



THURLAND MILL, CANTSFIELD, LANCASHIRE

Archaeological Building Investigation and Watching Brief



Oxford Archaeology North

January 2006

Paul Hilton

Issue No: 2005-06/321

OAN Job No: L9446

NGR: SD 6084 7282

Planning Application No:
01/02/0983/CU

Document Title: THURLAND MILL, CANTSFIELD, LANCASHIRE

Document Type: Archaeological Building Investigation and Watching Brief

Client Name: Paul Hinton

Issue Number: 2004/5-321
OA Job Number: L9446

National Grid Reference: SD 6084 7282

Prepared by:	Karl Taylor	Daniel Elsworth
Position:	Project Supervisor	Project Officer
Date:	January 2006	
Checked by:	Alison Plummer	Signed.....
Position:	Senior Project Manager	
Date:	January 2006	
Approved by:	Alan Lupton	Signed.....
Position:	Operations Manager	
Date:	January 2006	

Planning Application Ref: 01/02/0983/CU

Oxford Archaeology North

Storey Institute
Meeting House Lane
Lancaster
LA1 1TF
t: (0044) 01524 848666
f: (0044) 01524 848606

w: www.oxfordarch.co.uk
e: info@oxfordarch.co.uk

© Oxford Archaeological Unit Ltd (2006)

Janus House
Osney Mead
Oxford
OX2 0EA
t: (0044) 01865 263800
f: (0044) 01865 793496

Oxford Archaeological Unit Limited is a Registered Charity No: 285627

Disclaimer:

This document has been prepared for the titled project or named part thereof and should not be relied upon or used for any other project without an independent check being carried out as to its suitability and prior written authority of Oxford Archaeology being obtained. Oxford Archaeology accepts no responsibility or liability for the consequences of this document being used for a purpose other than the purposes for which it was commissioned. Any person/party using or relying on the document for such other purposes agrees, and will by such use or reliance be taken to confirm their agreement to indemnify Oxford Archaeology for all loss or damage resulting therefrom. Oxford Archaeology accepts no responsibility or liability for this document to any party other than the person/party by whom it was commissioned.

CONTENTS

SUMMARY	3
ACKNOWLEDGEMENTS.....	4
1. INTRODUCTION	5
1.1 Circumstances of the Project	5
2. METHODOLOGY.....	6
2.1 Project Background.....	6
2.2 Historical Research	6
2.3 Building Investigation.....	6
2.4 Archive.....	7
3. BACKGROUND.....	8
3.1 Location Geology and Topography	8
3.2 History and Archaeology	8
4. BUILDING INVESTIGATION RESULTS	10
4.1 Introduction.....	10
4.2 Fabric	10
4.3 Arrangement of the Building	10
4.4 External Details.....	11
4.5 Internal Details.....	12
4.6 Finds.....	14
5. WATCHING BRIEF RESULTS.....	15
5.1 Introduction.....	15
5.2 Results.....	15
5.3 Finds.....	16
6. DISCUSSION.....	17
6.1 Introduction.....	17
6.2 Building Investigation.....	17
6.3 Watching Brief.....	18
6.4 Site Chronology	19
7. IMPACT AND RECOMMENDATIONS	21
7.1 Impact	21
7.2 Recommendations	21

8.	BIBLIOGRAPHY	22
8.1	Primary Sources	22
8.2	Secondary Sources	22
9.	ILLUSTRATIONS	23
9.1	List of Figures	23
9.2	List of Plates	23
APPENDIX 1: PROJECT BRIEF		24
APPENDIX 2: PROJECT DESIGN.....		25
APPENDIX 3: LIST OF FEATURES RECOMMENDED FOR RETENTION.....		26
APPENDIX 4: SUMMARY CONTEXT LIST.....		27
APPENDIX 5: FINDS SUMMARY		28

SUMMARY

Following a proposal by Mr Paul Hilton to convert the former Thurland Mill for domestic use a programme of archaeological recording was recommended by the Lancashire County Archaeological Service. This was to comprise a rapid examination of documentary sources, a building investigation and a watching brief during the work.

A mill is thought to have existed at the site since the early thirteenth century, although the present building is considerably later. The earliest confirmed references to 'Thurland Mill' only appear in the early eighteenth century; there are records to 'Greeta Mills' in the nineteenth century but it is not clear if this is the same site. Part of the site was also used as a corn-drying kiln in the mid-nineteenth century, and it appears to have entirely gone out of use as a mill by the beginning of the twentieth century, at which time it was partially converted for use as a saw mill and yard for the Thurland Castle estate.

The building investigation revealed that the surviving building is probably relatively late in date and seems to comprise a single phase of construction, with few alterations. Those that were evident seem to relate to the subsequent changes to use as a sawmill and the conversion of neighbouring buildings into cottages, which probably also led to the infilling of the mill leat. The watching brief also confirmed that a number of later alterations had been carried out, including the deviation of the water supply around the building, and the demolition of structures probably associated with the earlier mill.

There was no evidence for a structure on the site prior to the eighteenth or nineteenth century, although the extensive alterations that have evidently taken place may have disguised any remains of this. Remains relating to the earlier corn-drying kiln, and possible parts of machinery associated with the previous mill were recovered, however.

ACKNOWLEDGEMENTS

Oxford Archaeology North (OA North) would like to thank Paul Hilton for commissioning the project and for providing the architects plans.

The report was written by Karl Taylor, who carried out the building investigation, and Daniel Elsworth, who carried out the watching brief. Ian Miller examined the metal artefacts, Jo Dawson examined the other finds, and Mark Tidmarsh produced the drawings. The project was managed by Alison Plummer who, also edited the report.

1. INTRODUCTION

1.1 CIRCUMSTANCES OF THE PROJECT

- 1.1.1 Following the approval of a planning application (planning application reference 01/02/0983/CU) by Lancaster City Council to convert the vacant mill at Thurland, Cantsfield, Lancashire (SD 6084 7282; Fig 1) into a single dwelling, a programme of archaeological recording was recommended by Lancashire County Archaeology Service (LCAS). The mill is considered to be of some historical and archaeological significance, which will be impacted upon by the proposed development. The appearance and fabric of the mill will also be affected by the conversion.
- 1.1.2 The project was to consist of a level II-type survey (RCHME 1996), which comprises a descriptive internal and external record combined with drawings and photographs. The report sets out the results of the archaeological building investigation in the form of a short document, outlining the results of the survey followed by a discussion of the archaeological potential and significance and an assessment of the impact the proposed development may have upon the building.

2. METHODOLOGY

2.1 PROJECT BACKGROUND

- 2.1.1 A written brief for the project was produced by LCAS (*Appendix 1*), in response to which OA North produced a Project Design (*Appendix 2*). Following the acceptance of the design by LCAS OA North was commissioned to undertake the building investigation. This was carried out in October 2004.

2.2 HISTORICAL RESEARCH

- 2.2.1 A limited amount of historical research aimed at providing information specifically about the development of the building was undertaken. Several sources were used ranging from primary documents and maps, to secondary sources such as local and regional histories.

2.3 BUILDING INVESTIGATION

- 2.3.1 ***Descriptive Record:*** written records using OA North *pro forma* record sheets were made of all principal building elements, both internal and external, as well as any features of historical or architectural significance. Particular attention was also paid to the relationship between parts of the building, especially those that would show its development and any alterations. These records are essentially descriptive, although interpretation is carried out on site as required.
- 2.3.2 ***Site drawings:*** architects 'as existing' drawings were annotated to produce plans of all of the main floors, one cross-section and elevations. These were produced in order to show the form and location of structural features and/or features of historical and historic interest. Where necessary these drawings were manually enhanced using hand survey techniques. The hand-annotated field drawings were digitised using an industry standard CAD package to produce the final drawings (Figs 1-5).
- 2.3.3 ***Photographs:*** photographs were taken in both black and white 35mm print and colour slide formats. In addition, pictures were taken using a digital camera. The photographic archive consists of both general shots of the whole building and shots of specific architectural details.
- 2.3.4 ***Watching Brief:*** the watching brief was intended to record any elements of archaeological interest uncovered both within the building following the removal of wall surfaces and/or floors, but also during the excavation of foundations to the east of the mill. Any features of interest were recorded on OA North *pro forma* record sheets and the details either annotated onto existing plans or new measured sketch plans were drawn. Photographs in both black and white and colour slide were taken of features of interest and the general site.

- 2.3.5 ***Finds*** : any finds recovered during either the building survey or the watching brief were retrieved and their location recorded. They were then examined by the appropriate specialists at OA North.

2.4 ARCHIVE

- 2.4.1 The results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). This archive, including a copy of the report, will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the SMR (the index to the archive and a copy of the report). In this instance the archive will be submitted to the County Record Office (Preston).

3. BACKGROUND

3.1 LOCATION GEOLOGY AND TOPOGRAPHY

- 3.1.1 Thurland Mill is located to the south of the village of Tunstall, Lancashire. The building lies adjacent to the main A683 Lancaster to Kirby Lonsdale road (Fig 2).
- 3.1.2 The Lune valley is generally gently sloping and undulating. The solid geology is composed of Millstone Grit with an overlying drift of till and gravels (Countryside Commission, 1998).

3.2 HISTORY AND ARCHAEOLOGY

- 3.2.1 Prior to the construction of the present mill it is likely that there was an earlier structure on or around the site. A mill was first recorded at in Cantsfield in 1208 (Farrer and Brownbill 1914, 232), and although its exact location is unknown it is thought to correspond to that at Thurland, which was part of the Cantsfield estate. It is also not clear what name the mill had in its earliest form, although it is certainly referred to as Thurland Mill by the early part of the eighteenth century (LRO(P) QSP/1360/5 c1733).
- 3.2.2 There are remarkably few other early references to the mill. The directories give little information about the area in general, and the earliest reference to a mill in Cantsfield is to 'Greeta Mills', which are occupied by William Hayhurst (Kelly 1873), while there is no reference at all in 1901 (Kellys Directories Limited 1901, 1084). It is not clear whether this is the same mill or not, although William Hayhurst is also the occupier in the 1840s (LRO(P) DRB 1/34 1849). A will of James Guy from 1808, who is also listed as living at Greeta Mill, unfortunately does not provide any additional information (LRO(P) WRW/R630/17 1808).
- 3.2.3 **Map regression:** the earliest detailed map of the site is the Tithe Map of 1846. This shows the mill with a wheel on the south-west end of the range of buildings, situated in the millrace, which is to the south, and a malt kiln attached to the north-east end of the buildings (LRO(P) DRB 1/34 1846; Fig 6). The entire site is described as being owned by Richard Toulman North Esq, and the mill is occupied by a William Hayhurst and comprises a mill house, outbuildings and malt kiln (LRO(P) DRB 1/34 1849). The First Edition 6": 1 Mile Ordnance Survey map of 1847 shows the same situation and the buildings are described as a malt kiln and corn mill (Ordnance Survey 1847). The present mill building, and the subject of this investigation, does not appear until the 25": 1 Mile Ordnance Survey map of 1891 (Plate 1). This shows a slightly larger complex of buildings with the current mill building occupying a site to the south-west of the rest, and the walkway around the north-east and north-west sides is visible (Plate 1). There has also evidently been some alteration to the water supply system, as the millrace is divided at the present mill building by a pond, with one branch passing through the mill and another

passing round it to the north. The Ordnance Survey map of 1913 shows even more alterations, with the addition of what is obviously a system of sluices guiding water around the mill, with branches apparently heading north and south-west (Ordnance Survey 1913). The mill itself appears unchanged at this point, although an additional structure has been added to the south-west side.

- 3.2.4 During the early twentieth century the mill evidently stopped being used for grinding corn as it is marked as 'disused' on an estate plan of 1929 (LRO(P) DDX 550/1 1929). In the same documents it is described thus: *'Thurland Mill (now disused) is situated close to Greeta Bridge and has been partially converted into an Estate Yard with fitted planking bench and saw bench 4ft by 2ft driven by a 10 H.P. Weber Oil Engine'* (ibid). The adjoining buildings to the north are described as *'Stone and Slab Roofed Cottage formerly the Mill House and containing Hall, Parlour, Kitchen, Back Kitchen, Larder and Pantry with Five Bedrooms over'* (ibid).

4. BUILDING INVESTIGATION RESULTS

4.1 INTRODUCTION

- 4.1.1 Thurland Mill is a small vernacular building with limited evidence of alteration and modification. It is single storey with two small rooms, a corrugated steel lean-to and a mill leat which passes beneath the main room (Fig 2). The leat enters the building from the south-east (originating from above a weir on the River Greta), passes under the building and the car park to the north-west and reappears approximately 30m north-west of the building. It then passes under the main A683 Lancaster - Kirkby Lonsdale Road on its way to Cant Beck and eventually back to the Greta.

4.2 FABRIC

- 4.2.1 The entire building is constructed (except the lean-to, which is timber-framed with corrugated steel-cladding) of random-coursed yellow sandstone built using lime mortar with tool-marked sandstone quoins at the wall corners and door openings. The area that may have housed the wheel contains some concrete walling material. The three windows are timber mullions. The roof is constructed of Cumbrian slate laid in diminishing courses with a sandstone ridge and the rain water goods are cast iron. The building is in generally good condition inside and out.

4.3 ARRANGEMENT OF THE BUILDING

- 4.3.1 Above ground the mill comprises two single-storey rectangular rooms of unequal size which are aligned parallel to each other on a north-west/south east axis (Fig 3). Both rooms have a single door located in the west elevation. Below the main northern room (Room 1) is another 'room' (Room 3) of similar proportions which forms the lower ground floor (Fig 4). This area probably housed a wheel mechanism and forms part of the mill leat. The eastern end of this room is open and forms the water entry route. The leat extends beyond the east elevation of Room 1 in the form of a tank-like structure. Both ground floor rooms are undivided and are separated from each other by a solid rubble stone wall. A sloping walkway is located around the north and west sides of the building. This provides access from the car park to the west, which is lower than the main building. The roof is of pitched construction with two pitched wings located above Room 2 at right angles to the main roof (Fig 5). The angle of pitch of the main roof is shallower between the wings. A single sandstone chimney stack is located centrally on the south slope of the main roof. The corrugated steel lean-to is built along the entire southern elevation of Room 2.

4.4 EXTERNAL DETAILS

- 4.4.1 **West (front) elevation of mill:** this comprises the west elevations of both Rooms 1 and 2, together with the west elevation of the lean-to (Plate 2). The wall of room 1 (which forms the gable of the main roof) is composed of random-coursed sandstone with lime mortar joints, which contains small pea gravel inclusions. Room 2 (west wing) comprises generally random-uncoursed sandstone and is stepped back slightly from room 1. The sandstone quoins and door lintels are grey in colour and the quoins are roughly squared-off, vary in size and some exhibit working in the form of tool marks. Two doorways are present which provide separate entry to both rooms. Both of these doorways have grey sandstone lintels, which exhibit picked decoration and furrow toolmarks on their undersides (Plates 2 and 3). The doorway into room 1 has a slightly worn sandstone threshold whilst room 2 has a concrete threshold. The doors are constructed of twin layers of beaded planks, vertical outside and horizontal inside and have large T-shaped hinges. The door into Room 1 has a circular vent located above the top hinge and a cast-iron handle with leaf-shaped flanges (Plate 3). The other door has a large octagonal knob. Both doors have simple beaded surrounds. To the south of the door into room 2 a wrought-iron 'clamp' has been inserted into the wall 2.1m above a stone trough measuring 0.9m x 0.64m. A cast-iron 'eye' is located 1.07m from the floor in the quoins on the south-west corner of the building. A sloping walkway runs along the length of the wall, which continues around the corner to the north elevation. This provides access to both rooms from the car park. The walkway is constructed of random-coursed sandstone with a concrete screeded surface. The rainwater goods comprise a single cast-iron gutter and down pipe located in corner where the two rooms join. To the south of the main elevation is the corrugated lean-to, which has a sloping roof and double doors.
- 4.4.2 **North elevation:** this is composed of the same construction as the west elevation with a cast-iron gutter at the base of the north slope of the main roof (Plate 4). There is no evidence for any blocked openings. The walkway runs along the entire elevation and steps up by 0.14m 7.28m from the north-west corner of the building and continues beyond the east end of the building for approximately 1.23m. At the north-east corner of the walkway is a projecting sandstone corbel exhibiting picked toolmarks, together with a vertical timber with a central groove, which appears to be a guide for a vertical board or gate (Plate 5). At the western end of the walkway in its north vertical rendered face is an aperture measuring 0.26 x 0.26m of unknown purpose.
- 4.4.3 **East elevation:** this is constructed in exactly the same manner as the west elevation except for the area above the window, which is random-uncoursed sandstone. The window located in the gable of Room 1 is a timber mullion (Plate 6). It has a sandstone lintel, which is similar to the door lintel on the west elevation. It also has a slightly fine-grained sandstone projecting sill which exhibits diagonal furrow tool marks. The glazing comprises a six-paned, side-opening casement on the right hand side together with a single 'perspex' sheet on the left; both sides are separated by a timber mullion. Below the window is a timber bearing box (Plate 7) measuring 0.34 x 0.34m through

which projects an iron-square section rod located in an iron inverted bell-shaped bracket. This rod is bolted to a short vertical length of timber. At the base of the wall is a horizontal rolled steel joist below which is the millrace opening into room **3**. Header stones are laid on top of the joist and the whole arrangement may be the replacement for an arch. The bottom of the mill leat is 2.4m below the joist. The corrugated lean-to is located to the south of the east wing.

4.4.4 **South elevation:** this is constructed in the same manner as the rest of the building with the addition of a slate damp proof course being visible approximately 0.1m above ground level. The elevation comprises the gables of the two pitched (east and west) wings (the apex of each gable is obscured by vegetation), together with the south wall of room **2**. Both gables contain a window, which has a projecting sill similar to the window in the east elevation. The lintels are difficult to see from the exterior (due to the lean-to roof) but from internal inspection are known to be of reused timber. The windows themselves are four-paned casements (eight in total) either side of a timber mullion. The glazing bars are thicker than the other window in the east elevation. A cast-iron bearing box is located near to ground level below and slightly to the west of the east window (Plate 8). A severed cast-iron shaft 2" in diameter projects through a slightly smaller opening from room **2**. An electrical junction box and switch gear is attached to the elevation below the east corner of the west gable. This bears the maker's name 'Morecambe Electric Equipment Co Ltd. Morecambe England'. The rainwater goods are cast-iron and comprise a single gutter and down pipe located centrally between the wings.

4.4.5 **The Mill Leat:** this forms room **3** and continues out and east towards (but not meeting) the access track to the cottages, which lie to the north-east of the mill. The stone leat is approximately 1m deep and is lined with concrete for some of its length. Where the leat meets the east elevation of the building and enters room **3** it steps down by approximately 1.03m. At the top of the lip two vertical guides are cast into the concrete lining of the leat. The bed of the leat is obscured by vegetation and debris. This appears as a pond on the 1891 Ordnance Survey map.

4.4.6 **The Lean-to:** various pieces of metallic and timber debris and general clutter are present, as well as a cast-iron rip saw bench together with an electric motor. The rip saw bears the makers name of 'J SAGAR & Co Ltd MAKERS HALIFAX ENG', and the motor is manufactured by 'CROMPTON PARKINSON GUISELY AND CHELTENHAM'. The lean-to is fixed to the south elevation and appears to have a bare earth floor.

4.5 INTERNAL DETAILS

4.5.1 Internally, the mill is divided into two main rooms (Rooms **1** and **2**) with room **3** forming the lower ground floor. The rooms are in good condition and both are wired for electricity and contain electric strip lighting.

- 4.5.2 **Ground Floor, Room 1:** this is the main room of the mill (Plate 9). The room is lime-plastered, rectangular and has one door, one window and evidence for a heating stove. The western part of the floor comprises 6.5" wide wooden boards with a 9" concrete skirting. Slightly out from the west wall the floor steps up 0.09m and comprises medium-density fibreboard (MDF) planks. Consequently, the ceiling height changes from 2.97m to 2.86m. The roof space has a partial ceiling with exposed north/south beams, which exhibit no decoration and are bolted and plated to the principal rafters. The only access into the room is via the doorway in the west elevation as described in *Section 4.4.1*, which has a lath- and -plaster lintel. The window in the east elevation (as described in *Section 4.4.3*) has a sloping sill and a simple iron catch on the opening casement. Modern pine shutters appear to have been recently installed. Below the window in the east wall is a hole, which passes through to the exterior elevation. The iron bar described in *Section 4.4.3* passes through this and into the room. At floor level the east wall curves under slightly and traces of the rolled steel joist described in *Section 4.4.3* are visible. Located in the south elevation of the room is the evidence for the heating stove. A flagstone measuring 0.8m x 0.68m, which forms the hearth has been inserted into the MDF and laid on top of the floorboards underneath. A circular hole, probably for the flue pipe is visible, underneath which is a cast-iron cleaning access door with 'BRADFORD Co LONDON & MANCHESTER' in relief. The top of a cast-iron ladder, which leads down to room 3, is set into the north elevation wall. Also in this wall an area of missing plaster may be the location of a previous electrical fuse board, as wooden ducting fixed to the wall terminates here.
- 4.5.3 **Ground Floor, Room 2:** this room is not plastered but has been whitewashed (Plate 10). It is slightly smaller than Room 1 and the floor is slightly lower. There is one door, two windows and no evidence for a fireplace. The floor is concrete. The room is open into the roof space that has exposed rafters, the spaces between these being filled with lime plaster. The southern end of the roof trusses noted in *Section 4.5.3* are visible and exhibit the same plates and bolts. The beams exhibit circular saw marks. The only access into the room is via the doorway in the west elevation as described in *Section 4.4.1*, which is identical to the one in Room 1, except this doorway has a chamfered timber lintel. The windows located in the two gables of the wings are as described in *Section 4.4.4*. Their lintels are timber and appear to have been reused. The windows are centrally-hinged pivoting twin casements with four lights (eight in total) separated by a timber mullion and have sloping sills. A bearing box, similar to the one described in *Section 4.4.4*, is located close to the floor in the north elevation. The aperture within which it is inserted passes right through the wall into the top of Room 3. The horizontal iron shaft noted in *Section 4.4.4* is connected to a lever and the shaft rests on a timber bearing block, which has two vertical studs and is located on the floor half way between the walls (Plate 11). The shaft would have passed through the corresponding hole in the south elevation through to the exterior of the building. A large (concrete) machine base is located in the south-west corner of the room, which appears to show evidence for a belt drive. To the west of this are two vertical iron rods 2" in diameter. In each corner of the room is a small ledge measuring 0.25m x 0.1m approximately 0.85m from the floor. An iron pipe is fixed to the

north wall approximately 0.8m above ground level. There is a crack running up the east elevation wall.

- 4.5.4 **Lower Ground Floor, Room 3:** this room forms part of the mill leat, which passed under room **1** and has the same footprint. It was waterlogged at the time of survey and access was limited. It is mainly constructed of random-coursed sandstone with pointing that is smeared over each stone. The eastern half of the room has been lined with concrete. The west elevation of the room comprises a stone arch (Plate 12). The arch is made up of stone headers similar to the ones in the east elevation. It has been blocked using different random stone, some of which appear not to have been pointed. The ceiling comprises massive timber planks and rolled steel joists and supports the floor of Room **1** above. Through this, and fixed into the north wall, passes an iron ladder as noted in Room **1**, *Section 4.5.2* (Plate 13). An iron bearing box, the same as those already described-is inserted in the south elevation at ceiling level. The top of the box cannot be seen as it is partially obscured by the ceiling.

4.6 FINDS

- 4.6.1 No finds were retrieved although a large cast-iron object (possibly a column or a shaft) was seen under the water in Room **3**

5. WATCHING BRIEF RESULTS

5.1 INTRODUCTION

- 5.1.1 A watching brief was carried out at the Old Mill following the building investigation, and following further recommendations by LCAS. This comprised two parts: the examination of areas of the interior of the building that had been exposed by the removal of wall and floor coverings, and the observation of the excavation of foundations to the east.

5.2 RESULTS

- 5.2.1 Within the building only a minimal amount of work had been carried out, mainly comprising the removal of wall coverings in Room 1. This revealed that the small projecting area of brickwork in the south-east end of the east elevation is actually blocking a small opening in the wall, although it could not be ascertained whether this passed through the entire thickness of the wall or not. In the centre of the east elevation there is a group of timber pegs built into the wall, presumably to support some form of fixture or machinery. Externally, where the walkway had been removed from the east elevation two apertures were visible (Plate 14). These were both approximately 0.3m to 0.5m wide and 0.5m tall, blocked with brick in a grey concrete mortar and covered by re-used roofing slates. It is not clear whether these apertures pass through the entire wall thickness, although it is considered likely. Their function is also unknown, although they may relate to the position of machinery, drive-shafts or other fixtures.
- 5.2.2 Within Room 3 the water had been drained and the details of the floor were visible. It was finished with a thick concrete skim, which formed a large, 1.3m wide trough, orientated east/west across the building with a steep slope on the north side. At the south end this was formed into a narrower section making the entire trough effectively T-shaped. It is not clear what the purpose of this was, although its position within the former leat might suggest it was intended to house the water-wheel or later machinery. To the south of Room 3, the area had already been entirely excavated to the level of the floor. There were no features of archaeological interest evident within the resulting hole, and the deposits visible in the section appeared to be entirely uniform sandy-clay and gravel.
- 5.2.3 The excavation of the foundations to the east of the mill revealed a number of features. Below the thin layer of concrete and gravel and loose gravel that covered the entire area was a layer of overburden (**101**) containing a large amount of stone, as well as fragments of brick and ceramic drainpipe. Beneath this, at the south end of the excavated area, was a thin layer of dark-brown sandy-clay (**102**), which overlay a layer of cobbles in a mid greyish-green sandy-cement (**103**; Plate 15), which were bedded in a layer of firm pale brown clay (**105**). These cobbles butted a wall comprising dressed sandstone blocks orientated east/west (**104**), which turned northwards at its east end,

although a further section of it extended east towards the neighbouring building at the south end.

- 5.2.4 To the north and west of this wall was a concrete wall (**106**; (Plate 16)), the southern part of which was associated with **104**. The concrete wall had a narrow, 0.3m wide, section orientated north/south, to the east of which was a concrete ramp. This was within a narrow channel (Plate 16), the east side of which was formed by a wall of roughly-dressed sandstone blocks with extruded grey mortar (**109**), which formed the opposing surface of wall **104** (Plate 16). To the west of **106**, between the north/south orientated wall and the east wall of the mill, was a deposit of sandy clay-gravel (**108**), probably re-deposited natural. The concrete making up **106** was related to a rebuilding of the foundations of the east elevation of the mill, also in concrete, which extended below ground for over two metres. Deposit **108** extended to a similar depth along the east elevation of the mill, although the lower part of it may have been part of the underlying natural geology (**113**).
- 5.2.5 Below the concrete wall and ramp/channel was a mid-brown deposit (**107**), containing green roof slates and small rounded stones. Below this was a layer of rounded green stones forming a possible cobbled surface (**110**), below which was a similar deposit to **107** (**112**). Beyond the south-east corner of wall **104/109** was a deposit of pale orange-brown firm clay (**111**), which is probably re-deposited. Along the east side of **104** was a deposit of rubble or demolition material at least 1.2m thick (**114**), comprising 75% large and medium angular stones, a considerable amount of mortar and numerous iron objects. A modern water pipe, orientated north/south, was also present within this, although it was not clear whether this cuts **114** or is contemporary with it. Deposit **114** may lie on top of **112**, although this is also not clear.

5.3 FINDS

- 5.3.1 A large number of artefacts, principally fragments of pottery and glass and numerous pieces of iron were recovered during the watching brief. The majority of these came from layers **101**, **108** and **114** and appear to relate to phases of demolition and major alterations to the site (*Appendices 4 and 5*).

6. DISCUSSION

6.1 INTRODUCTION

- 6.1.1 The inspection of the building and analysis of its form and construction suggests that it dates from the nineteenth century and it appears not to have undergone any major alterations since it was first constructed. Any alterations that have been carried out have been largely confined to the wheel pit, to the leat, and to the (possibly later) installation of a horizontal drive system.
- 6.1.2 Only one main phase of building is identifiable with some later modification of the wheel pit and leat. In all the development of this building can be divided into three main phases of activity which will be outlined below.

6.2 BUILDING INVESTIGATION

- 6.2.1 **Phase 1:** the First Edition Ordnance Survey map of 1891 shows a complex of buildings with what is probably the current building occupying a site to the south-west of the complex (Plate 1). Indeed, the walkway discussed in *Section 4.3.1* appears to be visible on this map. Room 3 with its blocked archway in the west elevation may relate to the tailrace exiting the building as noted on the map. The main race is shown as running in between the current mill and the house to the north-east. At the time of the building investigation a concrete garage occupied this area but the corbel and vertical sluice guide discussed in *Section 4.4.2* may be the remains of the sluice arrangements evident on the Ordnance Survey map of 1913. The small aperture also discussed in *Section 4.2.2* may represent the axle socket of the main wheel. The race (now infilled) would have carried on through the current car park. It is possible that a smaller, secondary wheel was located within Room 3 and that the floor of Room 1 was limited to the western side in order to accommodate the wheel. The cast-iron ladder described in *Section 4.4.2* would have been the only access into the pit. The MDF-covered section of floor may cover the original flooring arrangement. The chimney is probably contemporary with the rest of the building. The stone trough and wrought-iron bracket may be contemporary with the earliest phase.
- 6.2.2 **Phase 2:** modification of Room 3, including the concrete lining and insertion of the horizontal drive system, would possibly have taken place whilst the mill was still in operation. The horizontal drive passes right the way through the building and out of the south elevation and into the area now occupied by the lean-to. A previous temporary structure may have originally existed in here, which may have housed water-powered machinery of which no trace remains. A machine (now gone) may have been inserted into Room 2 at the same time, which appears to have been belt driven. The concrete floor may have been laid at this time also. The shaft has a disengagement lever attached to it suggesting that power was only required intermittently.

- 6.2.3 **Phase 3:** local residents suggest that the private dwellings now occupying the north-west of the site were converted in the mid-twentieth Century. The infilling of the millrace may date to this time. The decommissioning of the water-wheel was probably carried out as redundant wheels were rarely left in place (Wenham, 1989) but the horizontal drive system remains. The tailrace exiting Room **3** was blocked and infilled to create the current car park and the machinery was removed. The building probably became a small sawmill; the current lean-to was constructed and was wired for electricity. An electric motor now drives the rip saw described in *Section 4.4.6*.
- 6.2.4 The current building only forms a small part of the original mill complex at Thurland. The majority of the complex has already been converted into private dwellings. However, the building is largely in its original form and is situated in perhaps the most important part of the mill. The original doors and windows survive (the lintels in Room **2** appear to have been reused), together with the original roof trusses and part of the floor in Room **1**. The Cumbrian slate roof is largely intact, as are the rafters visible in Room **2** and the cast-iron rainwater goods. The walkway around the north and west elevations of the building probably gave access to the wheel. Some features such as the corbel and vertical sluice guide still remain and are important clues to the layout of the original wheel. The leat to the east of the building is a remaining fragment of the millrace and, as such, is an important survival. The wooden bearing box and rod inserted into the east elevation of Room **1** may be associated with the wheel and/or sluice mechanism.

6.3 WATCHING BRIEF

- 6.3.1 The majority of the features identified during the watching brief appear to correspond to alterations made to water management at the mill. The corbel and timber post recorded during the building investigation correspond to the position of the concrete channel, which was evidently constructed to control a flow of water around the east side of the mill. Whether this was because the original leat had gone out of use, or it formed an overflow, is not clear, but the blocking of the large aperture within the north end of Room **3** might suggest the former. The two blocked openings in the east elevation were originally hidden by the position of the walkway but it is likely that these relate to the position of early power transmission systems or wheel shafts. Similarly, the timber wedges built into the walls of Room **1** may also relate to fixtures associated with the use of the building.
- 6.3.2 The construction of walls **106** and **104/109** was evidently a single event, and formed a ramped channel orientated north/south, turning north-east at its north end. The cobbled surface (**103**) to the south may have been associated with this, although it may have been an earlier feature that was cut by the walls. The construction of this ramped channel undoubtedly coincides with the extensive alterations seen within the building, particularly Room **3**. These would appear to have been brought about by a change in the power supply within the mill.

- 6.3.3 The earliest deposits encountered during the watching brief did not reveal any evidence for a medieval structure on the site. The potential date range of some of the pottery (*Appendix 5*) would suggest that the previous mill (Fig 6) was unlikely to be older than the eighteenth century, although none of the finds allowed for close dating. The demolition layer (**114**), contained a considerable amount of iron remains including bolts, rivets and straps, which may have come from elements of an earlier mill, although the function and date of these was difficult to ascertain. A single piece of perforated brick was also recovered (and other pieces were seen during the watching brief), which is probably from the drying floor of a malt kiln, although corn mills are known to have had drying floors. This fits with the evidence from the documentary sources, which demonstrate that such a building was present on the site in 1849 (Ordnance Survey 1849). All of the other finds suggest a relatively late date of deposition, probably nineteenth century, and are therefore likely to relate to subsequent phases of alteration to the arrangement of the building and the water supply. Although no evidence for a structure or deposits pre-dating the eighteenth or nineteenth centuries was positively identified, it is possible that they may have existed but that they have been obliterated by later alterations.

6.4 SITE CHRONOLOGY

- 6.4.1 The results of the building investigation and the watching brief, combined with the information gathered by the rapid desk-based assessment, allow a relatively detailed chronology of the site to be produced.
- 6.4.2 **Pre-1846:** it is recorded that a mill existed at Cantsfield from 1208 although there is now apparently no trace of this structure remaining. Subsequent references to it demonstrate that it was probably known as Thurland Mill in the eighteenth century, although it was possibly also known as Greeta Mill. Some of the finds recovered during the watching brief are evidence for early activity on the site, although they reveal little information about any structural remains.
- 6.4.3 **1846-1891:** the earliest detailed representation of the mill shows the mill house to the north-east of the race with a malt kiln attached on the north side and the mill to the south-west with a single wheel situated within the millrace. This mill was used for grinding corn and it is possible that parts of wall **104** and the cobble floor **103** identified during the watching brief formed part of this original structure. The remains of perforated tiles from a drying floor correspond to the presence of a malt kiln and the large pieces of metal recovered from **114** relate to earlier structures on the site. There are evidently no remains of this building within the present mill.
- 6.4.4 **1891-1913:** the present building was evidently constructed shortly before 1891, at which time it was probably still being used as a corn mill. Later alterations to the arrangement of the millrace have effectively removed the evidence for the water management outside the building from this period and similarly, alterations to the interior of the building have removed early fixtures. The two blocked apertures in the north-east wall of the mill may

relate to an early power system, perhaps utilising the original wheel pit or millrace.

- 6.4.5 **1913-present:** the map evidence suggests that before 1913 the water management around the building was entirely reorganised. This undoubtedly corresponds to the change in use of the building to a sawmill, which had certainly taken place by 1929, the power systems for which are visible within the building. A concrete channel was constructed around the north side of the building and the exit for the millrace through the north-west end of Room 3 was blocked. The concrete channel large amount of dumped deposits and rubble identified during the watching brief correspond with the map evidence, and also suggest that earlier structures were demolished at this time.

7. IMPACT AND RECOMMENDATIONS

7.1 IMPACT

- 7.1.1 The proposal to redevelop the building at Thurland Mill into a private dwelling will probably impact upon the fabric and character of the building as it currently stands. It is also likely that any below ground remains will also be impacted upon if the proposed development includes scope for extending the building.

7.2 RECOMMENDATIONS

- 7.2.1 As the building is in relatively good condition as much of the original surviving fabric as possible should remain and be incorporated within the development. The lean-to is of no significant archaeological value, however. A short list of features recommended for retention is presented in *Appendix 3*.

8. BIBLIOGRAPHY

8.1 PRIMARY SOURCES

LRO(P) DDX 550/1, 1929 *Sales Particulars of Thurland Castle Estate*

LRO(P) DRB 1/34, 1846 *Plan of the Township of Cantsfield in the Parish of Tunstall, County Palatine of Lancaster, Part 3*

LRO(P) DRB 1/34, 1849 *Apportionment of the Rent-Charge in Lieu of Tithes in the Township of Cantsfield in the Parish of Tunstall in the County of Lancaster*

Ordnance Survey, 1847 6": *1 Mile*, Lancashire Sheet **19**, surveyed 1844-5

Ordnance Survey, 1891 25": *1 Mile*, Lancashire Sheet **19.16**, surveyed 1890

Ordnance Survey, 1913 25": *1 Mile*, Lancashire Sheet **19.16**, revised 1910

LRO(P) QSP/1360/5, c1733 *Cantsfield - certificate of good repair of highways from Tunstall to Thurland Mill*

LRO(P) WRW/R630/17, 1808 *Will: James Guy of Greeta Mill, Cantsfield, Tunstall, Feruary 27th*

8.2 SECONDARY SOURCES

Brunskill, RW, 2000 *Vernacular Architecture: An Illustrated Handbook*, 4th edn, London

Countryside Commission, 1998 *Countryside Character, Volume 2: North West*, Cheltenham

English Heritage, 1991 *Management of Archaeological Projects*, 2nd edn, London

Farrer, W, and Brownbill, J, (eds), 1914 *The Victoria History of the County of Lancashire*, **8**, London

Kelly's Directories Limited, 1901 *Directory of Lancashire*, 28th edn, London

Kelly, ER (ed), 1873 *The Post Office Directory of Lancashire, Liverpool and Manchestr*, London

RCHME, 1996 *Recording Historic Buildings: A Descriptive Specification*, 3rd edn, Swindon

Vince, J, 1993 *Discovering Watermills*, 6th edn, Princes Riseborough

Wenham, P, 1989 *Watermills*, London

9. ILLUSTRATIONS

9.1 LIST OF FIGURES

Figure 1: Location Map

Figure 2: Thurland Mill Complex

Figure 3: Plan of Ground Floor

Figure 4: Plan of Lower Ground Floor

Figure 5: Cross-Section Facing West

Figure 6: Part of the Tithe Map of 1846

9.2 LIST OF PLATES

Plate 1: Location of Thurland Mill and the Leat (Ordnance Survey 1891)

Plate 2: The west elevation

Plate 3: The door into Room **1**

Plate 4: The north elevation

Plate 5: Corbel and post at east end of walkway

Plate 6: The east elevation (part)

Plate 7: Bearing box beneath window on east elevation

Plate 8: Bearing box in south elevation

Plate 9: Room **1** facing west

Plate 10: Room **2** facing east

Plate 11: Shaft in Room **2** facing east

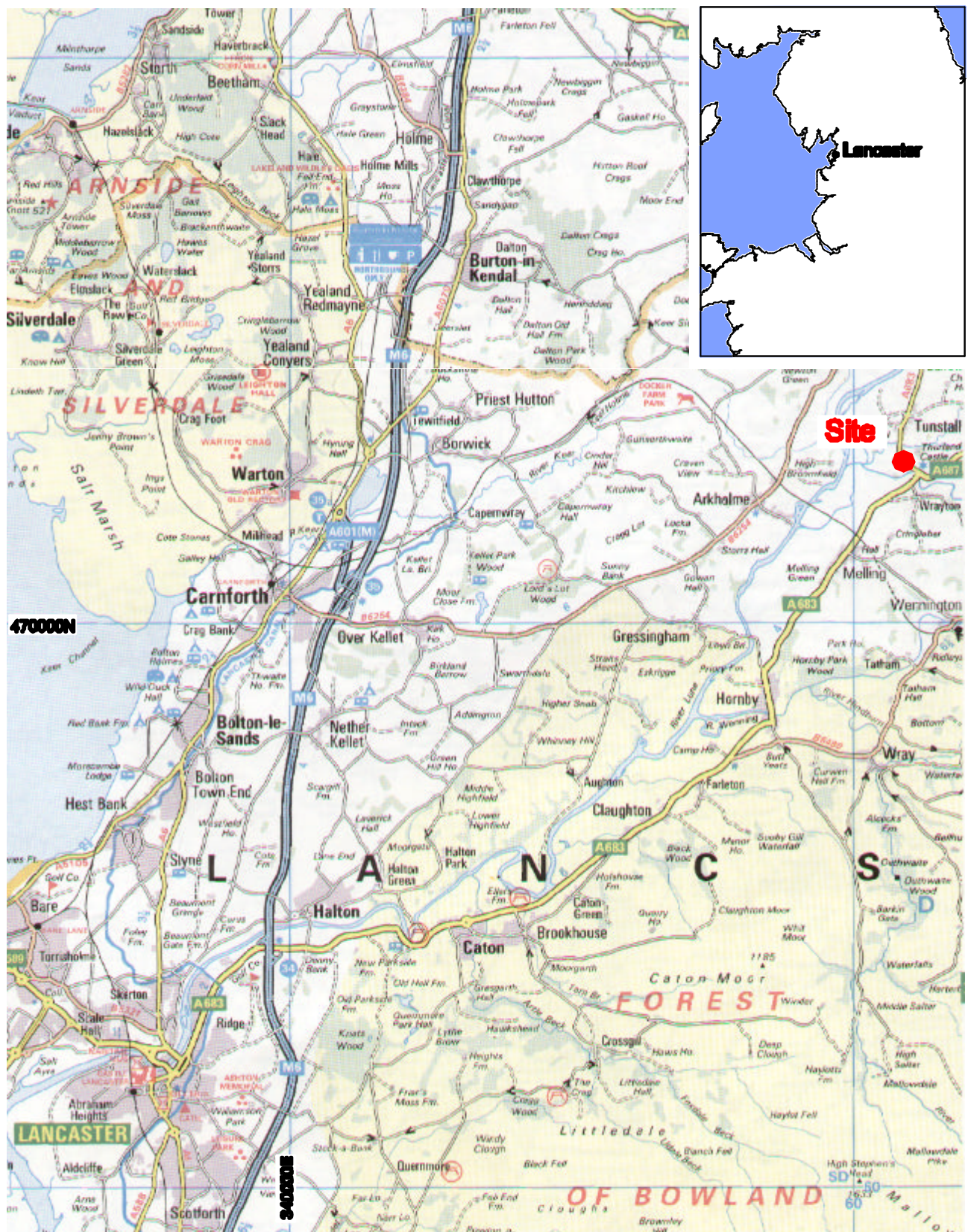
Plate 12: Room **3** facing west

Plate 13: Ladder connecting Rooms **1** and **3**

Plate 14: Blocked aperture in the east elevation of the mill, uncovered during the watching brief

Plate 15: Cobbled surface **103**

Plate 16: The concrete and stone-lined channel (**106** and **109**) during excavation



based upon the Ordnance Survey 1:100,000
with the permission of the controller of HMSO
© Crown Copyright



Figure 1: Location Map

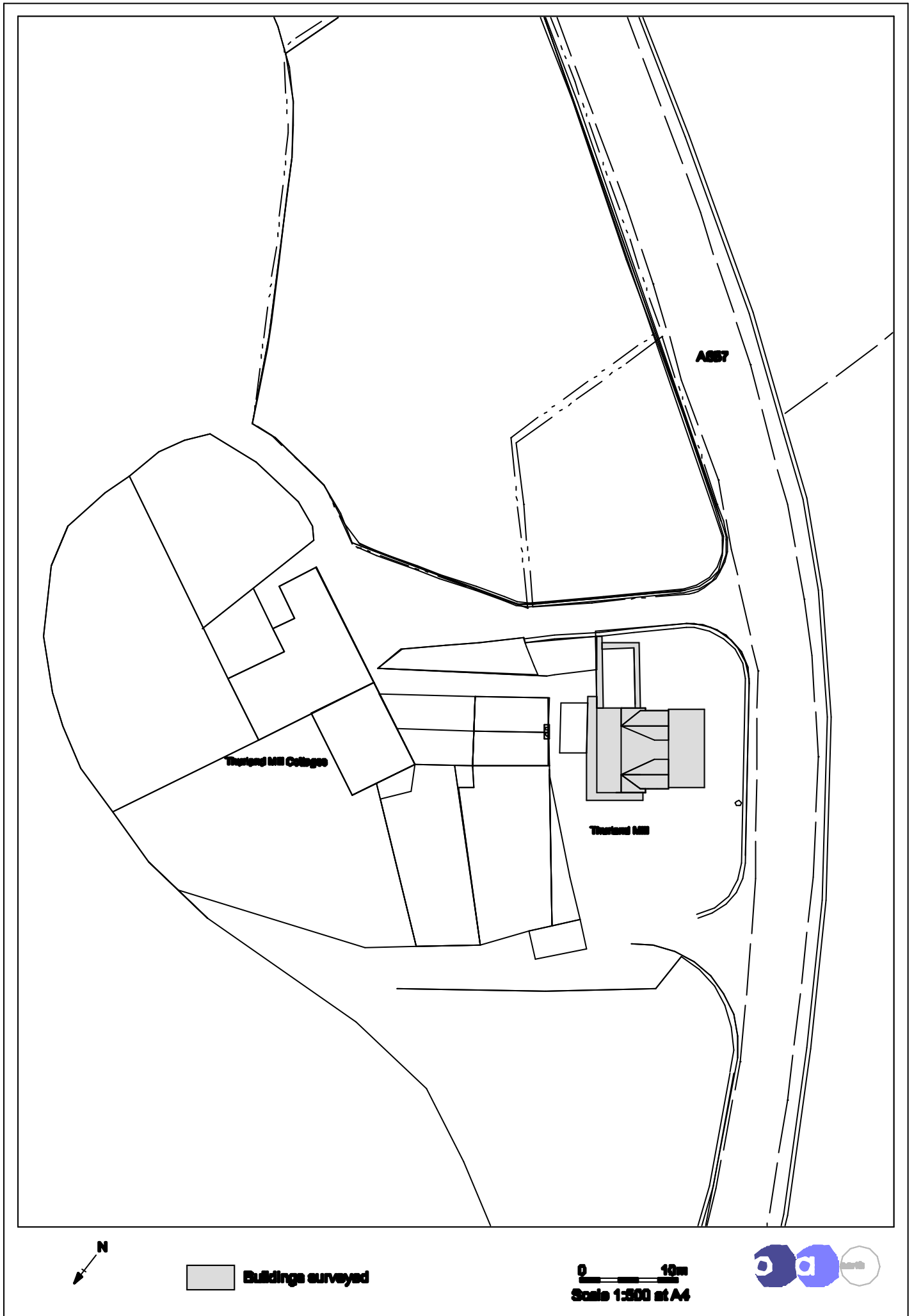


Figure 2 : Thurland Mill Complex

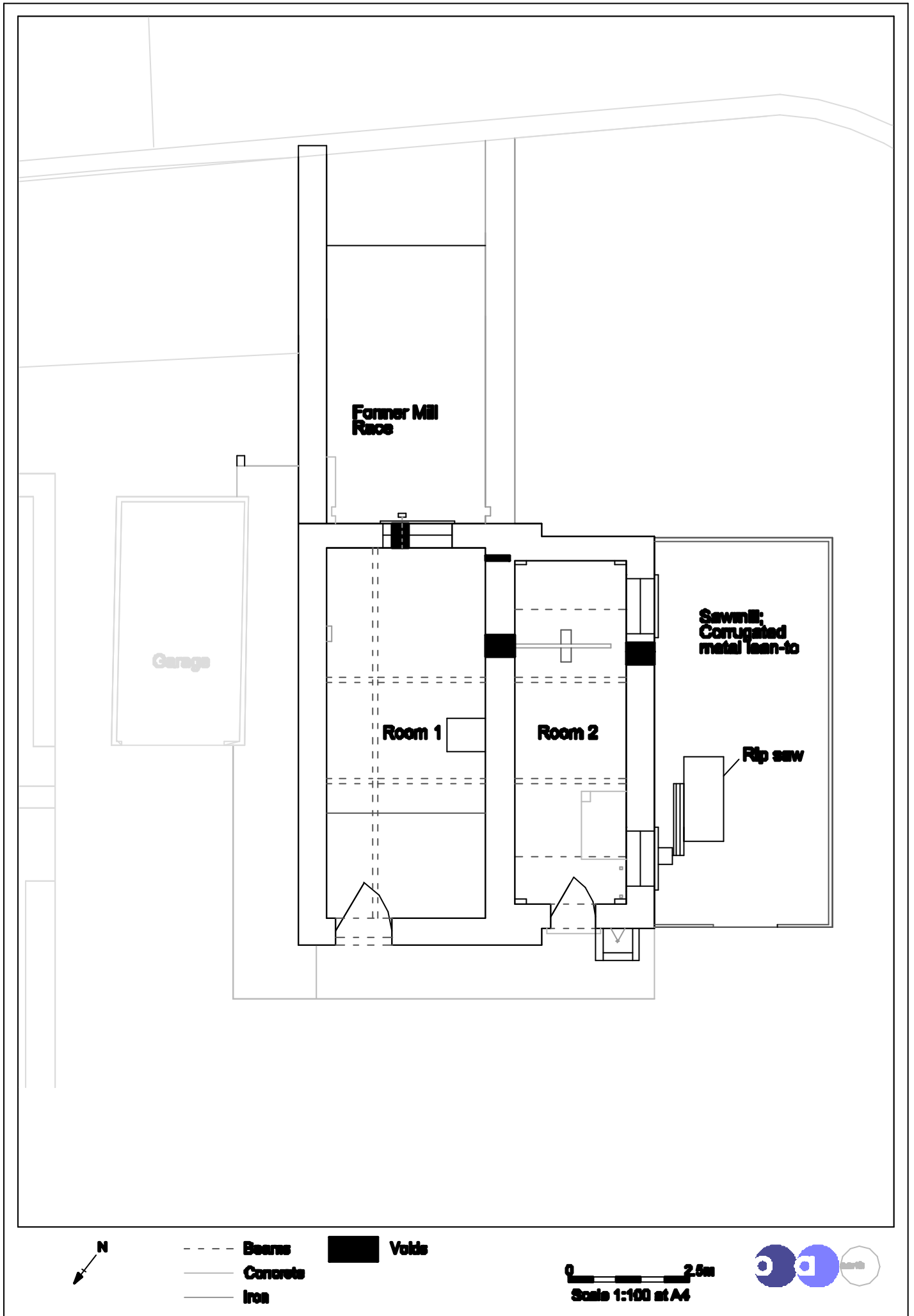


Figure 3 : Plan of Ground Floor

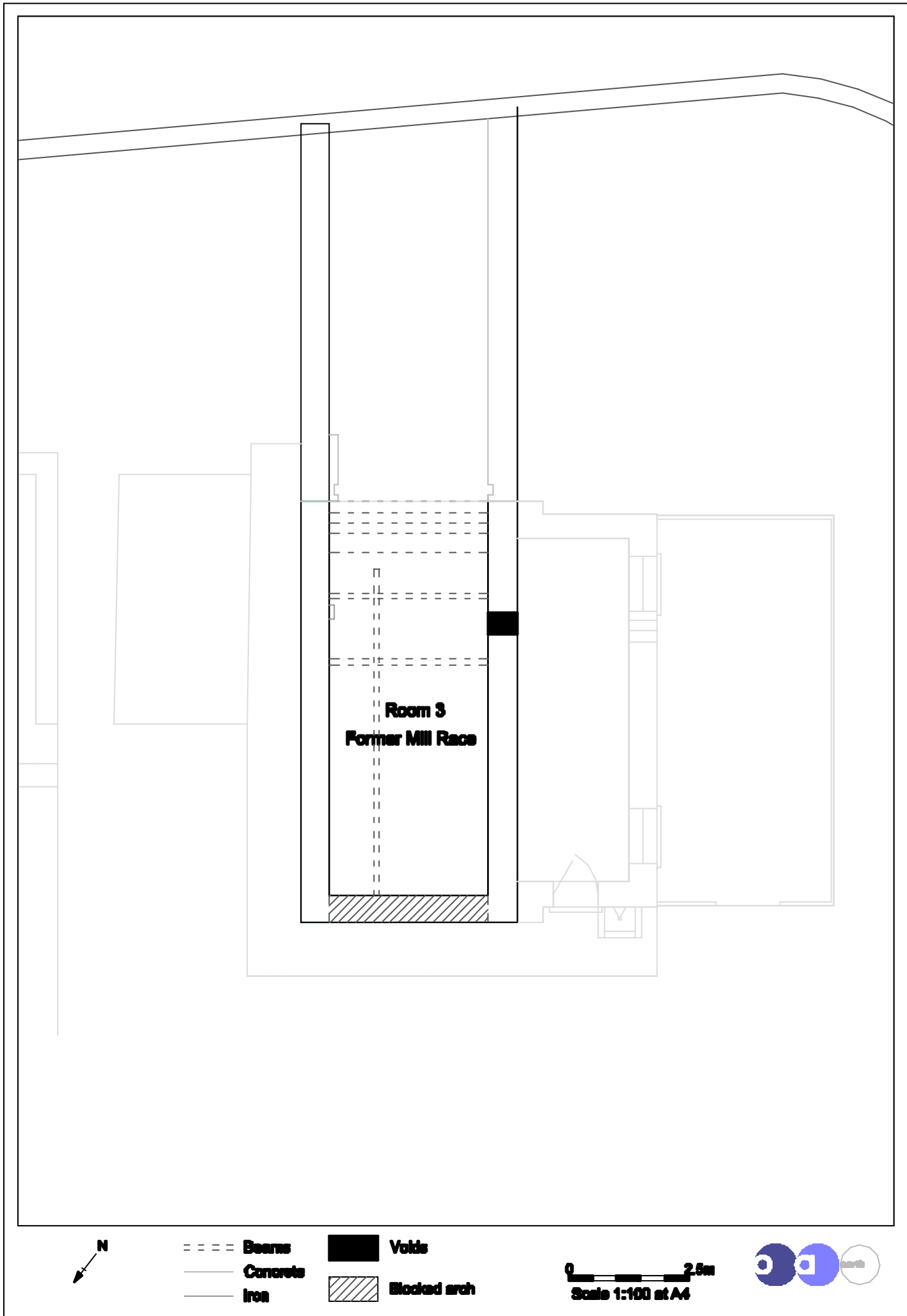
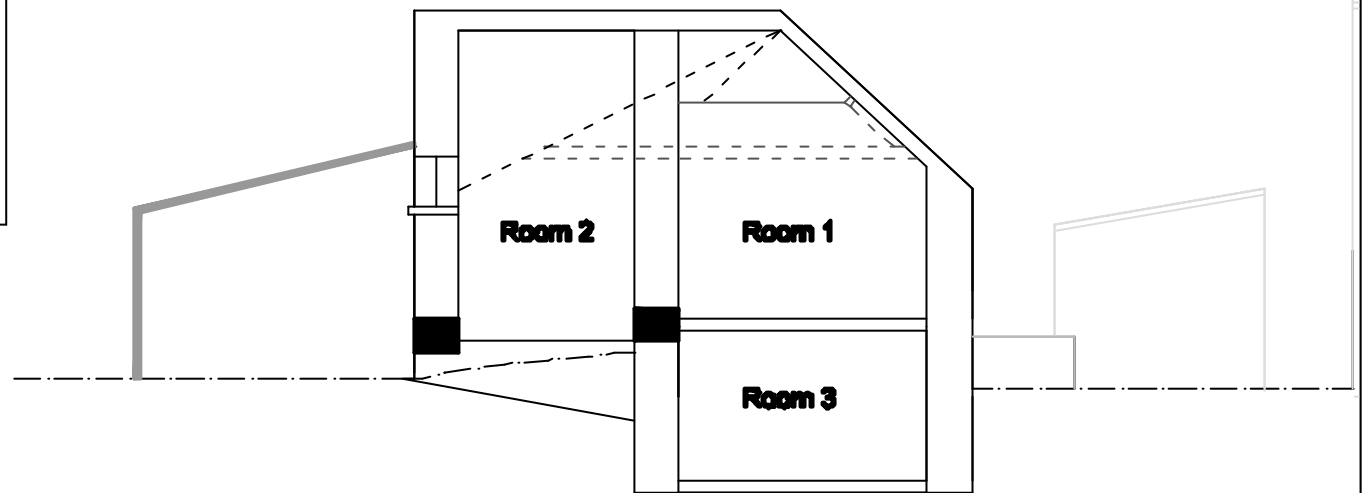
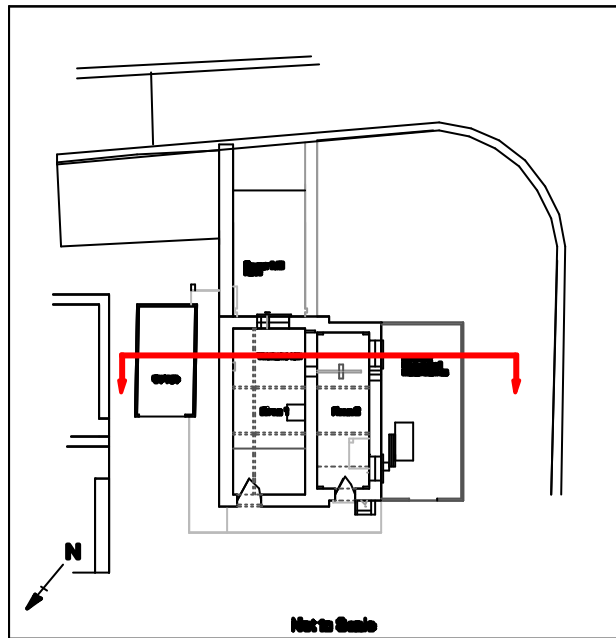


Figure 4 : Plan of Lower Ground Floor



- - - - Beams - - - - Roof line ■ Void
 ——— Concrete
 - . - . Ground level ■ Lean to

0 ——— 2.0m
 Scale 1:100 at A4



Figure 5 : Cross-Section Facing West

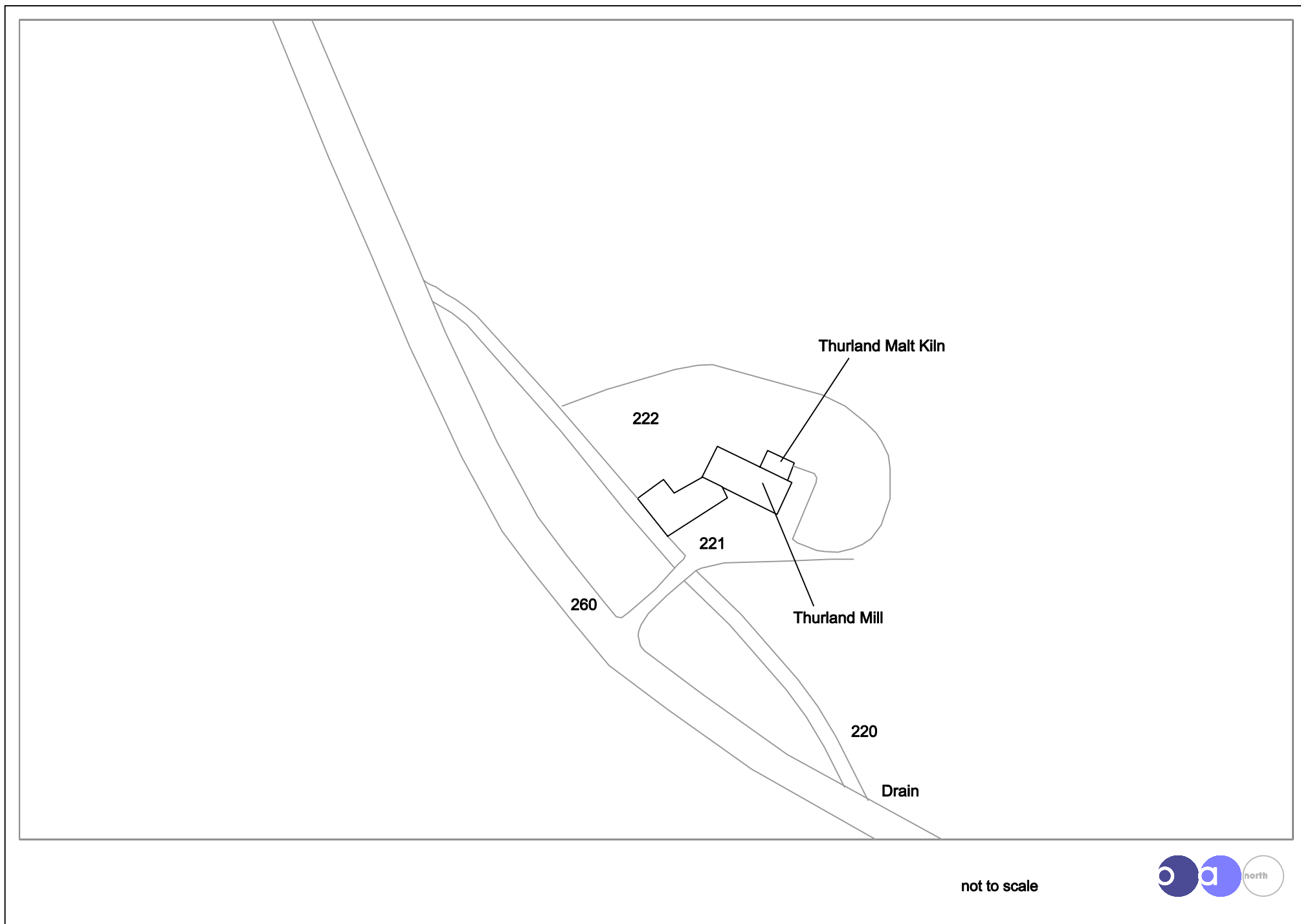


Figure 6 : Part of the Tithe Map of 1846

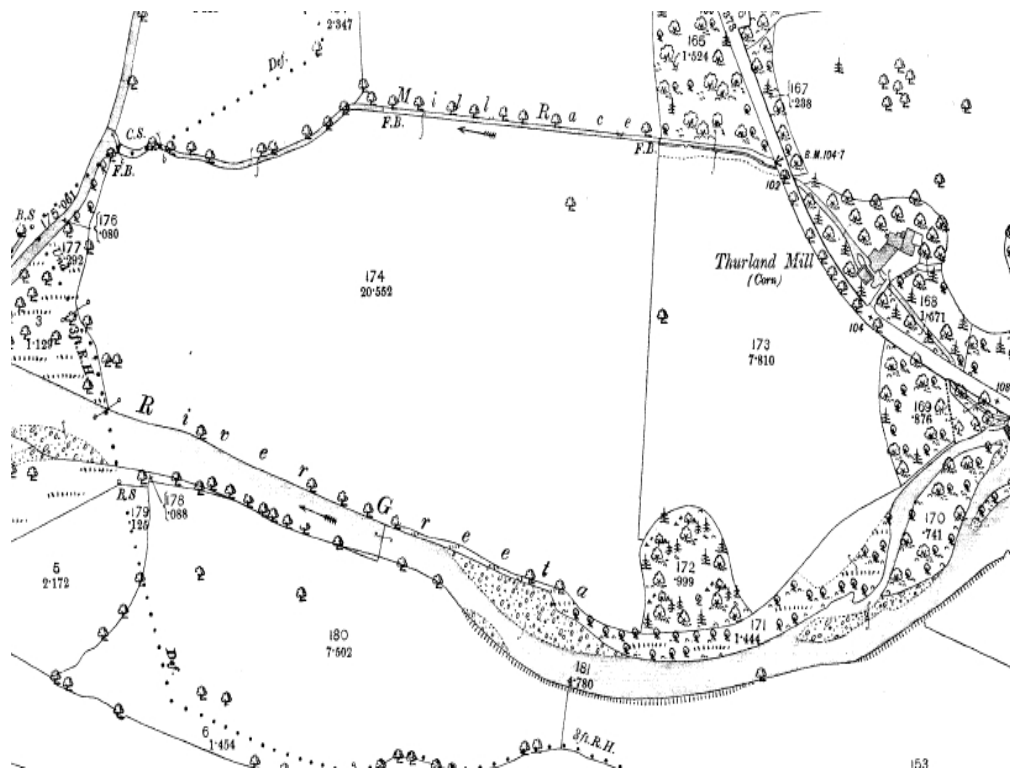


Plate 1: Location of Thurland Mill and the Leat (Ordnance Survey 1891)



Plate 2: The west elevation



Plate 3: The door into Room 1



Plate 4: The north elevation



Plate 5: Corbel and post at east end of walkway



Plate 6: The east elevation (part)



Plate 7: Bearing box beneath window on east elevation



Plate 8: Bearing box in south elevation



Plate 9: Room 1 facing west



Plate 10: Room 2 facing east



Plate 11: Shaft in Room 2 facing east



Plate 12: Room 3 facing west



Plate 13: Ladder connecting Rooms **1** and **3**



Plate 14: Blocked aperture in the east elevation of the mill, uncovered during the watching brief



Plate 15: Cobbled surface *103*



Plate 16: The concrete and stone-lined channel (*106* and *109*) during excavation

APPENDIX 1: PROJECT BRIEF

BRIEF FOR THE ARCHAEOLOGICAL RECORDING OF AN HISTORIC BUILDING REQUIRED BY A PLANNING PROPOSAL

Location: Thurland Mill, Tunstall Road, Cantsfield, Lancs

Proposal: Conversion of former mill building into a single dwelling

1. Summary

Lancaster City Council has approved an application for the conversion of the vacant mill at Thurland into a dwelling. Planning application reference 01/02/0983/CU. The proposed development will affect the historic character and appearance of the building and will remove some of the original fabric of the building, which dates to the first half of the 19th century or earlier.

Because of the impact of the proposed development on the historic interest of the building, Lancashire County Archaeology Service (LCAS) has recommended that it be recorded before its conversion,

This recommendation follows the advice given by central government as set out in *Planning Policy Guidance: Planning and the Historic Environment* (PPG 15) and *Planning Policy Guidance: Archaeology and Planning* (PPG 16) issued by the DoE.

2. Sites Location and Description

- 2.1 The site lies at NGR: SD 6084 7282
Thurland Mill lies immediately adjacent to the eastern side of the A 683 road, just south of the village of Tunstall.

3. Planning Background

- 3.1 Lancaster City Council has granted planning permission for the conversion of the former mill to a dwelling. Planning Application Ref: 01/02/0983/CU. This permission is conditional on inter alia, a programme of archaeological works being implemented. This programme will include the recording of the standing building and an archaeological watching brief during any ground disturbance (subject of a separate brief).

4. Archaeological Background

- 4.1 A mill at Thurland was first recorded historically in AD 1208 and it is likely that here has been a water mill on or near the site of the present Thurland Mill since the medieval period, although the precise site of the medieval mill is not known. The existing mill buildings are of post medieval date and are shown on the 1st edition, 1:10560, Ordnance Survey map, surveyed in 1844-5 when they were identified at 'Thurland Malt Kiln and Corn Mill'. It is possible that the current buildings incorporate fabric of earlier structures on the site within them. The Lancashire Sites and Monuments reference is PRN 4736.

5. Drawings to show the form of any architectural decoration (e.g., moulded doorcases; mullions; cornices). A measured drawing is particularly valuable when the feature in question is precisely dateable.
6. A copy of any architects 'as existing' elevation drawings should be included to form a measured reference for elevation photographs.

Photography;

1. General view or views of the exterior of the building.
2. The overall appearance of principal rooms and circulation areas.
3. Detailed coverage of the building's external appearance. In the case of a buildings designed by an architect, or intended to be seen from a certain point of view, it is important to have regard to the builders intentions and to record the effect of the design or of the building's placing.
4. Any external detail, structural or decorative, which is relevant to the building's design, development and use and which does not show adequately on general photographs.
5. The building's relationship to its setting, to other buildings, or to a significant viewpoint.
6. Internal detail, structural and decorative which is relevant to the building's design, development and use and which does not show adequately on general photographs.

7 Deposition of archive

- 7.1 The archive resulting from building recording will be deposited with the Lancashire Records Office, in a format to be agreed with the County Records Officer, and within a timetable to be agreed with the County Archaeological Officer. A summary record of the building with appropriate illustrations will be deposited with the Lancashire Sites and Monuments Record and with the National Monuments Record in Swindon. This should be provided both as paper copy and in a suitable digital form on 3.5" 'floppy' disk or CD.
- 7.2 The site archive, including finds and environmental material, shall be conserved and stored according to the UKIC Guidelines for the preparation of excavation archives for long-term storage (1990) and the Museum and Galleries Commission Standards in the Museum Care of Archaeological collections (1992) 'Standards for the preparation and transfer of archaeological archives'.
- 7.3 Copies of the report will be supplied to the County Archaeological Officer and to the Lancashire Sites and Monuments Record on the understanding that it will become a public document after an appropriate period (a maximum of 6 months

after the completion of the fieldwork unless another date is agreed in writing with the County Archaeological Officer). A copy of the report will be supplied to the Local Planning Authority responsible for the planning decision.

- 7.4 Provision and agreement will be made for the appropriate academic publication of any results that are not to form part of any further work. A brief summary report of fieldwork, to appear in the Council for British Archaeology North West *Archaeology North West* will be produced. This will be sent to the editor of *Archaeology North West* in time for it to appear within a calendar year of the completion of fieldwork.

8 Further Details

- 10.1 Further information about the building and proposed development can be obtained from, Mr Paul Duckett, Mason Gillibrand Architects, 16 Willow Mill, Caton, Lancaster. LA2 9RA. Tel: 01524 771377, Fax: 01524 771330

8.1

- 8.2 Any queries about the contents of the brief should be addressed to the Lancashire County Archaeology Service, Lancashire County Council Environment Directorate, Guild House, Cross Street, Preston PR1 8RD Tel 01772 531734, fax 01772 533423

APPENDIX 2: PROJECT DESIGN

**Oxford
Archaeology
North**

October 2004

THURLAND MILL, CANTSFIELD, LANCASHIRE

**ARCHAEOLOGICAL BUILDING INVESTIGATION AND WATCHING BRIEF
PROJECT DESIGN**

*Compiled for Mr Paul Hilton
Planning Application Reference:01/02/0983/CU*

1 INTRODUCTION

- 1.1 This project design has been compiled for Mr Paul Hilton with reference to briefs issued by Lancashire County Archaeology Service (LCAS). The briefs call for an archaeological programme of work to be undertaken at Thurland Mill, Cantsfield, Lancashire (SD 6084 7282) prior to the conversion of the mill to a single dwelling. Section 2 of this document states the objectives of the project, Section 3 deals with OA North's methodology. Section 4 addresses other pertinent issues including an outline timetable, and project costs are presented in Section 5.
- 1.2 OA North has considerable experience of the assessment and investigation of historic buildings of all periods and a range of types, having undertaken a great number of small and large-scale projects during the past 20 years. Building investigations have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. Recent projects of relevance include Lower House Farm, Bolton, Standishgate, Wigan, Elmslie Girls School, Blackpool, Barker House Farmstead, Lancaster, and Intake Farm, Guisley
- 1.3 OA North has the professional expertise and resources to undertake the project detailed below to a high level of quality and efficiency. OA North is an Institute of Field Archaeologists (IFA) registered organisation, **registration number 17**, and all its members of staff operate subject to the IFA Code of Conduct.

2 OBJECTIVES

- 2.1 The objectives of the archaeological programme of work are to provide an outline analysis of the plan, form, function, age and development of the mill, and to investigate the presence of buried archaeological remains on site, which relate to the function of the mill.
- 2.2 To achieve the objectives outlined above the following listed specific aims are proposed:
- (i) **Building investigation:** to provide a drawn and textual record of the building to RCHME Level II-type survey;
 - (ii) **Watching brief:** to undertake a permanent presence watching brief across the whole of the area to be disturbed by the development.
 - (iii) **Report and Archive:** to produce a report and archive in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991).

3 METHODOLOGY

3.1 BUILDING INVESTIGATION

3.1.1 **Photographic Archive:** a photographic archive will be produced utilising a 35mm camera to produce both colour slides and monochrome prints. A high-resolution digital camera (4 megapixels) will also be employed for general coverage. A full photographic index will be produced and the position of photographs will be marked on the relevant floor plan/elevation. Photographic scales will be used in each image (with the exception of ceilings/roof detail). The archive will comprise the following:

- (i) General views of the exterior of the building;
- (ii) Detailed coverage of the building's external appearance;
- (iii) The overall appearance of principal rooms and circulation areas;
- (iv) Any external or internal detail, structural or decorative, which is relevant to the building's design, development and use and which does not show adequately on general photographs;

3.1.2 **Site Drawings:** the following architect's drawings (**supplied by the client**) will be annotated to produce the following:

- (i) Plan of the site showing the location of the mill and it's relationship to other buildings on site;
- (ii) Plans of all main floors (1:100 scale) to show form and location of any structural features of historic significance (blocked doors and windows: former fireplace openings: masonry joints; changes in internal levels) and recording the form and location of any significant structural/industrial details (features associated with the milling process; timber or metal framing, roofs):
- (iii) One section (measured sketch) to illustrate the vertical relationships within the mill (ceiling heights; differing floor heights; roof trusses).
- (iv) Drawings to show the form of any architectural detail (moulded doorcases; mullions; cornices).

3.1.3 OA North does not undertake to correct survey inaccuracies in the client's drawings, which shall remain the responsibility of the client. However, if inaccuracies impede significantly the progress of the archaeological survey and must be rectified to allow the archaeological survey to proceed, a charge for this correction will be made (see *Section 5*).

3.1.4 The drawings will be used to illustrate the phasing and development of the mill. The site drawings will be manipulated through an industry standard CAD package (Autocad release 14) for the production of final drawings.

3.1.5 **Interpretation and Analysis:** a visual inspection of the mill will be undertaken utilising the OA North building investigation proforma sheets. An outline description will be maintained to RCHME Level II-type survey. This level of survey is descriptive and will provide a systematic account of the building's

origins, development and use but will not discuss the evidence on which this is based.

3.1.6 The written record will include:

- (i) An analysis of the building's plan, form, fabric, function, age and development sequence;
- (ii) An account of the building's past and present use;
- (iii) An account of the fixtures, fittings associated with the building, and their purpose;
- (iv) Identification of key architectural features (including fixtures and fittings) which should be preserved in-situ;
- (v) A discussion of the relative significance of rooms within the building;
- (vi) Identify areas that are currently obscured or inaccessible which might hold key information to inform our understanding of the building's origin and development, and where in particular an archaeological watching brief should be undertaken during ground works for the development;

3.1.7 **Access and Attendances:** the client will be required to arrange access to the property.

3.2 **WATCHING BRIEF**

3.2.1 A programme of field observation will record accurately the location, extent, and character of any surviving archaeological features and/or deposits within the entire area to be disturbed by the development including building foundations, service trenches and other earthmoving activities. This work will comprise observation during the excavation for these works, the systematic examination of any subsoil horizons exposed during the course of the groundworks, and the accurate recording of all archaeological features and horizons, and any artefacts, identified during observation.

3.2.2 Putative archaeological features and/or deposits identified by the machining process, together with the immediate vicinity of any such features, will be cleaned by hand, using either hoes, shovel scraping, and/or trowels depending on the subsoil conditions, and where appropriate sections will be studied and drawn. Any such features will be sample excavated (ie selected pits and postholes will normally only be half-sectioned, linear features will be subject to no more than a 10% sample, and extensive layers will, where possible, be sampled by partial rather than complete removal).

3.2.3 It is assumed that OA North will have the authority to stop the works for a sufficient time period to enable the recording of important deposits. It may also be necessary to call in additional archaeological support if a find of particular importance is identified or a high density of archaeology is discovered, but this would only be called into effect in agreement with the

Client and the County Archaeology Service and will require a variation to costing.

- 3.2.4 **Written Record:** during this phase of work, recording will comprise a full description and preliminary classification of features or materials revealed. All information identified in the course of the site works will be recorded stratigraphically utilising OA North pro-forma. Areas of excavation will be assigned trench numbers and context numbers will be applied to archaeological features.
- 3.2.5 **Site Drawings:** a large-scale plan (provided by the client) will be produced of the area of the groundworks showing the location and extent of the ground disturbance, appropriately labelled to correspond with the written record. Archaeological features will be recorded accurately (either on plan (1:20) and/or section (1:10), and as grid co-ordinates where appropriate).
- 3.2.6 The site drawings will be manipulated in an industry standard CAD package (AutoCAD release 14/release 2000) for the production of final drawings.
- 3.2.7 A photographic record will be undertaken simultaneously. This will utilise a 35mm camera for the production of both colour slides and monochrome prints. A photographic scale will appear in all images captured. The photographic index will describe and locate each area/feature photographed.
- 3.2.8 **Human Remains:** any human remains uncovered will be left *in situ*, covered and protected. No further investigation will continue beyond that required to establish the date and character of the burial. Merseyside Archaeological Service and the local Coroner will be informed immediately. If removal is essential the exhumation of any funerary remains will require the provision of a Home Office license, under section 25 of the Burial Act of 1857. An application will be made by OA North for the study area on discovery of any such remains and the removal will be carried out with due care and sensitivity under the environmental health regulations, and if appropriate, in compliance with the 'Disused Burial Grounds (Amendment) Act, 1981.
- 3.2.9 **Treatment of finds:** no sampling of finds will take place during fieldwork. All finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the United Kingdom Institute for Conservation (UKIC) *First Aid For Finds*, 1998 (new edition) and the recipient museum's guidelines.
- 3.2.10 All identified finds and artefacts will be retained, although certain classes of building material can sometimes be discarded after recording if an appropriate sample is retained on advice from the recipient museum's archive curator.
- 3.2.11 **Treasure:** any gold and silver artefacts recovered during the course of the excavations will be removed to a safe place and reported to the local Coroner according to the procedures relating to the Treasure Act, 1996. Where removal cannot take place on the same working day as discovery, suitable security will be employed to protect the finds from theft.

3.3 REPORT AND ARCHIVE

3.3.1 **Interim Statement:** in the event of an interim statement being requested by the client, it should be noted that all illustrations will be copies of field drawings and not completed CAD drawings.

3.3.2 **Final Report:** two copies of the final report will be submitted to the client and a further two to LCAS. Both paper and digital copies will be provided on CD-ROM in pdf format. The report will present the following information:

- (i) **Summary:** a summary statement of the survey's findings;
- (ii) **Introduction:** the background to the project including location details;
- (iii) **Methodology:** an outline of the methodology of the building investigation/watching brief;
- (iv) **Historical Background:** a brief historical background to the site;
- (v) **Results:** an account of the mills past and present use and of the uses of its parts;

An account of the fixtures, fittings associated with the buildings, and their purpose;

Any evidence for the former existence of demolished structures associated with the buildings;

An account of archaeological features identified during the course of the watching brief;

- (vi) **Discussion:** a discussion of the relative significance of rooms within the mill;

A description of the significance of the mill in its local and regional context;

- (vii) **Impact/Recommendations:** the identification of areas where further development will impact upon the archaeological resource in addition to the impacts of the current development;

- (viii) **Illustrations:** maps, plans, sections and copies of the site photographic archive;

- (ix) **Appendices:** a copy of the brief and this project design;

3.3.3 Provision will be made for a summary report to be submitted to a suitable regional or national archaeological journal within one year of completion of fieldwork, if relevant results are obtained.

3.3.4 **Confidentiality:** all internal reports to the client are designed as documents for the specific use of the Client, for the particular purpose as defined in the

project brief and project design, and should be treated as such. They are not suitable for publication as academic documents or otherwise without amendment or revision.

- 3.3.5 **Archive:** the results of all archaeological work carried out will form the basis for a full archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). This archive, including a copy of the report, will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the SMR (the index to the archive and a copy of the report). In this instance the archive will be submitted to the County Record Office (Preston).

4 OTHER MATTERS

- 4.1 **Monitoring:** monitoring of this project will be undertaken through the auspices of the LCAS Archaeologist, who will be informed of the start and end dates of the work.
- 4.2 **Time Table:** the following timetable gives an indication of the approximate time required to undertake each element of the project.
- 4.3 The building investigation fieldwork will take approximately one day in the field.
- 4.4 The duration of the watching brief will be dictated by the progress of the contractor.
- 4.5 If further mitigation works are proved necessary then an interim statement will be provided within ten working days following completion of fieldwork.
- 4.6 The client report will be completed within eight weeks.
- 4.7 **Staffing:** the project will be under the direct management of **Alison Plummer BSc (Hons)** (OA North Senior Project Manager) to whom all correspondence should be addressed. An OA North project supervisor who is suitably experienced in the recording and interpretation of historic buildings throughout the North West will undertake the building investigation and subsequent watching brief.

APPENDIX 3: LIST OF FEATURES RECOMMENDED FOR RETENTION

<i>Feature</i>	<i>Comments</i>
Leat to east of building	Part of original millrace
Stone coping and vertical timber sluice guide.	Represents original mill workings
Walkway around north and west elevations	Access to original wheel
Wrought-iron clamp and stone trough on west elevation.	Of unknown purpose. Further investigation during the watching brief may elucidate its function.
Arch in Room 3	Represents original exit of tail race.
Bearing blocks	Part of horizontal transmission. could be incorporated with wall
Wooden bearing block and rod in east elevation	Possibly associated with the leat.
Cast-iron ladder in Rooms 1 and 3	This is the access from Room 1 into the wheel pit.
Trusses	In good condition - should remain in position.
Roof	Roof is in good condition - could be repaired and retained.
General	Most of the original building fabric can be retained and incorporated within any future redevelopment. The general layout of the building should also be retained.

APPENDIX 4: SUMMARY CONTEXT LIST

<i>Context No</i>	<i>Type</i>	<i>Description</i>	<i>Date Range of finds</i>
101	Layer	Overburden	Late seventeenth – twentieth century
102	Layer	Thin deposit over 103	Nineteenth – early twentieth century
103	Layer	Cobble surface	-
104	Structure	Sandstone and cobble wall	-
105	Layer	Clay bedding for 103	Late seventeenth – early twentieth century
106	Structure	Concrete ramp and walls	-
107	Layer	Demolition/dumped deposit	-
108	Layer	Redeposited natural	Late seventeenth – twentieth century
109	Structure	Inner face of wall 104	-
110	Layer	Cobbled surface	-
111	Layer	Redeposited clay	Not closely datable
112	Layer	Same as 107	-
113	Layer	Natural sandy clay	-
114	Layer	Demolition deposit	Eighteenth – twentieth century

APPENDIX 5: FINDS SUMMARY

Context	Object record	Quantity	Material	Description	Date range
U/S	04	1	Glass	Very light turquoise cylindrical bottle base	Nineteenth - early twentieth century
U/S	04	2	Glass	Refitting olive-green cylindrical wine (?) bottle fragments	Eighteenth - twentieth century
U/S	04	1	Glass	Very light blue faceted bottle fragment	Nineteenth - early twentieth century
U/S	09	1	Ceramic	Red earthenware dish fragment with white slip-trailed lines	Late seventeenth - early twentieth century
101	02	2	Fe	Shovel and socketed handle, some mineralised wood remaining	Post-medieval
101	12	1	Fe	Hook for attaching drain pipe	Eighteenth - twentieth century
101	12	1	Fe	Nail	Not closely dateable
101	13	1	Ceramic	White earthenware hollow-ware rim	Late eighteenth - twentieth century
101	13	1	Ceramic	Brown-glazed red earthenware	Late seventeenth century - early twentieth century
101	13	1	Ceramic	Self-glazed buff-coloured earthenware baking bowl rim, with white slip-coated interior	Nineteenth - twentieth century
101	13	1	Ceramic	Black-glazed red earthenware	Late seventeenth - early twentieth century
101	14	1	Glass	Colourless window pane fragment	Nineteenth - twentieth century
101	16	1	Ceramic	Black-glazed red earthenware corn drying kiln tile corner, lattice-shaped with four holes at the top of each square	Eighteenth - nineteenth century?
102	03	1	Glass	Very light blue bottle (?) fragment	Nineteenth - early twentieth century
105	05	1	Fe	Corroded nail? Straight, 80mm long	Not closely dateable
105	15	1	Ceramic	Brown-glazed red earthenware fragment	Late seventeenth - early twentieth century

Context	Object record	Quantity	Material	Description	Date range
108	06	1	Glass	Very light turquoise cylindrical bottle base with embossed label '... Trade Mark / Lancaster'	Late nineteenth - early twentieth century
108	06	1	Glass	Very light turquoise cylindrical bottle fragment	Nineteenth - early twentieth century
108	06	3	Glass	Olive green cylindrical bottle fragments	Eighteenth - twentieth century
108	10	1	Fe	Large staple with concreted stones attached	Eighteenth - twentieth century
108	11	1	Ceramic	Bone china hollow-ware fragment with 'Broseley' transfer-printed pattern	Nineteenth - early twentieth century
108	11	1	Ceramic	White earthenware hollow-ware fragment	Late eighteenth - twentieth century
108	11	1	Ceramic	Self-glazed buff-coloured earthenware rouletted fragment	Late eighteenth - twentieth century
108	11	1	Ceramic	Brown-glazed red earthenware crock rim with edge of lug handle	Late seventeenth - early twentieth century
108	11	1	Ceramic	Black-glazed red earthenware thin-walled jar (?) fragment	Late seventeenth - early twentieth century
108	11	1	Ceramic	Black-glazed red earthenware coarseware fragment	Late seventeenth - early twentieth century
108	11	2	Ceramic	Refitting self-glazed buff-coloured earthenware refitting hollow-ware base fragments	Late eighteenth - twentieth century
111	07	1	Fe	Corroded nail	Not closely dateable
114	08	1	Fe	Washer	Eighteenth - twentieth century
114	08	1	Fe	Nail	Not closely dateable
114	08	1	Fe	Bolt with screw thread	Eighteenth - twentieth century
114	08	1	Fe	Large, square nut with internal screw thread, 30mm thick	Eighteenth - twentieth century
114	08	3	Fe	Identical dome-headed bolts, with top part of shank square cross-section, circular further down, with screw thread near the end	Eighteenth - twentieth century

Context	Object record	Quantity	Material	Description	Date range
114	08	1	Fe	Nail, corroded, bent, circular shank?	Not closely dateable
114	08	1	Fe	V-shaped lifting grip?	Eighteenth - twentieth century
114	08	4	Fe	Circular cross-sectioned bolts	Eighteenth - twentieth century
114	08	1	Fe	Square cross-sectioned bolt	Eighteenth - twentieth century
114	08	3	Fe	Straps with bolts through them, held on by nuts	Eighteenth - twentieth century
114	17	1	Glass	Dark green bottle base fragment	Eighteenth - twentieth century
114	17	2	Glass	Window pane fragments	Nineteenth - twentieth century
114	17	1	Glass	Light blue bottle fragment, faceted	Nineteenth - early twentieth century
114	17	1	Glass	Colourless drinking vessel base, octagonal (?), with impressed star on underside	Nineteenth - twentieth century?
114	18	1	Ceramic	Self-glazed buff-coloured stoneware jam/marmalade jar rim, with groove for tie-on lid, ridged	Mid nineteenth - early twentieth century
114	18	2	Ceramic	Brown-glazed buff-coloured earthenware tea pot (?) base and side fragments	Late eighteenth - twentieth century
114	18	1	Ceramic	Blue transfer-printed white earthenware fragment	Nineteenth - twentieth century
114	19	1	Cu alloy	Corroded large dress pin, spherical head	Eighteenth - twentieth century?