



December 1999

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**CROMWELL'S BRIDGE**  
**CLITHEROE**  
**LANCASHIRE**

**Fabric Survey Report**

Cromwell's Bridge, Clitheroe  
Lancashire

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Fabric Survey Report

Report no 1999-2000/34/AUA8914

Checked by Project Manager. ..... Date
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## CONTENTS

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<b>SUMMARY .....</b>	<b>2</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>3</b>
<b>1. INTRODUCTION.....</b>	<b>4</b>
1.1 Circumstances of Project .....	4
1.2 Historical Background .....	4
<b>2. METHODOLOGY .....</b>	<b>5</b>
2.1 Project Design .....	5
2.2 Fabric Survey .....	5
2.3 Analysis.....	6
2.4 Archive .....	6
<b>3. SUMMARY RESULTS.....</b>	<b>7</b>
3.1 General Description .....	7
3.2 Conclusions.....	7
<b>4. BIBLIOGRAPHY .....</b>	<b>8</b>
<b>APPENDIX 1.....</b>	<b>9</b>
Project Brief	
<b>APPENDIX 2.....</b>	<b>10</b>
Project Design	
<b>ILLUSTRATIONS .....</b>	<b>13</b>
Fig 1 General Location Map	
Fig 2 Detailed Location Map	
Fig 3 North and South Elevations of the Bridge	
<b>PLATES .....</b>	<b>14</b>
Plate 1 General view of Cromwell's Bridge looking south-west	
Plate 2 East arch of bridge looking south-west	
Plate 3 Central arch of bridge looking south-west	
Plate 4 West arch of bridge looking south-west	

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## SUMMARY

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A fabric survey of Cromwell's Bridge, near Clitheroe, Lancashire (SD 7041 3915), was carried out by Lancaster University Archaeological Unit (LUAU), on behalf of the Heritage Trust for the North West and Lancashire County Council, prior to conservation works to the structure. Cromwell's Bridge, also known as the Old Lower Hodder Bridge, is a Scheduled Ancient Monument (County SAM no.290), and the programme of archaeological recording was a requirement of Scheduled Monument Consent.

The survey was undertaken in August 1999 and provided for a mitigative record of the bridge. It involved the creation of elevation drawings of both sides of the bridge by means of a combination of rectified photography and direct survey with a reflectorless total station. Alongside this, a general photographic record was created and from the survey results a summary analytical report was generated.

Cromwell's Bridge was built in either 1561 or 1563. The name of the bridge derives from the tradition that it was crossed by Cromwell on 16th August 1648, the day before the battle at Ribbleson Moor, Preston.

The survey demonstrated that there was more than one episode of construction / repair; the design of the western arch, western pier and western abutment are distinct in form and character from the central and eastern arches. This probably reflects the refacing or rebuilding of these elements in response to storm damage.

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## ACKNOWLEDGEMENTS

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Lancaster University Archaeological Unit (LUAU) thanks Duncan Seed of Lancashire County Council, Jim Robinson of Lancashire County Engineering, and John Miller of the Heritage Trust for the North West for their help in initiating the project, enabling access and for allowing considerable flexibility in the engineering programme to accommodate the archaeological works.

The fabric survey was carried out by Chris Wild and Graham Suggett. The CAD drawings were prepared by Emma Carter and Chris Wild and the report was written by Chris Wild. The report was edited by Jamie Quartermaine and Rachel Newman. The project was managed by Jamie Quartermaine.

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## 1. INTRODUCTION

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### 1.1 CIRCUMSTANCES OF PROJECT

- 1.1.1 A fabric survey of Cromwell's Bridge, near Clitheroe, Lancashire (SD 7041 3915), was carried out by Lancaster University Archaeological Unit (LUAU), on behalf of the Heritage Trust for the North West and Lancashire County Council, prior to conservation works to the structure. Cromwell's Bridge, also known as the Old Lower Hodder Bridge, is a Scheduled Ancient Monument (County SAM 290), and the programme of archaeological recording was a requirement of Scheduled Monument Consent.
- 1.1.2 The survey provided for a mitigative record of the bridge, and involved the creation of elevation drawings of both sides of the bridge, a rectified and oblique photographic record, and a summary analytical report. The work was undertaken in August 1999.
- 1.1.3 This report includes the results of the fabric survey, the photographic survey, and summary conclusions. A full archive of the survey has been produced to a professional standard in accordance with current IFA and English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition 1991).

### 1.2 HISTORICAL BACKGROUND

- 1.2.1 Cromwell's Bridge (SAM 290) is situated on the Mitton to Stonyhurst road, c5km to the south-west of Clitheroe. The original bridge on the site was probably of timber construction and was described in 1329 by Adam Walton, the Rector of Mitton, as being frequently broken down, as the river was subject to floods (Slack 1986, 70). A further reference to it suggests that a bridge was built in 1436 (Whitaker 1876) and by implication this must have been a rebuild, although whether in timber or stone is not known. The foundation of the present bridge was either in 1561 by Sir Richard Sherburn (Jervoise 1931, 136) or was constructed two years later in 1563 by Roger Crossley (Slack 1986, 70). Local tradition has it that the bridge was crossed by Cromwell on 16th August 1648, the day before the battle at Ribbleson Moor, Preston, hence the name. The bridge is now disused, having been replaced by a new road bridge c100m upstream.

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## 2. METHODOLOGY

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### 2.1 PROJECT DESIGN

- 2.1.1 A project design (*Appendix 2*) was submitted by LUAU in response to a request from Ribble Borough Council for an archaeological survey of Cromwell's Bridge. It was designed in accordance with a brief (*Appendix 1*) by Peter McCrone of the Lancashire County Archaeological Service (LCAS).
- 2.1.2 The project design provided for a fabric survey of the bridge. The fabric survey involved the creation of elevations of both sides of the bridge by reflectorless instrument survey and rectified photography, as well as a general oblique photographic survey of the structure. The project design was adhered to in full, and the work was consistent with the relevant standards and procedures of the Institute of Field Archaeologists, and generally accepted best practice.
- 2.1.3 The results of the fabric survey are presented within the present report.

### 2.3 FABRIC SURVEY

- 2.3.1 The survey comprised two main elements, a photographic survey of the site, and a drawn record of the bridge elevations.
- 2.3.2 **Photographic Survey:** the photographic survey consisted of general oblique coverage of the site on 35mm black and white and colour print film.
- 2.3.3 The elevations of both bridges were recorded as a series of rectified photographs using a medium format camera and also 35mm format camera, which served as the basis for the creation for the elevation drawings. The photographs were taken from positions perpendicular to the plane of the bridge and where possible were taken from the modern Lower Hodder Bridge, but in others the camera had to be set up in the river when the water level was low.
- 2.2.4 Control for the rectified photographs was provided by means of a reflectorless instrument, which used a local control established over the site. This instrument measures distances to architectural detail by reflecting a laser beam from the surface of each element; consequently it does not require the placement of a prism on the detail. The survey was undertaken with respect to a series of accurately surveyed control stations established by traverse around the bridge.
- 2.2.5 The rectified photographs were scanned into a computer and were digitally scaled and superimposed onto the survey control and merged with adjacent photographs using the AutoCAD 14 Computer Aided Draughting (CAD) system. This has the effect of providing a scale-corrected montage of the component photographs for each elevation.
- 2.2.6 **Elevation Drawing:** the elevations of both sides of the bridge were created by a combination of rectified photography and by direct measurement of the elevation using the reflectorless total station. The rectified photography was scanned and digitally inserted as a raster backdrop within AutoCAD 14, and was superimposed with the digital data from the reflectorless instrument. The final drawing was created within the CAD environment using the two primary data sets.

## **2.3 ANALYSIS**

- 2.3.1 A visual inspection of the site was undertaken and a general descriptive record was maintained of the structure utilising appropriate LUAU *pro-forma* record sheets to the Royal Commission on Historic Buildings in England (RCHME) level 2 standard. It involved the external examination of the extant fabric, where health and safety allowed, and resulted in a description and assessment of the period, character and development of the buildings.

## **2.4 ARCHIVE**

- 2.4.1 A full archive of the fabric survey has been produced in accordance with the current English Heritage guidelines (1991). The archive will be deposited with the LCRO and a copy of this report will also be deposited with the Lancashire Sites and Monuments Record.



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## 3. SUMMARY RESULTS

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### 3.1 GENERAL DESCRIPTION

- 3.1.1 The bridge comprises three segmented arches spanning approximately 40m; the outer arches span just over 10m each and the centre arch spans 15.4m. The bridge is 3.8m wide and was constructed of coursed ashlar masonry with a rubble core. The parapets and the roadway have been removed, probably robbed for re-use elsewhere, leaving very little material above the voussoirs. The central arch is flanked by two triangular cutwaters, both of different styles. That to the west has a broad plinth extending above normal water level; this western pier is supported at its base by a concrete bench, which was constructed prior to 1970. The eastern pier base and eastern abutment base are of broadly similar type, with a stepped kerb, which is five steps deep on the eastern pier. Above the water level the eastern pier and eastern abutment are also of broadly similar construction style, with the segmental arches flush with the ashlar masonry of the face of the bridge. At the time of the survey the eastern pier was damaged on the northern face with several hungry joints and one area of missing ashlar face at the lower front part of the cutwater.
- 3.1.2 The western arch comprised two sets of voussoirs. The lower set comprised voussoirs of a similar size and shape to those of the central and eastern arches; it is, however, set in from the principal face of the arch. The higher set comprised long flat voussoirs which were in the same plane as the rest of the arch. The upper set of voussoirs would appear, by virtue of their insubstantial form, to be of principally ornamental function.
- 3.1.3 The upper surface of the bridge comprised some cobbling which was above areas of facework, but not directly over the exposed arch tops. This was laid by Lancashire County Council Engineers to provide a protective surface over the bridge core, however, there are localised areas of exposed bridge core, particularly over the crown of the central arch. Most early bridges display evidence of widening in order to accommodate carriages, but there is no evidence of any widening on this bridge, and it is probable that the new Lower Hodder bridge was constructed in order to provide for carriages.

### 3.2 CONCLUSIONS

- 3.2.1 The differential character of the bridge demonstrates that the present structure is a product of more than one phase of construction. In particular the design of the western arch, western pier and western abutment suggest that these elements were constructed at a different date from the rest of the bridge. The character of the design, incorporates decorative embellishments that are not found elsewhere, such as the pier plinths and recessed voussoirs, and the implication is that these were rebuilt or modified at a later date to the eastern and central elements of the bridge. If this were demonstrably the case, then it would imply that the western pier was a modification of the original, as the central arch would not have survived had the pier been removed or lost. The probability is that this reflects the refacing of the western part of the bridge, at some unknown date, possible in response to storm damage.

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## 4. BIBLIOGRAPHY

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

Jervoise, E, 1931 *The Ancient Bridges of the North of England*, London

Slack, M, 1986 *The Bridges of Lancashire and Yorkshire*, London

Whitaker, TD, 1876 *An History of the Original Parish of Whalley and Honor of Clitheroe*, 2, 4<sup>th</sup> edn, Manchester

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APPENDIX 1  
PROJECT BRIEF

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## APPENDIX 2

### PROJECT DESIGN

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#### 1. INTRODUCTION

- 1.1 Cromwell's Bridge (also known as Old Lower Bridge) crosses the River Hodder some 5km south-west of Clitheroe. It is a three-arched bridge of ashlar masonry, with two cutwaters, constructed in the mid sixteenth century.
- 1.2 The bridge is now in poor condition, and requires urgent repairs. There is therefore a need to record the historic fabric in advance of these repairs.
- 1.3 This project design forms a response to an invitation to tender from Lancashire County Council on behalf of Ribble Valley Borough Council, dated 10th July 1997, enclosing a Specification for archaeological recording in advance of consolidation. It is also informed by a discussion with Peter McCrone of Lancashire County Council on 22nd July 1997, from which we understand that an alternative methodology, using Reflectorless EDM tacheometry rather than the rectified photography proposed in the Specification, would be acceptable.
- 1.4 The Lancaster University Archaeological Unit (LUAU) has considerable experience of the assessment, evaluation, and excavation of sites of all periods, having undertaken a great number of small and large projects during the past 17 years. Assessments have taken place within the planning process, to fulfil the requirements of clients and planning authorities, to very rigorous timetables. In recent years, LUAU has undertaken programmes of building recording on a wide range of rural and urban sites of all periods in Lancashire, Cumbria, and north-east England, including Bolton Castle (North Yorkshire), Kendal Castle (Cumbria), Egremont Castle (Cumbria), Jervaulx Abbey (North Yorkshire), and the masonry bridge at Rainow Bridge (Cheshire).
- 1.5 LUAU has the professional expertise and resource to undertake the project detailed below to a high level of quality and efficiency. LUAU and all its members of staff operate subject to the Institute of Field Archaeology (IFA) Code of Conduct.

#### 2. METHODS STATEMENT

- 2.1 The following programme has been designed to provide for an archaeological record of the consolidation works, and any structural or other features revealed during the works.
- 2.2 The main elevations of the bridge will be recorded by Reflectorless Electronic Distance Meter (REDM) tacheometry, using instrument stations on the riverbanks, related to a local grid. Points will be recorded, in three dimensions, on the corners of each ashlar block. Digital data will be recorded in a datalogger, and transferred to a portable computer for manipulation and transfer to other digital or hard media. Film plots will be output via a plotter and checked and enhanced in the field as a dimensioned drawing on the plots. The final elevations will be generated within a CAD environment and will be output at 1:50 scale (unless otherwise agreed with the client). The surviving ashlar masonry will be recorded in stone-by-stone detail, but other masonry will be recorded in outline only. Since the raw data will be recorded in three-dimensional form, the angled masonry of the cutwaters, piers and soffits can readily be projected onto the plane of the main elevations for presentation on a single drawing.
- 2.3 If safety considerations permit, targets will be attached to the bridge in advance of photography, and surveyed in as part of the digital record. This will allow computer rectification of the photographic record at a later stage, should this prove to be desirable.
- 2.4 While we anticipate that the use of the REDM, with its flexibility in viewing position, will allow almost all the masonry within the elevations (including the cutwaters) to be recorded digitally, it is possible that some areas will not be accessible due to poor sight lines; in these cases, elevation drawings will be prepared manually subject to safety considerations. In conformity to the principles of the Specification, these drawings will not be digitised into the CAD-based record, unless separately agreed and costed.
- 2.5 A photographic record will be taken in black-and-white on a medium-format camera, and presented in print form. This record will not be to rectified standard, although where possible the photographs will be taken at a right angle to the masonry face being recorded. The full record will be presented as negatives and contact

prints. Colour transparencies of the main elements of the bridge, and of the repairs in progress, will also be made.

- 2.6 We advise that in this instance our proposed methodology will allow a more complete, consistent, and cost-effective record of the historic fabric than that provided by rectified photography and manual drawing, given that appropriate access for both purposes will be restricted by the safety implications of working within the river, in uncertain weather conditions. While close observation will be undertaken where safety permits, our proposed methodology will allow the requisite recording to be undertaken from dry land, regardless of all but severe flood conditions.
- 2.7 In addition, a watching brief will be maintained during the repair works, to record any additional deposits or structural evidence which may be revealed. This recording will be undertaken by photography, manual drawing and/or other methods as appropriate to the field conditions.
- 2.8 **Preparation of a report:** A brief report will be prepared, which will describe the work undertaken, and record the results achieved and the conclusions drawn.

### **3. HEALTH AND SAFETY AND INSURANCE**

- 3.1 LUAU 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 (1991). A written risk assessment will be undertaken in advance of project commencement and copies will be made available on request to all interested parties.
- 3.2 Our proposed methodology minimises the need for work in the river, but some close access may remain desirable. This will only be undertaken if water conditions allow safe access, and staff will wear lifejackets and climbing harness anchored to the river bank. All work involving entry into the river or access onto the fabric of the bridge will be undertaken by a two-person team, for safety reasons.
- 3.3 LUAU holds Professional Indemnity insurance to a limit of £2 million in any one claim (£1 million for pollution claims).
- 3.4 All other terms and conditions will be in accordance with Lancashire County Council's General Standards for Fieldwork, unless otherwise agreed by both parties. We request that in this instance payment for the pre-intervention fieldwork should be made by two equal instalments (one on commissioning and one on submission of report), and payment for the watching brief should be by invoicing for work completed per calendar month.

### **4. ARCHIVE AND REPORT**

#### **4.1 ARCHIVE**

- 4.1.1 The results of the recording will form the basis of a frill archive to professional standards, in accordance with current English Heritage guidelines (*Management of Archaeological Projects*, 2nd edition, 1991). The project archive represents the collation and indexing of all the data and material gathered during the course of the project.
- 4.1.2 The textual archive will be provided as a printed document and/or on computer disks as ASCII files, as appropriate. Drawings will be provided as printouts (from the digital record) and as originals (from manual drawing). The photographic archive will be presented in folders, and each print will be identified with subject, date, and direction of view.

#### **4.2 REPORT**

- 4.2.1 One bound copy of a written synthetic report will be submitted to the client, and a further copy to the County Archaeology Section. The report will be produced in a format similar to this Project Design, subject to any comments from the client. It will include:
- details of any agreed variations on the project design a method statement
  - a summary analysis of the data generated by the recording, and any wider implications for the understanding of the monument

- plots and drawings of the two elevations of the bridge
- photographs of any significant archaeological features, and of the progress of the works

#### 4.3 CONFIDENTIALITY

- 4.3.1 The report is designed as a document for the specific use of the client, for the particular purpose as defined in this project design, 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 or for any other explicit purpose can be fulfilled, but will require separate discussion and funding.

#### 5. PROJECT MONITORING

- 5.1 Any proposed changes to this project design will be agreed with the County Archaeologist. LUAU will arrange a preliminary meeting if required, and will inform the County Archaeologist of the commencement of the project.

#### 6. WORK TIMETABLE

- 6.1 Pre-intervention fieldwork can be started within three weeks of commissioning, and can be completed within one week. A more rapid timetable may be possible, and should be discussed at the time of commissioning if desired by the client. The watching brief can be arranged at two weeks' notice for the start of the programme, and a minimum of 24 hours notice for specific visits..

#### 7. STAFFING

- 7.1 Depending on timing, the project will be under the management of **Jamie Quartermaine BA Survdip MIFA** (LUAU Project Manager).
- 7.2 Subject to availability at the required time, fieldwork and report preparation will be undertaken by **Christopher Wild BA** (LUAU Supervisor). Christopher has extensive experience of surveying and building recording, including recording by REDM in conjunction with consolidation programmes at Sargill smelting mill, North Yorkshire (on behalf of Yorkshire Dales National Park) and Nenthead lead mines (Cumbria).

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## ILLUSTRATIONS

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- Fig 1 General Location Map
- Fig 2 Detailed Location Map
- Fig 3 North and South Elevations of the Bridge

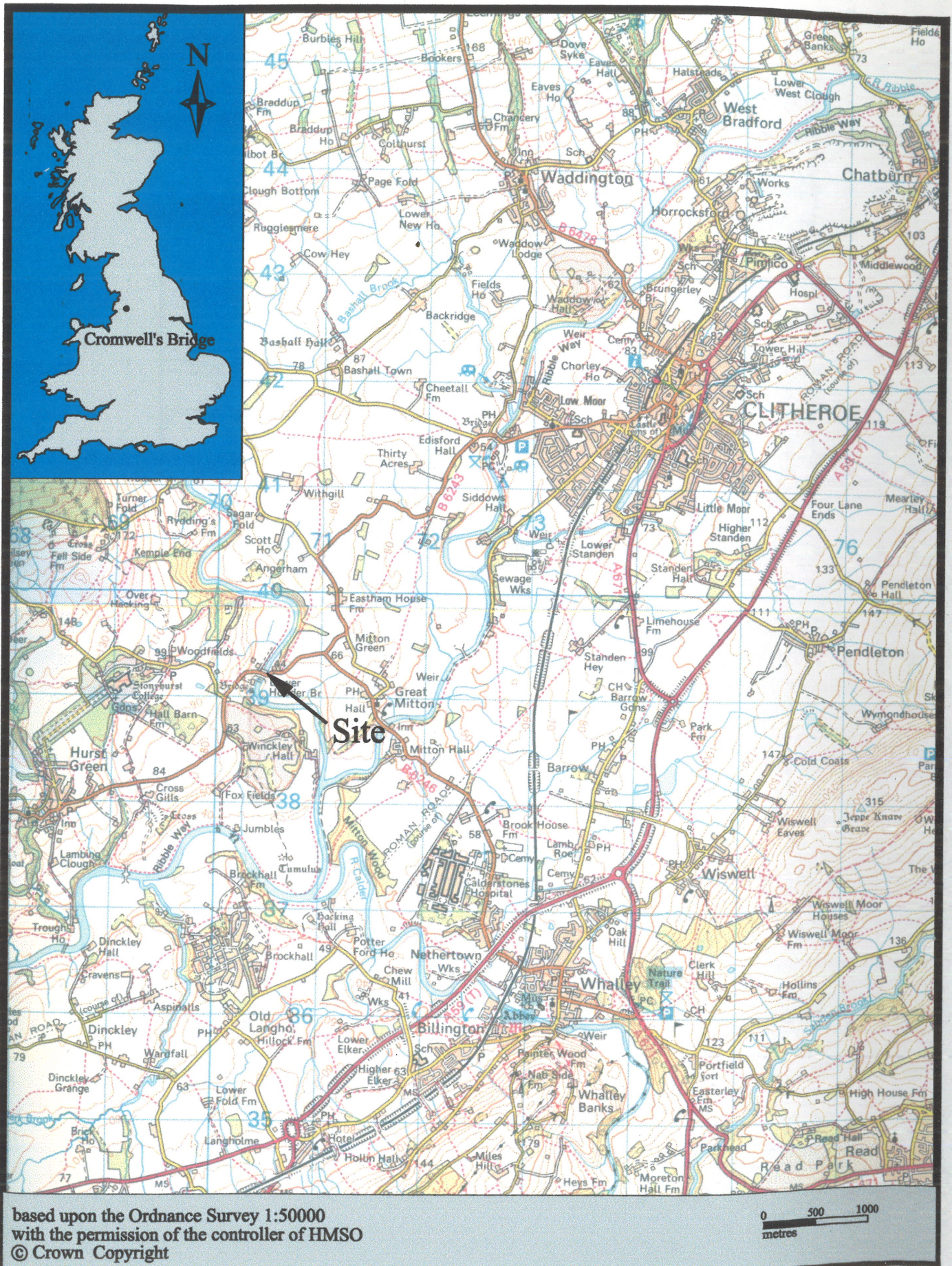
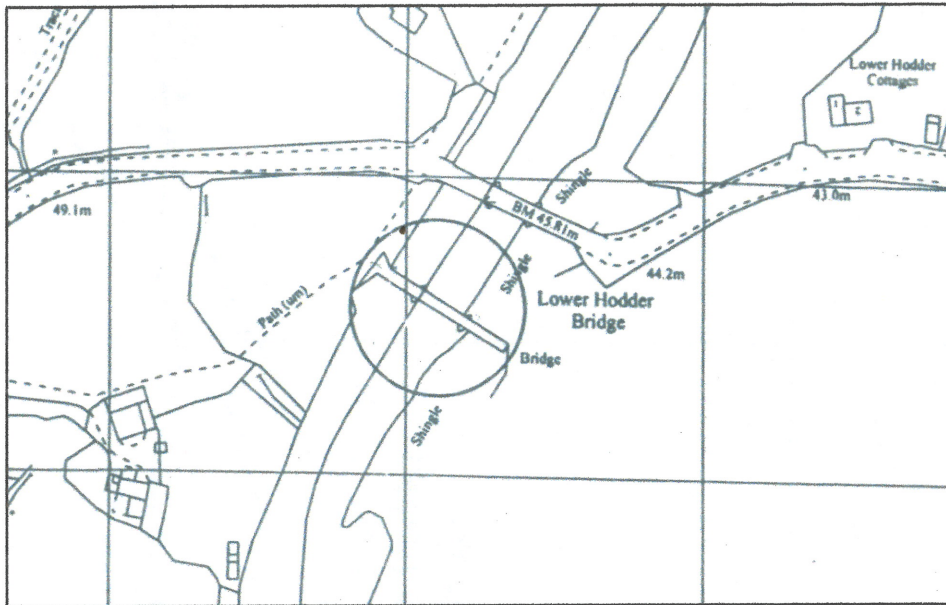


Fig 1 : General location Map





**Fig 2 Detailed location plan of Cromwell's Bridge, based on Ordnance Survey 1:2500 map, with permission of Her Majesty's Stationary Office**

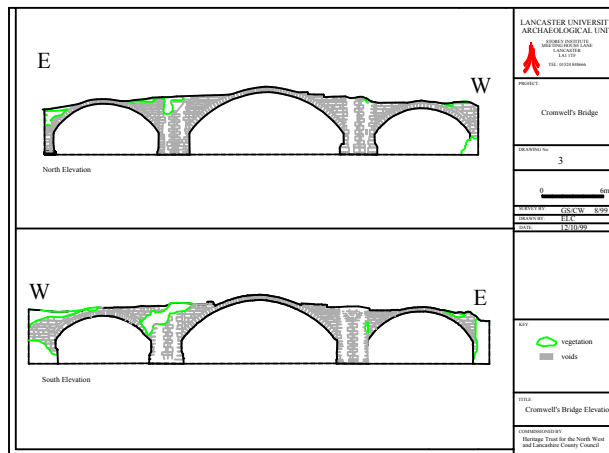


Fig 3 North and South Elevations of the Bridge

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## PLATES

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- Plate 1 General view of Cromwell's Bridge looking south-west
- Plate 2 East arch of bridge looking south-west
- Plate 3 Central arch of bridge looking south-west
- Plate 4 West arch of bridge looking south-west



Plate 1 General view of Cromwell's Bridge looking south-west



Plate 2 East arch of bridge looking south-west



Plate 3 Central arch of bridge looking south-west



Plate 4 West arch of bridge looking south-west