issued a brief for a programme of archaeological work to be undertaken.

1.2 This document sets out the methodology for the undertaking of an archaeological desk-based assessment and rapid visual inspection of the development site. It has been written to comply with a brief issued by the County Archaeology Service.

1.3 The pipeline will pass through an area where a number of earthworks have been recorded including the medieval vaccary. It was possible that the area was utilised or occupied in the prehistoric or Romano-British periods.

1.4 OA North has considerable experience of the assessment, evaluation and excavation of sites of all periods, having undertaken a great number of small and large-scale projects during the past 20 years. Watching briefs, evaluations and excavations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables.

1.4 OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. OA North is an Institute of Field Archaeologists (IFA) registered organisation, **registration number 17**, and all its members of staff operate subject to the IFA Code of Conduct.

2 OBJECTIVES

2.1
i) To determine the importance, extent, function or state of preservation of archaeological sites potentially affected by the scheme corridor;
ii) To provide an assessment on the impact of the scheme on the identified resource;
iii) To outline mitigating measures and further investigation as appropriate.

2.2 ***Desk-based assessment:*** a rapid desk-based assessment will be undertaken to place any findings that are made in to the context of known archaeological sites and/or artefact discovery sites in the immediate vicinity;

2.3 ***Walkover survey:*** the undertaking of a rapid and systematic visual inspection.

3 METHOD STATEMENT

3.1 DESK-BASED ASSESSMENT

3.1.1 The following will be undertaken as appropriate, depending on the availability of source material. The level of such work will be dictated by the time scale of the project. The emphasis of the search is to indicate potential archaeological remains rather than to relate a detailed history of the site. The study area will encompass a 500m corridor centred on the proposed development site.

3.1.2 ***Documentary and Cartographic Material:*** this work will comprise a rapid desk-based survey of the existing resource. It will include an appraisal of the data in the Lancashire SMR, appropriate sections of County histories, early maps (printed and manuscript), and such primary documentation (tithe and estate plans etc.) as may be reasonably available. Particular attention will be paid to field and place names recorded on early cartographic sources relating to estate and parish boundaries, field boundaries, woodlands and routes, as these often provide important evidence of archaeological activity and transformation of the historic landscape. All available published and unpublished documentary sources will also be examined and assessed. The Lancashire Record Office (Preston) will also be consulted, as will the relevant local studies library.

3.1.3 ***Aerial Photography:*** any relevant photographic material held by Lancashire County Council will also be studied. This may indicate the range and survival of archaeological and structural features in the designated area no longer visible at ground level.

3.1.4 ***Physical Environment:*** a rapid desk-based compilation of geological (both solid and drift), pedological, topographical and palaeoenvironmental information will be undertaken in order to set the archaeological features in context. Any engineering and/or borehole data relating to the site will also be examined.

3.2 WALKOVER SURVEY

3.2.1 ***Visual Inspection:*** following completion of the desk-based assessment a level I walkover survey (*Appendix* 1) will be undertaken to relate the existing landscape to research findings. This will encompass a 300m corridor centred on the pipeline, walked in a systematic fashion. Archaeological features identified within the landscape will be recorded using the relevant OA North pro forma, and the features accurately positioned with the use of either a GPS, which can achieve accuracies of +-0.1m with respect to the OS national grid, or by manual survey techniques which will tie in new features to features already shown on the relevant OS map.

3.3 ARCHIVE/REPORT

3.3.1 ***Archive:*** 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 project archive represents the collation and indexing of all the data and material gathered during the course of the project. The deposition of a properly ordered and indexed project archive in an appropriate repository is considered an essential and integral element of all archaeological projects by the IFA in that organisation's code of conduct. OA North conforms to best practice in the preparation of project archives for long-term storage. This archive will be provided in the English Heritage Centre for Archaeology format. OA North practice is to deposit the original record archive of projects (paper, magnetic and plastic media) with the appropriate County Record Office.

3.3.2 ***Report:*** one bound and one unbound copy of a written synthetic report will be submitted to the client within eight weeks of completion of fieldwork. Two copies of the report will be submitted to the Lancashire SMR (one paper and one digital). The report will include a copy of this project design, and indications of any agreed departure from that design. It will present, summarise, and interpret the results of the programme detailed above and will include a full index of archaeological features identified in the course of the project, together with appropriate illustrations, including detailed plans and sections indicating the locations of archaeological features. The report will also include a complete bibliography of sources from which data has been derived.

3.3.3 This report will identify areas of defined archaeology. An assessment and statement of the actual and potential archaeological significance of the identified archaeology within the broader context of regional and national archaeological priorities will be made. Illustrative material will include a location map, section drawings, and plans. This report will be in the same basic format as this project design.

3.3.4 ***Confidentiality:*** all internal reports to the client are designed as documents for the specific use of the Client, for the particular purpose as defined in the project brief and project design, and should be treated as such. They are not suitable for publication as academic documents or otherwise without amendment or revision.

4 ACCESS

4.1 It is assumed the client will arrange access to the site.

5 WORK TIMETABLE

5.1 The desk-based assessment is expected to take in the region of six days to complete.

5.2 The walkover survey will take five days days in the field.

5.3 The final report will follow within eight weeks of completion of the data collection, although a shorter deadline can be negotiated.

6 STAFFING

6.1 The project will be under the direct management of **Alison Plummer BSc (Hons)** (OA North senior project manager) to whom all correspondence should be addressed.

6.2 Present timetabling constraints preclude detailing at this stage exactly who will be undertaking the desk-based assessment element of the project.

7 INSURANCE

7.1 OA North has a professional indemnity cover to a value of £2,000,000; proof of which can be supplied as required.

APPENDIX 1: LEVEL 1 SURVEY

The survey outlined is based on survey levels defined by the Royal Commission on the Historical Monuments of England (RCHM(E)) and are in accordance with stages of evaluation defined by the Association of County Archaeological Curators (ACAO 1993).

Level 1 Survey (Assessment)
This is a rapid level of survey (Site Inspection in project design) typically undertaken alongside a desk top study as part of the site assessment (ACAO 1993, 14). It is an initial site inspection, which helps the local planning authority to consider fully the archaeological implications of a planning proposal and also serves as the basis for undertaking and planning further archaeological work on the site.

The Level 1 survey represents the minimum standard of record and is appropriate to exploratory survey aimed at the discovery of previously unrecorded sites. Its aim is to record the existence, location and extent of an archaeological site. The emphasis for the recording is on the written description, which should record type and period and would not normally exceed *c.* 50 words.

The location and extent of the sites is typically shown on 1:2,500 or 1:10,000 OS maps as requested by the client. The extent of a site is only defined for sites greater than 50m in size and smaller sites are shown with a cross.

There are two alternative techniques (Levels 1a and 1b), which provide different accuracy levels and have different applications:

Level 1a

The sites are located by manual distance measurement techniques (eg pacing) with respect to field boundaries and provide an accuracy of +- 10m (8 figure grid ref.). The loss of accuracy is offset by the slightly reduced costs; however, it is only appropriate for enclosed land, because of the paucity of usable topographic detail.

Level 1b

The sites are located using Global Positioning System (GPS) techniques, which uses electronic distance measurements along radio frequencies to satellites to enable a fix in Latitude and Longitude, which can be converted mathematically to Ordnance Survey National Grid. As long as differential GPS techniques are employed then it is possible to achieve accuracies of better than +- 1m. There is a slightly increased cost implication by comparison with Level 1a survey, but it can be undertaken in most terrains, even some woodland.

APPENDIX 3: SITE GAZETTEER

Site Pendle Water, Roughlee
Site number **01**
NGR 384913 440999
SMR No -
Site type Former Field Boundary
Period Post-medieval
Source Walkover Survey
Description
Former field wall now represented as a partially earthfast bank situated on the north side of Pendle Water.
Assessment
The site lies close to the northern edge of the proposed pipeline route and may be affected.

Site Pendle Water, Roughlee
Site number **02**
NGR 385240 441071
SMR No -
Site type Bank/Former Field Boundary
Period Post-medieval
Source Walkover Survey
Description
Sinuous bank running parallel to, and approximately 20m north of Pendle Water. Probably a interrupted continuation of Site 1.
Assessment
The site lies to the north of the proposed pipeline route and is unlikely to be affected.

Site name Pendle Water, Roughlee
Site number **03**
NGR 385277 441051
SMR No -
Site type Artificial mound
Period Modern
Source Walkover Survey
Description
A 2m x 2m, partially eroded mound situated on the northern bank of Pendle Water. Apparently created by the upcast from the installation of a modern plastic water main, visible as it crosses the stream.
Assessment
The site lies close to the proposed pipeline route and may be affected.

Site name Pendle Water, Roughlee
Site number **04**
NGR 385133 440949
SMR No -
Site type Former field boundary/bank
Period Post-medieval
Source Walkover Survey
Description
A low bank running east-west along the north side of a ditch.
Assessment
The site lies to the south of the proposed pipeline route and is unlikely to be affected.

Site name North Farm, Roughlee
Site number **05**
NGR 384751 440877
SMR No -
Site type Barn
Period Post-medieval
Source Walkover Survey
Description
A small barn situated close to the western end of the proposed pipeline. Lancashire barn style, coursed, squared sandstone and limestone build, quoins used for all corners, with a light grey cement bond. A wagon doorway was situated in the centre of the north elevation.
Assessment
The site lies to the north of the proposed pipeline route and is unlikely to be affected.

Site name Pendle Water, Roughlee
Site number **06**
NGR 384776 440942
SMR No -
Site type Trackway/ditch
Period Post-medieval
Source Walkover Survey
Description
A short, rutted former Trackway leads onto a shelf above Pendle Water, bounded on the north by low mounds and a shallow ditch.
Assessment
The site lies to the north of the proposed pipeline route and is unlikely to be affected.

Site name North of Pendle Water, Blacko
Site number **07**
NGR 385903 441126
SMR No -
Site type Building remains
Period Post-medieval/modern
Source Walkover Survey
Description
Concrete foundation measuring 2m x 3.1m situated on a narrow road leading from Gisburn Road to Water Meetings. Possibly site of a gatehouse as it is located before a pair of gateposts.
Assessment
The site lies to the south of the proposed pipeline route and is unlikely to be affected.

Site name Water Meetings, Blacko
Site number **08**
NGR 385788 441029
SMR No -
Site type Earthwork
Period Unknown
Source Walkover Survey
Description
Banked earthwork, roughly square, measuring approximately 50m x 40m, and 2m high with occasional exposed boulders.
Assessment
The site lies to the south of the proposed pipeline route and is unlikely to be affected.

Site name Water Meetings, Blacko
Site number **09**
NGR 385781 441064
SMR No -
Site type Trough
Period Post-medieval
Source Walkover Survey
Description
Stone and brick built trough with step.
Assessment
The site lies to the south of the proposed pipeline route and is unlikely to be affected.

Site name Water Meetings, Blacko
Site number **10**
NGR 385721 441151
SMR No -
Site type Earthwork
Period Unknown
Source Walkover Survey
Description
Shallow, circular depression situated at the top of a steep clough. Approximately 20m x 20m.
Assessment
The site lies to the south to of the proposed pipeline route and is unlikely to be affected.

Site name Water Meetings, Blacko
Site number **11**
NGR 385709 441076
SMR No -
Site type Earthwork
Period Unknown
Source Walkover Survey
Description
Low semi-circular earthwork and wide shallow linear gully.
Assessment
The site lies to the south of the proposed pipeline route and is unlikely to be affected.

Site name Pendle Water, Roughlee
Site number **12**
NGR 385205 441012
SMR No -
Site type Artificial mound
Period Post-medieval/Modern
Source Walkover Survey
Description
A 4m x 4m, partially eroded mound situated on the southern bank of Pendle Water. Apparently created by the upcast from the installation of a modern plastic water main, visible as it crosses the stream.
Assessment
The site lies to the south of the pipeline route and is unlikely to be affected.

Site name Pendle Water, Roughlee
Site number **13**
NGR 385310 440999
SMR No -
Site type Unknown. Possibly structural.
Period Unknown
Source Walkover Survey
Description
Group of exposed boulders forming a 2m x 2.5m rectangle. At least 6 aligned boulders, approximately 0.60m diameter. Many more boulders strewn around vicinity.
Assessment
The site lies to the south of the proposed pipeline route and is unlikely to be affected.

Site name Great Stonedge Farm, Gisburn Road, Blacko
Site number **14**
NGR 386329 441156
SMR No 17402
Site type Barn
Period Post-medieval
Source SMR
Description
Aisled barn. 17th century or earlier, with 19th and 20th century alterations. Course squared rubble sandstone, with quoins and a stone slated roof covering, laid to diminishing courses. Aisled timber-framed interior, with aisle posts carrying king post russes.
Assessment
The site lies to the east of the proposed pipeline route is unlikely to be affected.

Site name Blacko Water, Blacko
Site number **15**
NGR 385549 441159
SMR No 3278
Site type Earthworks
Period Unknown
Source SMR
Description
The aerial photograph shows a possible circular feature or house platform.
Assessment
The site lies to the north of the proposed pipeline route and is unlikely to be affected.

Site name Hudderston Wood, Blacko
Site number **16**
NGR 385694 440899
SMR No 5843
Site type Well
Period Medieval/post-medieval
Source SMR
Description
A well is marked on the first edition of the OS first edition 1:10560 map, but not on the current sheet.
Assessment
The site lies within the proposed pipeline route and is likely to be affected.

Site name Bank Ends
Site number **17**
NGR 384574 441308
SMR No 5847
Site type Quarry
Period Post-medieval
Source SMR
Description
Freestone quarry marked on the OS first edition 1:10560 map, but not on the current sheet.
Assessment
The site lies to the north of the proposed pipeline route and is unlikely to be affected.

Site name Roughlee
Site number **18**
NGR 384604 440802
SMR No 5850
Site type Wells
Period Post-medieval
Source SMR,
Description
Two wells are marked on the OS first edition 1:10560 map, but not on the current sheet.
Assessment
The site lies to the southwest of the proposed pipeline route and is unlikely to be affected.

Site name Blacko Water, Blacko. Hudderston Wood, Blacko
Site number **19**
NGR 385550 441160 / 385720 440900
SMR No 11219
Site type Earthworks
Period Unknown. Medieval/post-medieval
Source SMR
Description
Earthworks noted on aerial photography.
Assessment
The sites lie close to the the proposed pipeline and may be affected.

Site name North Farm
Site number **20**
NGR 384793 440922
SMR No 11220
Site type Field Boundary, Quarry, Gravel Pit
Period Medieval/Post-medieval
Source SMR
Description
Various linear features and areas of disturbance seen on the aerial photographs are shown by OS first edition map as field boundaries, quarries and woodland
Assessment
The site to the south of the proposed pipeline route and is unlikely to be affected.

Site name Pendle Water
Site number **21**
NGR 386088 440904
SMR No 11221
Site type Field Boundary
Period Medieval/Post-medieval
Source SMR
Description
Relict field boundary observed on an aerial photograph.
Assessment
The site lies to the south of the proposed pipeline and is unlikely to be affected.

Site name Water Meetings, Blacko
Site number **22**
NGR 385499 441101
SMR No 18836
Site type Earthworks
Period Unknown
Source SMR
Description
Earthworks, conjectured vaccary.
Assessment
The site lies within the proposed pipeline route and is likely to be affected.

Site name Water Meetings, Blacko
Site number **23**
NGR 385801 440899
SMR No 18850
Site type Bloomery
Period Post-medieval
Source SMR
Description
Iron Bloomery, part excavated in June 1986. The earliest potsherd was of the late 17th century.
Assessment
The site lies to the south of the proposed pipeline route and is unlikely to be affected.

Site name Spring Field Mill, Blacko
Site number **24**
NGR 385669 441654
SMR No 21972
Site type Weaving Mill
Period Post-medieval
Source SMR
Description
Spring Field Mill was built as a steam-powered cotton-weaving mill between 1844 and 1891, probably around 1850. Originally powered by a beam engine, a horizontal engine was later installed in a second engine house built around the first. The mill was extended in two phases, reaching its fullest extent by 1910. It is built of coursed and random stone rubble and originally had a reservoir and gasometer to the west. In 1999 it was in use as a rag warehouse.
Assessment
The site lies to the north of the proposed pipeline route and is unlikely to be affected.

Site name Little Stone Edge, Blacko
Site number **25**
NGR 386083 441156
SMR No -
Site type Quarry
Period Post-medieval
Source OS first edition 6'' Sheet XLVIII. OS first edition 25'' Sheet XLVIII.15
Description
The 1848 map shows the site as a "Sandstone Quarry (Flag)". The 1893 map shows the site of an "old quarry".
Assessment
The site lies to the south-east of the proposed pipeline route and is unlikely to be affected.

Site name Little Stone Edge, Blacko
Site number **26**
NGR 386085 441111
SMR No -
Site type Quarry
Period Post-medieval
Source OS first edition 25'' Sheet XLVIII.15
Description
The 1893 map shows the site as a "quarry".
Assessment
The site lies to the south-east of the proposed pipeline route, and is unlikely to be affected.
