



Former East Lancashire Paper Mill, Radcliffe

Archaeological Evaluation

Written Scheme of Investigation

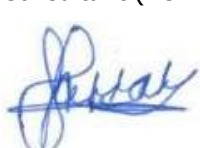
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Homes England and Bury Council
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1. Introduction

- 1.1 A scheme of archaeological evaluation is required to identify and record potential remains of archaeological and historical significance, in advance of development at the former East Lancashire Paper Mill (ELPM), Radcliffe, Greater Manchester. The planning application is for up to 400 dwellings and associated infrastructure, alongside the relocation of the cricket pitch, including a pavilion, provision of open space and sports facilities and demolition of existing building and structures.
- 1.2 The evaluation has been requested by Greater Manchester Archaeological Advisory Service (GMAAS) in advance of determination of the planning application 62969 in accordance with the National Planning Policy Framework, Paragraph 189.
- 1.3 This Written Scheme of Investigation (WSI) has been prepared by WYG on behalf of Homes England and Bury Council. This document briefly summarises the archaeological and historic significance of the development site. It then sets out a programme for archaeological evaluation to further establish the presence or absence of any surviving archaeological remains, and to facilitate their recording ahead of construction. This document relates to the above condition only; any subsequent phases will be dealt with under future WSIs, which will use the results of this evaluation to inform their scope. All archaeological evaluation shall be completed by a suitably qualified archaeological contractor.

Site Description

- 1.4 The application site is located approximately 1km to the east of Radcliffe town centre and covers approximately 22.9ha (Figure 1). Of the 22.9ha, Homes England own 14.21ha and Bury Council own 8.24ha. It is centred on grid reference SD 79295 07481 and is predominantly characterised as mostly vacant brownfield land ranging from approximately 65m above Ordnance Datum (aOD) to 76m aOD. A site location plan can be seen in Appendix A.
- 1.5 The northern boundary is defined by the rear of residential properties lining the A6053, while the south-east boundary is not fenced. The south and south-west boundaries are formed by the River Irwell. The western boundary is defined by Brook Street, Rectory Lane and Howard Street. The Site is situated to the west of the historic core of Radcliffe, which contains Radcliffe Tower, a Scheduled Monument (1014721) and Grade I listed building (1309271) and the Grade I listed building of the Church of Saint Mary and Saint Bartholomew (1163125). The Site boundary crosses the south-west corner of the scheduled area of Radcliffe Tower (see Appendix A, Figure 2). The south-east part of the site is within the designated Green Belt and is part of an area known as Tower Farm. The area

to the south of the site is situated within a loop of the River Irwell, known as the 'Radcliffe Ees'. The Site was formerly occupied by the East Lancashire Paper Mill which was established in 1860, closed in 2001, and the majority of the complex was demolished in 2005. The Site has lain vacant ever since and much of the area within the Site boundary has become overgrown. There was a combined heat and power site in the south-east corner, also demolished in 2005. Leisure facilities, including a cricket pitch and clubhouse, that were once associated with the paper mill, remain in situ. Parts of the site also housed several reservoirs, that were used in the paper-making process. Only a single reservoir remains, that is to be retained, the rest having been infilled. Most of these are visible as shallow depressions that collect water during heavy rain. There are two culverts, Hutchinson's Goit and Bealey's Goit, that bisect the site. Most of the Site is currently vacant brownfield land frequented by dog walkers, although there are two short public rights of way (PRoW) within the Site boundary: the first crosses the south-west corner from Rectory Lane to a footbridge (destroyed in floods in 2015) over the River Irwell; and the second runs from the western spur of Church Street to Croft Lane.

- 1.6 The solid geology of the majority of the Site consists of the Pennine Middle Coal Measures, comprising mudstone, siltstone and sandstone. The western part of the Site comprises Nob End Rock consisting of sandstone (NERC 2019). Superficial deposits comprise glaciofluvial deposits and alluvium consisting of clay, silt, sand and gravel. The soils are classified as slowly permeable seasonally wet acid loamy and clayey soils (Cranfield University 2019).

2. Archaeological Background

- 2.1 The archaeological and historical background of the site was assessed in a desk-based assessment in 2004 undertaken by Oxford Archaeology (OA) North and re-evaluated by WYG in 2018. The details of which are summarised below.
- 2.2 In 2004, OA North compiled a desk-based assessment of the site occupied by the ELPM and identified four assets within the area of the former paper-manufacturing complex (OA North 2004): the projected route of the Roman road between Manchester and Ribchester; a 19th century calico-printing works; a bleach works; and a steam powered cotton-spinning mill complex.
- 2.3 Parts of the of the scheduled monument area of Radcliffe Tower (GMHER354.1.0, SM1014721) fall within the Site boundary. The upstanding remains of the Tower and Grade I Listed Building (LB1309721) are outside of the Site boundary.
- 2.4 There are no Prehistoric features within the site, although several have been found within the area of Radcliffe. Seasonal occupation camps from the Palaeolithic and Mesolithic periods, alongside

assemblages of artefacts, have been recovered from a camp on the Radcliffe Ees to the south of the Site. Most sites were lost to commercial aggregate extraction, however intermittent excavations between 1949-1961 revealed finds dating to the Mesolithic, Neolithic, Bronze Age and Roman periods. In 1951, a disc barrow was revealed behind the cemetery in Radcliffe, although no inhumations or cremations were found.

- 2.5 Evidence for Roman activity in Radcliffe is scant but Margary suggested that a Roman road crossed the Irwell at some point '150 yards to the west of Radcliffe Tower' (OA North 2005). Two excavations to the north of the Site along the supposed route of the road revealed no remains. The remains of the Roman road at Starling, to the north of Radcliffe, were found to be approximately 7m wide plus drainage ditches. Several small sherds of pottery were recovered from the Ees.
- 2.6 Radcliffe is recorded in the Domesday Book as *Radeclive*, a manor held by Edward the Confessor prior to the Norman Conquest and was part of the Salford Hundred. The main landholder at this time was Roger de Poitou and Radcliffe remained part of the crown until, during the reign of Stephen, it was given to Ranulf, Earl of Chester.
- 2.7 The textile industry in the Bury area was dominated in the late 18th to early 19th century by a small number of family firms, who were mainly responsible for the trade of traditional woollen manufacture move to cotton (CfAA 2017, 11). As a satellite manufacturing town of Bury, Radcliffe developed as an industrial centre during the early 19th century due to its proximity to Bury and Manchester and its transport links, however in contrast to neighbouring towns, Radcliffe experienced a late wave of expansion, and did not attain its peak capacity until 1914. The woollen industry gave way to cotton manufacturing during the later 18th century and in 1773, a new calico-printing works was established by Robert Peel. Numerous references to Radcliffe mention several industries taking place within the town including cotton bleaching; calico-printing; weaving; and spinning.
- 2.8 Papermaking had not featured in Radcliffe until the establishment of the East Lancashire Paper Mill (ELPM) in 1860 to the north of the calico-printing works on a green-field site, having been built on the site of a former calico printing works and barracks. The layout of the mill is depicted on an estate plan of 1860, and it initially concentrated upon the production of newsprint and lower grade paper. Calico-printing appears to have ceased by the late 1850s.
- 2.9 The East Lancashire Paper Mill also contained the bleachworks depicted on the 1860 estate plan and subsequent Ordnance Survey maps, with the valuation list for Radcliffe in 1864 documents stating there were four bleachworks buildings (OA North 2004, 10).

- 2.10 In 1904, the large reservoir was constructed. Recreation facilities were provided as the paper mill grew more prosperous, including tennis courts; a bowling green; and a cricket field and pavilion. During the 1980s and 1990s, despite job cuts, the mill continued to expand and in 1994, Wilton Mill cotton spinning mill (established in 1907) was demolished to allow for expansion. The approximate locations of the previous buildings and reservoirs within the site are depicted on Figure 3 and 4; Appendix C.

Previous Investigations

- 2.11 Following the 2004 desk-based assessment, OA North undertook an evaluation in conjunction with a programme of geo-technical test pitting, which was subject to archaeological monitoring (OA North 2005). The evaluation investigated the projected line of the Roman road, a former bleach works, a former calico-printing works, and a former steam powered cotton mill (Wilton Mill). None of the trenches produced any evidence for the putative Roman road, suggesting it may deviate from its projected route across the Site. A single trench was placed across the former bleach works, revealing extensive and well-preserved structural remains of the former works immediately below the surface, suggesting considerable remains survive within the area adjacent to the trench. Archaeological monitoring of the geo-technical test pitting revealed the area of the former calico-printing works to have been heavily disturbed during the expansion of the paper mill during the late 19th and early 20th centuries, although brick structures, possibly representing water-management features were revealed at depth. The evaluation of this area was deferred until future remediation works reduced the ground level in this area to facilitate safe access to any buried archaeological structures. Finally, it was proposed to undertake the evaluation of the area around Wilton Mill once modern concrete surfaces had been removed as part of remediation works. The locations of the previous archaeological investigations across the site can be found in Appendix C, Figure 5.
- 2.12 Across 25th, 26th September 2018, and 3rd to 5th October 2018, Oxford Archaeology North conducted archaeological monitoring of geo-technical trial pits, although nothing of historical interest was noted in any excavation during the investigation (WYG 2019). The locations of the trial pits can be found in Appendix 1 under the drawing titled: Exploratory Hole Location Plan (WYG 2017 and 2018 GI). They are also shown on Figure 5; Appendix C. A copy of the report can be made available for the appropriate parties if required.
- 2.13 The site was included within the Cultural Heritage Desk-Based Assessment (DBA) in relation to the Radcliffe and Redvales flood risk management scheme (FRMS), undertaken by Mott McDonald (2018). The FRMS identified two designated assets: St Mary and St Bartholomew's Church and Radcliffe

Tower, that may be potentially affected by the FRMS, alongside three non-designated assets of Hardy's Bridge, Hutchinson's Goit and Bealey's Goit. The assessment reviewed the setting of the designated assets, determining that there would be an impact to both St Mary and St Bartholomew church and Radcliffe Tower. As for the non-designated assets, the assessment determined the proposed works would involve alteration or full removal, therefore meaning a total loss of the assets.

- 2.14 For archaeological potential, the FRMS DBA determined that the potential for Prehistoric and Roman remains is considered to be low based on the evidence available. At Radcliffe, there is a known settlement in the early medieval and medieval periods, suggesting a wider pattern of land management during these periods. With settlement most likely centred on Radcliffe Tower and St Mary and St Bartholomew's Church, the potential is considered to be moderate (Mott McDonald 2018).

Radcliffe Tower Investigations

- 2.15 Several archaeological investigations have taken place at the Scheduled Ancient Monument (SM 1014721) at the western side of the proposed site boundary. This monument includes a stone-built tower house constructed in the medieval period, together with the buried remains of a timber hall constructed at the same time as the tower and lying to the west of the standing building. The Tower is also a Grade I Listed Building (LB 1309271).
- 2.16 Excavations in 1961 by Mr Shawcross of the Radcliffe Historical Society inside the north-eastern corner of the tower failed to reveal any medieval archaeology beyond the wall foundations, finding only the base of a medieval storage jar. In 1979-80, five trenches were excavated by the Bury Archaeology Group immediately west of the Tower revealed the remains of a timber-framed wing and stone wall along with a possible ditch.
- 2.17 Detailed recordings of the ruins were made in 1995 as part of Bury Council's conservation of the structure.
- 2.18 In 2007 a small-scale evaluation was undertaken by Oxford Archaeology North. Three evaluation trenches were excavated along the quarry haul road which crossed the site of the medieval hall. Medieval and post-medieval remains associated with the hall were uncovered, including cobbled surfaces, a hearth, stone and clay foundations of the hall, and a stone culvert. These deposits were present at c. 1m below the surface.

- 2.19 Between 2012 and 2015 detailed investigation of the tower, the hall and its landscape was undertaken, led by archaeologists from the Centre for Applied Archaeology at the University of Salford, supported by a Heritage Lottery Grant to the Radcliffe Heritage Project, and Bury Council. The investigations were designed to understand the whole history of the site, from the medieval foundation of the hall, its ruin, later use as a farm, and the encroachment from industry. The work included trenches within the tower and three areas of excavations, over the medieval hall west of the tower, and at Church Row and Tower Street worker's houses.
- 2.20 The tower and hall were found to have been built on a shallow hillside, meaning that whilst some of the later activity at the site was destroyed, other parts were buried. Most of the medieval floor surfaces had been removed by later barns and farmyards, though some of the stone foundations, upon which the wooden walls of the hall stood were left, and a 16th or 17th century inglenook fireplace as found inserted into the western end of the hall.
- 2.21 The western wing of Radcliffe Hall was best preserved. Houses along Tower Street had been built on the stone foundations of this part of the hall. The medieval archaeology here comprised a complex sequence of stone floors and drains built in quick succession. The area was also used by as a rubbish dump in the 16th and 17th century, overlain by a 17th century building.
- 2.22 An 18th to mid-20th century farmstead was located to the north of the tower, and south of Church Street. One of the buildings may have had 17th century origins and appeared to overlay an earlier, medieval sunken routeway (GMAAS 2016, 25-30).
- 2.23 Part of the proposed development would see an access road which may intrude upon the south-western edge of the Scheduled Monument. Therefore, a small excavation where impacts may be will be undertaken prior to this, as described in Section 4.

Cross Mill (3895.1.0)

- 2.24 In the northern corner of the site, at the junction of Cross Lane and Bury Street is Cross Mill (3895.1.0). This former cotton weaving mill is recorded on historic maps as a complex with a chimney in its south-east corner. The original buildings no longer survive, and the site comprises; a single storey late 19th century brick building; a late 19th century single-storey, multiphase building; a perimeter wall which was possibly once a former side wall of a weaving shed.
- 2.25 There is considered to be some below ground archaeological potential and elements of the earlier mill buildings may survive in part. The mill was part of the Greater Manchester's Historic Textile Mills

Buildings at Risk Assessment Report (2017), with the condition being recorded as Bad. The building itself has since been demolished as of May 2019.

3. Aims and Objectives

- 3.1 The overall objective of the evaluation is to assess the sites archaeological resource and record the presence/absence, location, extent, date, character and preservation of any remains present. The result of the evaluation will help to establish the potential impacts of the development scheme upon any archaeological finds and features present. This work will be undertaken in accordance with the Chartered Institute for Archaeologists Standards and Guidance for Archaeological Field Evaluation (2014).

4. Locations

- 4.1 A trench location plan can be found in Appendix B, Figure 6. The trench locations have been selected based upon known and potential archaeological remains within the site.
- 4.2 Four trenches will be located across the projected line of the Roman Road that intersects the site to confirm the presence of the Roman Road. Four trenches will be located within the remains of the demolished Witton Mill to record the extent of the mill. Five trenches will be located within the demolished area of Cross Mill (3895.1.0).
- 4.4 The area of full excavation will be located within the site that will be completed in a separate phase, consisting of the full excavation and recording of the bleach works, using the 1860 estate map as a guide (Plan of and Estate Belonging to Messers Hutchinson in the Parish of Radcliffe, 1860), or of the remains of Cross Mill (dependant on the results of the initial trenching of the area of Cross Mill). However, this may be subject to change.
- 4.5 The full details of the evaluation will be clarified between the contractor and GMAAS.

5. Methodology

- 5.1 The works include a single phase of evaluation and comprises the excavation of the confirmed location of fourteen trenches. A trench plan can be seen in Appendix B, Figure 6. This has taken into account the areas of made ground in the form of reservoirs, and the areas of past investigations.

- 5.2 The evaluation will comprise the excavation of nine 40m x 2m trenches, and five 10m x 2m trenches (located at Cross Mill). A contingency of 100m² will be held in reserve should it be required to further investigate identified features, following agreement from all parties. The trenches have been located in order to investigate potential and known archaeological remains.
- 5.3 Total area for archaeological evaluation in this phase of works (22.9ha) 22,900m². Total area of trenching 820m². Contingency, 100m².
- 5.4 The archaeological contractor will be responsible for identifying the locations of evaluation trenches in accordance with this Written Scheme of Investigation and set out on using a dGPS. The final locations of the trenches are anticipated to be confirmed on site with factors such as the location of previously unknown services and ground conditions influencing the location of evaluation trenches.

Excavation and recording

- 5.5 The archaeological contractor will be responsible for the fencing and signage of open trenches and spoil heaps during the project. The archaeological contractor must provide or ensure there are suitable welfare facilities available.
- 5.6 The archaeological contractor shall be responsible, in advance of any ground works, for identifying services (both buried and overhead), including obtaining service plans and for taking all necessary precautions to avoid damage to these services. Service plans already obtained by the client will be provided where possible. Service location plans should not be taken as exhaustive and appropriate precautions should be adopted with regard to potentially unmapped services. The trenches must be scanned by an archaeologist trained in the use of a cable avoidance tool prior to excavation commencing.
- 5.7 Overburden and subsoils will be stripped mechanically using an appropriately sized excavator fitted with a toothless grading bucket. All machining will stop at the first significant archaeological horizon, or natural substrate where no archaeology is present. The topsoil and subsoil will be separated and stockpiled at a safe working distance from the trench sides. Where there are compacted modern, made ground deposits which cannot be removed with a flat-bladed bucket, a toothed bucket may be used, with excavation reverting to a flat-bladed bucket as soon as practicable.
- 5.8 The archaeological contractor will be required to shore or step excavation areas as appropriate to allow the aims of the evaluation to be achieved without compromising health and safety. The archaeological contractor may be required to use a water pump in the event of flooded trenches.

- 5.9 A sufficient sample of any archaeological features and deposits revealed will be hand excavated in an archaeologically controlled and stratigraphic manner, in order to establish their extent, form, date, function and relationship to other features. The complete excavation of features is not regarded as necessary; a sufficient sample should be investigated to understand the full stratigraphic sequence of each feature, down to naturally occurring deposits.
- 5.10 All archaeological remains will be hand excavated in an archaeologically controlled and stratigraphic manner sufficient to meet the aims and objectives of the project. The complete stratigraphic sequence, down to naturally occurring deposits will be excavated and the work will investigate and record all inter-relationships between features. It is possible that structures related to later mining will be present within the site. These will be evaluated, recorded in full and then removed in order to investigate the remainder of the sequence down to natural deposits. The contractor should make provision for the use of shoring/stepping to accomplish this if necessary. All trenches are to be the stated dimensions at their base. The following strategy will be employed:
- Linear boundary features: a minimum sample of 20% of each linear boundary feature such as ditches and trackways. Each section should be at least 1m wide and, where possible, sections will be located and recorded adjacent to the trench edge. All intersections will be investigated to determine the relationship(s) between the component features. All termini will be investigated.
 - Other linear and discrete features: all stake-holes, post-holes, pits, ring ditches, kilns, and other structural/funerary/industrial features will be 50% excavated in the first instance, recorded in section, and then fully excavated. All intersections will be investigated to determine the relationship(s) between the component features. Where possible, sections will be located and recorded adjacent to the trench edge.
 - Built structures: walls, floors etc. will be excavated sufficient to establish their form, phasing, construction techniques. All intersections will be investigated to determine the relationship(s) between the component features.
- 5.11 Full and proper records (written, graphic, electronic and photographic) will be made for all contexts using pro forma record sheets/forms as applicable giving details of their location, composition, dimensions, shape, any relationships, finds and samples. The records will be cross reference to other elements of the record and any other relevant contexts.
- 5.12 All finds recovered will be recorded by context. Significant finds should be recorded by context and include a spot height. All retained artefacts shall be removed from site for specialist examination and analysis and, if deemed necessary, conservation. Cleaning of objects may take place on site, or upon

removal as is deemed appropriate. All recording, cleaning, storage and conservation of finds will be in accordance with the Chartered Institute for Archaeologists *Standards and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials* (2014) and Watkinson and Neal (1997). All environmental or other samples taken will be recorded by context. Details of the samples will be included in the context records and drawings as appropriate.

- 5.13 All excavated features and deposits will be photographed using a digital camera with a minimum of 10-megapixel resolution. All photographs will contain appropriate scales.
- 5.14 An overall plan of the trench locations will be produced with the trench location tied to Ordnance Survey National Grid and datum. All features will be recorded on at least one plan, normally at 1:20 scale and at least one section drawing of a feature, normally at 1:10 scale (1:20 if necessary due to size). All drawings are to include co-ordinate data, as is necessary for the accurate location of the area planned or the section drawn and spot-heights related to the Ordnance Survey Datum using a dGPS or Total Station as appropriate. The National Grid tie in information will be included with the site archive to ensure that the trenches can be relocated.
- 5.15 Backfilling of evaluation trenches will be undertaken on completion of the works with excavated material. Prior to backfilling of the evaluation works they will either be inspected by GMAAS or confirmation will be received from them that they can be backfilled without inspection.

Human remains

- 5.16 If human remains are encountered (skeletal or cremated) they should be left *in situ*, unless it is felt that this would compromise their future survival. The excavation and lifting of human remains, if necessary, should be undertaken under licence from the Ministry of Justice and comply with the requirements of the 1857 Burial Act.

Environmental remains

- 5.17 Deposits which are identified as having the potential for the survival of biological remains should be sampled. Bulk samples must be taken from all securely stratified deposits using a strategy which combines systematic and judgement sampling, but which also follows the methodologies outlined in the Historic England (previously English Heritage) guidance (2011) 'Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (Second Edition)'.

- 5.18 Samples for specialist environmental analysis and scientific dating (soil profiles, archaeomagnetic dating, etc.) should be taken if suitable material is encountered during the excavation and provision should be made for an appropriate specialist(s) to visit the site, take samples and discuss the sampling strategy, if necessary.

Treasure

- 5.19 Artefacts classified as Treasure under the Treasure Act (1996) will be reported in accordance with the requirements of the Act. A Treasure Receipt (obtainable from either the Finds Liaison Officer or the DCMS website) must be completed and a report submitted to the Coroner's Office and the FLO within 14 days of understanding the find is Treasure.

6. Post-excavation, Reporting and Archiving

Post-excavation

- 6.1 Upon completion of fieldwork, all retained artefacts will be assessed and recorded using pro forma recording sheets, by suitably qualified and experienced staff. Initial artefact dating will be integrated with the site matrix (finds of 19th and 20th century date should be noted, quantified and summarily described, but can then be discarded if appropriate). The potential for further analysis of artefacts will be assessed.
- 6.2 Finds critical for dating and interpretation should be illustrated. Reporting on ceramic artefacts and pottery should follow the guidance given in 'A Standard for Pottery Studies in Archaeology' (2016) and endorsed by the Prehistoric Ceramics Research Group; the Study Group for Roman Pottery & the Medieval Pottery Research Group.
- 6.3 All retained environmental samples will be processed by suitably experienced and qualified staff and recorded using pro forma recording sheets, to identify at this stage the presence or absence of environmental remains and the potential for further analysis.

Reporting

- 6.4 A preliminary report on the evaluation excavation shall be required within one week of the completion of the fieldwork. This will comprise a written summary of any key findings of the evaluation exercise and initial interpretation of the any remains encountered and their potential significance. This report will be supported by drawings and photographs as necessary.

- 6.5 A full report on the evaluation excavation shall be required within four weeks of the completion of the fieldwork, unless there are significantly complex remains. The report shall be prepared in accordance with Chartered Institute for Archaeologists guidelines. As a minimum the report shall contain the following information:
- A title page, with the name of the project, the name of the contractor and author(s) of the report, the title of the report and date of the report and grid reference;
 - A non-technical summary of the findings;
 - A description of and a background to the nature of the works, including dates of fieldwork;
 - A brief description of the site location (including grid references) and any previously known archaeology in the survey area;
 - Description of the methodology employed and explanation of any agreed variations to the brief and justification for any analyses not undertaken;
 - The results of the evaluation excavations identified by trench including post-excavation analysis of the stratigraphic and other written, drawn and photographic records;
 - A catalogue and brief post-excavation analysis of each category of artefact recovered during excavation and the results of biological samples, including the potential for further analysis;
 - Discussion of the evaluation excavation results including site phasing and interpretation and discussion of the results within the local and regional context;
 - A summary of the contents of the project archive and its location;
 - References and bibliography of all sources used; and
 - An appendix containing a list and summary descriptions of all contexts recorded.
- 6.6 The report will be supported by an overall plan of any archaeological remains, indicating the location of archaeological features and individual plans of features or groups as excavated, with supporting section drawings where appropriate.
- 6.7 The report will be supported by general site photographs to place the area and any archaeological features encountered within context. The report will also include colour photographs of any identified archaeological features and artefacts.
- 6.8 The post-excavation report will outline the archaeological significance of any deposits identified. 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. Once any further phases of archaeological evaluation, excavation or monitoring have been completed, all post-excavation data will be drawn together and a more complete, single synthesis report will be produced for works across the entire site.

6.9 Copies of the report should be produced and submitted to:

- The commissioning body, WYG (digital only);
- The GMAAS and Greater Manchester HER (digital only - including all digital data generated: CAD files, GIS files, geophysics results, photographs etc.);
- The museum accepting the archive; and
- OASIS (digital).

Archive deposition

- 6.10 The archaeological contractor should liaise with Bury Museum to establish the detailed requirements of the museum and discuss archive transfer in advance of fieldwork commencing. It is recommended that the specific requirements of the museum are confirmed with the curator prior to deposition. Contact details are as follows:
- 6.11 The archive will be prepared in accordance with the guidelines published in Brown (2007), *Archaeological Archives a Guide to Best Practice in Creation, Compilation, Transfer and Curation*, CIfA (2014) *Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives*, Historic England's Management of Archaeological Projects (2015), and should adhere to the requirements of the receiving museum. Any digital data arising from the project should also be undertaken in a manner consistent with professional standards and guidance (Richards and Robinson, 2000).
- 6.12 The archaeological contractor should also liaise with the Sites and Monuments Record Officer, to make arrangements for digital information arising from the project to be submitted to the Greater Manchester HER for HER enhancement purposes. This should include the submission of all digital data generated, which may include but may not be limited to: CAD files, GIS files, geophysics results and photographs. All digitised survey information should be geo-referenced to the OS and should also be provided to the client.

Publication

- 6.13 If the archaeological fieldwork produces particularly significant results that would merit publication, allowance should be made for the provision and publication of a summary of the results in a local or national journal, as appropriate and subject to the agreement of the client.

Public Participation and Engagement

- 6.14 Note if there are any possibilities to allow for public participation and engagement, the chosen sub-consultant will be encouraged to discuss with GMAAS the potential and possibilities for public participation. This will have to be discussed and agreed with the client and is more likely to be a possibility during mitigation. An example could be information boards on fencing during urban evaluation that explains the works to the public, or publication of the findings of the excavation and archaeological works. The chosen sub-consultant should also explore the opportunity for guided tours for the public to view the remains of the excavation.

7. Health and Safety

- 7.1 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.

8. Monitoring

- 8.1 A programme for monitoring the fieldwork will be agreed in advance of the commencement of fieldwork. GMAAS will receive as much notice as possible of the intention to start fieldwork confirmed in writing.
- 8.2 The representatives of GMAAS and WYG will be afforded access to the site at any reasonable time. The 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 open areas, any finds made that are still on site, and any records not in immediate use.

9. Copyright

- 9.1 Under the Copyright, Designs and Patents Act 1988, all material and supporting data generated by this contract shall be passed to the client unless and except where such material or data is existing

material or data acquired from a third party. In the latter case, the contractor will supply details of data sources, a description of what the data shows, the terms under which the material or data was acquired and where possible a contact name and address.

- 9.2 Copyright in the documentation prepared by the archaeological contractor and specialist sub-contractors should be the subject of additional licences in favour of the repository accepting the archive and GMAAS to use such documentation for their statutory and educational functions, and to provide copies to third parties as an incidental to such functions.
- 9.3 Under the Environmental Information Regulations 2005 (EIR), information submitted to the HER becomes publicly accessible, except where disclosure might lead to environmental damage, and reports cannot be embargoed as 'confidential' or 'commercially sensitive'.
- 9.4 Requests for sensitive information are subject to a public interest test, and if this is met, then the information has to be disclosed. The archaeological contractor should inform the client of EIR requirements and ensure that any information disclosure issues are resolved before completion of the work. Intellectual property rights are not affected by the EIR.

10. Resolution of Issues

- 10.1 In the event of issues arising regarding the implementation of this specification or the scope of the evaluation excavation, these will be resolved in the first instance by contacting WYG who will facilitate a resolution through contact with the key stakeholders. Should the issue not be resolved remotely, a meeting will be held between key stakeholders to facilitate discussion of the issues and identification of a suitable strategy to be agreed by all parties.

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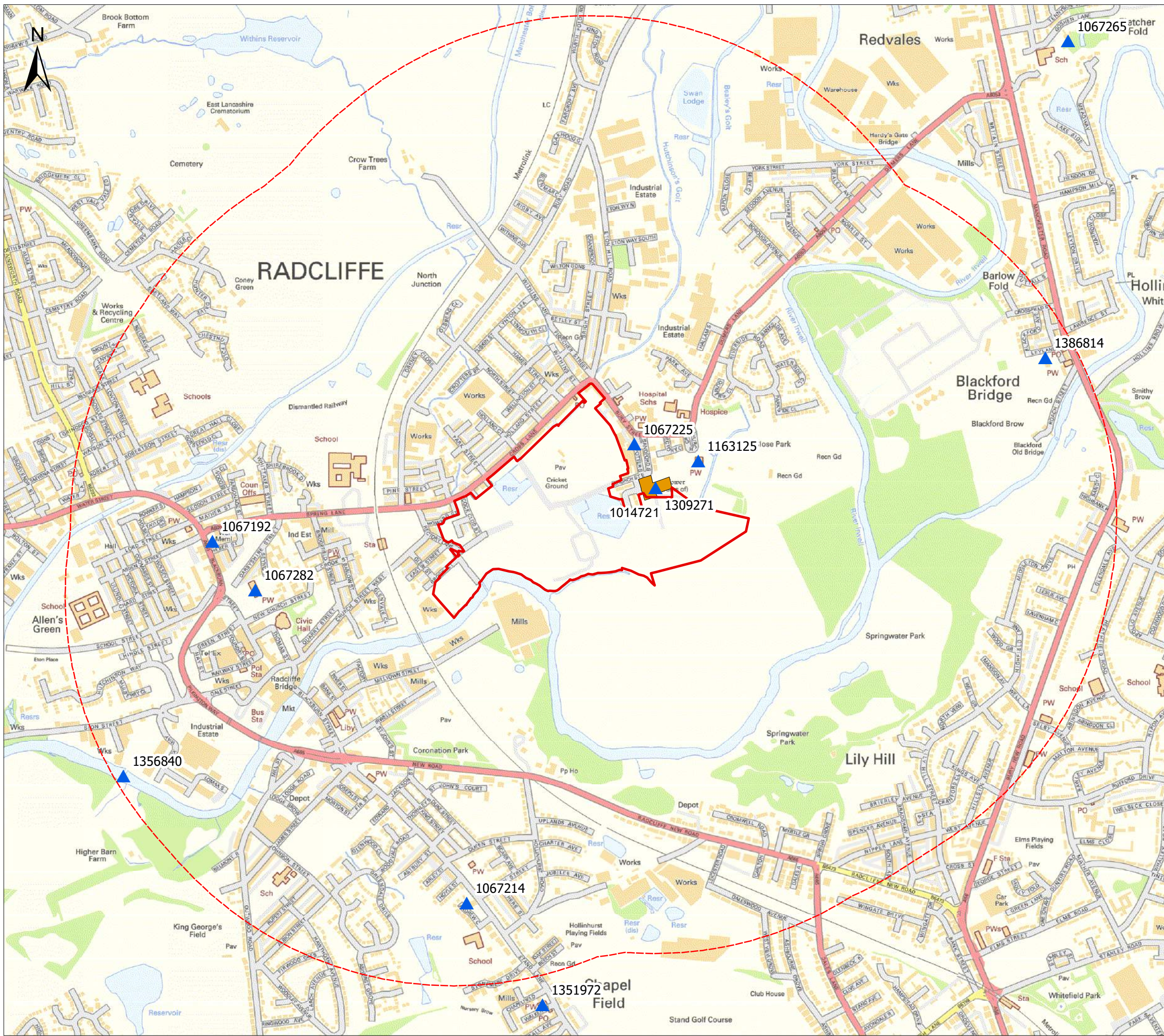
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Appendices

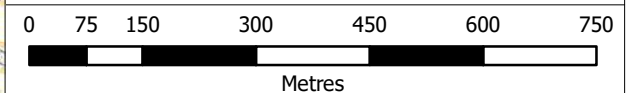


Appendix A – Site Location Plan



Legend

-  Site Boundary
-  Study Area
-  Listed Buildings
-  Radcliffe Tower Scheduled Monument



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Client: **Homes England and Bury Council**

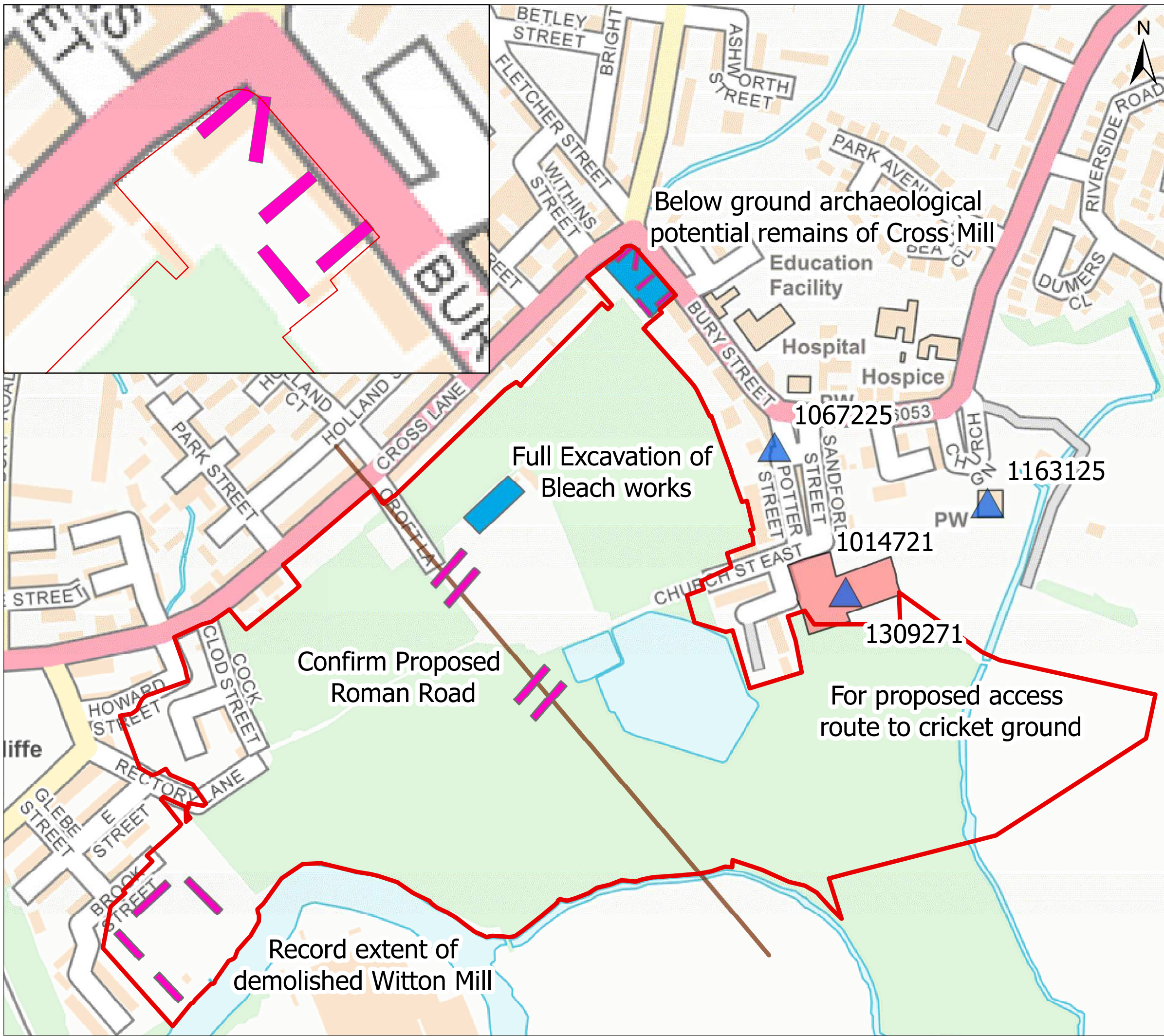
Project: **East Lancashire Paper Mill**

Title: **Designated Heritage Assets**

Office: 4154	Project No: A090070-193	Figure No: 2
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Appendix B – Trench Plan



Legend

- SITE BOUNDARY
- LISTED BUILDINGS
- RADcliffe TOWER SCHEDULED MONUMENT
- PROPOSED TRENCHES
- AREA OF FULL EXCAVATION
- PROJECTED LINE OF ROMAN ROAD

0 25 50 100 150 200
Metres

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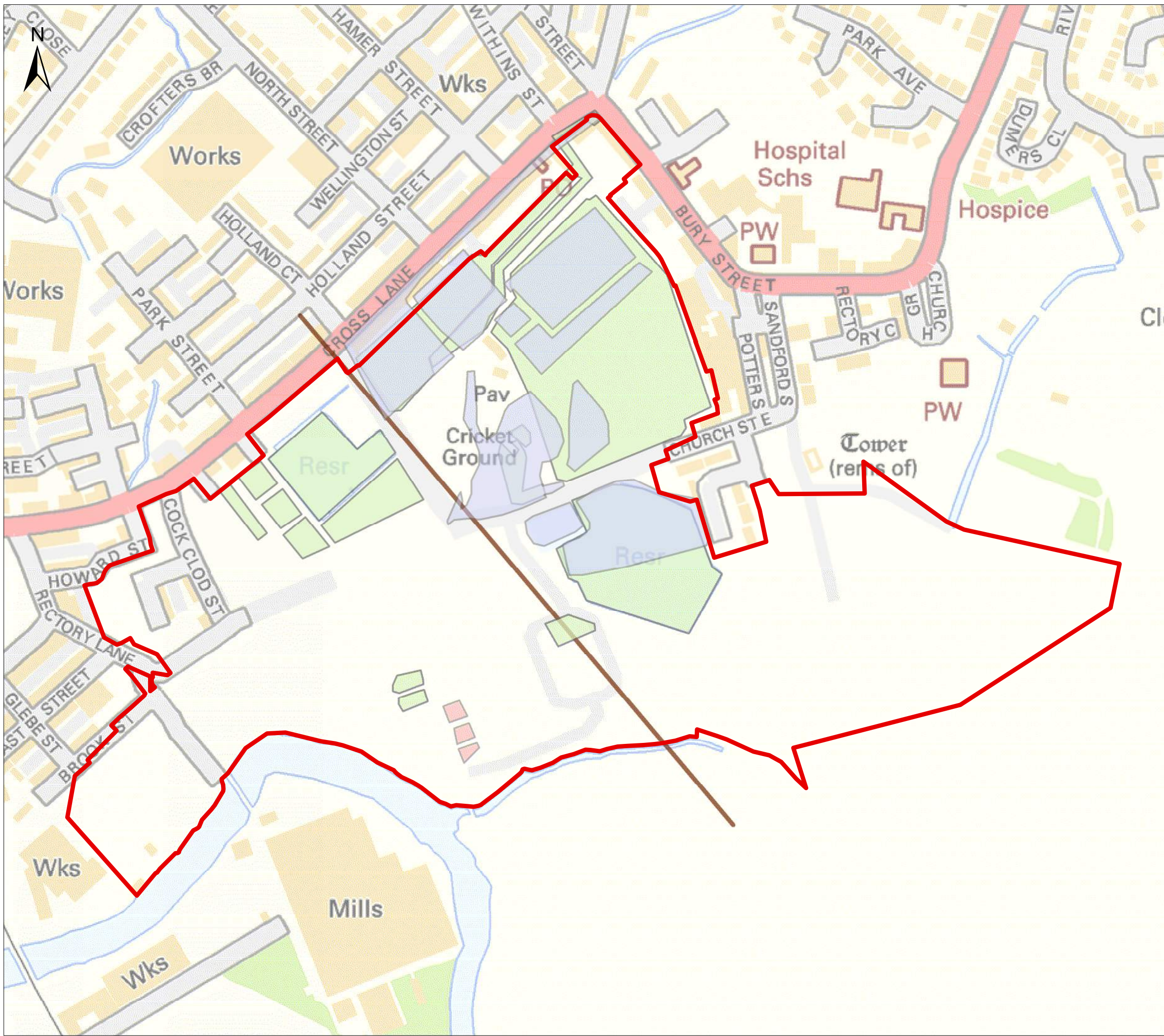
Project: East Lancashire Paper Mill

Title: Proposed Trench Locations

Office: 4154	Project No: A090070-193	Figure No: 6
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Appendix C – Historic Plans



Legend

- Site Boundary
- 1850 Reservoirs
- 1895 Reservoirs
- 1910 Reservoirs
- Projected Line of Roman Road

02550100150200

Metres

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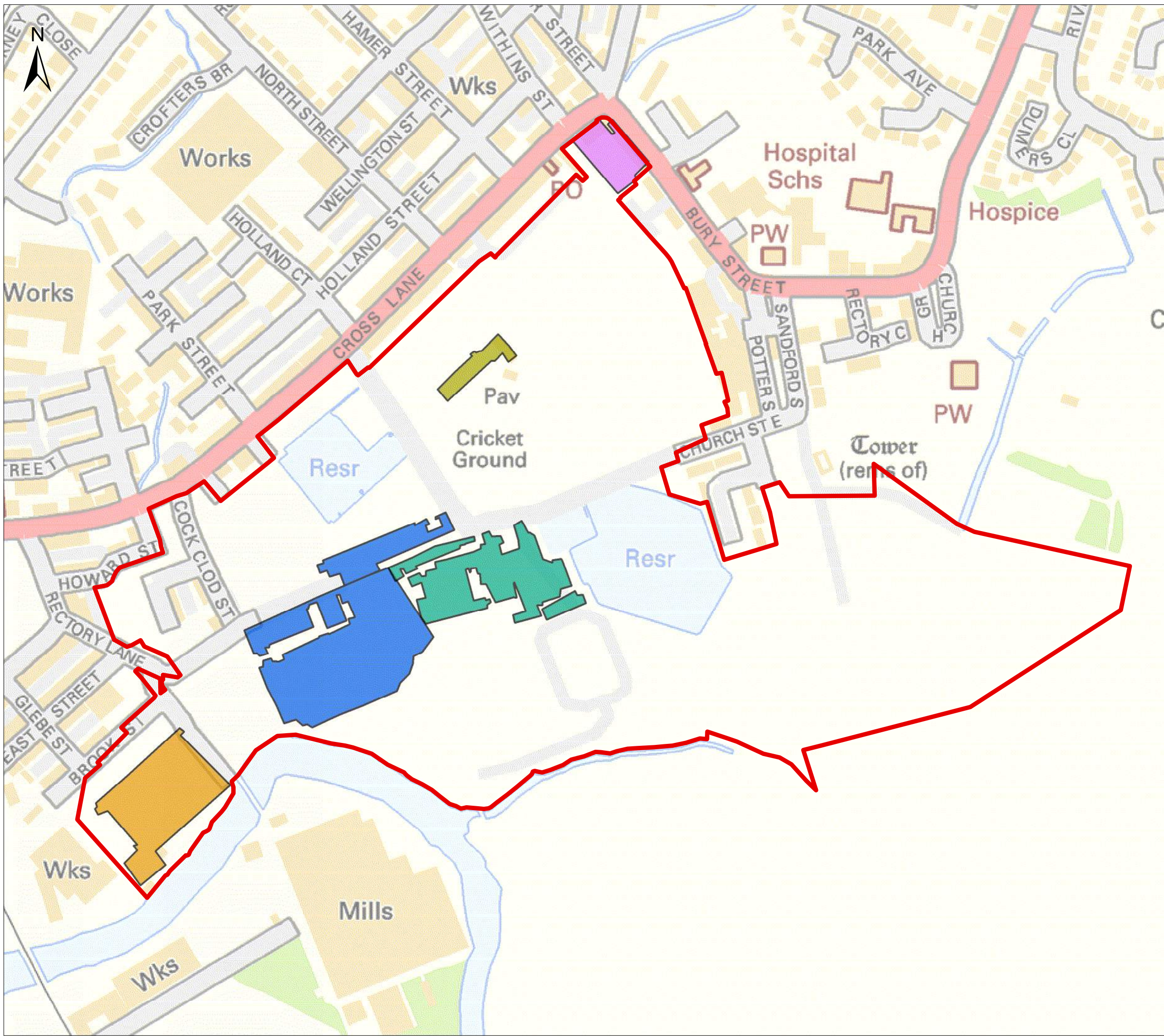
Project:

East Lancashire Paper Mill

Title:

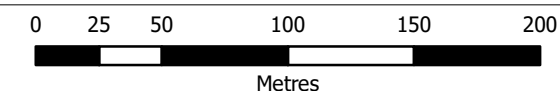
Previous Reservoir Locations
(1850 6" OS, 1895 6" OS &
1910 6" OS mapping)

Office: 4154	Project No: A090070-193	Figure No: 3
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Legend

-  Site Boundary
-  Witton Mill
-  Print Works
-  East Lancashire Paper Mill
-  Cross Mill
-  Bleachworks



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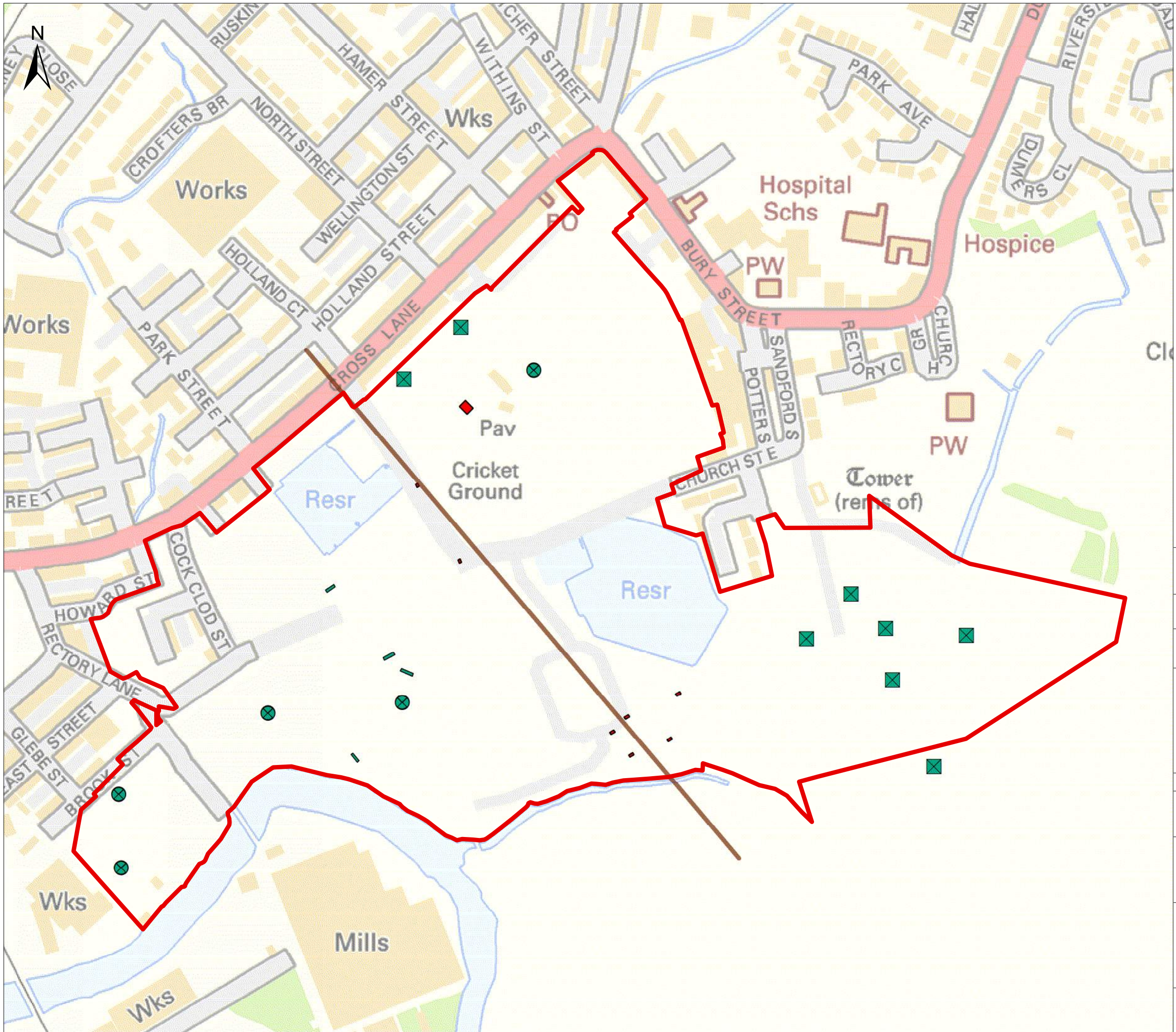
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Client:
Homes England and Bury Council

Project:
East Lancashire Paper Mill

Title:
**Historic Building Remains
(1893 25" OS mapping &
1909 25" OS Mapping)**

Office: 4154	Project No: A090070-193	Figure No: 4
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Legend

Site Boundary

Study Area

Projected Line of Roman Road

WYG GI - Trial Pit 2018

WYG GI - Hand Pit 2018

WYG GI - Trial Trench 2018

OAN Trenches 2005

02550100150200

Metres

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Client:

Homes England and Bury Council

Project:

East Lancashire Paper Mill

Title:

Previous Investigations

Office: 4154	Project No: A090070-193	Figure No: 5
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Appendix D – Oxford Archaeology North 2005 Archaeological Evaluation Report



FORMER EAST LANCASHIRE PAPER MILL, RADCLIFFE, Greater Manchester

Archaeological Evaluation Interim Report



Oxford Archaeology North

June 2005

**Libero Architects and P&F
Properties Ltd**

OA North Job No: L9507
NGR: centred SD 7915 0735

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SUMMARY

In response to a request from Libero Architects, acting on behalf of P&F Properties Ltd, Oxford Archaeology North (OA North) undertook an archaeological desk-based assessment of the site occupied by the East Lancashire Paper Mill, Radcliffe, Greater Manchester (centred on SD 7915 0735). The assessment was compiled during March and April 2004, and identified four sites of archaeological interest within the area of the former paper-manufacturing complex. These sites comprised the projected route of the Roman road between the forts at Manchester and Ribchester, a 19th century calico-printing works, a bleach works, and a steam-powered cotton-spinning mill complex. The assessment recommended that these sites were subjected to a programme of archaeological evaluation, aimed at establishing the nature, extent, character and state of preservation of buried remains prior to any earth-moving works associated with the proposed development in order to inform final design proposals.

In April 2005, OA North was instructed by Libero Architects to proceed with the evaluation in conjunction with a programme of geo-technical test-pitting undertaken by Encia Remediation Ltd. Archaeological monitoring of the geo-technical test-pitting revealed the area of the former calico-printing works to have been disturbed heavily by the expansion of the paper mill during the late 19th and 20th centuries, although brick structures seemingly representing water-management features were encountered at depth. A decision was taken at this stage to defer the archaeological evaluation of this site until future remediation works reduced the ground level in this area to facilitate safe access to any buried archaeological structures. It was similarly proposed to undertake the archaeological evaluation of Wilton Mill once modern concrete surface had been removed as part of the remediation works. However, the projected line of the Roman road and the former bleach works adjacent to Croft Lane were available for archaeological evaluation, and this was undertaken during April 2005.

In total, seven small trenches were placed across the projected line of the Roman road at various points within the study area. These were focused on the south-eastern part of the site, close to the bank of the river Irwell, and along Croft Lane within the northern part of the site. None of these trenches produced any evidence for the putative road, suggesting that it deviated from its projected route across the site.

A single trench was placed across the site of the former bleach works located adjacent to the cricket pitch on Croft Lane. This trench revealed extensive and well-preserved structural remains of the former works to survive immediately below the modern ground surface. The full extent of the remains was not established due to on-site constraints, although it is most likely that considerable buried remains survive within the area adjacent to the excavated trench.

Whilst the exact nature and extent of any further archaeological work associated with these archaeological sites will probably be specified as a condition to planning consent, it is considered likely that there will be a requirement to undertake further investigation in advance of redevelopment. An archaeological watching brief monitoring ground-reduction works may be considered to be the appropriate course of action with respect to the Roman road, whilst the former bleach works may require more detailed archaeological investigation. Should the remains of this works be destroyed as part of the development, a mitigation record should be compiled.

ACKNOWLEDGEMENTS

Oxford Archaeology North would like to express thanks to Gavin Darwell-Taylor of Libero Architects for commissioning the work on behalf of P&F Properties Ltd, and to Tim Pope and Iain Hill of King Sturge for logistical support. Thanks are also due to Brandon Rice-Birchall, Adam Matthews and John Coggins of Encia Remediation Ltd. Further thanks are due to Norman Redhead, the Assistant County Archaeologist for Greater Manchester, and Mick Nightingale, the Bury Conservation Officer, for their advice and support.

The evaluation was directed by Sean McPhillips, assisted by Jason Clarke and Christina Clarke, who also prepared the illustrations. 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 March 2004, Oxford Archaeology North (OA North) was requested by Libero Architects, acting on behalf of P&F Properties Ltd, to undertake a desk-based assessment of the former East Lancashire Paper Mill in Radcliffe. The work was required to inform the future redevelopment of the site. The results of the assessment identified four sites of archaeological interest, which comprised the projected route of a Roman road, a 19th century calico-printing works, a bleach works, and a steam-powered cotton-spinning mill complex. The assessment recommended that these sites were subjected to a programme of archaeological evaluation, aimed at establishing the nature, extent, character and state of preservation of buried remains prior to any earth-moving works associated with the proposed development. It was envisaged that the results of the evaluation could support a future planning application for the redevelopment of the site and inform the final design proposals.
- 1.1.2 In response to a further request from Libero Architects, OA North submitted a project design to undertake the programme of archaeological evaluation, which commenced during April 2005. This work comprised the excavation of trenches across the projected line of the Roman road and the former bleach works. Archaeological evaluation of the calico-printing works and Wilton Mill are awaiting the removal of modern surfacing and have yet to be completed.

1.2 SITE LOCATION, TOPOGRAPHY AND GEOLOGY

- 1.2.1 The study area (centred on SD 7915 0735) is situated within the town of Radcliffe, which is located some 4km to the south of Bury, and 10km north-north-west of Manchester (Fig 1). Radcliffe lies within the Manchester Pennine fringe, a transitional zone between the open moorlands of the Dark Peak and the Millstone Grit uplands of the Southern Pennines and the densely populated urban conurbation of Manchester (Countryside Commission 1998, 121). The area owes much of its landscape character to the pronounced landform with deeply incised steep valley sides and localised woodlands (*op cit*, 122).
- 1.2.2 The study area is situated towards the eastern edge of modern-day Radcliffe, and west of the town's historic core, which is represented by Radcliffe Tower and the church of St. Mary and St. Bartholomew. The former East Lancashire Paper Mill site occupies an area on the north bank of the river Irwell, some 3km downstream from its confluence with the river Roch.
- 1.2.3 The underlying drift geology of the area comprises sands and gravels overlying Carboniferous Coal Measures (British Geological Survey of England and Wales). The solid geology consists of weak sandstones and mudstones (Clinton and Higgs 1997).

2. METHODOLOGY

2.1 INTRODUCTION

- 2.1.1 The fieldwork was undertaken during April 2005, and comprised the excavation of eight targeted evaluation trenches and test pits. All archaeological work undertaken was consistent with the relevant standards and procedures provided by the Institute of Field Archaeologists.

2.2 EVALUATION TRENCHING

- 2.2.1 The uppermost levels of each trench were excavated by a machine fitted with a toothless ditching bucket. The same machine was then used to define carefully the extent of any surviving walls, foundations and other remains, after which all excavation was undertaken manually. The floor and sides of each trench was cleaned and recorded in an appropriate manner.
- 2.2.2 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 included a visible, graduated metric scale.
- 2.2.3 The precise location of the trenches, and the position of all archaeological structures encountered, was surveyed by EDM tacheometry using a total station linked to a pen computer data logger. This process generated scaled plans and sections within AutoCAD, which were then subject to manual survey enhancement. The drawings were generated at an accuracy appropriate for 1:20 scale, and all information was tied in to Ordnance Datum.

2.3 FINDS

- 2.3.1 *Artefacts:* all finds recovered were bagged and recorded by context number, processed and stored according to current standard practice based on guidelines set by the Institute of Field Archaeologists. The finds have been analysed by OA North in-house specialists.
- 2.3.2 *Environmental Samples:* no palaeo-environmental samples were taken from the evaluation as none of the deposits encountered were deemed appropriate.

2.4 ARCHIVE

- 2.4.1 A full professional archive has been compiled in accordance with the project design (*Appendix 1*), and in accordance with the current IFA and English Heritage guidelines (English Heritage 1991). The paper and digital archive will be deposited with Bury Archives Service on completion of the project.

3. BACKGROUND

3.1 HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

- 3.1.1 **Introduction:** a summary historical and archaeological background of Radcliffe has been compiled in order to place the results obtained from the archaeological evaluation into a wider context. This section is drawn largely from the desk-based assessment of the study area (OA North 2004), but includes some additional evidence for the bleach works.
- 3.1.2 **Prehistory:** Palaeolithic and Mesolithic activity in the area is recorded mainly from the uplands above the Irwell valley (Nevell and Redhead 1999). Upland areas in the region tended to be occupied in the summer months by hunter-gatherers, and more sheltered lowland areas in the winter. This pattern is reflected by evidence for camps which may have been used on a seasonal basis. One such camp has been found on the E's in Radcliffe, where artefacts of Palaeolithic and Mesolithic date have been recovered.
- 3.1.3 The E's is a level plain of mud flats overlying sand and gravels situated north of the river Irwell and to the west of the confluence between the rivers Roch and Irwell. The commercial extraction of aggregates from the area in 1945 revealed wooden structures and flint artefacts. Eight circles of posts in a double row were found overlain by organic material such as brushwood, hazelnuts and pinecones, and sealed by clay. Unfortunately, all but one of the circles were removed by machine before they were subject to archaeological recording, and the artefacts have since been largely lost.
- 3.1.4 Archaeological excavations at the site began in 1949, when further evidence for wooden structures was obtained. A large and significant assemblage of flint implements and a cast-flanged bronze axe was also recovered (Spencer 1951, 197 *et seq*). Excavation work took place periodically until 1961, and finds dating to the Mesolithic, Neolithic, Bronze Age and Roman periods were all recovered (*ibid*). Timbers found during the 1950 excavation were interpreted as a possible Bronze Age platform and causeway of stakes, wattling and brushwood (*ibid*). In addition, excavations behind the cemetery in Radcliffe in 1951 uncovered a disk Barrow, although there were no associated inhumations (Sunderland 1995). The continuity of occupation on the site through these early periods that is suggested by the artefact assemblage is rarely found in the North West.
- 3.1.5 **Roman:** the main Roman road between the forts at Manchester and Ribchester crossed through Radcliffe. The line of the road to the south of Radcliffe is thought to be represented in the modern landscape by Bury New Road (Margary 1957, 102). This was a turnpike road dating from 1755 when an Act of Parliament was passed to allow the improvement of the Manchester to Bury road. Margary argued that the Roman Road crossed the Irwell in Radcliffe at a point some 150 yards to the west of the ruined Radcliffe Tower (*ibid*), which places it approximately in the area of the East Lancashire Paper Mill site. This is supported by Sunderland in his history of Radcliffe: '*The route (of the Roman road) was by way of (approximately) Higher Lane in Whitefield, by*

Dales Lane, plunging down to and crossing the Irwell and the E's through what is now the East Lancashire Paper Mill, up Croft Lane, crossing Cross Lane and to cross the later-built Manchester-Bolton-Bury canal (Sunderland 1995, 11).

- 3.1.6 The remains of the Roman road in the wider area have been excavated by the Radcliffe Archaeological and Historical Society (RAHS) and Bury Archaeology Group (BAG). At Starling, to the north of Radcliffe, the road was found to be approximately 7m wide plus drainage ditches, and consisted of 'pebbles laid on split flagstones' (Sunderland 1995, 11).
- 3.1.7 Additionally, Taylor (1904, 138-39) argued that '*the Romans had a camp or small station*' on the line of the road at Radcliffe. The recovery of several sherds of Roman pottery from the E's adds weight to this postulation (Spencer 1951, 197), although firm evidence is lacking.
- 3.1.8 **Medieval:** Radcliffe is listed in the Domesday Book as '*Radeclive*', a manor held by Edward the Confessor. It was part of the Salford Hundred, and was one of only four places from the Hundred to be mentioned in the Domesday Book. The main landholder at this time was Roger de Poitou (Farrer and Brownbill, 1908). Radcliffe remained part of the crown until it was given to Ranulf, Earl of Chester, during the reign of Stephen (1135-1154), when it became part of the Mersey Fee. According to Barton (1973, 225-27), the de Radcliffe family has been associated with the town since the mid-12th century.
- 3.1.9 In 1561 Radcliffe was purchased by Richard Assheton, Lord of Middleton. It was of sufficient significance to be depicted upon the earliest map of the area, surveyed by Christopher Saxton and published in 1577. Radcliffe remained in the ownership of the Assheton's until 1765, when the estate was divided between the two daughters of Sir Ralph Assheton. One of the daughters, Eleanor, married Sir Thomas Egerton of Heaton, Lord Grey de Wilton. The town then became part of the Lord of Wilton's estates (Farrer and Brownbill 1908).
- 3.1.10 **Post-medieval:** the region emerged as a centre of the woollen industry during the later Middle Ages, but many firms converted to cotton manufacture during the later 18th century. In 1773, Bury was '*endowed with a new staple trade*' in the form of a calico-printing works that was established by Robert Peel (Williams and Farnie 1992, 42-43). Radcliffe similarly developed as an industrial centre; during the early 19th century Baines (1825, 688) noted the parish of Radcliffe to comprise 589 families, of which 403 were engaged in '*trade, manufactures or handicraft*'. Another contemporary description of Radcliffe, compiled in 1833 (MCL 942.72Ra10), claimed that the area was a '*highly fit station for bleaching works and cotton mills, and extensive manufactories were erected in the last century which still continue to flourish with redoubled activity employing nearly all the population*'. This was due partly to its proximity to Bury and to Manchester, and the transport link provided by the Manchester to Bolton Canal, which was extended to Bury in 1797 (McNeil and Nevell, 2000).

- 3.1.11 A slightly later description of Radcliffe (Butterworth 1841, 115-16) highlighted Radcliffe's association with the cotton industry, with reference to cotton bleaching, calico-printing, weaving and spinning. However, Radcliffe did not attain its peak capacity in cotton spinning until 1914, although it grew faster in spindlage between 1884 and 1917 than any other cotton-spinning town except for Farnworth (Williams and Farnie 1992, 42-43).
- 3.1.12 The paper-making industry was not introduced to Radcliffe until 1860, when the East Lancashire Paper Mill was established. Other paper mills were erected subsequently; Wild's Paper Mill was established in 1863, and in 1908 the Radcliffe Paper Mill Co was established.
- 3.1.13 *The East Lancashire Paper Mill Site*: the East Lancashire Paper Mill was built on the site of a calico-printing works and a barracks, as shown on the tithe map of 1841. The earliest reference to the calico-printing works is provided in a commercial trades' directory published by Pigot and Dean (1825, 450), which indicates the works to have been owned by the firm of Horrox and Sons. A trades' directory for the previous year indicates that the only bleaching business in Radcliffe was that operated by Mary Bealey (Baines 1825, 583), which originated in c1783 (Ashmore 1969, 133). 'Bealey's Goit', which crosses the study area, was associated with this works. A trades' directory published some five years after Baines' lists three bleach works for Radcliffe: Mary Bealey, Horrox & Sons, and William Stonehewer (Pigot 1829, 443).
- 3.1.14 A sketch of Radcliffe in 1830 (MCL 942.72Ra10) shows the calico-printing works, and the accompanying notes refer to it as '*Messers Hutchinsons, late Horroxes*', and state that it was powered by a steam engine. This indicates the ownership of this works, and presumably the associated bleach works, to have changed hands between 1825 and 1830. However, it appears that the calico-printing works ceased production during the late 1850s, as it is not listed in a trades directory of 1858 or subsequently.
- 3.1.15 The East Lancashire Paper Mill was founded in 1860, and was built to the north of the calico-printing works upon a green field site owned by Lord Wilton. James Hutchinson, presumably the same person who had operated the calico-printing works, occupied the paper mill. The layout of the mill complex, including the former calico-printing works, is depicted on an estate plan of 1860 (Fig 2). During the initial years, the East Lancashire Paper Mill concentrated upon the production of newsprint and lower grade paper (ELPM 1960).
- 3.1.16 A valuation list for Radcliffe in 1864 documents all the property belonging to the East Lancashire Paper Mill, at cites its location in '*Spring View*'. This includes three bleach houses and an associated engine house (Table 1), which may relate to the bleach works adjacent to Croft Lane.

Description of property	No. of storeys	Description of property	No. of storeys
Filters and pipes	-	Rag Engine House	1
Settling reservoirs	-	Bleach House no. 1	1
Guage House	1	Bleach House no. 2	1
Rag Warehouse	2	Bleach House no. 3	1
Gangway	1	Bleach and Engine House	1
Store room	2	Devil Room	3
Gate room	1	Economiser House	1
Waiting room	1	Economiser Boiler House	1
Offices and committee rooms	2	Mechanics shop	2
Making up room	2	Smithy	1
Machine House	1	New Stable	2
Beating Engine House	2	Engine Power Chimney	-

Table 1: Valuation list of the property owned by the East Lancashire Paper Mill

- 3.1.17 An adequate water supply was essential to the bleaching and paper-making processes. This is explained by the East Lancashire Paper Mill Co Ltd in their 1960 publication: *'the first management wisely secured water rights over a very large area. Under succeeding administrations the water storage capacity of the mill was extended, and in 1904 the construction of a big reservoir with a capacity of 25 million gallons completed a total storage capacity of 50 million gallons.'*
- 3.1.18 The prosperity of the paper mill led to the construction of recreational facilities for their workers in Radcliffe, including tennis courts and a bowling green, both of which appear on the 1929 Ordnance Survey map. By 1937, a cricket field and a pavilion had been erected on the premises, both of which appear on the 1937 Ordnance Survey map. These are also depicted on an aerial view of the site, which is similarly thought to date to the late 1930s (Plate 1).
- 3.1.19 The recent history of the mill is well documented by the *Bury Times* with increased stories of problems and job cuts through the 1980s and 1990s. Nevertheless, the mill continued to expand during the 1990s, and was described as *'prosperous'* (Hudson 1994, 42). In 1994, Wilton Mill was demolished to allow for the expansion of the paper mill. This large cotton spinning mill was established in 1907. It was brick-built to a height of four storeys, each floor measuring 36 by 10 bays, with a six bay engine house attached to the south side (Ashmore 1982, 121). The mill closed during the 1960s, and was used by the East Lancashire Paper Mill as a paper store and despatch depot since 1966. It was demolished in 1994.
- 3.1.20 **Cartographic Evidence:** map regression analysis provides information of the changes enacted on the site. The earliest map available that shows the site in some detail is a tithe map surveyed in 1841, which depicts a barracks and the calico-printing works. Whilst the bleach works is not actually marked on this map, the configuration of the buildings present within the area is broadly consistent with the layout of the works. This detail is reproduced to a greater degree of accuracy on the Ordnance Survey map of 1850, which shows the barracks and the calico-printing works (complete with a gasometer) with large reservoirs to the east and to the north. An annotated map of the study area is

provided by an estate plan of 1860 (Fig 2), which shows the relative positions of the paper mill, the printing works and another unspecified works. The latter is almost certainly the bleach works, and the layout depicted is reproduced on the 25": 1 mile Ordnance Survey map of 1893 (Fig 4).

- 3.1.21 The Ordnance Survey map of 1893 is the first cartographic source to provide comprehensive details of the buildings occupying the site. The study area is shown to comprise the paper mill and the printing works, whilst the unspecified works depicted on the 1860 estate plan is marked as a bleach works. These all appear to be integrated production units, with a large bank of reservoirs situated to the north, and several goits crossing the site. The boundaries of the site conform to those on the 1860 estate plan, implying little expansion, although it seems that more reservoirs have been added.
- 3.1.22 The Ordnance Survey map published in 1910 shows the paper mills, but the printing works and bleach works are no longer named, implying that they had ceased production. Some of the buildings that had formed part of the bleach works appear on a photograph taken during the 1930s (Plate 1), although they appear to be in a ruinous condition.
- 3.1.23 The Ordnance Survey map of 1937 shows some remodelling of the site, and the addition of recreational facilities. These included the addition of a cricket ground with a pavilion, which may be seen on an aerial photograph of the site taken during the late 1930s (Plate 1). This contrasts with another aerial view from 1996 (Plate 2), which shows the changes enacted to the site during the intervening period. These included the demolition of Wilton Mill, and the clearance of the remaining structures associated with the former bleach works.
- 3.1.24 ***The Bleaching Industry:*** bleaching was an old-established industry in Lancashire, the origins of which may be traced back at least to the medieval period. The primary factor in locating this industry was water supply, as large quantities of pure water were required for the bleaching process. Marked concentrations of bleach works were established in the valley of the river Irwell and the Bolton area. The first bleach works in Radcliffe was that established by William Bealey & Sons, who were whisters in the town by 1750, using bleach fields near the parish church (Ashmore 1982, 122). They had established a works east of Drumers Lane in c1783, and by 1794 it was powered by eight waterwheels (*ibid*).
- 3.1.25 The traditional method of bleaching was to boil cloth in a keir with an alkaline ley made from plant ashes and to sour it in buttermilk. The cloth was then washed thoroughly and exposed to the sun for long periods to complete the bleaching. The main bleaching area was known as the bleach croft, a term which persisted into the factory period of the 18th and 19th centuries.
- 3.1.26 The traditional processes were transformed during the 19th century by the introduction of chemicals and mechanisation. An important step in this development was the discovery of chlorine in 1774, which led to the manufacture of bleaching powder and resulted in a change from open-air bleaching ground to the bleach works with its internal bleach croft and bleaching tanks (*op cit*, 5). Water, and later steam, began to be used to drive

machinery during the same period; by the middle of the 19th century, many bleach works had several steam engines to drive different sections (Ashmore 1969, 61).

- 3.1.27 The initial process in the 19th century bleach works was to pass long pieces of cloth through a singeing machine, which comprised a heated copper plate or burning gas flame that remove any loose filaments. In the centre of the bleach works were frequently situated rows of keirs, in which the cloth was boiled for several hours with lime or caustic soda. After a thorough washing, the cloth was passed through a solution of bleaching powder, and was then washed again. The final drying process was often facilitated by a series of steam-heated copper cylinders, over which the bleached cloth was passed.

4. EVALUATION RESULTS

4.1 INTRODUCTION

- 4.1.1 This section presents the results obtained from the programme of archaeological evaluation completed to date. This work has investigated the presence or absence of buried remains associated with a putative Roman road and a former 19th century bleach works. The location of the evaluation trenches and test pits are shown in Figure 3.

4.2 ROMAN ROAD

- 4.2.1 A series of seven small evaluation trenches, or test pits, of varying sizes were excavated along the projected route of the Roman road (Fig 3). Analysis of the available documentary and cartographic sources indicated a potential for a road between the Roman forts at Manchester and Ribchester to lie across the site. The precise location and size of the trenches that were placed to test this was determined to an extent by on-site conditions, although map regression analysis indicated that the south-eastern part of the site and the route of Croft Lane had been subjected to the least modern development, and therefore offered the highest archaeological potential.
- 4.2.2 Five test pits (1 to 5) were excavated in the south-eastern part of the study area within a tract of waste ground used as a trailer park lying south of Park Lodge and south-east of the hydro-electricity plant (Fig 3). All of the pits were excavated to a maximum depth of 4m, but yielded no evidence of the putative road or associated construction. Each pit contained up to 3.5m of redeposited ashy clay discoloured blue with hydro-carbon contamination. The deposition of the clay was possibly the result of recent tipping or backfill episodes during the construction of the power plant. Several pits contained hardcore levelling up to 0.5m in thickness that probably served to seal the contaminated clay and also to create a level surface for the trailer park.
- 4.2.3 Two test pits (6 and 7), each measuring 3m by 2m, were excavated to a maximum depth of 3.2m along Croft Lane. The size of the test pits in this area was constricted by the presence of multiple live services, although undisturbed soil horizons were exposed within the excavated pits.
- 4.2.4 The first pit was positioned along the eastern edge of Croft Lane, near to the junction with the cricket ground access road. The second pit was excavated at the southern end of Croft Lane at the junction with Church Street East (Fig 3). Neither pit provided any evidence for the Roman road. The deposits in each of the pits comprised natural gravel within a sandy-silt matrix exposed at a depth of 1.7m (Plate 3). The gravel was sealed by a deposit of dark brown clay, measuring up to 0.50m thick, which in turn was overlaid by hardcore levelling for the tarmac lane surface. It remains uncertain whether the clay was of natural origin, or had been deposited as a make-up layer.

4.3 BLEACH WORKS

- 4.3.1 The location of the three evaluation trenches specified in the project design was restricted by recent occupation of the site, particularly extant garages. Consequently, the area available for evaluation along the northern edge of the former bleach works was reduced. However, the dimensions of the single trench that was excavated (**T8**) was increased to provide sufficient information on the extent of surviving internal features within the centre of the bleach croft (Fig 4). The excavated trench measured 7m², and was excavated to a maximum depth of 2.08m. It was placed between the northern boundary of the existing cricket pitch and the southern edge of Croft Lane Lodge and a smaller reservoir.
- 4.3.2 The reservoirs situated to the north-west and north-east of the trench were connected by concrete and stone-lined channels, serviced by a sluice that controlled the flow of water drawn from the reservoirs into a 5m² stone-lined cistern (**117**). From this junction, the main body of water was channelled south across the site via a brick-lined culvert (**103**), with lesser amounts through multi-directioned cast iron and ceramic water pipes. The sluice channel lay to the immediate north of the trench (Plate 4), and its presence determined the types of structures encountered during the evaluation.
- 4.3.3 The central part of the excavated trench (Fig 5) was dominated by an intact brick-lined culvert (**103**) that was aligned north/south and extended some 6m from sluice channel **117**. The north edge of the culvert was butted by a stone lintel (**115**) that formed part of a contiguous interface (**105**) between **103** and junction **117** (Plate 5). The culvert roof was exposed at a depth not exceeding 0.5m below the modern ground surface, and was constructed in 2m sections. Each section comprised two-string thick hand-made bricks bonded with lime-based mortar. The structure was supported in the east and west by stone retaining walls giving an overall width of approximately 2m. However, the stone walls were not fully exposed during the evaluation due to an overlying cast iron pipe (**106**) that ran parallel to the culvert roof along its east edge. The culvert roof was breached along its west edge by a cast iron pipe (**107**) that connected to a circular brick-lined chamber (**104**) in the north-west corner of the trench (Plate 6). The angle of the pipe suggests that its function was to draw water away from the structure and draining subsequently into the culvert.
- 4.3.4 Stone lintel **115** measured 3.5m by 1m and 0.08m in thickness supported underneath by a metal joist, and bridged the gap above the mouth of the culvert roof and the south edge of **117** forming a ledge (Plate 5). The ledge was sealed by a 1m high and 4.1m long dry-stone wall (**114**). The west edge of the wall butted the outside wall of chamber **104**, and was overlaid by a line of five Yorkstone slabs (**113**) that provided a working platform adjacent to **117**. Each slab measured approximately 1m² and had a thickness of 0.08m. One of the slabs had a perforation cut into the surface that seemingly was intended for a pipe to pass through into the water below.
- 4.3.5 Chamber **104** had a diameter of 2m with an overall depth of 1.8m from below a row of capping stones (**113**) that sealed the north-east edge of the structure, to a flagstone floor at the chamber base (Plate 6). It would seem that the

chamber was of a contemporary build to culvert *103*. Evidence for this was exposed within the inside face of the chamber in a 0.5m wide repaired section (Plate 7) that clearly displayed an attempt to remodel the amount of water entering the structure. The repaired section comprised large stone ashlar blocks (identical to the type used to line junction *117*), used to in fill around a rectangular shaped channel that drained into junction *117*. The channel was encountered at a depth of 0.4m below *113*. A smaller, square shaped channel was observed cut into a stone ashlar at floor level above the flagstones. The east face of the structure displayed two further features. The first was a 1m by 0.50m opening, back-filled with silt, which was encountered 0.6m below the upper surviving brick course and positioned directly opposite the repaired section. The second feature comprised a 0.40m niche cut into the bricks in the south-east face, that was used to house a ceramic water pipe.

- 4.3.6 Further surviving physical evidence for the bleaching process was observed in the remains of two rectangular-shaped stone blocks that resembled steam engine machine bases (*101* and *102*) that bordered a stone-lined channel (*110*). Channel *110* (Plate 8) had the appearance of a drain and comprised two parallel stone ashlar walls set 0.48m apart that lay along a north-east/south-west alignment in the direction of culvert *103* at a similar height as the culvert roof. Both exposed wall dimensions were 0.90m by 0.7m and survived to an overall depth of 0.5m. The walls bordered a hand-made brick floor bonded with cream/yellow lime mortar sealed by a thin layer of silt. Within the south face of the north wall at floor level, were the remains of a circular (0.20m in diameter) drain that passed through the structure along a north/south alignment.
- 4.3.7 The channel was bordered in the east by a north/south aligned stone wall (*119*), observed in the west-facing section, that may well represent an internal wall of the bleach works. Another possible internal wall (*109*) was encountered in the north-east corner of the trench, sealed by a brick retaining wall of a man-hole (*112*). The dry-stone build construction was exposed at a depth of 1.3m below an iron man-hole cover and survived two-courses in thickness (0.25m), spread over a distance of 1.2m along a north/south alignment. The extent of the wall was not wholly investigated at the time of the evaluation due to the unsafe edge of the excavation.
- 4.3.8 Stone base *102* lay 1m south of *104*, with the gap between the structures infilled with fuel ash waste (*118*). The base measured 1.9m by 1.7m and comprised two courses of rectangular stone blocks laid on thin slabs sealing the north edge of *110*, giving an overall thickness of 0.35m. The stones was bonded with sandy mortar and rendered on the surface with slate. Base *101* measured 2.3m by 1.9 and comprised irregular sized stone blocks laid on thin stone slabs that offered an overall thickness of 0.23m. The base sealed a 0.5m thick gravel clay make-up layer (*111*), which created an interface between *101* and the south edge of channel *110*. The upper surface of the platform was coated with dark grey ash mortar with a bitumen type consistency that was possibly used to either bond further stone courses or to aid machine mounting.
- 4.3.9 Both stone bases (Plate 9) were butted along their east edge by a three-course high open brick-lined drain (*100*) rendered with slate, and back filled with fuel

ash waste **118**. The drain had a width of 0.46m and extended 1.8m south-west from near the mouth of the culvert **103**. The alignment dog-legged to the south traversing the length of the trench for a distance of 4m, then curved into a wide arc for a further 2.3m, before returning sharply to the east running beyond the excavation edge (Plate 10). The presence of the slate at the base of the drain suggests that the channel was used to carry water around the site, albeit at a higher level than that of the main culvert. The bricks were bonded with a dark grey mortar typical of a late 19th century date. The entire channel sealed make-up layer **111** that was used as levelling. The identical composition of the make-up layer beneath the channel and the machine bases suggests that they were contemporary constructions.

- 4.3.10 Other methods associated with the carriage of water around the site (Plate 10) was exemplified by the appearance of cast iron and ceramic water pipes such as pipes **106** and **107** (see 4.3.2 above). Pipe **106** seemingly drained water directly away from the east channel feeding the stone pit junction **117**. The pipe was also joined to an east/west aligned iron pipe (**108**) that lay along the surface of **115** and beyond the western edge of the excavated trench. All the iron pipes had identical diameters of 0.25m.
- 4.3.11 The entire trench was sealed by a topsoil deposit comprised of a mixture of fuel ash waste and loose, friable sandy-clay, that had a maximum thickness of 0.5m. Evidence of later occupation of the site was encountered during the machining stage of the evaluation along the west edge of the trench. A 2m deep cellar bordered by a machine-made brick wall, was back filled with 20th century debris. The cellar was observed in the vicinity of a line of concrete bordered pits that were associated with a wagon garage that was in use in the last century.

5. SIGNIFICANCE OF THE REMAINS

5.1 DISCUSSION

- 5.1.1 **Roman Road:** the evaluations did not recover any physical evidence for the projected line of the Roman road within the study area. The evaluation and archaeological monitoring of geo-technical test-pitting has demonstrated that the south-eastern and central parts of the study area have been subjected to considerable post-Roman disturbance. Conversely, the ground beneath Croft Lane did not appear to have been disturbed by development, but the presence of multiple live services prohibited a comprehensive investigation of the area. Hence, there is still some potential for the Roman road to lie beneath the route of Croft Lane.
- 5.1.2 **Bleach Works:** the evaluation has demonstrated that significant archaeological structures associated with the former bleach works survive *in-situ*, sealed immediately beneath topsoil deposits. The surviving structures are extensive and well-preserved, with considerable potential for additional buried remains to exist beyond the excavated area. The exposed structures included internal stone walls, bleaching cisterns and their associated water-management features, and large stone bases that probably represent elements of a steam-power plant. Evidence for episodes of remodelling was also obtained.
- 5.1.3 An assessment of the available archive sources pertaining to the study area has demonstrated that there is little documentary evidence for the former bleach works. In particular, no plan has been located that provides details of the internal organisation of the works and the mechanisms of its operation. Indeed, few bleach works of this period have been investigated archaeologically, despite the fact that the bleaching industry was of considerable local and regional significance throughout the 19th century. It is against this background that the remains exposed during the evaluation should be considered.

5.2 IMPACT

- 5.2.1 The outline proposal indicates that the area occupied by the former bleach works is to be redeveloped by residential properties. Whilst a detailed design has yet to be formulated, it seems likely that the proposed development will have a negative impact on the buried remains of the bleach works. This may be through the excavation of foundations, or the installation of service trenches, which may result in the loss of the buried archaeological resource.

6. RECOMMENDATIONS FOR MITIGATION

6.1 RECOMMENDATIONS

- 6.1.1 It is recommended that an archaeological watching brief monitors any ground-reduction works along the projected course of the Roman road, and particularly in the vicinity of Croft Lane.
- 6.1.2 Subject to the final design proposals, and approval of the Greater Manchester Assistant County Archaeologist, it is further recommended that an archaeological excavation of the former bleach works be undertaken in advance of ground-reduction works to allow a mitigation record to be compiled in advance of its ultimate destruction.
- 6.1.3 It is considered most likely that extensive buried remains of the former Wilton Mill will survive *in-situ*. It is recommended that this part of the proposed development site is subjected to archaeological evaluation once the modern hard-standing surface has been removed. It is similarly recommended that the evaluation of the former calico-printing works is completed once modern structures have been removed as part of the remediation programme.

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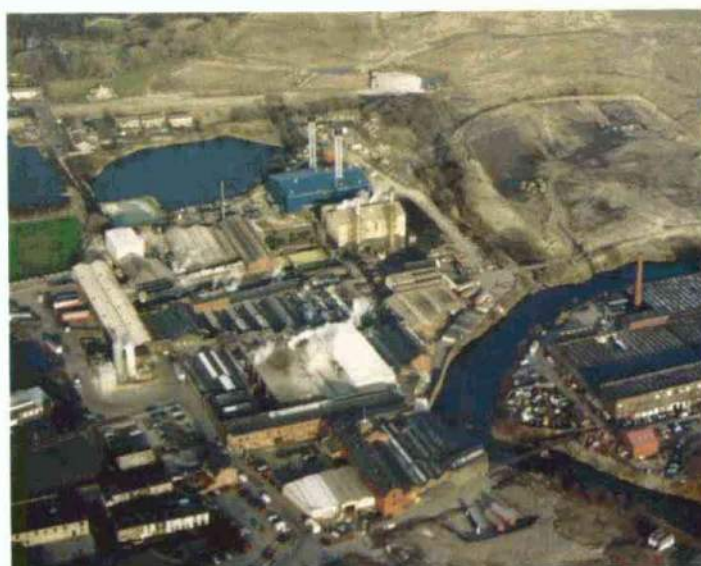
APPENDIX 1: PROJECT DESIGN

Oxford
Archaeology

February 2005

North

FORMER EAST LANCASHIRE PAPER MILL, RADCLIFFE, GREATER MANCHESTER



ARCHAEOLOGICAL EVALUATION PROJECT DESIGN

Proposals

The following project design is offered in response to a request from Mr Gavin Darwell-Taylor of Libero Architects, acting on behalf of P&F Properties, for an archaeological evaluation in advance of the proposed development of land at the former East Lancashire Paper Mill at Radcliffe, Greater Manchester.

1 BACKGROUND

1.1 CIRCUMSTANCES OF PROJECT

- 1.1.1 In March 2004, Oxford Archaeology North (OA North) was requested by Libero Architects, acting on behalf of P&F Properties Ltd, to undertake a desk-based assessment of the former East Lancashire Paper Mill in Radcliffe (centred on SD 7915 0735). The work was required to inform a scoping document that was to be produced in advance of submitting an application for the future redevelopment of the site. The aim of the assessment was to identify the potential for significant archaeological remains to survive on the site, and their implications for development proposals.
- 1.1.2 The results of the desk-based assessment indicated the site to contain four sites of archaeological interest that may be affected by the redevelopment, which included the projected line of a Roman road, a bleach works, a calico-printing works, and a cotton-spinning mill (OA North 2004).
- 1.1.3 The desk-based assessment was targeted specifically to the site of the former paper mill, but development proposals have been expanded since to incorporate adjacent areas, including the Radcliffe Ee's. This area is known to contain the buried remains of a Mesolithic settlement of considerable archaeological significance. However, the known elements of this site lie at depths below the modern ground surface which will not be affected by the development proposals, and will therefore remain undisturbed; this may have to be reviewed should the development proposals be modified.

1.2 RATIONALE

- 1.2.1 The current document presents a programme of recommended archaeological works to be undertaken on the proposed development site. It is recommended that four potentially important sites are targeted for evaluation in advance of a planning application, in order to assess the presence, extent and significance of the buried remains. This will allow for an archaeological strategy to be formulated at an early stage, and avoid unseen delays and costs that may otherwise occur during the development construction phase.
- 1.2.2 Any significant archaeological remains that are encountered during the evaluation may be retained *in situ* by adjusting the final design proposals, or exposed and exploited as a heritage asset. In particular, any structural remains of the bleach works and the calico-printing works would represent the physical manifestation of industries that were crucial to the development of the region during the 18th and 19th centuries. Should the design proposals necessitate the destruction of any surviving archaeological remains, a programme of further excavation may be required in advance of development to provide a mitigation record.

1.3 OXFORD ARCHAEOLOGY

- 1.3.1 Oxford Archaeology has over 30 years of experience in professional archaeology, and can provide a professional and cost effective service. We are the largest employer of archaeologists in the country (we currently have more than 200 members of staff) and can thus deploy considerable resources with extensive experience to deal with any archaeological obligations you or your clients may have. We have offices in Lancaster and Oxford, trading as Oxford Archaeology North (OA North), and Oxford Archaeology (OA) respectively, enabling us to provide a truly nationwide service. 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. OA is an Institute of Field Archaeologists Registered Organisation (No 17), and is thus bound by the IFA's Code of Conduct and required to apply the IFA's quality standards.

2 AIMS AND OBJECTIVES

2.1 ACADEMIC AIMS

2.1.1 The main research aim of the investigation will be to characterise the level of preservation and significance of the archaeological remains relating to the four sites identified within the study area. These sites include:

- the projected line of a Roman road;
- a former bleach works;
- a former calico-printing works;
- a former steam-powered cotton mill.

2.2 OBJECTIVES

2.2.1 The objectives of the project may be summarised as follows:

- to determine the presence of the Roman road between the forts of Manchester and Ribchester;
- to determine the character and extent of any buried soil horizons sealed beneath the Roman road;
- to determine the presence, extent, character, and level of survival of the former bleach works;
- to determine the presence, extent, character, and level of survival of the former calico-printing works;
- to determine the presence, extent, character, and level of survival of the steam power plant associated with Wilton's cotton mill;
- to facilitate the implementation of a strategy that will take account of the archaeological resource of the site in the final design proposals.

3 METHOD STATEMENT

3.1 The following work programme is submitted in line with the aims and objectives summarised above.

3.2 FIELDWORK

3.2.1 The archaeological fieldwork comprises four separate components:

- investigation of the proposed line of the Roman road between the forts at Manchester and Ribchester;
- evaluation of the former bleach works;
- evaluation of the former calico-printing works;
- evaluation of Wilton Mill.

3.2.2 *Investigation of the Manchester to Ribchester Roman road:* four trenches, each measuring c30m long and 2m wide, will be placed across the projected line of the Roman road in the positions shown in Figure 1. A further 10m length of trenching will be excavated should the road be only partially revealed within the initial trenches. The locations of the trenches have been targeted upon areas that do not appear to have been subjected to extensive development, based on historic map regression analysis. It is proposed to stagger the trenches to compensate for any deviation of the projected road line on its approach to the river Irwell crossing.

3.2.3 The precise location of the evaluation trenches will be surveyed by EDM tacheometry using a total station linked to a pen computer data logger. Excavation of the uppermost levels of modern overburden/demolition material will be undertaken by a machine fitted with a toothless ditching bucket to the top of the first significant archaeological level. The work will be supervised by a suitably experienced archaeologist. Spoil from the excavation will be stored adjacent to the trench, and *backfilled on completion* of the archaeological works. Thereafter, excavation will proceed by hand to establish the upper surface of the Roman road surface, should it survive *in situ*.

3.2.4 If the road surface is encountered, it will be cleaned to define its extent, nature, character and form. A section will then be excavated through it to provide evidence for its depth and to identify any buried soils horizons that may exist beneath the road. In the event of encountering buried soil horizons, these will be subject to a programme of environmental sampling, which would require a contingency sum. In the first instance, a series of monolith samples will be taken, which will be assessed for pollen. Bulk samples of 30 litres volume (to be sub-sampled at a later stage) will also be collected and will be assessed for plant macrofossils and charred plant remains.

3.2.5 All information identified in the course of the site works will be recorded stratigraphically, using a system adapted from that used by the Centre for

Archaeology Service of English Heritage, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features.

- 3.2.6 Results of the evaluation will be recorded on *pro-forma* context sheets. The site archive will include both a photographic record and accurate large-scale plans and sections at an appropriate scale (1:20 and 1:10). These will be draughted using manual techniques.
- 3.2.7 ***Evaluation trenching of the former bleach works:*** this site will be investigated initially via three trenches, placed in the positions shown in Figure 1. Historic map regression analysis has indicated that the site of the bleach works has sustained little, or no, development since the works was demolished, and therefore offers a high potential for the survival of buried remains. These may include elements of the steam power plant and bleaching vats or keirs. The first trench will be placed along the length of the works, and will aim to investigate the survival of gable walls and any internal structures. The second and third trenches will be placed across the works, and will aim to investigate the survival of the keirs and steam power plant respectively.
- 3.2.8 Excavation of the uppermost levels of modern overburden/demolition material will be undertaken by a machine fitted with a toothless ditching bucket to the top of the first significant archaeological level. The work will be supervised by a suitably experienced archaeologist. Spoil from the excavation will be stored adjacent to the trench, and will be backfilled upon completion of the archaeological works.
- 3.2.9 Machine excavation will then be used to define carefully the extent of any surviving foundations, floors, and other remains. Thereafter, structural remains will be cleaned manually to define their extent, nature, form and, where possible, date.
- 3.2.10 All information identified in the course of the site works will be recorded stratigraphically, using a system adapted from that used by the Centre for Archaeology Service of English Heritage, with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features.
- 3.2.11 Results of the evaluation will be recorded on *pro-forma* context sheets. The site archive will include both a photographic record and accurate large-scale plans and sections at an appropriate scale (1:50 and 1:20). All artefacts and ecofacts will be recorded using the same system, and will be handled and stored according to standard practice (following current Institute of Field Archaeologists guidelines) in order to minimise deterioration.
- 3.2.12 A full and detailed photographic record of individual contexts will be maintained and similarly general views from standard view points of the overall site at all stages of the evaluation will be generated. Photography will be undertaken using 35mm cameras on archivable black and white print film as well as colour transparency, and all frames will include a visible, graduated metric scale. Extensive use of digital photography will also be undertaken

throughout the course of the fieldwork for presentation purposes. Photographs records will be maintained on special photographic *pro-forma* sheets.

- 3.2.13 The precise location of the evaluation trenches, and the position of all archaeological structures encountered, will be surveyed by EDM tacheometry using a total station linked to a pen computer data logger. This process will generate scaled plans within AutoCAD 14, which will then be subject to manual survey enhancement. All information will be tied in to Ordnance Datum.
- 3.2.14 **Evaluation trenching of the calico-printing works:** this site will be investigated via eight trenches, placed in the positions shown in Figure 1. The calico-printing works expanded considerably during the 19th century, and the trenches have been targeted to provide evidence for all stages in the site's development. The evaluation methodology will adhere to that outlined above in reference to the bleach works.
- 3.2.15 **Evaluation trenching of Wilton Mill:** this site will be investigated via three trenches, placed in the positions shown in Figure 1. These trenches will aim to investigate the buried remains of the steam power plant, which are likely to include the foundations of a steam engine, its boilers and associated flues and an economiser. The evaluation methodology will adhere to that outlined above in reference to the bleach works.
- 3.2.16 **Finds policy:** finds recovery and sampling programmes will be in accordance with best practice (following current Institute of Field Archaeologists guidelines) and subject to expert advice in order to minimise deterioration. Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC).

3.3 ARCHIVE PREPARATION AND REPORT PRODUCTION

- 3.3.1 **Archive:** the results of the fieldwork will form the basis of a full archive to professional standards, in accordance with current English Heritage guidelines (*The Management of Archaeological Projects*, 2nd edition, 1991) and the *Guidelines for the Preparation of Excavation Archives for Long Term Storage* (UKIC 1990). 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.
- 3.3.2 The paper and finds archive for the archaeological work undertaken at the site will be deposited with the nearest museum which meets Museums' and Galleries' Commission criteria for the long term storage of archaeological material (MGC 1992). This archive will be provided in the English Heritage Centre for Archaeology format, both as a printed document and on computer disks as ASCII files (as appropriate).
- 3.3.3 Except for items subject to the Treasure Act, all artefacts found during the course of the project will be donated to the receiving museum.

- 3.3.4 A synthesis (in the form of the index to the archive and a copy of the publication report) will be deposited with the Greater Manchester Sites and Monuments Record. A copy of the index to the archive will also be available for deposition in the National Archaeological Record in London.
- 3.3.5 **Report:** four copies of a bound and collated final report will be submitted to the Client within six weeks of the completion of the fieldwork. At the Client's discretion, further copies will be sent to the Assistant County Archaeologist, the Greater Manchester Sites and Monuments Record, and the Bury Conservation Officer. The final report will include a copy of this project design, and indications of any agreed departure from that design. It will include an historical and archaeological background to the study area, an outline methodology of the investigation, and present, summarise, assess, and interpret the results of the programme of archaeological works detailed above. In addition, recommendations for any further mitigation works and details of the final deposition of the project archive will also be made.
- 3.3.6 **Confidentiality:** the final report is designed as a document for the specific use of the Client, and should be treated as such; it is not suitable for publication as an academic report, or otherwise, without amendment or revision. Any requirement to revise or reorder the material for submission or presentation to third parties beyond the project brief and project design, or for any other explicit purpose, can be fulfilled, but will require separate discussion and funding.
- 3.4 **OTHER MATTERS**
- 3.4.1 **Health and Safety:** OA North provides a Health and Safety Statement for all projects and maintains a Unit Safety policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers (1997). A written risk assessment will be undertaken in advance of project commencement and copies will be made available on request to all interested parties. OA North uses a U-Scan device prior to any excavation to test for services as a matter of course. It is assumed that the Client will provide any available information regarding services within the study area, if available. All OA North staff will be equipped with hard hats, safety boots, and high-visibility jackets.
- 3.4.2 Given the past use of the site, it is anticipated that there may be some contaminated soils present. A welfare unit (including washing facilities and designated eating areas) and appropriate PPE will therefore be provided by OA North.
- 3.4.3 It is anticipated that the site will be securely fenced from the public prior to the commencement of any archaeological works. Any requirement for OA North to provide and erect fencing will be subject to additional costing.
- 3.4.4 **Insurance:** the insurance in respect of claims for personal injury to or the death of any person under a contract of service with the unit and arising out of an in the course of such person's employment shall comply with the

employers' liability (Compulsory Insurance) Act 1969 and any statutory orders made there under. For all other claims to cover the liability of OA North, in respect of personal injury or damage to property by negligence of OA North or any of its employees, there applies the insurance cover of £2m for any one occurrence or series of occurrences arising out of one event.

- 3.4.5 **Monitoring:** it is recommended that the Assistant County Archaeologist and the Bury Conservation Officer are invited to view the archaeological evaluation during the course of the fieldwork. Any such meeting can be arranged by OA North.

4 WORK TIMETABLE

- 4.1 A four week period should be allowed to excavate, record and backfill the evaluation trenches. A further one week period may be required for additional excavation in the event of encountering the Roman road.
- 4.2 A report will be submitted within six weeks of the completion of the fieldwork.
- 4.3 OA North can execute projects at very short notice once an agreement has been signed with the Client.

5 STAFFING PROPOSALS

- 5.1 The project will be under the overall charge of **Ian Miller BA** (OA North Project Manager) to whom all correspondence should be addressed. Ian has considerable experience and particular research interests in Industrial Archaeology and, amongst numerous other projects, was involved in the excavation recording, analysis and publication of the Netherhall blast furnace site in Maryport, Cumbria, the excavation, recording and publication of work at Carlton Bank alum works in North Yorkshire, and the excavation of Macintosh Mill in Manchester. He is currently managing the major programme of conservation-based archaeological investigation at Murrays' Mills in Ancoats.
- 5.2 The evaluation is likely to be undertaken by **Sean McPhillips BA** (OA North Project Supervisor). Sean is an highly experienced field archaeologist, who has a particular interest in Industrial Archaeology, and especially that of the Manchester region. Sean recently directed the archaeological investigation of a complex of textile mills at the Torrs in New Mills, and a programme of archaeological evaluation of the textile mills in Ancoats associated with the Millennium Village project. Sean also played a key role in the recent excavations at Calprina Works, Stalybridge, and Macintosh Mill, Manchester. Sean will be assisted by two field technicians.
- 5.3 Assessment of any finds from the excavation will be undertaken by OA North's in-house finds specialist **Christine Howard-Davis BA** (OA North Finds Manager). Christine has extensive knowledge of all finds of all periods from archaeological sites in northern England, and is a recognised expert in the analysis of glasswork.
- 5.4 Assessment of any palaeoenvironmental samples which may be taken will be undertaken by **Elizabeth Huckerby MSc MIFA** (OA North Project Officer). Elizabeth has extensive knowledge of the palaeoecology of the North West through her work on the English Heritage-funded North West Wetlands Survey.

ILLUSTRATIONS

Figures

Figure 1: Location Map

Figure 2: Plan of an Estate belonging to Messrs Hutchinson in the Parish of Radcliffe, 1860

Figure 3: Position of the evaluation trenches superimposed upon the current Ordnance Survey map

Figure 4: Position of the trench across the bleach works superimposed upon the 1893 Ordnance Survey map

Figure 5: Archaeological detail within Trench 8

Plates

Plate 1: Aerial view of the study area, though to have been taken during the late 1930s.

Plate 2: Aerial view of the study area taken in 1996 (GMSMR F5-11)

Plate 3: View of natural gravel within Test pit 7

Plate 4: Sluice junction *117* at the north edge of Trench 1

Plate 5: Capping along the north edge of culvert *103*

Plate 6: Chamber *104*

Plate 7: Repair within inner face of chamber *104*

Plate 8: Channel *110*, south of stone base *102*

Plate 9: Stone bases *101* and *102*, bordered by drain *100*

Plate 10: View of site looking north/west, showing methods of water carriage



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0 5000
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Figure 1: Location Map

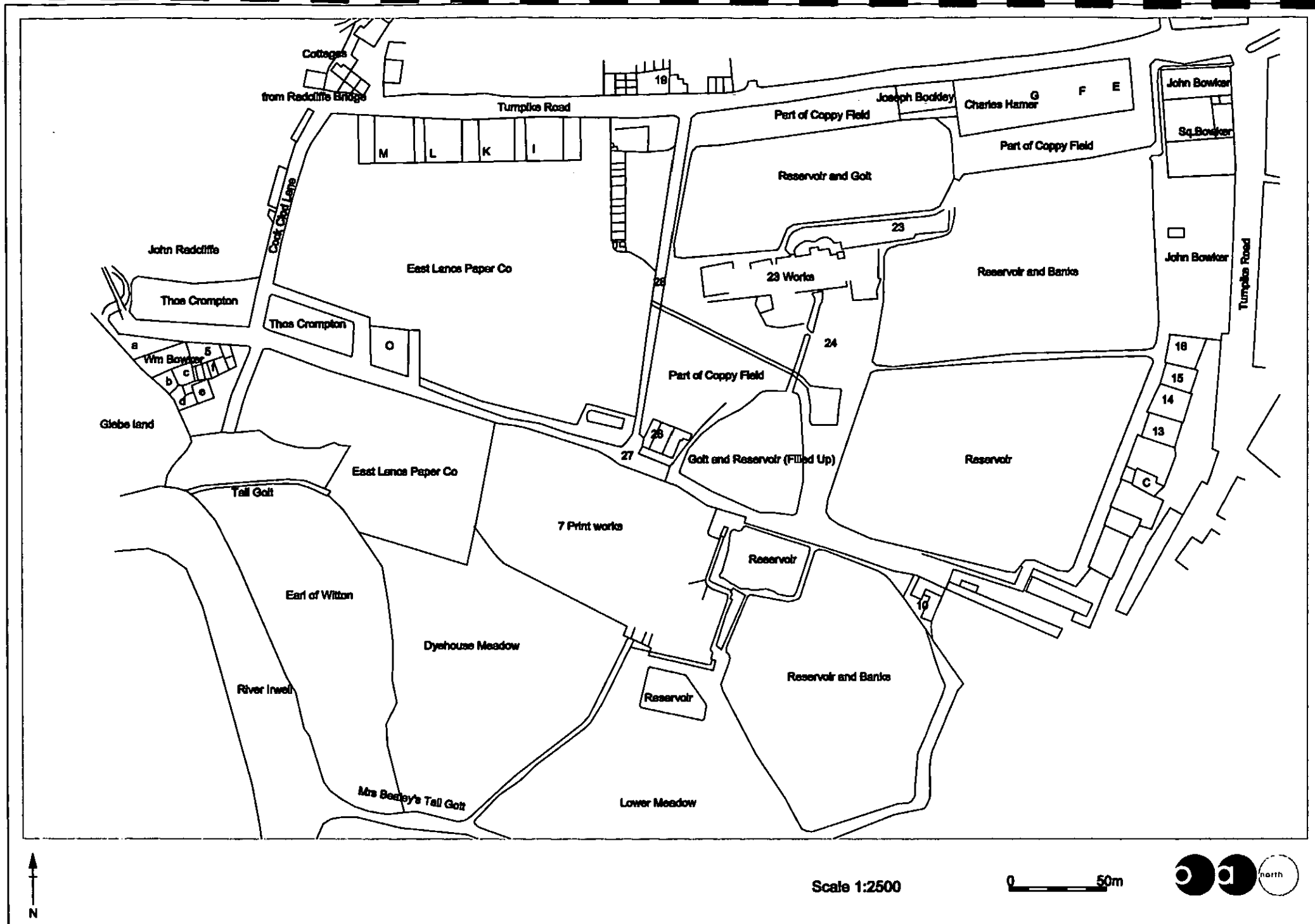


Figure 2: Plan of an Estate belonging to Messrs Hutchinson in the Parish of Radcliffe, 1860

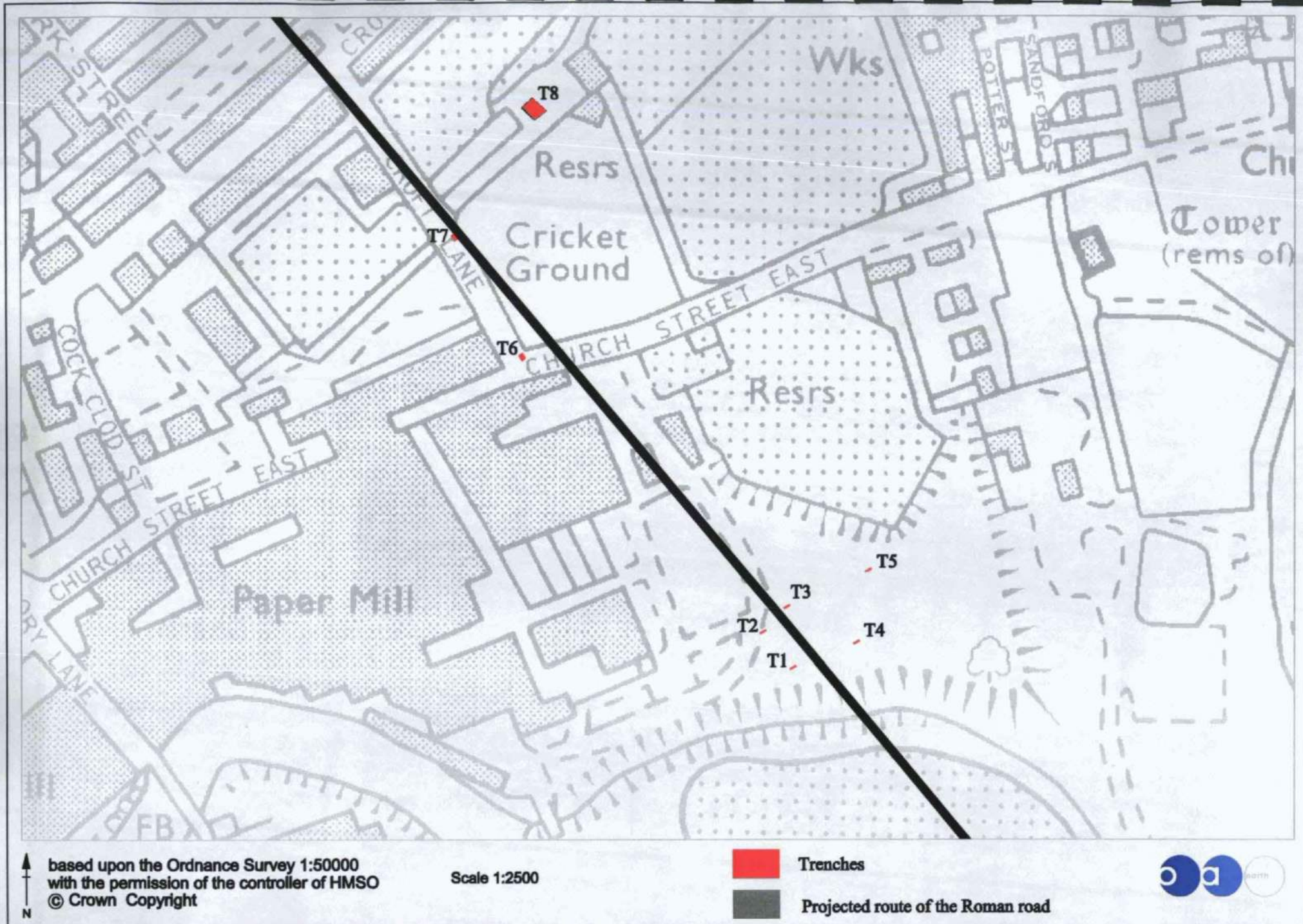


Figure 3: Position of evaluation trenches superimposed upon the current Ordnance Survey map



based upon the Ordnance Survey 1:50000
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Scale 1:500

0 250m



Figure 4: Position of the trench across the bleach works superimposed upon the 1893 Ordnance Survey map

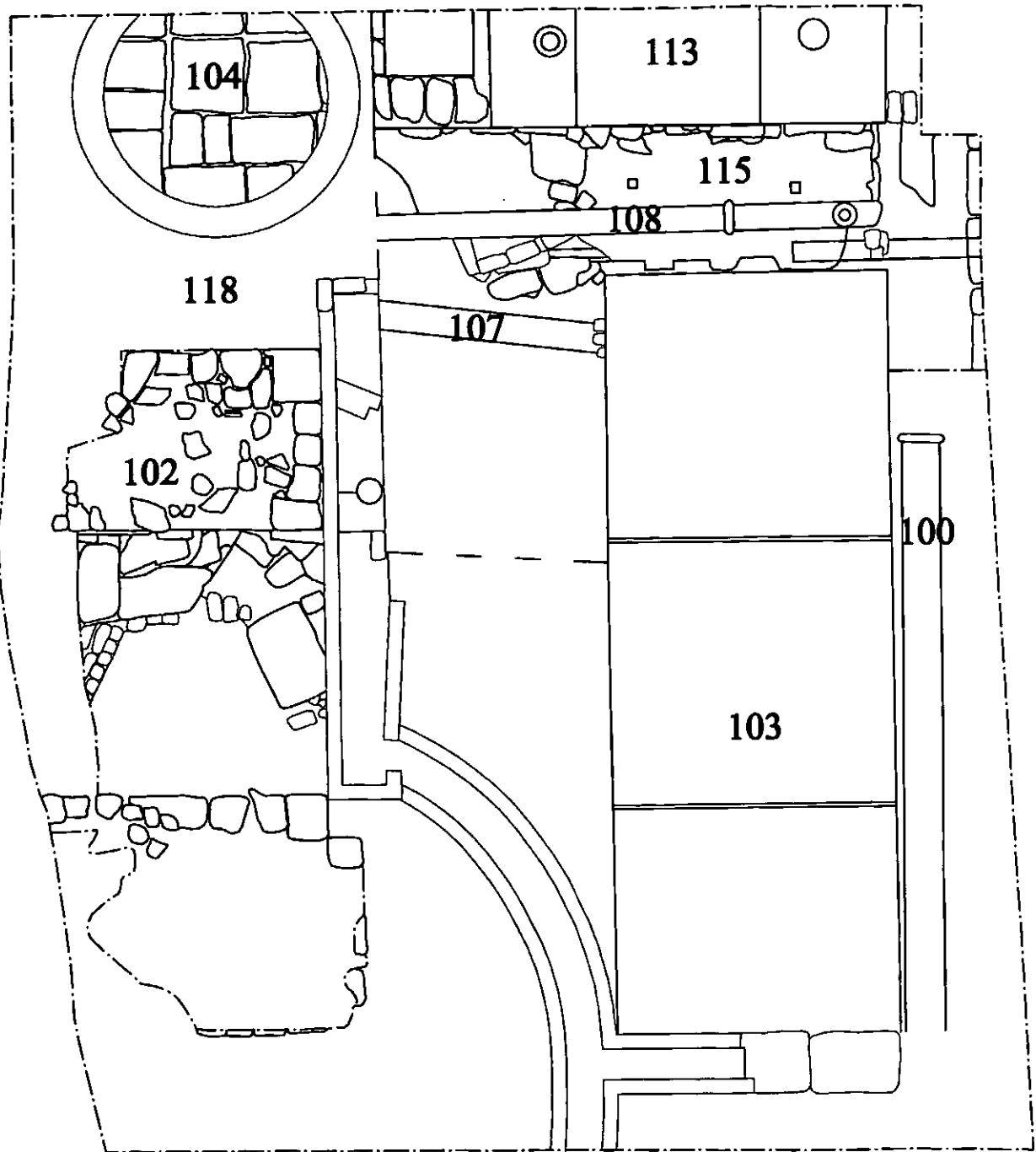


Figure 5: Archaeological detail within Trench 8



Plate 1: Aerial view of the study area, though to have been taken during the late 1930s. The remains of the bleach works and the cricket pitch may be seen surrounded by the series of lodges. Wilton Mill may also be seen in the centre foreground.

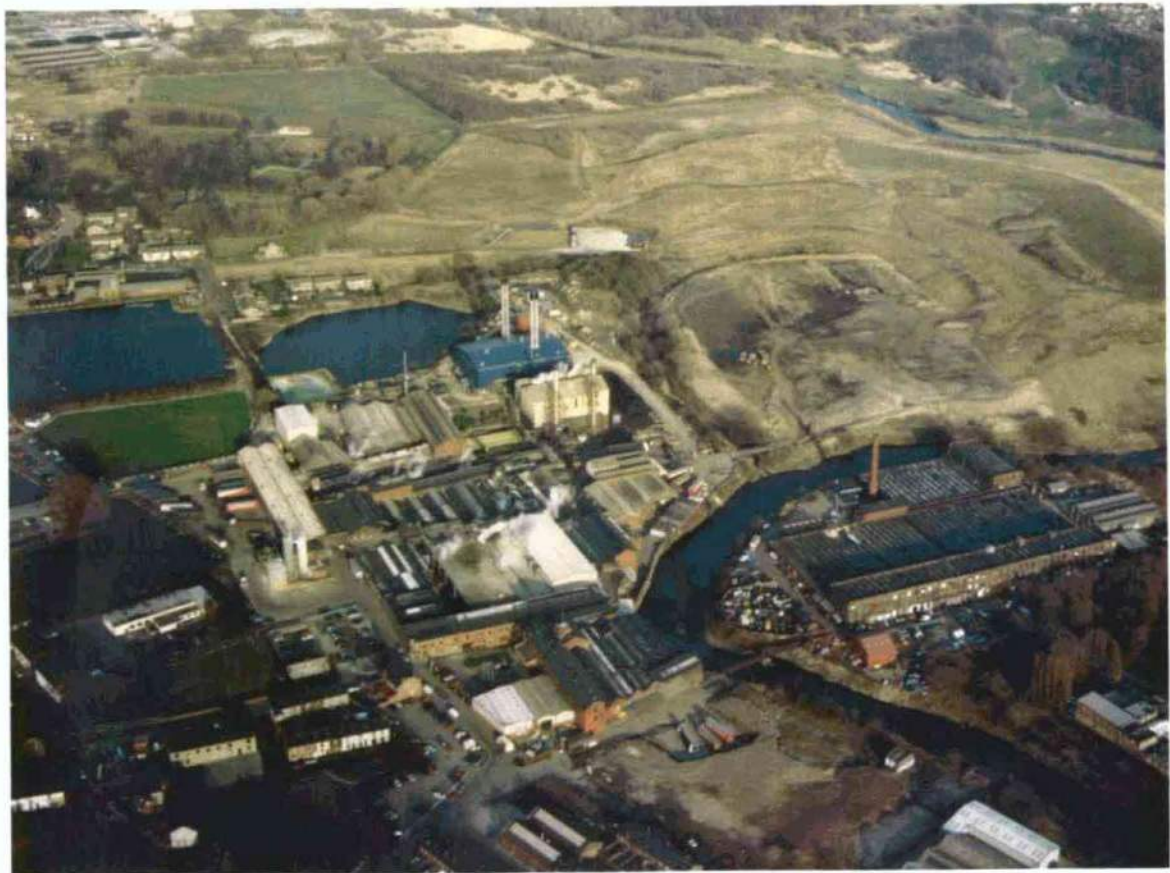


Plate 2: Aerial view of the study area taken in 1996 (GMSMR F5-11)

Plate 4: Sluice junction *117* at the north edge of Trench 1



Plate 3: View of natural gravel within Test pit 7





Plate 5: Capping along the north edge of culvert *103*



Plate 6: Chamber *104*



Plate 7: Repair within inner face of chamber *104*



Plate 8: Channel *110*, south of stone base *102*



Plate 9: Stone bases *101* and *102*, bordered by drain *100*



Plate 10: View of site looking north/west, showing methods of water carriage



Appendix E – Report Conditions

Archaeological Evaluation Written Scheme of Investigation, Former East Lancashire Paper Mill, Radcliffe

This report is produced solely for the benefit of the **Homes England and Bury Council** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed by us in writing.

This report is prepared for the proposed uses stated in the report and should not be relied upon for other purposes unless specifically agreed by us in writing. In time technological advances, improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of WYG using reasonable skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented accordingly within the scope for this report.

Reliance has been placed on the documents and information supplied to WYG by others, no independent verification of these has been made by WYG and no warranty is given on them. No liability is accepted or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst reasonable skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal, budget and weather related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.

July 2019,

WYG Environment Planning Transport Ltd