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THE WEIR GARDEN, SWAINSHILL, HEREFORD & WORCESTER

ARCHAEOLOGICAL FIELDWORK 1991-1995

BY

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FOR

THE NATIONAL TRUST

Cotswold Archaeological Trust

THE WEIR GARDEN, SWAINSHILL, HEREFORD AND WORCESTER

ARCHAEOLOGICAL FIELDWORK 1991-1995

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SUMMARY

A two-stage programme of archaeological fieldwork was carried out on the site of a Roman riverside complex at the Weir Garden, New Weir, Swainshill, Hereford and Worcester. The work, commissioned by the National Trust, was carried out by Cotswold Archaeological Trust during 1991 and 1995.

Preliminary survey work in 1991 provided a detailed record of the visible archaeological remains within the scheduled area. The fieldwork supplied the required level of information necessary to design proposed engineering works to revet the riverbank, and to consolidate standing archaeological structures susceptible to ongoing erosion. Initial fieldwork involved topographic, geophysical and riverbed surveys and standing-structure recording.

Implementation of the riverbank consolidation scheme in 1995 was accompanied by a second stage of archaeological investigation. Additional standing-structure recording was undertaken, combined with a riverbed watching-brief, along with small-scale excavation above one of the riverbank structures.

The level of preservation of the structural remains varied considerably, some being very well preserved whilst others had been extensively damaged or entirely removed by river action.

The work by CAT at New Weir nevertheless highlights the presence of a Roman riverside site of considerable archaeological interest and research potential. The archaeological remains include an exceptionally fine and well-preserved stone-buttress, with room above, representing the highest standing piece of Roman masonry in Hereford & Worcester. Beyond their regional value the Romano-British remains at New Weir have a wider importance for study, representing the remains of a high-status complex in a spectacular riverside setting rarely parallelled in Britain.

Survey work in 1991 and 1995 has yielded significant new information on this important site. However, the brief for archaeological works confined investigation and recording to those areas most threatened by bank erosion and remedial works, such that these new findings are limited to a few specific areas; leaving a number of crucial questions still unanswered.

In view of the importance of the remains, and because the information which currently informs their understanding, interpretation and management is both incomplete and inadequate, it is highly desirable that some of the unresolved questions are investigated and answered.

It is considered that a limited evaluation programme should be instigated in order to provide valuable information on the scale, form and level of preservation of the terrace deposits. This would then inform a proper assessment of the area currently scheduled, and provide information for future decisions on the curation of the buried remains and the long-term management of the site. In the short term it would also facilitate an accurate assessment of the susceptibility of the buried remains to damage from root penetration and tree growth, from past and current management of the gardens. The immediate management concerns must be considered alongside a longer-term view of the future role of the archaeological remains in the presentation of the Weir Gardens to the public.

To this end a tiered series of options for site management are presented at the end of this report. These will require critical assessment of their feasibility and desirability, balancing archaeological considerations with garden management issues.

GLOSSARY OF ARCHAEOLOGICAL TERMS AND ABBREVIATIONS

ARCHAEOLOGY
For the purposes of this project, archaeology is taken to mean the study of past human societies through their material remains, from prehistoric times to the modern era. No rigid upper date limit has been set, but AD 1900 is used as a general cut-off point.

BAND ANATHYROSIS
Where masonry blocks make contact across prepared, mating, bands round each joint face.

CAT
Cotswold Archaeological Trust.

CONTEXT
The simplest level of excavated archaeological data, ie a context could be the cut of a ditch (shown as - [1], or its fill (shown as (2)).

CROPMARK
A trace of a buried feature revealed by differential growth of crops, best seen from the air.

FLUE-TILES (*tubuli*)
Hollow, box-section, clay tiles built into walls to dissipate heat and fumes from underfloor hypocaust systems.

CHAU
City of Hereford Archaeological Unit.

HWCC
Hereford and Worcester County Council

IMBREX (plural *imbrices*)
Clay roof-tiles used during the Romano-British period. They were semi-circular in section and secured in place as a rainproof cover over the abutting flanges of *tegulae*.

IRON-AGE
The first period in which iron was the predominant metal. In Britain it is dated between c.700 BC to the Roman Conquest in AD 43.

JOGGLING
Terminology used by masons where two blocks interlock together, so that they do not move or slip, by means of a projection in one and a rebate or notch in the other.

LEWIS-HOLE
A narrow rectangular undercut hole made in the top surface of a heavy stone block to take the prongs of a Lewis device, attached to a lifting mechanism. Other techniques for lifting architectural stonework were also used, utilising fittings in the upper face, or with tongs or dogs that entered into rectangular holes cut into the sides of a stone near its upper face.

MEDIEVAL
Taken here as the period from the Norman invasion in AD 1066 to approximately AD 1500.

MODERN
The period following the post-medieval period. AD 1900 is taken as an approximate cut-off point.

NATURAL
Defined in archaeological terms this refers to the undifferentiated natural geology of the site, eg, sandstone.

NGR
National Grid Reference, given from the Ordnance Survey grid.

NMR
National Monuments Record, held at Swindon.

NYMPHAEUM
A Roman ornamental fountain or cult shrine, dedicated to the *Nymphs* or controlling deities of sacred water sources.

NT
National Trust

OD
Ordnance Datum

OPUS SIGNINUM
A style of floor construction using a very hard waterproof cement, coloured red by the addition of crushed tile.

OPUS QUADRATUM
A style of masonry construction using rectangular blocks laid in horizontal courses without mortar, and sometimes joined together with dowels or bar clamps. The vertical joints were usually staggered to provide interlocking bonds between the stones.

OS
Ordnance Survey

PILA (plural *pilae*)
Squared clay-tiles used to construct floor-bearing pillars for underfloor heating systems (hypocausts).

POST-MEDIEVAL
The period following the medieval period. From C AD 1500 to the Industrial Revolution.

PRN
Primary Record Number, associated with SMR databases.

ROMANO-BRITISH
Term used to describe a fusion of indigenous late Iron age traditions with Roman culture, often abbreviated as `R-B'.

SAM
Scheduled Ancient Monument.

SETTLEMENT
An area of habitation, perhaps surrounded by associated closes, paddocks, approach ways and other features, together constituting a complex of earthworks or cropmarks distinct from fields.

SMR
Sites and Monument Record, the database for Hereford & Worcester being held at Worcester.

TEGULA (plural *tegulae*)
Large flat clay roof-tiles with projecting flanges at either side. By placing two tiles together, with flanges abutting, an imbrex tile could be secured over the joint to keep rainwater out.

TUFA
A lightweight building material utilised during the Roman period. In continental Europe tufa was solidified volcanic mud, whilst in Britain the term refers to material of calcareous origin. Both forms were easily worked and though weak under concentrated loads tufa *voissours* were employed in arches and vault.

TWNFC
Transactions of the Woolhope Naturalists Field Club.

VESTIBULE
An antechamber, hall or lobby next to the outer door of a building: a porch of a church.

VILLA
In archaeological rather than historical terms `villa' is commonly used to denote a building of Romanised form, containing embellishments such as mosaic floors, underfloor heating, painted wall plaster and other displays of invested wealth.

VOUSSOIR
Wedge-shaped component block in the formation of arches and vaults within buildings. In Roman buildings these can be either solid or hollow, with open sides.

WTSL
Wheatley Taylor Stainburn Lines, Chartered Architects.

ILLUSTRATIONS

Fig. 1 Location map: showing regional and local setting of the Weir Gardens in relation to the River Wye and Hereford.

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1. INTRODUCTION

1.1 Introduction

1.1.1 This report presents the result of a staged programme of archaeological fieldwork carried out at The Weir Garden, New Weir, Swainshill, Hereford and Worcester. The work, conducted by Cotswold Archaeological Trust during the summer months of 1991 and 1995, was commissioned by the National Trust.

1.1.2 The study area, centred on NGR: SO 43684179, contains the eroded remains of an extensive Roman riverside building complex built alongside the River Wye (Figs. 1 & 2). A comprehensive topographical survey of the site highlighted the extent and importance of the standing remains, and noted extensive and continuing damage caused by river erosion during periods of peak winter flow. The results of this initial survey were detailed in a preliminary report (Walker 1991), information within it forming the basis for proposals for an engineering solution to the problem of active erosion of the remains (Fig. 2; Carl Bro Haiste 1991, 1993; WTSL 1995).

1.1.3 A second stage of archaeological recording and small-scale investigation has now been carried out as part of the implementation of the riverbank protection scheme, the latter designed to consolidate the standing remains and prevent continued damage.

1.1.4 The results of this fieldwork builds on previous antiquarian investigations and on more recent archaeological research conducted in the late 1970s (Shoesmith & Boulton 1977; Shoesmith 1979, 1980). Despite the relatively limited scope of the present project, designed principally to record deposits encountered during the consolidation works, the programme has usefully added new information to our understanding of the site.

1.1.5 This report is structured into five main sections. Section 1 introduces the site and summarises the known archaeology of the study area environs in the Romano-British period. It also details the history of investigations on the site and the context of the present works. Section 2 describes the methodology adopted in both phases of recent archaeological fieldwork, whilst Section 3 presents the results of this work; considering the form of the visible remains, and the issues raised from their preliminary investigation. The Section 4 discussion attempts to synthesise the accumulated data with that from Romano-British sites in the immediate locality, and relevant British parallels, presenting an interpretation of the site based on current knowledge. Finally Section 5 addresses issues concerned with the future management of the archaeological remains, presenting a series of options for future action.

1.2 Landuse, topography and geology.

1.2.1 The Weir Garden is a National Trust property containing a formal house, currently a residential nursing home, and associated grounds; together listed as county SMR no. 00708 (Fig. 2). The spring gardens date in their present form to the nineteen-twenties, though earlier landscaping and extensive woodland planting may be attributable to Repton in 1793 (National Trust 1990 and SMR information). The study area is surrounded by farmland at Canon Bridge, Bridge Sollers and Upper Breinton made up of arable and pasture fields and orchards.

1.2.2 The site name is a misnomer, in that no weir actually exists at this particular point on the Wye; the nearest structure having lain approximately 1 km downstream at Old Weir, where an old ferry crossing has been documented (Lamont 1922). Placename evidence suggests a weir has lain in the locality since the medieval period, the site being referred to as *La Wer(r)e* by 1214. By 1450 it had become known as *La were juxta Sugwas* (Coplestone-Crow 1989).

1.2.3 New Weir lies within the parish of Kenchester, approximately 7.5km to the west of the centre of Hereford. The A438 Hereford to Brecon road runs immediately north of the Weir Garden, passing on an east-west alignment through Swainshill, Sugwas Pool and Bridge Sollers.

1.2.4 The Weir Garden, situated on a meander in the River Wye, lies on the gently undulating relief of the Herefordshire Plain that occupies approximately 65 % of the county (Rowley 1986), to the east of the higher ground of Brecon and the Black Mountains. Ground levels rise from approximately 55m OD beside the Wye to around 75m surrounding New Weir House.

1.2.5 The Roman remains in the Weir Garden lie on a narrow and relatively flat terrace on the northern side of the river, principally between 60 and 65m OD. The occupied area is relatively secluded, bordered both by the Wye and by a high bank rising steeply back immediately behind the terrace. A series of calcareous springs emerge at intervals from the riverbank, forming tufaceous deposits.

1.2.6 The underlying solid geology of the area consists of Lower Old Red Sandstone of the Devonian period (Institute of Geological Sciences 1979). The Herefordshire Plain predominantly comprises soft beds of red and grey marl with beds of more compact sandstone at regular intervals (Rowley 1986), and the soils west of Hereford mainly consist of leached brown earths of medium to fine texture (Shoesmith 1982).

1.3 Archaeological background

Iron-Age and Romano-British Herefordshire

1.3.1 There is no known prehistoric occupation in the vicinity of New Weir. Iron Age hilltop settlement in Herefordshire has long been attested and a major Late Iron Age centre lay nearby at Credenhill (Fig. 2), though non-hillfort settlements remain largely unidentified.

1.3.2 The Romano-British settlement pattern of Herefordshire is not well understood. Although a small number of Roman towns and stations in the Wye Valley are known (Walters

1908), there is relatively little identified evidence for 'native' Romano-British rural occupation; this form being generally difficult to locate and rarely excavated, though more sites are coming to light through aerial photography on the lighter river-terrace soils. Villas remain uncommon and new sites await discovery (Rowley 1986).

1.3.3 The town of Kenchester, *Magna Castra*, lies approximately 1 km north of the study area (Fig. 2). It was the largest of the small walled-towns of western Roman Britain, and may have acted as a local administrative centre within the fertile Wye valley (Todd 1976). Although its origins are unclear the morphology of the town, with its irregular street system, is relatively well understood from aerial photography; revealing its evolution in ribbon form on the east-west axis of the Stretton Grandison to Clyro Road (Baker 1966, Margary 1967).

1.3.4 Partial excavation (Jack and Hayter, 1916, 1926) has revealed evidence of substantial town houses, indicating a centre of some wealth (Shoesmith 1982); along with evidence of extra-mural occupation to the east and west around the road junctions. These extra-mural areas seem to have continued unchanged, following the construction of town defences, bordered by a wider agricultural landscape and its settlements (Burnham & Wacher 1990, Cleary 1987).

1.3.5 The county SMR and Victoria County History (Walters 1908) together detail a number of occupation sites and findspots in close proximity to Kenchester (Fig. 2), a number of coinhoards in particular having been interpreted as evidence of a prosperous hinterland (Shoesmith 1982). A list of Romano-British sites in the locality, listed by PRN number, is inlcluded in Appendix I.

1.3.6 A series of aerial photographs held by the SMR, taken by C. Musson in July 1994, show cropmarks for putative Romano-British occupation close to the study area (Fig. 2). The cropmarks were heavily obscured by alluvium and might reflect underlying geological patterns but have been tentatively interpreted as showing a three-celled, roadside-?villa building (SMR 22856), roadside quarry-scoops (SMR 22857) and two enclosure systems (SMR 22855 and 22856). These lie at Canon Bridge East and West, on the opposite river bank between the New and Old Weirs; close to the putative bridging point where two stretches of Roman road (SMR 06883 and 00258) meet at its bank. A further cropmark at nearby Weir Cliff is an undated double-ditched enclosure, its south-western corner apparently cut away by a meander of the Wye (SMR 08302).

1.4 Previous research

1.4.1 It is not known when the antiquity of the structural remains at New Weir was first recognised, nor whether they have been the subject of any undocumented antiquarian research predating the nineteenth century. Awareness of the site is attested from stone-robbing but it remains equally uncertain when this first occurred, and until what date upstanding remains were present on the terrace.

1.4.2 Substantial Roman walling survived at Kenchester into the sixteenth century, recorded by Leland, and more limited upstanding remains stood there as late as the early nineteenth century (Walters 1908). This raises the possibility that the New Weir complex, even if robbed

for building materials from an early time, was recognisable in ruinous form to a similar date. A fragment of post-medieval tobacco-pipe, found within debris from an undated wall (Shoesmith 1980), suggests that upstanding remains did stand until the eighteenth or nineteenth century. Certainty is precluded however due to the potential mixing of post-medieval material into earlier deposits (particularly during groundworks for the establishment of water-supplies).

1.4.3 Archaeological interest in New Weir is first documented in the late nineteenth century through two articles published in the Transactions of the Woolhope Naturalists Field Club (Moore 1891, 1893). These detail the accidental discovery in 1891 of a masonry cistern and discuss the later examination of two masonry 'piers' noted projecting from the bank.

1.4.4 The depth of discovery of the stone cistern suggests that the terrace deposits were by then masked by a considerable accumulation of hillwash. It remains unresolved as to when significant erosion and partial collapse of the two riverside stone piers began, but by the late nineteenth century the process is documented as being well-advanced in the case of the lower pier.

1.4.5 Despite recognition of flanged Roman tiles and *tesserae* on the site, and a longstanding local interpretation of the better preserved upper pier as the remains of a Roman bridge, all of the visible structures were firmly considered by Moore to be of medieval or later date.

1.4.6 The structures on the site were long held to have been associated with eighteenth-century landscaping of the gardens, a second view being that the piers may have supported a wharf or landing stage; local tradition having it that corn was shipped here in the nineteenth century to be milled at Eaton Bishop (information from SMR entry 00708).

1.4.7 Any antiquity to the structures was firmly discounted when the site was included in Haverfields' Survey of Herefordshire as the findspot of masonry and tiles (Bevan, Davies and Haverfield 1896). Early this century it was reported that for the masonry at New Weir, known under the name of 'Roman Bridge', it has been 'ascertained beyond doubt that the structure is really a landing stage for barges, not of earlier date than the end of the eighteenth century. It can therefore have no bearing on the question of a Roman bridge here' (Walters 1908).

1.4.8 Some uncertainty or dispute over the antiquity of the structures is however reflected in the continued 'Roman Masonry' notation for New Weir given on OS maps as late as 1938 (Shoesmith 1980).

1.4.9 Following the investigations by Moore, archaeological interest in the site appears to have waned and there are no other written records concerning it. A Mr Morris of New Weir House is later recorded as having, with the late owner Mr.Parr, discovered mosaic sections which were 'either returned to the earth or sent to the local museum', though there is no record of there whereabouts now (Shoesmith 1980).

1.4.10 There are then no known written records for the site until 1977 when, following observations by Philip Rahtz, modern investigative work was carried out by Ron Shoesmith of the City of Hereford Archaeological Unit. Work involved the drawing of standing elevations, a geophysical survey and test-pitting across the terrace. The latter revealed the existence of high quality Roman remains on the river terrace, including mosaics, walls, and evidence of

hypocausts. The total original width of the site could only be estimated but the evidence from the excavations and survey was taken to suggest the building complex occupied a terrace area of almost 2,000 square metres (Shoesmith 1980).

1.4.11 For the purposes of this report the two principle structures on site, previously referred to as piers or abutments, are both referred to henceforth as buttresses, although the true function of the lower structure currently remains unresolved.

1.5 Site erosion

1.5.1 The known archaeological remains, revealed by visual inspection, test-trenching and geophysical survey, extend over an area of approximately 125m x 55m. This area has been designated as a Scheduled Ancient Monument (Hereford and Worcester county entry 00335, Fig. 2).

1.5.2 The riverbank, the two projecting stone buttresses and associated riverside walls of the complex have long been subjected to extensive undercutting by the fast-flowing river Wye, which is susceptible to flooding and to rapid changes in height. River action has caused large sections of the undermined bank to slump or shear away, so that structural remains are exposed for a considerable distance along the steeply-sloping northern bank.

1.5.3 The full original width of the terrace is unknown given the presence of hillwash deposits, and only now survives in the immediate area of the upper buttress; severe undermining of bank sections having occurred immediately up and downstream of the buttresses. Potentially extensive post-medieval disturbance is known to have taken place on top of the terrace from the installation of a hydraulic ram, a pump-house, water-collection tanks, supply-pipes and drains as well as previous antiquarian and modern investigations.

1.5.4 Upstream of the scheduled area the riverbank rises steeply to New Weir House, and any archaeological remains that might lie there are masked or disturbed by the construction of terraced gardens and a boathouse built in the 1920s. The area downstream remains relatively undeveloped, consisting mainly of grassed bank under tree cover. This area, south-east of the cistern and the known limits of occupation, might contain further Roman remains though none have yet been recognised.

1.5.5 In 1991 CAT carried out a full topographic survey of approximately 45% of the scheduled area plus some additional areas immediately outside of its boundary. A geophysical survey was conducted within the scheduled area and selected adjacent areas by the Ancient Monuments Laboratory at English Heritage (details in Appendix). Additionally a full standing-structure survey of the upper and lower buttresses was conducted, recording areas of active erosion, along with a preliminary river-bed survey to accurately locate and plot fallen masonry distributions in the River Wye.

1.6 1995 works

1.6.1 Immediately prior to the 1995 programme of works the condition of the upstanding masonry elements and archaeological features exposed in the face of the riverbank was unstable and causing concern. Erosion by the River Wye has been the principal factor in the decay of the two Roman masonry buttresses projecting from the riverbank. The most complete of the two, the upper buttress, was in urgent need of consolidation, to prevent irreparable damage, and has now been repaired as part of a general programme of riverside revetment carried out by the National Trust (Fig. 3).

1.6.2 Much of the remedial work, detailed in the photo-specification prepared for the National Trust by Wheatley Taylor Stainburn Lines (WTSL 1995) did not involve major disturbance to the structure. However several aspects of the works had a potential impact upon archaeological deposits on the site, and a watching-brief and programme of small-scale excavation was consequently devised.

2. METHODOLOGY

1991 fieldwork

2.1 General

2.1.1 An initial archaeological survey was undertaken on behalf of the National Trust during July and August 1991. The express aim was to provide, for the first time, a detailed site record in advance of future engineering works. The latter programme included the construction of river defences, the reinforcement of river banks and consolidation of upstanding archaeological structures.

2.1.2 Although archaeological evaluation and survey work had been undertaken on the site in 1977 (Shoesmith & Boulton 1977; Shoesmith 1979, 1980), due to financial and temporal constraints this was of too limited a nature to provide the detailed level of background information required for proposed engineering works. For this reason a comprehensive survey was undertaken by CAT in 1991 within those areas of the scheduled area and surroundings directly threatened by the proposed works.

2.1.3 The survey results (Walker 1991) formed one component of a two stage investigative and recording procedure devised by the National Trust in conjunction with CAT. The survey comprised four distinct but inter-related components involving; i) standing structure, ii) topographic, iii) resistivity, and iv) riverbed surveys.

2.2 Standing-structure survey

2.2.1 The first of the four elements involved the detailed recording of structural remains along the riverbank. The remains of the two masonry buttresses were recorded in full, detailed drawings being produced for all upstanding elevations to act as the basis for future consolidation works (Figs. 6-9).

2.2.2 It was necessary to remove much of the vegetation growing on both structures at the time of the survey. This was only done where there was no threat to the stability of the structures, and for this reason portions of the upper buttress remained obscured by ivy cover. These undrawn areas have now been incorporated into the elevation drawings when the structure was fully cleared of vegetation in 1995, immediately prior to consolidation (plate 1).

2.2.3 Due to the considerable height of the upstream buttress it was necessary to erect wrap-around scaffold-staging for safety and access. This was an independent free-standing structure which caused no disturbance to archaeological deposits.

2.2.4 Where additional masonry structures were encountered in exposed sections along the riverbank these too were recorded, and their location and plan incorporated into the topographic survey. These additional detail drawings were originally omitted from the interim report, their location on the base plan sufficing for discursive purposes, but are now included in this document (Figs. 12 & 13).

2.3 Topographic survey

2.3.1 The second component of the project involved the execution of a full topographic survey of the area to be affected by the engineering works. Along the length of river bank this was defined by the technical drawings provided by Haiste Ltd (now Carl Bro Haiste Ltd), consulting engineers to the National Trust. The area of bank consolidation ran from a modern boathouse upstream of the masonry remains to a point downstream almost coincident with the octagonal cistern on the terrace above. At this point the engineering works met an existing concrete riverbank revetment (Fig. 3). The northern limit of the area to be surveyed was set by CAT after examination of the elevated river terrace, the high level path running along the scarp being selected as a suitable conclusion to the survey.

2.3.2 Equipment used during the course of the survey was supplied by the National Trust and comprised a Sokkisha total station EDM with data-logger, and a Zenith lap-top computer equipped with microSURVEYOR software for data-handling and processing. Printing and plotting of field results was also achieved with the use of National Trust facilities.

2.3.3 To facilitate accurate recording of the river-bank face the vegetation cover was trimmed prior to the commencement of work. A total of nine survey stations were used as a framework during the survey, three of which were located on the south-western bank of the River Wye. A temporary benchmark was transferred to the site from New Weir Lodge, and fixed on a manhole cover above a disused water tank on the terrace, with a value of 60.39m O.D. As well as the recording of data for compilation of a contour plan, details were also recorded of structural remains, loose or disturbed masonry, concentrations of rubble and building debris,

and concentrations of artefactual material. These were all located on a base plan and overlay along with general site detail such as modern buildings and trees.

2.3.4 The two original plans of in-situ and disturbed archaeological remains surveyed by CAT in 1991 have now been amalgamated (as Fig. 4), with particular blocks of interest, referred to in later sections, highlighted. A copy of this plan with reference numbers for all blocks will be included within the project archive.

2.4 Geophysical survey

2.4.1 During July/August 1991 a resistivity survey was carried out by the Ancient Monument Laboratory, English Heritage. The survey encompassed an area of 150m x 30m, taking in over 50% of the Scheduled Ancient Monument in addition to a block of ground around the modern boathouse extending 25m north-west of the SAM (Figs. 2, 19 & 20).

2.4.2 The survey results were somewhat ambiguous in nature, revealing a rather formless pattern of resistivity values, making it difficult to differentiate between archaeological activity and other effects (Payne, 1991). The susceptibility of buried archaeological remains to resistivity survey was affected by a range of factors including;-

i) abrupt local changes in relief and soil hydrology, resulting from a wide natural variation of soil moisture content. The sharp change in topography, where the terrace borders the steep river bank, may also have contributed to the rise in resistance in those areas.

ii) the problem of differentiating modern man-made features, such as pipes, from earlier features and natural springs.

iii) interference from tree-roots, and;

iv) the masking effect of hillwash.

2.4.3 The survey did however define general areas of potential, with broad groupings of high resistance readings being noted along the river edge (Figs. 19 & 20, Appendix). These broadly correlated with areas of high resistivity readings, interpreted as possibly reflecting coarsely textured Roman building debris. Structural definition could not be achieved, suggesting that any walling may be deeply buried; or that the survey had responded to collapsed material; perhaps overlying in-situ walls. Several low resistance linear anomalies were also recognised, probably corresponding to natural or managed water courses.

2.4.4 The resistivity survey was unable to confirm the interpretation by Ron Shoesmith, from a similar resistivity survey as well as test-pitting in 1977, that the terrace houses a series of building ranges. The results do however clearly indicate high resistance anomalies over a distance of at least 90m, broadly correlating with the extent of eroding walling in the scarp face of the bank; and with the distribution of blockwork and smaller building debris in the river below. Although the layout of buildings could not be clarified, the 1991 survey nevertheless

suggests extensive and potentially quite deeply-buried structural remains; raising the possibility that the ground plan of the building(s) survives in intelligible form.

2.5 Riverbed survey

2.5.1 The fourth and final component of the first stage of archaeological work involved the collection of available data on the nature and distribution of submerged building materials and masonry in the River Wye, in the immediate vicinity of the standing structures. Provisional reconnaissance of the river bed by CAT, and consideration of the results of the 1977 investigations, revealed that the quantity and scale of material in the river was too great to allow the scope of the original brief to be fulfilled. It was therefore decided not to attempt to recover masonry from the river, nor to employ sub-aqua divers to carry out a detailed survey at this stage; although archaeological divers did undertake a preliminary examination of the riverbed, assessing the character of riverine deposits.

2.5.2 The riverbed survey was conducted by setting out a 10m grid marked with buoys over a 140m stretch of the river extending some 30m beyond the lowest downstream occurrence of archaeological remains on or near the riverbank. The survey grid extended across the river by some 30m towards the south-western bank. The position of masonry blocks within this framework were located by EDM survey where wading or reach from a boat could be made. For those few blocks in very deep water a remote fix was achieved by estimation of their position within the 10m grid. The distribution plot, though modified in the light of low summer water levels in 1995 during the riverbed watching brief, was generally very accurate. General spreads of rubble and assorted building materials were also plotted by the latter method. A composite plan of archaeological remains recorded during the riverbed and terrace surveys has been compiled (Fig. 4).

1995 fieldwork

2.6 General

2.6.1 The 1995 survey work was carried out in accordance with a specification for a programme of work (CAT 1994) arising directly from a meeting on 6th May 1994 between representatives of the National Trust, English Heritage, Cotswold Archaeological Trust, Wheatley Taylor Stainburn Lines and Haiste Ltd (now Carl Bro Group) and from subsequent additional consultation with English Heritage.

2.6.2 The primary objectives of the staged fieldwork were;-

i) to provide a detailed site record of all visible archaeological elements of the site on which consolidation measures could be based;

ii) to ensure preservation by record in those areas where disturbance of deposits was required during consolidation and strengthening of the riverbed:

iii) to provide a record for future monitoring of site management: and

iv) where possible to obtain archaeological information to enhance current knowledge of the site.

The means by which these were achieved were;-

a) small-scale excavation to remove loose overburden overlying the Upper Buttress, in order to facilitate consolidation works.

b) a watching-brief during works affecting the riverbed and bank, the removal of collapsed Roman blockwork from the line of the new revetment and the recording of all archaeological remains encountered, and;-

c) additional standing-structure recording to add new detail to previous elevation drawings of the Upper and Lower Buttresses, where clearance of vegetation revealed previously unexposed stonework.

2.6.3 Within the scope of the proposed works CAT sought to obtain information on the original form of the structures, the techniques of construction employed and, where possible, an understanding of the function and date of the remains. New information resulting from the fieldwork has been integrated with the findings from previous archaeological endeavour; in order to seek to clarify the role of the site, and its relationship to the nearby Roman town at Kenchester.

2.7 Excavation

2.7.1 Archaeological excavation was undertaken following the construction of wrap-around scaffolding around the Upper Buttress, and the removal of remaining vegetation from the sides and top of the structure under archaeological supervision.

2.7.2 Excavation involved the clearance of loose debris from above the masonry structure of the upper buttress, to mitigate the potential loss of stratigraphic information and, it was hoped, to address important archaeological questions.

2.7.3 Whilst the external appearance was of an apparently undifferentiated soil the horizon overlying the buttress contained abundant Roman building debris and potentially significant archaeological deposits.

2.7.4 Overburden was carefully reduced to a level sufficient to allow consolidation works to proceed unincumbered by loose material. The finished level, dictated by the nature of archaeological deposits encountered, was determined on-site between WTSL, McNamara & Co and CAT and was considerably higher than the approximate level of reduction indicated on WTSL Drawings 745/92/01-02.

2.7.5 Within slit-trenches I and II (Figs. 10 & 11) levels were temporarily reduced to a depth of approximately 0.90m. This keyhole excavation was carried out to check that the balance of engineering work was not in conflict with the perceived nature of the archaeological deposits. This clarified whether there was a potentially misleading external view of undifferentiated deposits which might misinform the consolidation process to the detriment of any vulnerable internal deposits.

2.7.6 Whilst significant archaeological deposits were exposed in plan, interference with complex stratigraphy was avoided, in order to retain the archaeological integrity of the structure.

2.7.7 Excavation resulted in the creation of a largely root-free soil dome which was then returned to grass, with turfmat pegged over the reduced top surface and sides by the main contractor (plate 2). The rustic wooden fence was set back, north of the buttress, to restrict access.

2.7.8 All deposits removed were recorded by means of written, drawn and photographic records using a standard recording system. Levels were taken as appropriate and related back to the 1991 temporary bench mark.

2.8 Riverbed watching brief

2.8.1 In order to minimise damage to the archaeological remains on the riverbank all construction works were carried out using a pontoon-housed crane, moored midstream and gradually moved downstream as operations progressed. The use of a pontoon superseded an earlier proposal to construct a shingle-built coffer dam on the riverbed which, though rejected by the National Rivers Authority, would have provided a clear working area for riverbank consolidation and exposed all riverbed masonry for archaeological inspection.

2.8.2 To assemble and launch the pontoon a timber-built temporary jetty was constructed from the site compound to the river, alongside farmland at the eastern-most margin of the site. This involved the machine-cutting of a graded slipway through the high riverbank down to the summer water level, and at the request of English Heritage a watching brief was conducted during its construction. No archaeological deposits were encountered, the stratigraphy present being a thick, homogenous band of grey-brown silt overlying a natural substrate of grey-blue clay.

2.8.3 The pontoon was initially towed upstream and anchored at a starting position at the north-western extent of the works, moored sufficiently far from the bank to avoid damage to submerged Roman masonry. A mechanical excavator was first dropped off on the riverbank close to the boathouse and gradually tracked along the bank (plate 2). Damage to archaeological remains from compression was avoided since the machine moved across consolidation materials brought in to cushion the sensitive deposits in the bank.

2.8.4 Following a decision on the best practicable course for the revetment line, taken between the contractors, Mowlem, and CAT, a series of submerged and partially-submerged blocks were highlighted for removal from the line of the new blockstone revetment.

2.8.5 Each block identified as requiring movement from the revetment line was given a unique code number. A numbered plastic tag was then attached to each block with rot-proof nylon, and the block position checked against the baseplan compiled by CAT in 1991 (and amended where necessary). Blocks were then moved by wrapping a fibre strop around them and carefully lifting them to a safe position on the river bank or pontoon. All movement of masonry was undertaken by crane by the main contractor, under archaeological supervision. After this process the relationship of collapsed masonry to the standing structures and topographical survey was assessed. No Roman masonry was reused during the bank consolidation works due to the risk of damage.

2.8.6 Each block was inspected, cleaned, and a pro-forma recording sheet compiled (see Appendix). This principally detailed the block dimensions, tooling type and coverage and position in relation to other blocks. Blocks of particular interest were then drawn at a scale of 1:10, and a selection are illustrated within this report (Figs. 15-17). A comprehensive photographic archive was produced of the blockwork lifted from the river to complement the individual pro-forma recording sheets. Following their recording blocks were returned to the river, resting in two groups immediately beyond the finished blockstone line. An archive record has been kept of the positions of these returned stones. No especially significant or informative (i.e decorated or moulded) material came to light that would have required permanent removal from the river for further study or museum housing.

2.8.7 Following the removal of large masonry blocks and fragments, and whilst one archaeologist was recording blockwork, the mechanical excavator was used to prepare a level rockshelf on which the imported blockstones and granular fill could properly rest. An archaeological watching-brief was maintained during this work, and the character of any small architectural fragments and building debris retrieved in this manner was recorded. Building material recovered from each working-stretch was generally photographed as a group, and written notes made of the average size and character of the debris. This information will be included in the project archive. Material lying below the monumental steps and Upper Buttress were also given individual numbers.

2.8.8 The line of the blockstone revetment (Fig. 3) was routed in such a way as to run as close as possible to the shallower river-edge whilst avoiding cutting into undisturbed bank, which though disjointed from shearing and slumping potentially contained retrievable information. On several occasions a watching brief was necessary during trimming of the riverbank, where heavily undercut sections of bank projected out across the required line. No archaeological remains were found within these portions of bank material, even though large slumped sections of the bank certainly contain structural remains or occupation deposits.

2.9 Standing structure survey

2.9.1 Vegetation on the Upper Buttress was cleared, under archaeological supervision, prior to consolidation in accordance with a photo-specification issued by WTSL to the main contractor. Clearance involved the removal of ivy, thorn and bramble from the elevations of the Upper Buttress, the lifting of turf and cutting back of shrubs from the top of the buttress, and the temporary removal of three blocks from the Lower Buttress in order to remove root stumps.

2.9.2 Following this clearance, new detail revealed on the elevations was added to the existing survey drawings. A thorough examination of the structure was conducted to check for evidence of phased construction, though none could be ascertained. A detailed photographic record was compiled of the buttresses prior to consolidation, and other masonry features such as the walls discovered on the site during the 1991 topographic survey. Some work was required to re-expose walls and clean them to a suitable standard for record photographs in 35mm colour slide and black and white print form (plates 13 & 14).

Monitoring, reporting and archiving

2.9.3 Notice was given to Malcolm Atkin, County Archaeological Officer, HWCC, of the commencement of the programme of archaeological works, with an invitation to visit during the course of the fieldwork. A site visit was also made by Ron Shoesmith of CHAU, towards the end of the project.

2.9.4 The scheduled monument consent specified that a report be written within 6 months of completion of works, and also stipulated that a full site archive be compiled within five years of completion of the fieldwork. The site archive contains all original written, drawn and photographic records, including plans intended as archive-only records (such as location plans for blockwork returned to the river). Upon completion of the project the site archive will be deposited with the National Trust along with all artefactual material recovered during the course of the project. Deposition of the archive and finds with the appropriate museum body shall be the responsibility of the National Trust. The NMR and SMR may also be invited to receive copies of both the archive and report.

2.10 Consolidation works

2.10.1 Conservation works proceeded unencumbered following the removal of vegetation, the revision of the drawn elevations, and the archaeological excavation of overburden. The programme of repair involved the drilling and insertion of 7mm diameter spiroties, penetrating through joints in the upper courses into the concrete core to increase structural stability. Approximately thirty-five ties were incorporated into the structure and are now invisibly masked by new mortar. Limited grouting was carried out where necessary to stabilise large cracks in the upper structure and to fill voids behind the outer facing. These parts, along with a considerable area of the course-jointing of the three exposed elevations, were then repointed with a reproduction of the original Roman mortar mix.

2.10.2 Scientific analysis of the original Roman walling mortar revealed that it was a hard, pink, mortar with nodules of lime; and with an aggregate predominantly comprised of crushed burnt clay (probably from brick or tile), and sandstone thought to have been obtained from the river. Analysis of plaster samples again revealed a hard, pink, mortar with large aggregates of crushed burnt clay with some rounded sandstone, the finer aggregate being crushed brick and silica sand (the latter probably coming from river silts). A copy of the full mortar analysis results (McNamara & Co 1995) will be included with the project archive.

2.10.3 The composition of the new mortar, similar to but distinguishable from the original material, was a simple mix of three parts aggregate to one part of Buxton lime. The aggregate itself consisted of two parts of Hereford ballast (concreting sand mixed with small rounded pebbles) and a third element consisting of a quarter part of calcium carbonate, a quarter part of washed sea sand and a half part of crushed soft red brick. For the limited areas of grouting works a feebly-hydraulic lime from Cumbria was used, mixed with crushed brick and low-sulphate pulverised fuel ash (PVA) (McNamara pers.comm).

2.10.4 Protection of the exposed painted plasterwork on the south-east facing elevation was achieved by fixing a series of projecting stone tiles over the standing walling immediately above, in order to channel rainwater away from the plaster faces. A decision was made not to spray the plaster with a lime-water solution at this stage but to continue to monitor its condition over time.

3. RESULTS

(This section incorporates the edited interim findings of the previous published CAT works (Walker 1991), which form an inseparable part of the overall survey).

Standing-structures

Description of the standing structures broadly runs from upstream to downstream ie. north-west to south-east along the riverbank.

3.1 The Upper Buttress and associated features

3.1.1 Moving downwards from the upstream end of the scheduled area the first complex of structures encountered is that adjoining the upper masonry buttress on its north-west side. Here there are a number of features of interest, two of which can probably be discounted as relatively modern.

Putative modern ram-housing

3.1.2 The most obvious feature is a sub-oval dry-stone walled feature high upon the side of the bank, which has a willow tree planted within its central depression (Fig. 4). The built-up stonework around the front of the feature is revetted with material derived from Roman buildings, including dressed stone and fragments of *opus signinum.* Discussion of the feature with gardening staff suggested that there was once a hydraulic ram in the vicinity, supplying water to the main house, before a more modern structure was built at the lower end of the garden.

3.1.3 Such a belief is borne out by the presence of a header tank discovered on the terrace above during investigation of the site in the 1970's. During the 1991 survey a concentration of collapsed brickwork was observed in front of the oval structure in a portion of bank which has slid downward through erosive action, some of which comes from a vault, perhaps a ram housing. In addition, the contour survey clearly revealed a linear feature, probably a pipeline, running between the manhole of the header tank and the sub-oval feature.

3.1.4 Immediately above the sub-oval feature there is a short section of unmortared walling which curves around the setting for the structure below. This would appear to be a revetment to the terrace immediately above, and appears to be of no great antiquity.

Roman walling upstream of the Upper Buttress

3.1.5 There are two short sections of wall which can be observed jutting from the general mass of rubble which supports the sub-oval structure (Fig. 4). One of these is a finely dressed section

of mortared masonry standing four courses high and running into the bank on a west-north-west to east-south-east alignment. The second is approximately perpendicular to the first but only stands two courses high. If these walls are Roman in date, as their shared character with dated masonry suggests, it is not clear how they relate to the rest of the site; their orientation is at odds with that of the buttress, although this may be the result of lateral movement or deformation due to bank movement. The position of the walls upstream does correlate however with the known continuation of the complex upstream of the Upper Buttress; and suggests that the gentle drop in terrace height immediately above these exposed wall sections reflects the probable north-western limit of the main building complex, indicated from excavation and geophysical survey. The course of the Wye appears consequently to have been little different then from now, the building complex being built up on the narrow terrace above, and the buttresses and revetment walling following the natural contours or meanders of the river.

The Upper Buttress (Figs. 6-8, 10-13)

Form

3.1.6 The earliest recorded description of the form and condition of the Upper Buttress comes from a TWNFC article (Moore 1893). The upper buttress was described as having been;-

> 'formed of excellent masonry with large stones, axe-dressed and roughly squared. The concrete which formed the filling-in or backing of the upper abutment being exposed, where found to have become very hard, denoted great antiquity, and contained numerous close textured tiles, generally with flanges, which after having been submitted to the authority of Mr F.J.Haverfield of Christ Church, Oxford, have been pronounced to be Roman. The vertical face of the upper abutment, looking towards the river is 12 feet wide. At about the height of 10 feet above lowest summer level it has an offset of six inches, the portion above the offset being also vertical. It has been necessary to mention this fact, because in August,. 1891, it was erroneously stated (the wish being father to the thought) that the spring of the first arch of the supposed bridge had been distinguished rising from this offset'.

3.1.7 The Upper Buttress stands to a maximum height of 3.35m to the top of the masonry courses. Prior to consolidation a minimum accumulation of 0.40m of mixed deposits could be recognised above (now seen, after clearance of vegetation and from excavation, to exceed a metre in places). The structure was 4.75m in width and stood some 2.70m proud of the top of the riverbank. The form of the structure was two-fold, there being a heavily constructed base of dressed and squared sandstone blocks averaging between 0.40-0.70m in all dimensions. This basal level stood four courses high, the uppermost course having been composed of blocks of slightly reduced dimensions (Figs. 6-8).

3.1.8 The style of base construction, *opus quadratum*, provided excellent stability to structures, whilst also having been visually pleasing with exclusively horizontal and vertical lines (Adams 1994). The actual source of materials used at New Weir is uncertain though a suggested source of the stone is the Credenhill area (Shoesmith pers.comm.).

3.1.9 Although it was not possible to investigate in detail the nature of the deposits upon which the Upper Buttress was built, it was ascertained that in certain places the lowest foundation blocks lay directly upon a grey clay of plastic consistency, which in turn lay above the natural laminated sandstone bedrock and gravels. The depth and extent of this clay is unknown. The structure has survived 1500 years without significant settlement, no doubt reflecting the adoption of traditional Roman engineering techniques to ensure solid ground (*solidum*); that is good ground which was sufficiently compact to take the weight of a construction uniformly without it sinking, ideally the bedrock. This followed the mechanical logic of Vitruvius' recommendation that lower courses take all the weight of a structure, ensuring stability and preventing sinkage through distribution of weight over a bigger area (Adams 1994).

3.1.10 The buttress had been terraced into the riverbank, with the side elevations clearly designed to be seen. Above the basal blocks and slightly inset from them, on the south-eastern and south-western elevations, the remainder of the structure is composed of well-dressed smaller masonry blocks up to 0.35m in length and 0.15m in depth and breadth. Up to 15 courses are present on the south-eastern elevation of the structure while only 10 survive on the south-western and north-western elevations. Excavation work has established that the ninth course of smaller stonework on the front face, above the basal structure, correlates with an internal floor level (see Figs. 7 & 10). This floor level appears to be some 2m lower than that of the mosaic floor noted by HCAU in testpit 4 (Shoesmith 1980) and suggests that parts of the building complex may have been on a series of spilit levels with steps connecting rooms, as parallelled at Great Witcombe, Glos, for example.

3.1.11 The variation in height of surviving upper wall-courses across the three elevations can now be seen not only to reflect differing rates of weathering, root action and river erosion but also variations in depth of robbing of the walling that enclosed the room surmounting the buttress. The first nine courses above the base surround a thick concrete and rubble core, a technique which was apparently common. Since masonry was regarded as the form of construction par excellence, durable and aesthetically attractive, many buildings were supplied with a facing of ashlar even when much of the internal structure was of concrete (Ling 1985).

3.1.12 Also of note is the identification, following cutting back of vegetation on the north-west elevation, of a rebated line of walling surviving a single course high (Fig. 6). This inset effect is confined to the upstream face of the structure and suggests a localised architectural function. It is conceivable that the deliberate construction of a narrow ledge allowed for the fixing of timber attachments, perhaps as a bracing to support a porch or canopy over the doorway and monumental steps that led to the river edge. The reconstruction drawing (Fig. 18) gives an impression of how such a structure might have looked, though any detailed reconstruction is a matter of considerable conjecture.

3.1.13 Prior to consolidation the smaller-coursed masonry of the buttress retained much of its original mortar, with portions of all elevations still reasonably well bonded. Some upper areas of stonework were however totally devoid of pointing material and were held together by little more than covering soil, roots and ivy. Virtually nothing of the original mortar existed in the lower foundation courses of the structure.

3.1.14 That the entire structure was once completely rendered was clear from the extensive remains of such material, particularly on the smaller masonry courses of the superstructure; although the foundation blocks still possess some evidence of rendering on one or two blocks (as do several of the blocks of the associated monumental steps discussed in 3.1.42 below). The offset difference between the foundation and superstructure masonry of the buttress had been filled by a heavier type of mortar than that used for the overall rendering, the former containing much small stone and pebbles to give a rougher mortar. Two patches of this could be seen on the south-western elevation of the structure where the intention was clearly to blend away the offset difference to create a flush face (Fig. 7).

3.1.15 The purpose of the offset is not entirely clear. It may have acted as a deliberate safety margin left to allow for any downslope settlement after the construction of the upper part of the structure, acted to support and reduce the weight of applied plaster by splitting the front of the buttress into two smaller zones, or perhaps, given the absence of the offset on the two side elevations, simply as a contoured effect on the exposed frontage.

3.1.16 From the small fragments of lime plaster that still adhered to the upper levels of the south-eastern elevation it could be assumed that the whole structure was plastered and painted. Three fragments of plaster still bear traces of a red painted design, revealed as parallel vertical lines approximately 0.20m apart (Fig. 8). Although no traces of horizontal lines could be seen, it may be supposed that the design was intended to convey the effect of finely wrought masonry or marble by the painting on of blocks (Fig. 18). This appears to have been a common technique on constructions that used a stone whose appearance was considered mediocre; where a white stucco with a design of rectangular stone blocks was often traced on it to completely cover the facings, with a clear concern to evoke marble (Adams 1994).

3.1.17 In two areas of the same elevation (Fig. 8) an earlier plaster face could be seen below the uppermost rendered and plastered work (the exposed sections being too small for any decorative detail to be seen if present). This suggested the periodic routine maintenance of the structure. Further repair work was highlighted by the lower of two bands of stone tile fragments seen in the adjacent bank. The upper tile horizon appeared to reflect the collapse of a timber-framed roof spanning the area between the upper buttress and a wall emerging from the bank section. The lower band, of smaller sandstone fragments, alluded to a possible episode of reroofing or extensive repair (Fig. 12, plate 7).

3.1.18 The presence of tufa concretions on the upper parts of the structure was lamentable as much of it occurred as a veneer adhering to the painted plaster face on the south-western elevation. Careful examination of the buttress elevation showed there to be further in-situ plasterwork running into the steep riverbank. Unfortunately it would seem much of this bears 30-40mm of tufa upon its face, posing clear problems for future conservation.

3.1.19 It was not clear how far back into the bank the coursing of the buttress extended, although careful soil probing certainly suggested that buried walling continued to run back into the bank for at least a further metre, before turning south-west to run along the bank towards the lower buttress.

3.1.20 The archaeological deposits above the masonry courses of the buttress initially appeared to be composed mainly of loose loam-soil containing Roman tile, *opus signinum* and some *tesserae*. Only on the north-western elevation where it ran into the bank and a single facing stone marked a return running parallel to the south-western elevation could anything structural be detected. Here there was an eroding fragment of creamy buff mortar floor some 0.13m thick (Figs. 4, 7, 10; plate 16).

3.1.21 The nature of this floor fragment was difficult to understand when first noted in 1991. It emerged from the bank and ran right up to, and overlay, the lip of what initially appeared to be a facing block of a return wall; emerging from the north-western elevation of the buttress. This was interpreted as an internal wall-stone, keyed to an internal floor, forming part of a return wall that before eroding had originally projected further outward.

3.1.22 It is now clear that the two projecting sandstone blocks do indeed mark an upstream return on the buttress, but actually supported a doorway at this point; the exposed mortar being a fragment from a corridor, linking a riverside access with the room housed on the upper buttress. This is considered in more detail in section 3.1.32-3.1.34 detailing the excavation results.

3.1.23 At this point on the buttress much building debris could be found eroding out of the layers above the mortar floor. Fragments of *tegula, pila, tubuli* and considerable quantities of *tesserae* were strewn down the riverbank from this point. The majority of the *tesserae* were made from good quality white stone, although a proportion were in sandstone. Excavation of the soil accumulation overlying the buttress has in addition revealed fragments of worked tufa, painted plaster and fine stone floor-tiles; all suggesting a building of considerable refinement.

Excavation (Figs. 10 & 11)

3.1.24 Following the removal of the hedge cover over the upper buttress, by cutting back of roots to ground level, excavation proceeded down to required levels. This involved removing loose debris prior to consolidation, to reduce the unstable `domed' effect and to ensure that the turfmat could be attached securely.

3.1.25 Initially a dense rootmat and turf layer was removed to reveal a light grey-brown gritty sandy soil (001). This compact but friable layer varied between 0.05m and 0.40m in depth. This overlay a very compact sandy, gritty, loam soil horizon (002) containing a spread of sub-angular rubble, comprised of sandstone fragments less than 0.30m x 0.20m x 0.20m in site. This material may represent discarded stone, either from the robbing of Roman structures or material dumped after other disturbances carried out on the terrace.

3.1.26 Beneath (002) lay a thick deposit of relatively homogenous light grey-brown to red-brown gritty, mortary loam (003) with occasional large sub-angular sandstone fragments under 0.30m x 0.20m x 0.10m in size. Although there was little differentiation within the material, individual tiplines were discerned to indicate it had accumulated from repeated dumping of robbing waste over the structure. Little root penetration was noted at this depth.

3.1.27 Abundant fragments of Roman flue tile and tufa fragments were recovered, the latter generally being very abraded but some retaining cut-faces, and averaging 75mm in depth. Fragments of *opus signinum*, loose *tesserae* and small fragments of mosaic flooring were also encountered. The quantities of flue tile, *opus signinum* and *tesserae* indicated clearly that this was waste from the robbing of a building on the terrace above. The results of the excavation accord with those of the CHAU work which identified an *in-situ* mosaic floor and robbed walling in their testpit 4. From test-pits 4, 7, 9 and 10 ninety-five loose *tesserae* were recovered and a further ninety-five were noted in-situ within test-pit 4 (Shoesmith 1980). From their distribution it appeared that they came from more than one mosaic floor; this also being suggested by the variety of cube sizes; ranging from c.9mm to over 20mm. White and grey *tesserae* predominated from all stages of fieldwork, but a fragment of mosaic recovered from the 1995 excavation displayed a pattern of repeated red, white and grey blocks.

3.1.28 Although from external examination deposit (003) appeared to be a uniform band of soil and debris of low archaeological interest, it was necessary to check whether the top surface of the core accorded with the prevailing perception of a simple concrete and rubble structure, in order to confirm that the consolidation programme was appropriate to its form.

3.1.29 Narrow slit-trenches I and II were excavated across the buttress through (003) (Figs. 10 & 11, plates 15 & 16)). Removal of up to 1m of relatively homogenous robbing waste revealed well-preserved and unexpectedly fine structural remains, surrounding a small room with a fine concrete and mortar floor (004).

3.1.30 Wall (007) survived to a height of 1.3m and was 0.95m in width, running at least 2.60m back into the bank. The wall was constructed of identical stonework to the rest of the upper coursing of the buttress, and was clearly contemporaneous with the construction of the buttress base and core. Whilst the walling had been largely robbed, it survived a single course high above floor level on the north-western side of the buttress; and up to five courses high on the south-eastern side. The dimensions of the room would have been approximately 3m x 2.5m. Wall (005), noted within trench I, projected into the room some 1.5m from the outer face of the buttress; suggesting that the walling on this side may have acted as an internal division to provide a degree of privacy or draught-proofing (Fig. 10).

3.1.31 The flooring (004), forming a substantial level capping to the concrete and rubble core beneath, was finely constructed and finished with a very fine, thin, reddish skim of mortar and crushed tile. A quarter-round fillet moulding of cream mortar with crushed tile (008), 0.12m wide and 0.20m high, was revealed in trench II running alongside the internal face of the wall. The exposed walling in both trenches had remnants of unpainted wall plaster on the interior faces. The quality of the rooms' furnishing and the absence of weathering of the floor certainly indicates that the area must have been roofed, and one can conjecture that one or more of the walls were windowed; providing both light and a view onto the river below (Fig. 18).

3.1.32 Flooring continued north-west beyond the buttress, running through a doorway, later blocked by mortared stonework (006) that rested on a reddish-brown mortar bedding layer (012), to an *opus signinum* corridor revealed in the eroding scarp face immediately upstream of the buttress. Several large fragments of *opus signinum*, 150mm thick, were recovered below this point in 1991 and are almost certainly derived from this corridor.

3.1.33 Examination of the eroded bank section in 1995 has now revealed that the mortar floor immediately outside and upstream of the buttress was constructed over a bedding layer (009), comprised of 0.20m of moderately compact, grey-brown, small angular sandstone and soil; overlain by 0.10m of mixed gravels, mortar and tile fragments (011) and 0.10m of cement with a 0.01m red mortar skim. It was unclear from the section what this bedding layer rested on.

3.1.34 The new evidence explains the curious exposed section of block and overlying concrete noted during the 1991 survey (see 3.1.23, plate 16), thought then to perhaps represent an inner core to a return wall. It can now be seen to represent part of the structure to a doorway that provided access to and from the riverbank and the putative monumental steps below. The return walling appears to have largely collapsed away or been cut by the construction of the putative ram-housing, but from topographical and geophysical survey may have extended c.6m upstream beyond the north-western elevation of the upper buttress (Fig. 18).

Buttress deterioration

3.1.35 The principal areas of erosion and decay to the Upper Buttress are at the interface of the masonry superstructure with the overlying soil and debris deposits. These were in the main held together by a combination of the root mat of the previous hedge and the dense ivy growth that lay on all elevations. At both projecting corners of the structure active erosion has occurred. On the upstream corner, where the full force of flood water is received, a considerable portion of the structure has been removed from the foundation courses upwards; exposing much of the core of the superstructure. On the downstream corner a visible vertical fracture on both the south-western and south-eastern elevations ran for the entire height. This 'wedge' of corner was in danger of imminent collapse, but its stability has now been restored.

Standing-structure recording

3.1.36 Prior to archaeological excavation and consolidation works on the Upper Buttress, vegetation clearance was carried out. This allowed remaining detail and minor revisions to be added to the 1991 elevation drawings. It also revealed that damage to the south-eastern end of the upper coursing was greater than originally thought, though this has now been checked.

3.1.37 Cutting back of vegetation around the lower courses, including a major tree root between two of the basal blocks, revealed for the first time the remaining stones of the lowest course; previously obscured by soil and vegetation. Clearance also provided a better appreciation of the construction techniques used in building the buttress. It became clear that the upper and lower hidden faces of the blocks were invariably finely dressed to provide level mating surfaces, allowing an even distribution of downward pressure through the structure. Less well-finished were the adjoining side-joints of the stones, and this is unsurprising since these faces did not need any general treatment of their surface; since they do not impart any pressure (Adams 1994).

3.1.38 Also noted, following the comprehensive clearance of roots, was that in the second course of basal blocks one block had been set in position with a rough lip projecting from its top surface, 30mm high and 60mm long. This provided a joggled link with the course above,

preventing its outward movement. A form of rough, limited, lipping was also noted on a number of the collapsed blocks of the Lower Buttress and their possible function is discussed in sections 3.5.27-3.5.34.

3.1.39 Of particular interest was the recognition that the second course of basal blocks was deliberately constructed so that consecutive blocks stepped out gradually from north-west to south-east, so as to project from the otherwise flush buttress face (Fig. 11, plates 5 & 6). These projecting stones had previously been seen as the result of outward settlement of the monument over time. Whilst the intention behind this projection is unclear a likely explanation is that it was designed to give a cutwater effect, deflecting the erosive current of the river off of the structure and away from the riverside frontage immediately downstream of it. This effect would only have operated when the river level rose to this block height, perhaps outside of normal winter and summer levels, and would have been less effective during periods of flood. Garden staff report that during recent bad winters the upper buttress has been inundated to the level of the top of the basal blocks (Price pers.comm)).

Associated riverside ?steps or revetment (Fig. 4)

3.1.40 An integral part of the Upper Buttress is a much disturbed area of large masonry on the upstream side of the structure; extending some 4.0m from it, until erosion of the riverbank brings the spread to an end. These appear to represent the remains of a series of monumental steps giving access up the steep bank to the terrace buildings above (see Fig. 18), though it is possible though less likely that they are the disjointed remains of an alternative structure, perhaps a riverside revetment to the upper buttress.

3.1.41 The riverbank plan reproduced in the original report (Shoesmith 1980) appears to show a more extensive spread than now exists. This masonry has the same dimensions and character s foundation layers of the buttress, and is clearly contemporaneous in construction; given that they are keyed into the Upper Buttress using joggled jointing (projections on some blocks matching corresponding rebates on adjacent joggled blocks). At first glance the material appeared very disjointed and disturbed but it was possible to discern a meaningful pattern within the jumble (plate 3).

3.1.42 Allowing for downward and outward movement of some of this material, damage from the construction of the modern ram structure, and a slewing of some courses above or below others then a plan could be discerned; of several courses of stepped masonry lying parallel to the riverside face of the Upper Buttress. There are perhaps four lines of masonry which can be seen to fit this pattern (plate 3). The uppermost of these is two courses high and would have aligned flush with the highest recessed block emerging from the buttress, but the three blocks which form this step in plan had twisted round and down from their original setting. Below, and in front of this upper level, was another alignment of blocks again two courses high. Again these were much disturbed but were more directly aligned in the section close to the buttress, where they were virtually flush with the second recessed block. Downslope, there were two more possible stepped levels but these were more disturbed and run beyond the riverside face of the buttress where there were no recessed blocks with which they could be directly linked.

3.1.43 The presence of a small area of surviving render on the riser of block 2 of the step-structure suggests that they were plastered and painted, to blend with the appearance of the main buttress structure. Amongst the material in the river several more recessed blocks were recorded during the survey, accounting for losses on the corner of the buttress. A number of the blocks in or beside the river were furnished with lewis holes, but many were not. It is possible that these well-tooled blocks were deliberately left unmarked, without holes, with the treads possibly left unplastered in the step structure so their upper surfaces would be seen.

3.1.44 These remains are tentatively interpreted as either a flight of monumental steps descending to the river edge, or possibly a stepped construction for an upstream revetment or breakwater to protect the buttress. Examination of the base plan overlay from the 1991 survey shows that the distribution of masonry on the bank and in the river is clearly derived from long term erosion of this stepped structure, and that a considerable proportion of its fabric has been removed.

Summary

3.1.45 In summary the consolidation works have successfully stabilised the Upper Buttress, having checked the serious decay before irreparable collapse to the downstream corner could occur, and adding considerably to our archaeological understanding of it. Fig.ure 18 presents a conjectural reconstruction drawing of the Upper Buttress, and riverside frontage, based on current available knowledge.

3.1.46 Arrangements have been made by WTSL for continued monitoring of the structure. This assessment will be facilitated by a series of reflective markers set into position on the three elevations, so that any directional movement of the structure can be measured. This will be achieved using Electronic Distance Measurement (EDM) equipment set up over two permanent survey points established on the opposite riverbank and one set in position immediately downstream of the two buttresses.

3.2 ***The Lower Buttress*** (Fig. 9)

3.2.1 The Lower Buttress is located some 6.0m downstream from the neighbouring and more complete upper structure. The remains stand some 3.0m high on the downstream side, but the major part of the structure is no more than 2.0m high. In its current state (plate 9) it is about 6.0m wide but barely over 1.0m in depth.

3.2.2 The buttress has been in a dire state of decay since at least the end of the nineteenth century. In 1891 it was described as follows: 'The lower abutment is in a more ruinous condition than the upper, and its angles are disguised owing to their being covered with a layer of calcareous tufa (travertine) derived from the cornstones in the heights above' (Moore 1893).

3.2.3 Like the Upper Buttress the lower one is constructed from heavy founation blocks of similar character and dimensions. The basal blocks of the lower buttress differ from those of the upper in that they stand six, rather than four, courses high. There is evidence on its south-eastern side to suggest the buttress supported a superstructure comprised of smaller courses.

This smaller stonework (plate 11) rises for seven courses above the foundation blocks on the south-eastern side, where it is traceable for a very short length running back into the river bank. A large section of collapsed mortared walling could also be seen in the section on the north-west side of the lower buttress (see 3.2.18-3.2.19 for detailed discussion, plate 10).

3.2.4 Some traces of mortar can be seen between the blocks of the superstructure but nothing remains to bond the stones, which are precariously held together by a combination of turf, soil, shrub roots and a heavy coating of tufa derived from the spring which runs directly across the structure. This tufa coating is very extensive, covering over half of the existing structure and clearly masking much blockwork to the river side of the buttress (plate 9).

3.2.5 The present springline that runs over the structure is of unknown age, although it is clearly post-Roman in date; given that all of the tufa concretions overly collapsed Roman deposits. Investigation of the bank above has failed to reveal any evidence for a man-made channel, and the clear anomaly on the 1991 resistivity survey may simply reflect a well-established natural water course. It is uncertain which of the riverside springs ran in Roman times and whether it was necessary to route any either around or beneath the buildings on the terrace.

3.2.6 The riverside elevation of the buttress, though of amorphous shape due to erosion, is of particular interest (Figs. 4, 9). Clearance of much of the vegetation growing on the structure revealed that several of the blocks in this area are *in-situ*, and that the single wall of blocks standing to the rear possesses several which extend from it, to overlap or bond with courses in front. This clearly shows that the existing six course high line of blocks is not the front face of a buttress, with the masonry lying in front of it having collapsed from higher courses, but rather is the rear wall of the structure; faced on the landward side. This is borne out by the fact that the superstructure of the buttress rises directly from the uppermost course of this rear wall and that there were therefore no large foundation blocks above this level, ie. that those blocks now lying in front of the standing structure could not have come from above.

3.2.7 In addition, the base map (Fig. 4) shows a concentration of foundation blocks which by their juxtaposition appear not to have moved greatly from their source; although there is a clear secondary distribution of blocks washed out further into the river.

3.2.8 Despite close examination of the collapsed blockwork in the river in front of the lower buttress little information was yielded to understand the form or function of the buttress. The spread of masonry comprises a broadly equal mixture of roughly-worked sandstone pieces and more finely-tooled regular blocks. This suggests the use of rough core stones (clearly present in the lower course of the standing line of basal stones, and probably including irregular blocks 171 and 174-6 in the river) and outer facing-stones with fine tooling. The overwhelming majority of blocks recovered from the riverbed in front of the buttress were square or rectangular in shape. It was difficult to ascertain how the stonework might have collapsed and its original form.

3.2.9 Following selective removal of loose moss and tufa it was clear that the main, hard, tufa deposit masks some form of concrete core; faced by the smaller courses of the wall that is partially supported by the buttress (Fig. 9, plate 11). The presence of a concrete core, though degraded by water action, raises the possibility of a supported structure of similar construction

to the Upper Buttress. However the absence of lewis holes, in the upper faces of the standing masonry, does suggest that the buttress may not have been covered by an identical structure; but may have taken the form of a smooth, unmarked, platform with retaining walls running back from it.

3.2.10 Of considerable interest is the presence of a previously unknown wall midway between the Upper and Lower Buttresses (Fig. 12, plates 7 & 8). The presence of a wall in this area was suggested by large amounts of stone roofing tile visible in an eroding section of the bank. It is now clear that one side of this U-shaped tile distribution is perhaps derived from the collapse of a roof supported by the newly discovered wall, the other coming from the building supported by the upper buttress. Investigation at the base of the vegetated bank section indicated that the sandstone roofing probably covered a narrow inlet alongside the upper buttress at this point (Figs. 12, 14 & 18).

3.2.11 The wall was only partly exposed but was set within a construction trench some 1.5m wide, and possibly cut over 2.0m deep from contemporary ground surface. Although much obscured by tufa concretions, the base of the trench appears to have been filled with river cobbles and rubble onto which a heavy stone foundation was laid; two of these large irregular blocks could be seen projecting from the section. The wall proper was then built directly upon these footings with mortared, roughly squared, blocks which improved in quality as they rise eight or nine courses before disappearing into section. The construction trench appears to have been partly filled in with mortar and pitched stone. Immediately adjacent to the wall, and at the same level as the large foundation course, there is a wide, shallow, trench visible in section; containing Roman building debris. Both sections and the wall are in a heavily damaged state and, though vegetated, continued to actively erode between the 1991 and 1995 surveys.

3.2.12 Seen in plan the wall runs out of the section towards the river. A clue to its extent might have been given by the presence below of a large irregular slab, apparently from the foundation footings, and a substantial cut block which lay in perfect alignment with the rear wall of the Lower Buttress.

3.2.13 The section of ground on which they lay was a flat clay platform resultant from undercutting of the bank behind. This stretch of the river bank is one of the worst eroded on the site, the river having scoured right behind the standing masonry of the Lower Buttress. The slab and block were subsequently swept into the water, since they were unidentifiable in 1995 at the time of the riverbed survey.

3.2.14 It could be argued that these two pieces of substantial masonry are the dislocated remnants of a wall that ran out towards the river before returning and merging with the rear face of the Lower Buttress; perhaps continuing downstream as a bank retaining wall following the natural riverbank contours. Retaining walls alongside riverside frontages are known from other British sites, such as Nettleton Scrub, Wilts, where extensive canalization of the river occurred where it passed the temple and associated settlement (Wedlake 1982).

3.2.15 If the return, parallel to the river, of the emergent riverside wall did form part of the Lower Buttress structure then a considerable portion of the rear face has since been removed, leaving a standing structure of remarkably similar dimensions to the upper buttress. The original dimensions of the Lower Buttress remain however difficult to assess given the

extent of river erosion and tufa accumulation. In the late nineteenth century the width of the standing remains, though obscured, were measured and described thus: 'Upon the removal of portions of this travertine coating, the face of the lower abutment was calculated to be 18 ft in width.' (Moore 1893)

3.2.16 This description gives a measurement of 6m, approximating to that of the current structure, suggesting that the dimensions of the buttress are relatively unchanged since then. It is not clear how much tufaceous cover was removed at the time and whether the abundant tufa now lying above the centre and rear of the structure is re-established or undisturbed material. The rate of growth appears to vary considerably depending on prevailing conditions (Wilkinson, pers.comm).

3.2.17 If we envisage a structure fronting onto the river between the two lengths of possible retaining walling, jutting out from the bank, measurement of the foundation blocks lying immediately in front of the structure, and in close proximity on the riverbed beyond, gives an approximate volume of collapsed masonry of at least 8 and probably nearer 10 cubic metres (given that a number of blocks were too deep to measure).

3.2.18 The original width of the Lower Buttress may never have been more than 6m, as suggested by the absence of further recognisable *in-situ* basal blocks adjacent to the standing remains, and its correlation with the measurement in 1891 reported in TWNFC. This conjectural view is made bearing in mind the possibility of a physical connection, perhaps marked by the large collapsed stones discussed in 3.2.11-3.2.12 above, between the Lower Buttress and a ?retaining wall that emerges from the bank immediately upstream.

3.2.19 The Lower Buttress may have been no more than 2m in height, as suggested by the presence of the small coursed masonry of the superstructure, or retaining wall, being supported by the uppermost and mark-free basal-block course. If these assumptions hold then it can be calculated that the original, now collapsed, frontage of the buttress could have extended outwards by no more than a further 0.75m. This would approximate to a single additional line of coursed basal blocks in front of the present structure.

3.2.20 Riverbed investigation of a block group lying approximately 15-20m further downstream suggests that even if they had come from the same structure (and this seems somewhat unlikely since the current appears to have little moved the group of collapsed blocks in front of the buttress), they would only add approximately an additional cubic metre to the volume of the buttress. This still suggests only a double depth of foundation courses, perhaps linked to a riverbank retaining wall immediately upstream. These calculations are based on the assumption of a solid *opus quadratum* style structure rather than, as is possible (though unlikely given the quality of construction employed elsewhere on the site), a soil or rubble filled structure faced with ashlar blocks. The absence of any surviving concrete core connected with the basal blocks of the buttress suggests a wholly block-built foundation.

3.2.21 Whilst an estimate of the volume of the Lower Buttress structure is now possible we must inevitably remain somewhat cautious as to the original shape of the structure. The two buttresses were described in the nineteenth-century as follows: 'The abutments were found to be two in number, running out into the river parallel to each other, at right angles to the bank and to the direction of the stream. The interval between them was 18 feet, and the lower

abutment projected into the river for a distance of 12 feet beyond the vertical face of the upper abutment.' (Moore 1893).

3.2.22 It is unfortunate that no photographs were used in the published article to illustrate the Lower Buttress in the same manner that its counterpart was. Described as parallel structures, the passage suggests that the two buttresses may both have been of squared design. The projecting distance of 12 feet beyond the Upper Buttress suggests that the Lower Buttress at that time either actually stood to a depth of a little over 2m, or was estimated to be of such proportions from the extent of the collapse. The absence of a sufficient volume of collapsed blockwork in the water to provide a structure much beyond those recognised dimensions suggests that the Lower Buttress need not have been a massive or elaborate structure. It may have had a width marginally wider than the Upper Buttress, and a greater height of basal courses, to compensate for its position further out in the river; but the depth of its foundation courses is unlikely to have exceeded that of its upstream partner.

3.2.23 Immediately behind and upstream of the Lower Buttress part of the scarp slope recorded in 1991 has since been undermined further and collapsed, revealing additional structural evidence in section (Fig. 12). A recognisable cut into the natural soil, of red-brown gravelly, pebbly-clay, suggests the construction of a terrace prior to the construction of the buttress against the bank. The cut contains a spread of possible bedding material of sub-angular sandstone fragments backed by heavy, gritty grey clay, occasionally tufaceous, containing fragments of mortar and *opus signinum* (plate 10). Overlying this roughly-bedded stone was a 0.15m thick band of cement of limited extent over which a disjointed fragment of cemented walling, seven courses deep, rests. The stonework was surrounded by a thick deposit of gritty, grey-brown clay, containing fragments of Roman building material. It is not clear how this walling has arrived in its present position.

3.2.24 The limited exposure prevents a clear understanding of these deposits and their relationship to the lower buttress. The level band of cement overlying the sandstone spread suggests a floor surface behind the buttress onto which adjacent walling has fallen. However observation in a break in the tufa on the opposite, downstream, side of the buttress reveals only a high and uniform core of rubble and degraded concrete abutting the walling that runs back into the bank. It is hard to reconcile these two separate views, the key to their resolution lying in the connecting portion that lies beneath a thick and extensive tufa accumulation. The absence of lewis holes in the topmost course of the Lower Buttress suggests that this was a platform on display, posing the further unresolved question as to how much of the structure was covered by the mortared wall, surviving in part seven courses high, that is supported by it and runs back into the bank behind it (Fig. 9, plate 11).

3.2.25 The key to the exact nature of the structure may well lie within the collapsed banking between the Lower Buttress and the newly discovered wall between it and the Upper Buttress. If further large masonry blocks lie within this material then we could be more certain about the full extent of the wall and the rear face of the lower buttress.

3.2.26 The original shape, dimensions and function of the structure remain, even now, a matter of considerable conjecture given the advanced state of collapse; given the likely movement of blocks far from the point of initial collapse and the uninvestigable nature of a number of undisturbed *in-situ* blocks buried in the bank in front of the buttress (and now covered in turn

by revetment infill). Whilst it is feasible that the structure acted as a landing and loading platform the putative monumental steps, beside the Upper Buttress, could have provided a perfectly adequate landing area. The question must therefore remain open, in the absence of detailed excavation around the Lower Buttress, as to whether it had a simple, functional shape, perhaps acting as a loading platform or cutwater reached by steps from the terrace above; or whether the remains represent retaining walls, linked to a more complex superstructure.This would imply an elaborate structure more like the Upper Buttress, perhaps associated with rooms on the terrace above.

3.3 ***Additional Structures*** (Figs. 12 & 13)

3.3.1 The section of river bank from below the Lower Buttress to the end of the study area is one which has been greatly disturbed by a combination of river action and the throughput of spring water from the terrace above. Considerable sections of terrace edge have collapsed downward due to undercutting, resulting in complete sections of archaeological deposits forming a series of discontinuous steps down the riverbank. The shearing-off of these portions of terrace has left broad scars within the bank affording the opportunity for examination of sections through archaeological deposits. Within these sections several walls were discovered and continue to erode (Figs. 4, 12 & 13, plates 13 & 14).

3.3.2 Progressing downstream from the Lower Buttress the first structural evidence encountered is the stub of a wall emerging from the section at a depth of 0.70m from the surface. Although only a limited amount is visible, the wall appears to be constructed of large cut blocks 0.30m in depth, and at this point one course high. Abutting this wall at right angles is a second wall running on an approximate east-west alignment (section B, Figs. 4 & 13).

3.3.3 This second wall is constructed of much smaller masonry and survives three courses high to the top level of the first wall. Covering the walls is a layer of destruction debris incorporating Roman material; *tegula*, *tesserae*, charcoal and *opus signinum* all being present along with a small quantity of animal bone and a fragment of cut and squared tufa (4.0m to the north-west of this section an almost complete tufa voussoir was recovered from a spread of building debris). The whole was sealed by a layer of hillwash. Below the uppermost destruction layer, and abutting the wall of larger masonry, several other intact deposits of a similar character could be seen. This whole section is buckled and twisted due to the collapse of the bank and although archaeology remains in situ it was actively eroding from the section face; as the area below the face, which is littered with walling debris, testifies.

3.3.4 Several metres further along the same section face, where a noticeable deep gully can be observed running back into the terrace, a large modern tile-built drain emerges from the section. The trench within which it lies is packed with a mixture of cut stone and rubble presumably derived from Roman walls in the vicinity (much of this material was littered down the slope of the bank to the waters edge).

3.3.5 A further wall was observed at the very end of the same exposed section. Here, a substantial wall was encountered constructed of well-dressed blocks up to 0.50m in length and 0.30m in width and depth, standing two courses high where exposed. The wall runs out from the section on an approximate north-south alignment for over 1.0m, whereupon it becomes

broken up and disjointed; marked only by smaller rubble disturbed from the robbing trench above. Overlying some of the stonework within the section was a deposit of ashy material containing some small fragments of animal bone part of remains of a south-east Dorset Black-Burnished Ware handled dish of 2nd century or later date. This was one of the few pieces of domestic rubbish recovered from the whole site, the majority of finds from this section of the bank being *tesserae* and a small amount of roofing tile. Much of the debris from the wall can be traced down the bank to the rivers edge, where a very large block of similar size as those used in the buttress foundations is visible.

3.3.6 Some 4.0m further along the river bank, just on the edge of the terrace, a wall is visible running parallel to the river in another exposed section (D, Fig 13) This wall is no more than 0.15m below the present ground surface, is built from small dressed blocks and looks very similar to the small length of terrace revetment above the Upper Buttress. It is unmortared, appears to have no foundations and sits within topsoil and hillwash. Its function is unclear but it may represent some attempt at bank revetment in the recent past. It is not the same wall as that uncovered in 1977, which lies higher up the terrace to the south-east.

3.3.7 Some way down the section profile at a depth of 0.90m, a robber trench was encountered. Its full width and depth were not apparent but it certainly extends beyond the 0.70m width visible in section. The fill of the trench was entirely composed of course rubble thrown back after robbing of the better quality stone had taken place. Much of this rubble was spread around the foot of the section which was clearly eroding quite rapidly. Again finds from the immediate vicinity were predominantly *tesserae* and some roofing tile, but several fragments of a late Roman flanged bowl were also recovered from the layers either side of the trench. The exact alignment of the robber trench was difficult to gauge, but it would appear to be heading out towards the river.

3.3.8 On the terrace proper one major feature stands out. This is a prominent scarp which runs from the top of the Upper Buttress across to the wooden steps and into the steep terrace scarp. This separates the terrace into two distinct levels. That which is upstream of this point is approximately 2.0m below the level of the terrace downstream. This upstream section has to date produced little or no evidence in the way of archaeological deposits. All the indications at present suggest that the elevated section of terrace holds the main complex of archaeological deposits on the site, and that the small scarp possibly marks the north-western limit of the buildings.

3.3.9 On the section of terrace immediately behind the Upper Buttress a low platform could be discerned. This began at the scarp dividing the lower level of the terrace from the higher, and ran parallel to the river behind the Upper Buttress then turns in towards the back of the terrace near the manhole cover. This is precisely the area where evidence was recovered for an in-situ mosaic floor in the 1977 investigations. The area is some 15.0m x 15.0m square and could represent a single room of a building.

3.4 The Octagonal Cistern (Fig. 14)

3.4.1 The octagonal structure on the terrace, discovered in 1891, at New Weir remains undated but its form and proximity to other terrace remains strongly suggests a Romano-British date. It is known that the cistern structure (plate 12) was considerably interfered with during its discovery; during excavations made, parallel with the river, to seek a new spring source following the drying up of the water-supply to the house.

3.4.2 At a depth of between four feet to nine feet work was obstructed by enormous stones, which were broken and moved aside, until it was recognised that these stones were dressed and of unusual shape (Moore 1893). The structure lay in the course of the stream, the overflow of which was conducted to the river along a shallow stone channel or trough. The exact location of this stone channel is now unclear.

3.4.3 Partial reconstruction accounts for the asymmetric shape now seen. Examination of the cistern has shown that even accounting for incorrect replacement of disturbed stones there are some blocks which appear incongruous with the structure. Nearly all of the blocks used for its construction are very well squared and dressed, some being carefully formed as angles of an octagon, ie. possessing part of two faces rather than simply forming one.

3.4.4 However, a number of the blocks incorporated within the structure possess curved inner faces out of keeping with the overall design (Fig. 14). Three of these occur on the second tier from the bottom of the cistern, and all possess a curvature consistent with a circle of 1.32m diameter (blocks B-D, Fig 14). A single block (E) occurring in the fourth tier forms part of a circle 1.96m in diameter. Two more blocks on the fifth and sixth tiers have faces which respectively form part of circles 0.58m and 1.98m in diameter. The uppermost block (A) also possesses a rebated end face, while the inner face shows signs of having been used to sharpen edge tools. It would seem unlikely that such blocks would have been incorporated into an original structure deliberately designed on an octagonal plan, although it is possible that they could be the result of re-use of foreign material for reasons now lost.

3.4.5 Alternatively, there exists the possibility that these blocks come from another structure similar to the existing cistern, but circular in plan. Such a case may be strengthened by the fact that the six blocks referred to come from at least three different diameters of circle, such that a tiered structure could easily be envisaged.

3.4.6 Cisterns of this period were essentially masonry tanks, either built at ground level or excavated a little below it and often roofed-over to limit pollution or evaporation. They were normally fed from above and used to collect and store rainwater or surface run-off from the ground, often being set under the floor of a house. Cisterns were common on rural and agricultural sites; though in general wells, giving fresher water, were preferred. The commonest cistern shapes were square, rectangular and cruciform (Hodge 1992).

3.4.7 Comparable architectural features associated with water sources are known from a number of Roman sites in Britain, and the octagon is a building-form often employed by Roman architects, particularly in temple architecture. These factors plus the fact that this particular example is of an elaborate form of construction, lying adjacent to known high status Roman occupation, certainly argues strongly for a Roman date to the structure; as does the

recovery of handfuls of *tesserae* from its base, and the absence of historical references to a connection with the laying out of the gardens. Its dating must remain a matter of conjecture for the time being however in the absence of modern archaeological investigation.

3.5 Riverbed watching-brief results (Fig. 4)

Distribution of masonry from eroded structures

3.5.1 A total of 312 pieces of building material were individually recorded during the course of the watching-brief. These included a number of *opus signinum*, roof tile and tufa fragments, 43 pieces of small walling-stone from the area in front of the Upper Buttress, and 14 in-situ blocks in the riverbank, associated with the putative monumental steps; the latter being recorded prior to burial beneath infill behind the revetment line. A considerable quantity of small building debris was also recorded, downstream of the Upper Buttress, during riverbed preparation. This was recorded as a series of block-groups rather than individually, and details are included in the project archive.

3.5.2 The remaining material consisted of 241 masonry blocks, or fragments thereof, lying within the water. Of these architectural pieces, a large number were lifted from the river, examined and replaced because they lay either in the direct line of the new revetment or close enough to be affected by the works. The remaining blocks lay some distance from the consolidation scheme and in deeper water, and were consequently unaffected; but the opportunity presented by the low summer level, and relatively clear water, was taken to also examine these where possible. A snorkelling-based scan was thus conducted to obtain block measurements, to seek to calculate the overall volume of material in the river, and to record visible tooling marks where possible. Some blocks in deep water could only be cursorily examined.

3.5.3 The recorded and/or lifted material ranged in size from relatively small, dressed pieces of walling stone, opposite the Upper Buttress, through to large masonry blocks and sheared fragments thereof. The stonework was distributed across a 100m stretch of river running from upstream of the upper buttress through to a point opposite the octagonal cistern on the terrace.

3.5.4 Whilst the majority of the material lay within 5m of the northern bank a number of blocks lay much closer to the opposite bank. Most of these pieces were too deep to assess but at least one was a well-dressed block. Given the distance outstream of this material it is hard to envisage them having collapsed outward over such a distance. The position of these southern blocks might in part be accounted for by overboard losses, during transport and unloading, but perhaps predominantly by having been swept out this far by strong winter currents. Once material from initial collapse of the Lower Buttress had accumulated one can envisage the current being forced outstream at this point, gradually slewing material outwards; and explaining the presence of an extensive block group stretching on an angled line to midstream (Fig. 4).

3.5.5 Apart from two dense areas of collapsed stonework, opposite the putative monumental steps and Lower Buttress, the material in the river is generally well dispersed, making recognition of patterning difficult. Although the boundaries between them are not clear cut the riverbed material can be considered in terms of four broad groups.

3.5.6 The first group of stonework runs from approximately opposite the modern boathouse down as far as the north-eastern limit of the putative monumental steps, and consists of approximately 11 stones. Those of the group that were in shallow enough water to assess included both roughly-hewn and better-dressed examples (e.g. blocks 220-222 and 223-225 repectively, Fig. 4). Whilst the roughly dressed examples might represent losses of quarried stone prior to on-site working the origin of the dressed examples is more problematic. Unless some material was being transported by river to site in a worked state these dressed pieces, upstream of known terrace buildings, raise the possibility that as yet unrecognised, but eroded, structures exist upstream of the visible remains of the complex.

3.5.7 The second definable concentration of collapsed stonework lay immediately opposite the putative monumental steps or revetment and Upper Buttress. The group included a spread of small building debris, principally roughly dressed sandstone wall-stones but including an *opus signinum* fragment. Similar material was used in the modern ram-casing beside the upper buttress, and the material on the river bed could derive from erosion of either Roman or modern walling, the latter reusing Roman stonework. The building debris was mixed with river cobbles and modern brickwork and its origin remains uncertain. At least some of the material is likely to derive from robbing or erosion of the walling of the room above the Upper Buttress.

3.5.8 This second stone concentration also contained a number of large and well-faced sandstone blocks, several having lewis-holes (blocks 56, 59, 60, 62, 90, 93 and 96), at least one having a rebate (block 56) and one having rough render identical to that adhering to the upper-course of basal blocks of the Upper Buttress (block 58). The material clearly represented collapse from both the probable step-structure and from the north-west corner of the upper-buttress; where three or four blocks appeared to have been lost from each of three courses of the structure by river erosion. The absence of visible lewis holes from a large number of the blocks suggests that the upper surfaces of stonework of the step-structure may have been on display, though the presence of render on the riser face of block 2 suggests that the structure was at least in part plastered. The area immediately in front of the Upper Buttress was however relatively clear of large blocks, though smaller walling stone was apparat from weathering of the room surmounting the buttress.

3.5.9 A third major concentration of stonework is the dense and extensive group lying in front of the standing remains of the lower buttress. The majority of the blocks have not moved far during collapse though the front face, being first to erode, appears to have moved up to 12m outstream and then been dragged up to 10m downstream by the current. The group includes a number of blocks with lewis holes, rebates, lips (blocks 123, 134, 143, 144, 146, Fig. 4) and other architectural features (see sections 3.5.11-36).

3.5.10 The last broadly-definable masonry concentration was an evenly dispersed group of well-dressed, square, blocks downstream of the Lower Buttress; ending at a point opposite the octagonal cistern. The group included at least one block with a lewis hole, block 290, and one with an irregular projecting lip, block 304. It remains unclear whether this material had been

carried a considerable distance, up to 40m, from the lower buttress; or whether it represents collapse from an additional large, but unrecognised, structure that stood on the terrace opposite. An isolated large sandstone block was also recorded in the bank some 15m downstream of the lower buttress, raising the possibility that further monumental structures stood on the bank below the two buttresses. Certainly it is clear that given the riverbed in this area contains abundant small building debris, that severe erosion of riverside walls of structures overlooking the river has occurred at this point.

Architectural information (Figs. 15 & 16).

3.5.11 Although the distribution of masonry provided little clue to the original form of the buttress structures, recording of the architectural pieces has yielded information on various Roman stoneworking techniques.

Quarry extraction-marks (Figs. 16 & 17, plate 17)

3.5.12 Two blocks, representing less than 1% of the assemblage, were recovered from the revetment line with surviving quarrying-marks. Block 126 had been provided with a rebate, and along with block 147 partly retained shallow grooving from initial quarrying. The marks correlate with traditional Roman techniques of procuring roughly rectangular blocks by cutting grooves, or alternatively drilling a series of parallel holes along the proposed edges; and then using chisels or wedges to split the stone (O'Conner 1993).

3.5.13 It remains uncertain how the large quantity of quarried stone required for the buttresses, riverside walls and main buildings was transported to New Weir and from what quarry, though Credenhill has been suggested as a source (Shoesmith, pers.comm). If navigable in Roman times the River Wye would certainly have provided a convenient means by which to bring heavy, bulk loads to the site. The transport of heavy stonework in the Roman period was frequently conducted by water, though always with an overland component between quarries and the nearest river or port. The proximity of New Weir to several major roads should also be borne in mind when considering the means by which construction materials could have been moved.

3.5.14 A number of roughly-hewn blocks were noted lying in deeper water on the riverbed upstream of the upper buttress, with no clear origin as collapsed material. These appear to support the theory that deliveries of water-borne cargo were made. The depth at which these stones lay precluded their detailed examination for quarry marks, but their rough nature certainly suggested that some or all of the building-materials were transported in an unfinished state; after minimal initial working, so as to avoid damage. A small proportion of the stones may well have thus been accidentally lost overboard from a barge during transportation or unloading, and prior to working in-situ by masons on site.

Blockwork handling (Figs. 15-17, plates 18-23)

3.5.15 However the deliveries of unworked stone were made to the site it is clear, from the number of blocks retaining evidence of lewis holes, that lifting equipment was employed in moving many of the delivered blocks to their required positions. Of the 241 blocks recorded from the revetment line and river, 37 (just over 15%) retained lewis holes, and it is possible that on-site dressing may have wholly removed similar marks from further blocks.

3.5.16 The frequency with which lewis holes were employed is unremarkable given that the use of lewises had many advantages, both in speed of preparation and ease of handling, and was widely adopted throughout the empire (Adams 1994, Bidwell & Holbrook 1989).

3.5.17 Only when the surface of a stone was intended to remain visible (in the case of slabs and stylobates) was it lifted using straps to avoid marking or damaging the facing. Eighty-five percent of the blocks noted during the watching-brief had no recognisable lewis holes. Many of these were block fragments, small blocks that could have been moved without lifting equipment or rough, probably core, stones. A small number however of the lewis-free blocks possessed finely-dressed upper surfaces (e.g. Block 108, plate 21); which were almost certainly intended for display, and thus kept deliberately unmarked.

3.5.18 One man-made rectangular hole was found on the vertical face of block 3, 50mm in length, 20mm wide and 60mm deep, its position at the axis of the centre of gravity making it difficult to attribute any other function than for block-handling. The use of special pincers, the jaws of which opened up in the cavity when the stone was picked up, can therefore be suggested (Adams 1994).

3.5.19 The exact positioning of a block would be done by hand when it was small, but more often with the aid of crowbars. At least one block, 142, from the collapse in front of the lower buttress, had a recognisable v-shaped profile crowbar mark in its top surface (Fig. 15, plate 18). These holes would be cut in the top bed of blocks already in place, at the time of manoeuvring to provide leverage to an overlying block moved into its final resting position (Adams 1994, Bidwell & Holbrook 1989).

Block dressing

3.5.20 Several of the architectural remains from the riverbed demonstrated that the finer-dressing of masonry occurred on-site. Such work was necessary to ensure visible edges and mating surfaces joined tightly, although the hidden parts were often slightly hollowed, and where necessary allowed an even distribution of weight.

3.5.21 Although no evidence of masons' chippings was encountered, block dressing in final positions was evidenced. Whilst most lewis holes conformed to standardised dimensions, averaging 90mm in length and 40mm in depth, blocks 127 and 133 had only the shallow remains of lewis holes, under 20mm in depth (Figs. 15-17). These shallow holes were clearly resultant from truncation during working in the final stages in the construction of the ashlar structures, the fine adjustments and surface-dressing being carried out after the blocks were in position. This would normally be achieved using a pick-hammer for a rough dressing and a

hammer and punch for more accurate treatment. Fine dressing would have been carried out with a hammer and chisels, both smooth and toothed, and the surface finish with a rasp and abrasives (Adams 1994). The blockwork recorded at New Weir yielded evidence for all of these tooling techniques.

3.5.22 In terms of treatment there was considerable variation in the level of surface dressing. This varied from a rough dressing (as the edges and faces of the basal blocks of the upper buttress received, prior to rendering) to the fine, smooth, dressing of top surfaces of several collapsed blocks of the Lower Buttress, which were probably intended to be on view.

3.5.23 Adams (1994) states that the front face of blocks generally received some special treatment, and could either be given a final dressing or could preserve a more or less marked rustication, whereas the lower surface, or bottom bed, and the upper surface, or top bed, had to be strictly flat in order to guarantee an optimum distribution of pressure. This accords with examination of blocks from the area of collapse in front of the lower buttress, and from the surviving basal courses of the standing upper buttress, which demonstrate flat upper and lower surfaces and either a full or partial depth of fine-edging. The latter reflects the common Roman stoneworking technique of, for economy of working, creating an anathryosis band; '..depending on the quality of the monument or the position of the stone the anathryosis frame could go round all four sides of the joining face, or could be limited to the visible edges only particularly if the masonry fill was rough' (Adams 1994).

3.5.24 The use of mortar as a bonding agent in stone-block construction was relatively limited; the quality of the dressing of the adjacent surfaces normally lending itself better, in preserving the fineness of the joints, to the use of wooden or metal clamps (Adams 1994, Bidwell & Holbrook 1989). These prevented joints widening, due to possible movements caused by variations in settlement in the foundations. At New Weir the use of either high-quality dry or mortared joints appears prevalent, without the necessity for clamping or dowels between courses. Block 167 (Fig. 16) was however noted with a clamp-mark on its upper surface, but also had traces of adhering mortar; and the absence of corresponding clamp-marks on other stones suggests that the stone may have been reused from another structure.

3.5.25 Although clamps and dowels do not appear to have been used, 23 blocks (almost 10% of the total assemblage) possessed clear or probable rebates to suggest they were joggled with adjacent stones, for better stability of the structure (e.g Blocks 126 and 145, plate 23). Several other stones were of particular interest, possessing very shallow recesses in what were considered their upper surfaces (e.g Block 139, Fig. 15, plate 10). This may have allowed for offset coursing, raising the possibility of a stepped effect to the structure. Too few blocks were identified to suggest this was a universal effect.

3.5.26 Roman stoneworking techniques sometimes involved rough surfaces being deliberately retained to produce the effect known as rustication. But in all cases the outer margins of the visible face would be chiselled smooth to allow the use of a chalkline and plumbline to check the horizontal and vertical during construction. This may in part explain why a number of blocks had lips on their (apparently) vertical faces that did not extend the full length, the flat margins at either side perhaps allowing for accurate placement using lines.

3.5.27 Of particular interest were the small number of blocks with finely tooled surfaces that possessed these rough but pronounced lips. Twenty blocks were identified with such features (8% of the total), and the majority lay in close proximity to each other on the south-eastern edge of the lower buttress collapse (Fig. 4, plate 9).

3.5.28 This type of lipping is not closely paralleled and it currently remains uncertain whether they had a decorative or functional role in the construction of the structure. The stone lips appeared too limited and irregular to be a decorative rusticated effect (rustication normally being applied to the central zone of a block); and as exterior-surfaces would appear out of keeping with the fine, uniform appearance of its counterpart Upper Buttress. There is a degree of variation in the form of lipping. All but one block (108) had the lip at the top end of the vertical face. The lip however was sometimes centrally placed but occasionally offset, and the finish and depth of the lip varied considerably (e.g blocks 142 and 133, Figs. 15 & 16).

3.5.29 In seeking to explain the lipped effect as a functional aspect also presents difficulties. The possibility that the lips were handling bosses can certainly be ruled out, partly due to their narrowness and irregularity but principally since they would in any case have been removed once the blocks were set in position. Other theories need to consider basic Roman masonry-handling principles.

3.5.30 It seems indisputable that the lips were left on what became the side faces of the blocks. All of the lipped stones had one face with a lewis hole. In Roman masonry constructions this invariably (and certainly with all in-situ lewised-blocks at New Weir) became the uppermost surface when the stone was set in position.

3.5.31 The lipped blocks followed a relatively standardised pattern with regard to their five other faces. All had a flat well-dressed opposing, or underside, surface to that of the lewis side; and this would certainly have formed a good mate between courses. The lipped surfaces were themselves well dressed, with chiselled or punched faces, and the effort and quality of finish involved might suggest that these were intended as external faces. Their two adjacent edges were usually given either full working, or at least a partial (band anathryosis) dressing, to create a good arris.

3.5.32 Frequently one vertical face was left rough, which may have formed a rear face mating with rough core-stones behind. It is feasible however that the finely-dressed, lipped surfaces were turned sideways and set against an adjacent block to form a joggled joint. This would however often mean a rough or unworked opposing side then mating against a block on the other side, giving a less neat jointing on one side in a course.

3.5.33 A lip was also noted on an upper surface of one basal block in the Upper Buttress (Fig. 7, 11; plate 5). This had tied it into the course above, preventing outward movement. The lipped blocks in the collapse from the Lower Buttress all had however their lips on vertical rather than horizontal faces. Nevertheless it is conjectural that the lipped stone noted provides some parallel for the style of construction of the Lower Buttress, the lips perhaps allowing slight joggling between courses. Joggled courses have for example been noted in the cutwater of a pier at Willowford Bridge (Bidwell & Holbrook 1989, 67).

3.5.34 At this stage the nature of the lipping, whether practical or decorative, and the form and finish of the now ruinous lower buttress, remains unresolved.

3.5.35 Two other architectural pieces were of particular interest. Block 142 (Fig. 15, plate 18) had a tapered, angled, shape of particular interest since it suggested it might have been positioned at the front of an apex-shaped structure; perhaps giving a cutwater effect. It is known however that triangular blocks were, for example, used in Roman constructions to fill spaces in blocklines of gradually changing angles (eg Bidwell & Holbrook 1989) and need not represent acutely projecting parts of a structure.

3.5.36 Block 31 (Fig. 17, plate 24) was also of particular interest, being an irregular disc-shaped piece of stone (c.0.50m in diameter and c.0.25m thick); somewhat flattened on the edges, neither completely round nor polygonal, but provided with a deep dowel hole at its centre on one side. This was found directly in front of the Upper Buttress on the river edge, and may be a column drum. It remains unclear where this piece was originally located on the site. The absence of further column segments in the area of the riverbank and bed suggests it may have formed part of a robbed column in the vicinity of the terrace complex, perhaps with the unwanted base stone having been discarded in the river.

Artefactual material from riverbed

3.5.37 In addition to architectural fragments the riverbed watching-brief revealed a small amount of artefactual material, comprising fragments of *opus signinum*, worked tufa and a single fragment of quernstone (plate 25). No Romano-British pottery or animal bone was encountered on the riverbed, any such material probably having been swept downstream by the current. Material of this type was recovered, during inspection in 1991 of the eroding scarp faces of the riverbank, downstream of the Lower Buttress. The relative paucity of pottery and bone may reflect the limited extent of excavation on the site, and the probable disposal of refuse into the fast-flowing river, rather than a significant absence of occupation-related waste from the complex.

3.5.38 Investigation of the riverbed by a diving team in 1991 revealed no obvious artefactual material trapped amongst the river cobbles and spreads of building debris. Unfortunately this absence of significant quantities of artefacts (other than building material), and the limited nature of the bank investigations, precludes an understanding of the character of the occupation from the artefactual evidence.

Excavation finds

3.5.39 The artefactual remains from excavation above the Upper Buttress almost exclusively consisted of building materials, rather than domestic or personal remains (see Appendix I). Within trenches I and II waste deposits (001)-(003) from wall-robbing yielded a predominance of *tubuli* and worked tufa fragments, and smaller quantities of *pilae*, *imbrices*, *tegulae*, mosaic fragments and loose *tesserae*.

3.5.40 The quantity of flue tile remains, the recovery of a scorched tufa fragment and the almost complete tufa voissoir found in 1991 together strongly suggests the presence of a bath-house in the vicinity; or at least, with evidence of mosaic flooring and painted plastered walls, a series of finely-appointed, heated, buildings on the terrace. Artefactual evidence indicates that these were roofed with both clay and sandstone tiles.

3.5.41 A small quantity of domestic artefacts were recovered in 1991, including animal bone remains and Romano-British pottery. The latter could be broadly dated to the second century AD or later. A small assemblage of pottery recovered during HCAU testpitting was dated to the late third to fourth centuries, and suggests the site was certainly in occupation in the later Roman period.

3.5.42 In addition to the pottery and animal bone the CAT fieldwork also yielded a small quantity of metalwork and worked stone. Two iron objects, probably nails, are currently undergoing identification. A small fragment of disc-shaped sandstone of unknown function, with an inscribed circular mark on one side, was also recovered from Roman levels. A small number of worked stone objects (Shoesmith 1980) were also recovered during HCAU testpitting close to the octagonal cistern. It is unclear whether any of this material might have had a votive role.

3.5.43 The small quantity of occupation debris recovered (discounting building materials) sheds little light on whether the complex was of a predominantly domestic or religious nature. The quern fragment (plate 25) from the river would be a common find at villa locations but such domestic items need not be out of context on temple sites, since corn might equally be ground on site for a resident priest. Only further fieldwork, recovering artefactual material from across the terrace, could help resolve the character of the site; the finds to date being too limited to clarify how much waste was generated on-site, how it was disposed of and whether there was a principally domestic or religious nature to the complex.

3.6 Additional archaeological works

3.6.1 Two watching-briefs have been carried out by CAT in areas outside of the scheduled area at the request of English Heritage. In 1991 groundworks involved with the construction of a new road, running from an access from the main road to link with the existing drive, were observed by CAT but no archaeological features were encountered. In 1995 prior to the commencement of the riverside consolidation works limited stripping of topsoil within the site contractors compound was also monitored, along with a deep cutting through the riverbank for the construction of a timber-jetty to launch the pontoon. No archaeological remains were found, the topsoil overlying undisturbed, grey-blue clays.

3.6.2 Such negative evidence nevertheless remains important given the possibility of a villa-interpretation to the terrace remains, and the need to clarify whether associated ancillary buildings and agricultural boundaries lie closeby.

4. DISCUSSION

4.1 The extensive visible remains of the Roman riverside complex at New Weir vary greatly in their degree of survival, with the Upper Buttress being exceptionally well-preserved whilst many other elements have been severely damaged; through stone-robbing, garden-related disturbances and, particularly, the erosive action of the Wye.

4.2 The riverside protection scheme and the structural consolidation of standing remains, developed using information from the 1991 survey, should now arrest further serious damage from winter river levels. A monitoring programme will be required to periodically assess the need or otherwise for further consolidation action.

4.3 A successful effect of the most recent archaeological works associated with the scheme has been to augment understanding of certain aspects of the site. An intelligible groundplan of the site has however yet to be established, and the character of the occupation could only be firmly resolved through a programme of extensive excavation. An important concern as an interim measure is the evaluation of current site management practice, specifically addressing whether tree planting within the scheduled area has had, or is continuing to have, a detrimental effect on the buried remains. This is discussed more fully in section 5.

4.4 Following recent fieldwork the exceptionally fine character of the occupation can now be more readily appreciated. The well preserved Upper Buttress stands as a visible reminder of the monumental scale of the riverside frontage and the original splendour of its buildings. Excavation above the Upper Buttress has amplified this picture by revealing that far from being a simple rubble and concrete cored structure (albeit a very impressive one), with approximately 1m of loose soil and rubble of low archaeological value sitting above it, it supports the well-preserved remains of a small room or vestibule, overlain by later robbing deposits. The original structural integrity of the buttress is therefore of a very much higher standard than previously thought and contains easily damaged deposits of great significance. The quality of the structure suggests that similarly fine remains may exist beneath the terrace gardens and the HCAU geophysical survey revealed high resistivity readings alluding to several buildings possibly being present.

4.5 Investigation of the site, firmly established by the work of CHAU in 1977 as being of Roman date, now allows early interpretations of the site as a bridge, quay or mill structure to be firmly rejected.

4.6 The existence of a Roman crossing point on this stretch of the River Wye has long been suspected, but its location is now known have been further downstream. It was established by the late nineteenth century that it could not have lain at New Weir;-

> 'Where on the less exposed opposite right bank in the convexity of the bend, where any structure would have remained as testimony for centuries after those on the left bank had been washed away, there is neither trace of abutments, nor of foundations of intermediate piers; not a single stone was found on this side of the middle line of the river, here about 60 yards wide. This is as positive proof as can be adduced that a stone bridge never crossed the river here. If even the timber had perished, or been

> washed away, some trace of the foundation holes of one or more of the piers would have remained. Moreover, there is no trace whatever of any road of approach on the south or right side of the river.' (Moore 1893).

4.7 An inspection by local antiquarians in 1893 revealed however the true crossing point 1km downstream near Old Weir:-

> '..where the water at lowest summer level is twelve feet deep, about fourteen plies in tolerably close arrangement, extending to a distance of fifteen feet from the bank. Could we only have discovered in this situation a row of intermediate piles extending across the river, we should have had proof of a bridge on timber piles. Nothing has ever been discovered to give a shadow of suspicion of a stone bridge having existed here'.

Moore went on to state;

> 'James Lloyds information comes again to our support. He remembers the fisherman, William Terry of Hoarwithy, who used to net for Mr.Jones of Canon Bridge, occupying all his spare time in sawimg and removing timber obstructions at the bottom of Huff Pool.'

4.8 The Roman crossing point can still be recognised, through aerial photography and ground inspection. The two stretches of Roman road that run to the banks of the Wye are well established and traces of stonework are exposed in the southern bank of the Wye.

4.9 The elaborate and relatively narrow form of the two buttresses also argues against an explanation as a wharf, as does the luxurious nature of the terraced buildings above, which are clearly not simple warehouses. There is no evidence to indicate the remains are those of a mill structure, a third interpretation of the site in the past; rather the remains encountered point to something much more significant and regionally unique.

4.10 Although the standing remains at New Weir give an impression of the scale and form of the site it is the buried features that clearly hold the key to our understanding of its layout and role. Whilst the terrace remains have not proved particularly responsive to geophysical survey Shoesmith has suggested that there is at least one complex of rooms behind the upper buttress, perhaps terraced into the slope to the rear, and with a second probable concentration of rooms approximately 50m further south.

4.11 These elements may have been linked by a corridor, with further ranges of rooms running back at right angles to the main frontage to enclose small courtyards. The narrowness of the terrace must have influenced the practicable layout of buildings and a complex that conforms to standard villa plans need not necessarily be anticipated (Shoesmith 1980). It should be mentioned however that the geophysical survey carried out by the Ancient Monuments Laboratory was unable to confirm the earlier resistivity results, and only evaluation trenching would be able to determine which of the high resistivity anomalies represent actual structural remains rather than the effects of soil conditions and post-medieval groundworks.

4.12 The riverside frontage appears to be the key aspect to the site, the plastered, painted, buttresses and probable retaining walls presenting an impressive sight when viewed either by boat or from the opposing bank. The complex, sited in a secluded area yet in close proximity

to major Roman roads and to the urban centre of *Magna Castra*, would have allowed restricted access to visitors approaching by land or from the river, with the Wye being easily forded during summer months and probably also being navigable for much of the year.

4.13 One can speculate that the main landward access to the buildings from Kenchester and the main roads was by walking along the terrace from the south-east, where the octagonal cistern may have formed part of a small shrine or nymphaeum facing visitors at the main entrance to the complex. In terms of access by river it may have been possible to moor alongside the, perhaps whitewashed, riverside steps and look up to a series of riverside buildings that no doubt complemented the striking proportions and finesse of the two riverside abutments. One probably then ascended a series of, perhaps covered, steps up the steep riverbank and entered, through the doorway now identified, into a corridor behind. Making a right handed turn one then entered a lobby or vestibule on the upper buttress before proceeding into the main rooms of the complex (see Fig. 18).

4.14 Given the limited scale of the recent fieldwork any interpretation of the character of the buildings is inevitably the subject of considerable conjecture. It is certain however that the building reflects a considerable monetary investment and would have been a prominent feature in the landscape.

4.15 The Upper Buttress is an integral part of the overall structure and suggests that the rest of the complex was equally elaborate. Robbing debris above the buttress is clearly derived from terrace remains and indicates a stone-built complex with both clay and stone tiled roofing, one or more mosaic floored rooms, and corridors and other rooms floored more plainly with *opus signinum* and stone slabbing. Both painted and undecorated wall plaster was utilised whilst the large quantity of flue tiles, amongst the robbing debris, reflects the presence of hypocausts and again raises the possibility of a separate bath suite as does the evidence for vaulting, suggested by the recovery of a tufa voissoir and much fragmentary worked tufa, spanning a bath-house.

4.16 Shoesmith has suggested the complex as a probable medium-sized villa, large enough to have incorporated two separate residential units presumably with at least one bath building. It remains uncertain whether there was adequate space for ancillary buildings and yards. The SMR entry states that Dr.Webster considers that the remains are part of an elaborate villa with a possible *nymphaeum*, whilst the SMR categorises New Weir as a secluded site, close to *Magna Castra*, suggesting a possible temple with residential buildings (SMR 00335).

4.17 Whilst definition of villa sites has long been the subject of debate and confusion (Reece 1988, Scott 1993), the New Weir complex can clearly be recognised as a villa as defined within the parameters of a rural site with Romanized buildings; characterised by rectangular plans, the use of stone, solid floors (sometimes with mosaics), hypocausts and baths.

4.18 Scott (1993) emphasises that villas were houses with agricultural facilities, gardens, workshops and ritual spaces; combining domestic, ritual and ideological elements which were continually transforming. The Romanised building complex at the Weir cannot as yet be attributed an agricultural association; no evidence for either ancillary buildings, yards or attached farmland having been identified. Although only of a small scale, the areas exposed during the watching brief for the jetty area revealed none of the spread of features normally expanding outwards from a villa farm. An earlier watching brief during the construction of a

road yielded no evidence for ancillary features. That is not to deny a domestic interpretation of the site, merely to state that the supporting evidence has not been identified.

4.19 Of particular interest is the putative three-celled Roman building, possibly a cottage-style or corridored villa, and associated ditched enclosures; recognised from aerial photographs close to the crossing-point on the Wye, near Old Weir (SMR information). Although the dating and character of these remains are unproven, should they indeed be of Romano-British date their relationship to the complex at New Weir is of considerable importance.

4.20 The site may well represent a high status domestic residence bought or embellished using agriculture-related profits but detached or distant from a farmed estate, or perhaps as has been suggested (Shoesmith 1980), given the possibility that the Wye was navigable in Roman times, owned by a wealthy merchant and sited in a position to exploit riverborne trading. He states that' it seems an inescapable conclusion that the Wye has been in use for this purpose for many years'.

4.21 Inland water transport was probably of reasonable importance during the Roman period and the possibilities of the Wye would not have been ignored; with flat-bottomed boats being able to navigate the Wye, at least seasonally during high water levels. The New Weir villa may have been the home of a merchant, supplying goods which he had brought up from the Wye to the nearby town of *Magna*.

4.22 It remains uncertain whether the river navigable in Roman times. Stone may have been brought to the site this way for the initial construction of the complex, and this might explain, as overboard losses, a number of poorly dressed blocks noted in the river upstream of the complex. The site may consequently have been supplied, at least in part, in the same manner. This stretch of the Wye was certainly navigable by the nineteenth century when it is recorded that: 'Middle aged persons bear witness to barge traffic up the river as far as Hay, twenty three miles upstream. Until shortly after the opening of the Railway to Hereford, a considerable river traffic was carried on between Hereford, Chepstow and Bristol.' (Lamont 1922).

4.23 There are certainly numerous parallels for villas sited in such spectacular settings. Rodwell & Rowley (1975) have considered it plausible that the New Weir complex represents a pleasingly appointed riverside villa perhaps along tie lines of Wittlich on the Lieser, a tributary of the Moselle (Wightman 1970). Buildings of varying degrees of elaborateness have commonly been constructed in similar settings beside streams and rivers. Alongside continental examples of spectacular imperial palaces at Trier, at Cologne overlooking the Rhine, and at Aquincum above the Danube.

4.24 British examples of riverside buildings range from villas such as North Leigh in Oxfordshire and Littlecote in Wiltshire, beside the River Kennet, to the monumental governors palace at Cannon Street, London; which was built in the late first or early second century AD with a probable colonnaded frontage and wharf alongside the Thames. The latter site is described as having been built in the style of wealthy Roman residences of the time, the principal rooms and the ornamental garden being outward looking, across the river and countryside, instead of in the older tradition of looking inwards to a garden or court (Marsden 1980).

4.25 The principle, and currently unresolvable, issue in considering the character of the site is how much emphasis can be placed on religious aspects as opposed to a secular and domestic, interpretation of the site. The cistern discovered at the south-eastern extent of the site has been seen as a possible *nymphaeum* and led to the suggestion that the building complex probably incorporated a temple or shrine (Shoesmith 1980), though it may have had a simple water-supply role.

4.26 New Weir is described as a temple in the county SMR, as suggested both by the complex of rooms surrounding the buttresses and again by the cistern or pool; which is listed as part of *nymphaeum* or possible early Christian baptismal well.

4.27 Possible religious affinities of the site are also heightened by the secluded location of the complex and its associations with water, with both the river and the series of springs that surface along its banks. It seems possible that such a setting for the occupation has a religious significance, there being a number of parallels for temples or shrines sited in similar locations.

4.28 Of 86 well documented examples of Roman temples, many lie in large towns, large unwalled settlements and forts but analysis indicates that 16% occurred in association with newly founded structures in the countryside; beside Roman roads or in or adjacent to villa establishments. Of the remainder, 43 % occurred in isolated rural locations and 21 % in apparent total isolation on hilltops or near springs and streams, and 22 % on or near existing prehistoric sites (Woodward 1992).

4.29 The terrace remains need not represent a traditional Romano-Celtic temple and a villa residence with an attached shrine appears much more likely. The Romans were particularly fond of setting up shrines in a rural context where local gods associated with hunting or water might be worshipped in an attractive context (Bedoyere 1991). A surviving example is the shrine to local nymphs, consisting of a semi-circular seat and an alter, established at Carrowburgh. Similar small shrines may have existed across Britain but rarely now survive in identifiable form, the cistern at New Weir perhaps representing the remains of such a water-shrine or *nymphaeum*. As such it would probably, particularly if the villa was approached from the south-east as would seem most likely, have had a prominent position in the whole design of the villa. Shoesmith notes water shrines in similar positions at Downton, Wilts and Dorenth, Kent.

4.30 In several respects the New Weir complex shares attributes with several important excavated sites. There are parallels with Chedworth, Glos, a country house of the highest order, with its secluded wooded valley location, ranges of rooms and specifically with the presence of an octagonal pool, with an associated small shrine, forming the source of natural water for the site. Although there is no unequivocal evidence the villa has been suggested as a guesthouse or cult centre for the god Lenus-Mars. If there was a comparable cultic element at New Weir attracting pilgrims to a shrine and guesthouse, there is no reason to assume this precluded normal domestic or agricultural activities.

4.31 New Weir also parallels Great Witcombe, Glos, in the use of major stone buttresses and probably also in the construction of several ranges of buildings on the site being built at different levels; joined together with ramps or steps. Chedworth also provides a comparable example of stepped building construction on a sloping site.

4.32 An example of a Roman waterside site sharing religious and domestic aspects with New Weir comes from excavation of the temple and associated settlement at Nettleton Scrub, Wiltshire, sited beside the canalized Broadmead Brook in the vicinity of the settlement. It has been interpreted as the clearly dominant feature of the Nettleton settlement, and it is possible that some river cult, practised in pre-Roman times, attracted Roman attention and was perpetuated in the Roman era (Bedoyere 1991). Retaining walls had been built on either side of the river. Adjoining buildings included a fine six-arched arcaded building on the frontage, interpreted as an annex to the shrine acting as a *schola* for communal worship and celebration of anniversaries accompanying visits to the shrine. Attempts to suggest possible uses of other riverside buildings close to the shrine were conjectural though one may have been the residence of the temple priest (Wedlake 1982).

4.33 On the basis of the developing evidence now known from the riverside complex at New Weir we can now envisage lavish and high status occupation during the later Roman period. The buildings were clearly sited in a secluded but spectacular setting, enjoying close access to main roads, to a forded or bridged river crossing and to the major urban centre at *Magna Castra*. The associations with the Wye and the emergent springs, the presence of the ornate cistern or *nymphaeum*, and the relative paucity of domestic material so far encountered could all conceivably indicate an important religious aspect to the site.

4.34 In the absence of more extensive research-based fieldwork it is difficult to avoid conjectural discussion on the character of this undoubtedly high-status site. Given the importance of the Wye valley during the Roman period for settlement and farming it remains very likely however that New Weir represents one of a small but growing number of medium-sized villas now identified in the county. Its economic basis may have developed from farming of the fertile Wye valley, perhaps associated with riverborne trade or, as the evidence temptingly but inconclusively suggests, connected with cult associations; drawing visitors to a complex that comfortably combined both the secular and religious worlds.

5.4 In the light of the important results from the present archaeological fieldwork, and given the recent commitment of major capital investment to riverbank protection and the consolidation of exposed structural remains, it is now appropriate to properly assess the terrace remains and so establish a long-term archaeological strategy for the site. This would be consistent with the high importance the National Trust places on the full assessment of the significance of, and conservation planning for, the archaeological aspects of properties in their care (National Trust 1995 a, b).

5.5 The issue of site management strategy was first addressed in a report to the National Trust in May 1977, when the importance of the Roman remains was highlighted. It was then recommended that three inter-related options be considered, namely; preservation of the exposed remains from further damage, possible excavation of the building complex and lastly, the conservation and display of the remains (Shoesmith & Boulton 1977). The first of those considerations has now been firmly addressed through the programme of riverbank revetment and structural consolidation. The two other recommendations recognise the archaeological importance of the site, and the clear potential of the archaeological remains for increasing visitor numbers and public enjoyment of the gardens.

5.6 Almost two decades on, a number of approaches to the management of the archaeological resource at New Weir now exist. These can be considered in terms of a tiered series of options and suggest the way forward within the management cycle expressed by English Heritage in *Exploring Our Past* (1991).

Option 1: No change

5.7 This curatorial approach would effectively maintain the status-quo within the Weir Gardens, retaining the gardens in their present form; whilst periodically assessing the condition and stability of the exposed Roman remains, and the protective stone apron and blockstone revetment. Monitoring would need to encompass not only the consolidated standing-structures but areas where exposed faces of the riverbank scarp may actively erode until vegetation again becomes fully established.

5.8 In the light of the recent consolidation work, and archaeological investigations, the provision of one or more information boards on site might be advantageous; in improving public understanding of the recent revetment works and highlighting the presence and importance of the Roman remains beneath the terrace. Interpretative signboards could be installed relatively quickly and at minimal cost, and might incorporate a conjectural reconstruction drawing to improve public perception of the form the remains may have taken (Fig. 18 shows one possible, conjectural, view of how the complex might have looked, from upstream on the river). In addition to drawing more attention to the Roman remains there is also scope to use signboards to improve awareness of the history of the gardens and estate. This might require a property survey to first bring together all known information on the development of the gardens.

5.9 It would however be necessary to consider the implications for visitor safety if the remains exposed in the steep bank, particularly the Upper Buttress, are publicised more effectively. Present fencing arrangements along the bank would need to be reviewed, with a decision made

as to whether to continue to discourage visitors from descending the riverbank and viewing the standing remains from below. Although it is from this point that the remains can be viewed to best advantage, there may be difficulties in providing safe access onto the new stone apron constructed below the two buttresses, and any noticeboard erected this low down would be susceptible to winter flood damage or even loss.

5.10 Whilst such a low-key approach would involve relatively low expenditure on the archaeological remains there are significant disadvantages with Option 1. In the absence of detailed information on the nature and extent of the remains, buried beneath the terrace gardens, it would be very difficult on the basis of current knowledge to produce a detailed, informed, strategy for either the long-term curation through in-situ preservation, or for future investigation or presentation of the building remains.

Option 2: Archaeological evaluation

5.11 An immediate concern, given the regional and national importance of the site, must be to achieve an accurate assessment of the limits to, and character of, the buried Roman remains through a programme of limited investigation. There are three reasons for this;

i) to better define the area of the Scheduled Ancient Monument for management purposes

ii) to assess the destructive potential of the present tree cover

iii) to investigate the feasibility, strategic and cost implications of long-term research into the remains

5.12 Currently, information pertaining to these three requirements exists only in a patchy form, based primarilly upon the limited investigations of 1977, and is an inadequate base upon which to develop future strategy. The principal drawback with the test-pit investigation of 1977 was in the size of pits used rather than the overall project design. These were too small to produce reliable information of the type required to assess preservation and extent of a building complex. In addition, although both the 1977 and 1991 resistivity surveys were comprehensive and executed using best techniques and instruments currently available at the time, their failure to produce meaningful results was a function of site conditions (see 2.4.2 above). Discussion with the Geophysics Department of the Ancient Monuments Laboratory recommends that the use of complementary geophysical techniques are unlikely to be successful given the inherent site problems. However, a trial magnetometer survey of the areas previously identified as potentially significant during the resistivity surveys, and/or further resistivity survey at wider probe spacing (increasing depth penetration) should be considered as part of an evaluation procedure (Payne pers. comm.).

5.13 Given these attendant problems, a programme of limited evaluation trenching would provide the most reliable and cost-effective solution to addressing requirements i)-iii) above, and would be the only practicable means of assessing requirements ii) and iii). Whilst this option would involve higher expenditure than Option 1, the costs of such investigation are

relatively modest, and the works would involve only minimal and temporary disruption across a small part of the gardens.

5.14 Field evaluation is crucial to proper assessment of the validity of the current scheduled area. Targeted trenching would clarify whether archaeological remains exist beyond the area currently scheduled, or vice versa, so clarifying whether there are grounds to either enlarge or decrease the area that the SAM currently encompasses. Evaluation would provide the required information to accurately determine which parts of the gardens properly require scheduled monument consent for planting, fencing and other groundwork proposals, and the actual scope of works permitted. Should a reduction in the area requiring scheduling be possible this would obviously increase the scope for groundworks on the terrace, reducing the number of occasions when applications for scheduled monument consent would be required for actions such as new tree planting.

5.15 In addition to providing data on the scope for future groundworks, determination of the extent and condition of buried archaeological remains would also be particularly useful in assessing management practice with regard to current tree cover. Trenching would provide information to assess the susceptibility of the terrace remains to damage from any intended new planting, and the degree of damage that may have been caused to remains by existing tree cover, as well as from previous groundworks.

5.16 The latter activity will include antiquarian investigations, post-medieval and modern installation of water collection tanks, drain lines and other groundworks. Shoesmith & Boulton (1977) concluded that shallow rumble drains would not normally go deep enough to interfere with the Roman levels, but that piping and storage tanks may have destroyed all but the deepest of remains. The total extent of these disturbances is unknown, but presumably most would be linear features which would not destroy the main plan of the Roman buildings. The total absence of ploughing together with a protective accumulation of hillwash is likely to have aided the preservation of remains, though only evaluation trenching can clarify this.

5.17 English Heritage have recently highlighted the possible effects of tree growth on archaeological sites as a matter of particular concern (1991). With this in mind, fieldwork would help determine whether any immature trees overlying archaeological remains are causing significant damage and ought now to be felled. Inspection of tree cover within the scheduled area was carried out, with the National Trust gardener, to highlight any young trees planted on the terrace whose growth might be causing preventable damage to underlying remains. This identified several young rowan, maple and hawthorn trees sited on the terrace which are probably causing damage to underlying Roman remains. Although these trees should only reach a small to medium size their rate of root growth is recorded as medium to fast (BS 5837, 1991) and, given their inappropriate planting positions, they should be considered for removal in the near future.

5.18 Additionally there are a considerable number of beech, hawthorn, oak, lime, larch, willow, ash and tulip trees growing either on or close to the terrace. Several of these lie on the steep scarp slope to the rear of the terrace and, unless hillwash has buried archaeological remains there, may not be causing any significant problem. Similarly several willow trees on the riverbank lie in positions where archaeological remains are already likely to be disjointed and damaged, as a result of post-medieval works and river erosion. However there remain a

number of immature and more mature, sizeable, beech and other tree species which may have caused damage to archaeological remains, and may still be doing so.

5.19 It would be necessary however to investigate the depth, nature and state of preservation of building remains in proximity to these trees before taking any decisions as to whether to fell particular examples. It will be particularly important to balance archaeological considerations with protection of the character of the gardens, for whilst the scheduled area forms only a small part of the gardens, the established tree cover within it contributes significantly to the character of the riverside setting.

5.20 It is assumed that in the case of the mature trees within the SAM their impact, though potentially significant and highly detrimental to areas of the buried remains, will have reached a point where there may now be only minor continuing damage from them. If evaluation trenching could confirm that this is the case then a sensible policy for most of the established tree cover might be to leave the mature trees undisturbed until disease or rot made their felling necessary, whereupon tree stumps could either be chemically treated or allowed to decay naturally (preventing any further damage to archaeological remains from their deliberate uprooting). Decisions on any tree felling on all but the youngest and most inappropriately planted trees should only be taken on an individual basis, according to merit and certainly only in the light of the results of investigative trenching.

5.21 In the light of the results of the archaeological work by CAT on the riverbank and terrace it is strongly recommended that a programme of evaluation involving trial trenching, possibly preceded by geophysical prospecting, be instigated to clarify the extent, form and condition of the Roman occupation remains. This would be consistent with the National Trusts' stated aims and objectives for the Weir Gardens, investigative trenching providing information to develop a curation policy that would balance protection of the gardens with those of the archaeological remains and assessing whether public enjoyment of the gardens could be enhanced by excavating and/or displaying those remains more fully. Targeted trial-trenching would also assist an appraisal of the potential costs involved in any detailed excavation, and subsequent conservation and display if appropriate.

5.22 As a matter of immediate concern, it is recommended that three immature trees (see 5.17), the ash, hawthorn and rowan, are felled and their stumps treated to prevent regrowth.

Option 3: Archaeological excavation

5.22 A third approach to the management of the archaeological remains would involve fuller excavation and possibly display of the buried remains. Although current English Heritage policy is in favour of *in situ* preservation of archaeological remains there is also a commitment to academic advancement (including excavation) and public enjoyment of the archaeological resource.

5.23 Consideration of Option 3 should necessarily only follow on from preliminary evaluation works to assess feasibility, probable scope of works, and scale of costs involved. It is suggested that this option should be considered as a long-term programme of academic research involving a number of bodies. A partnership between the National Trust, a university

of college and a professional archaeological unit could combine to offer a joint funding initiative, student training opportunities, professional archaeological direction and management and an annual (seasonal) attraction for the visiting public. Ultimately, whether the excavated remains were to be conserved and displayed would be dependant upon their quality, the costs involved and the appropriateness of such a display in the current setting.

5.24 In terms of possible excavation of the building complex it is clear that the longstanding threat of significant river erosion to the site has now been lifted, such that immediate rescue excavation is unnecessary. Given the clear importance of the site however, a programme of long-term research excavation is undoubtedly the best approach to addressing the unresolved questions about the character of the site, since evaluation trenching could at best only hope to touch upon some of the many research-based issues. The issue of excavation is one requiring serious consideration for its implications for changing the character of part of the gardens; potentially involving wildlife and garden management issues but also potentially raising public enjoyment of the site.

5.25 From an archaeological viewpoint, extensive open area excavation would certainly be required to obtain a proper groundplan of the complex and any associated features, and to firmly establish the dating, phasing and character of the site. Were open-area excavation of the terrace remains to be implemented then the important, unresolved, archaeological questions as to the nature of the high-status occupation highlighted by the recent survey work could be resolved.

5.26 There appears to no longer be a rigid presumption in favour of undeveloped preservation of archaeological sites in National Trust ownership, such that investigation and publicising of buried remains is done according to merit on a site by site basis (Claris, pers.comm). The feasibility, cost and desirability or otherwise of promoting the, largely unpublicised, archaeological remains at New Weir should thus be considered according to their individual circumstances. Whilst the character of part of the garden would be affected, the change could be handled sensitively and need not overwhelm or detract from the remainder of the gardens. Although capital and running costs in setting up improved visitor facilities to an exposed building complex are likely to be high there might be some scope for increasing income from entrance charges if the remains uncovered were of a suitably high quality. This would need to be considered in the light of detailed information from preliminary evaluation work.

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Illustrations:	Richard Morton (main report). Geoff Jones (reconstruction drawing).

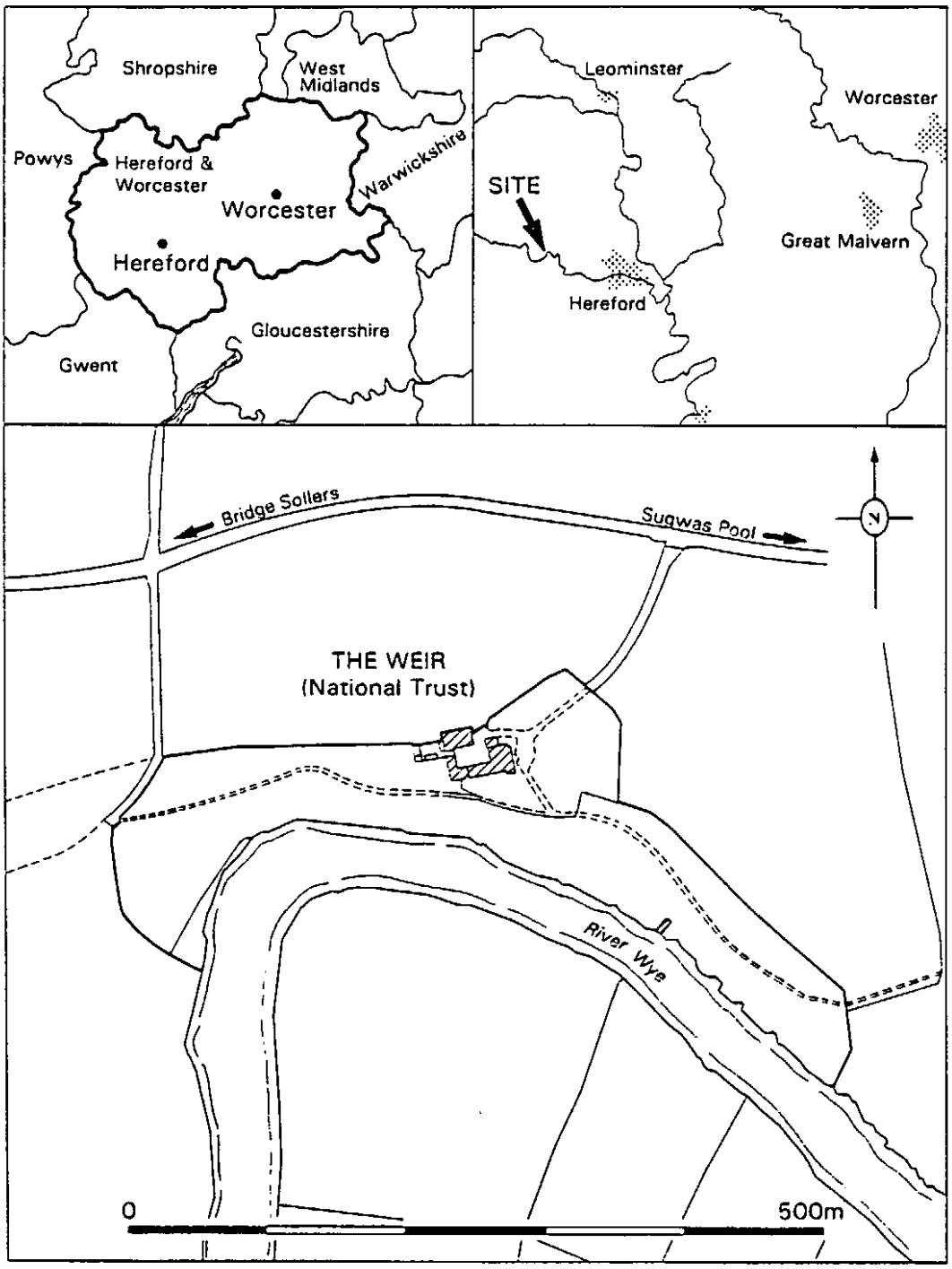


Fig. 1 Location map

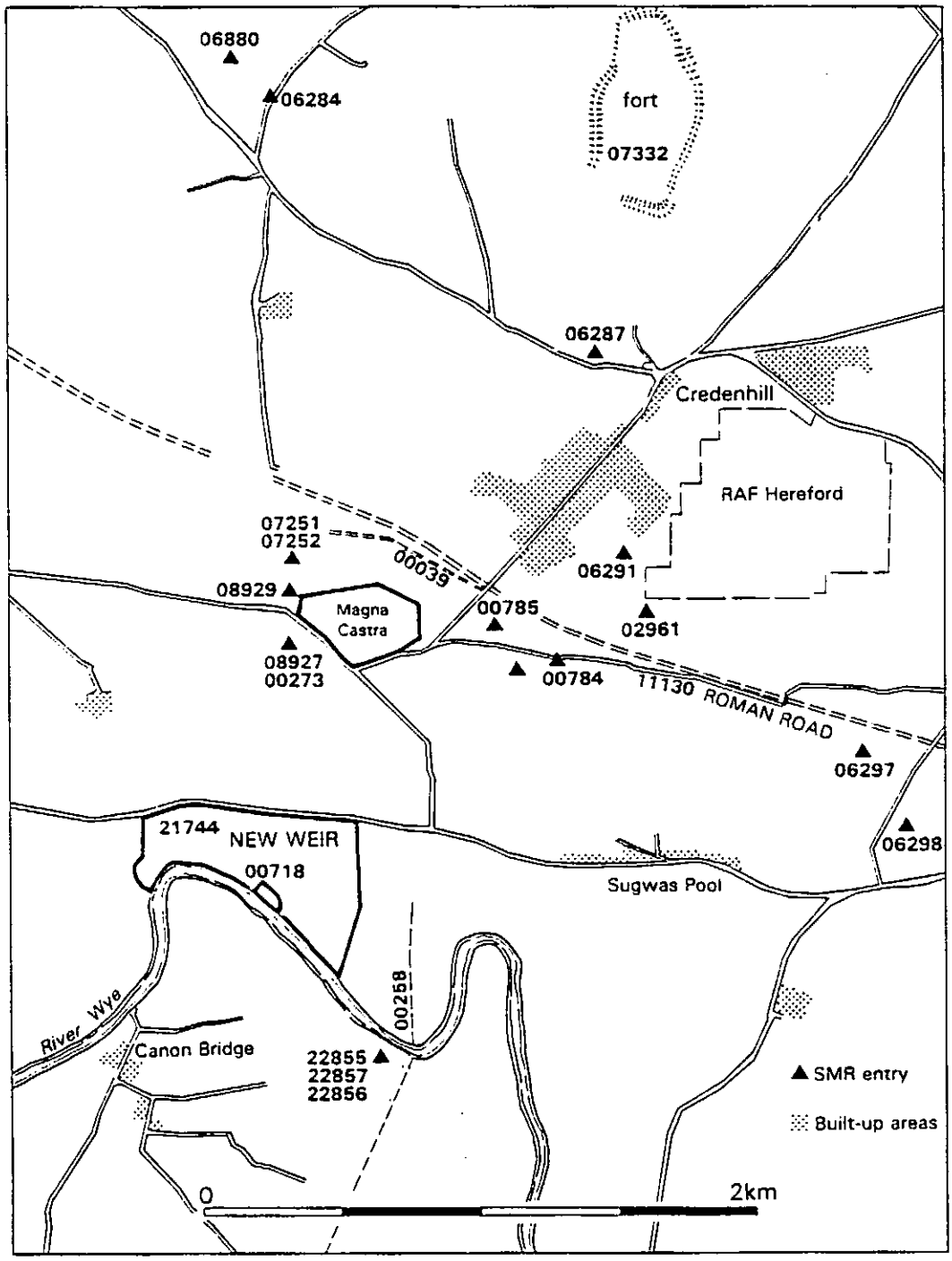


Fig. 2 Known Romano-British remains in the vicinity of the site

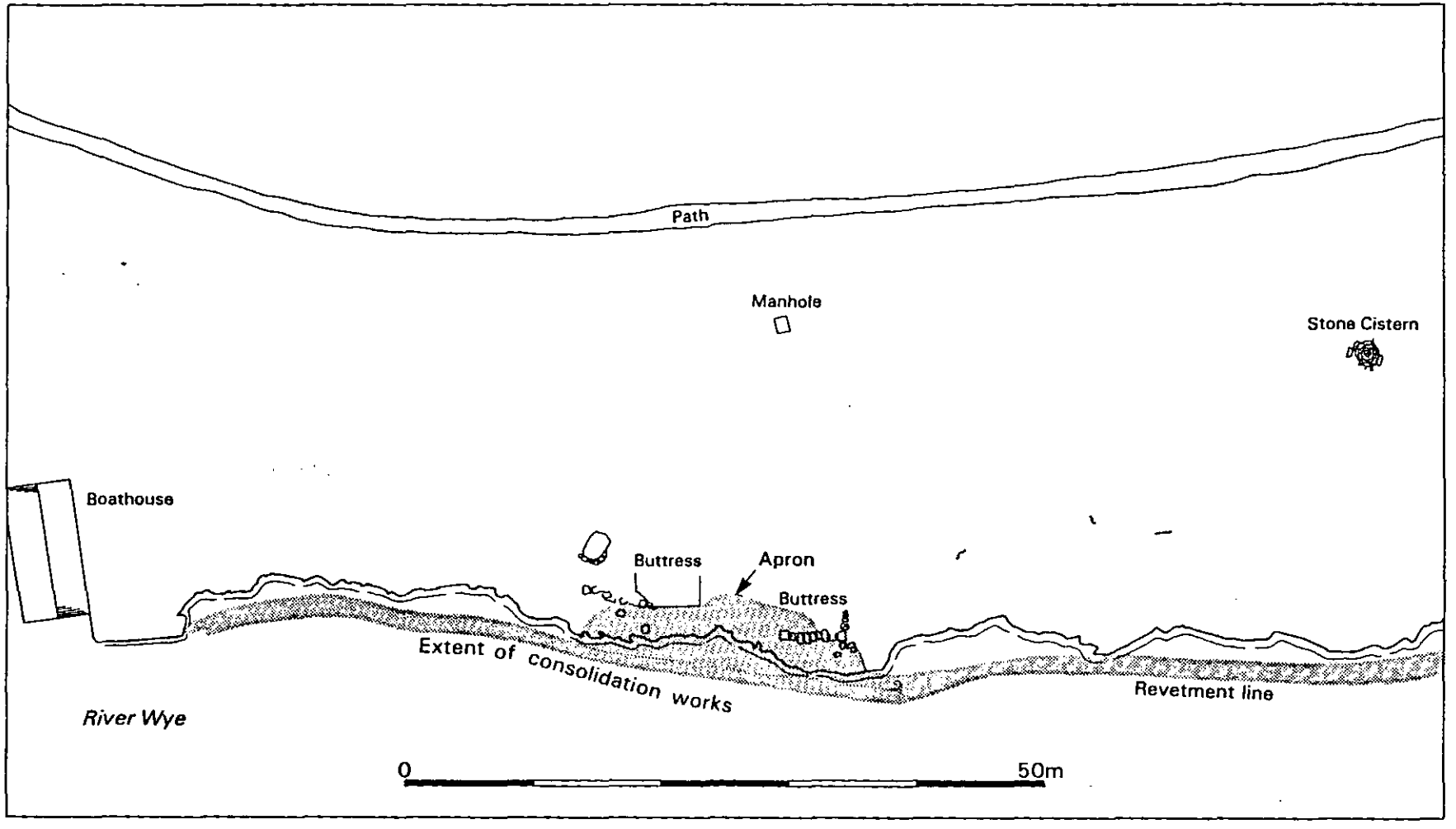


Fig. 3 Extent of riverside consolidation works

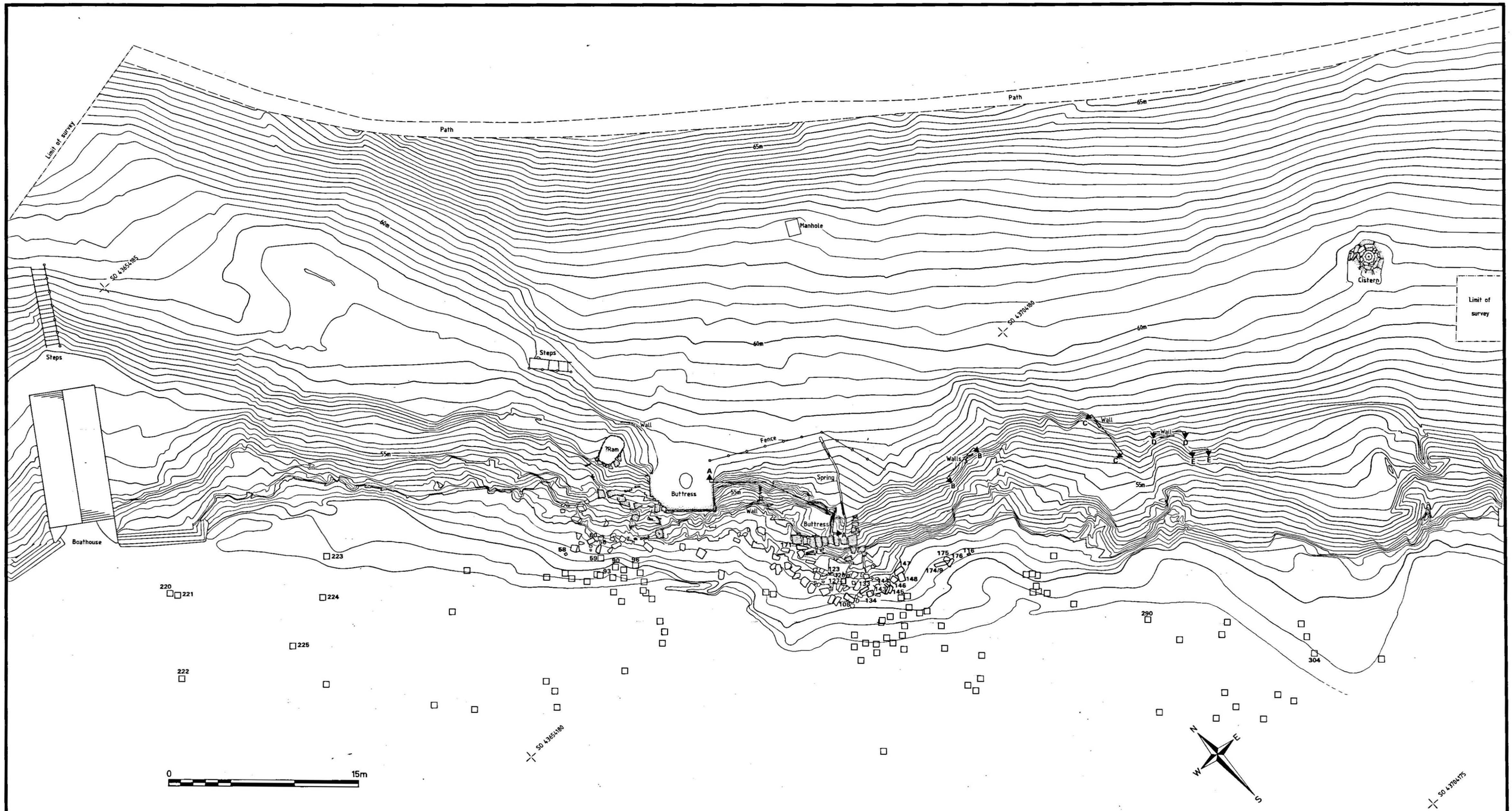


Fig. 4 Known archaeological remains within the Weir Gardens

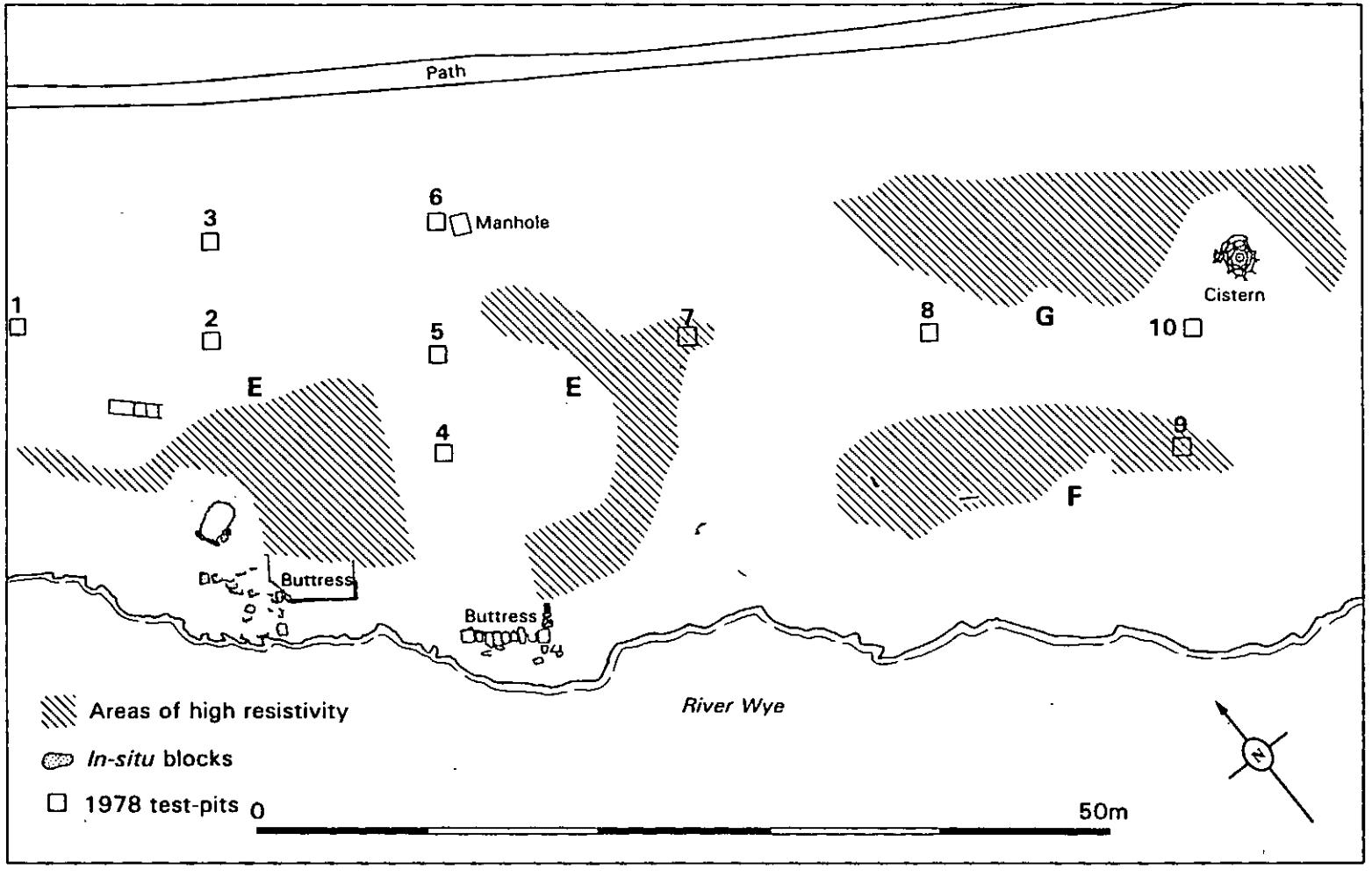


Fig. 5 1978 HCAU resistivity survey and test-pits

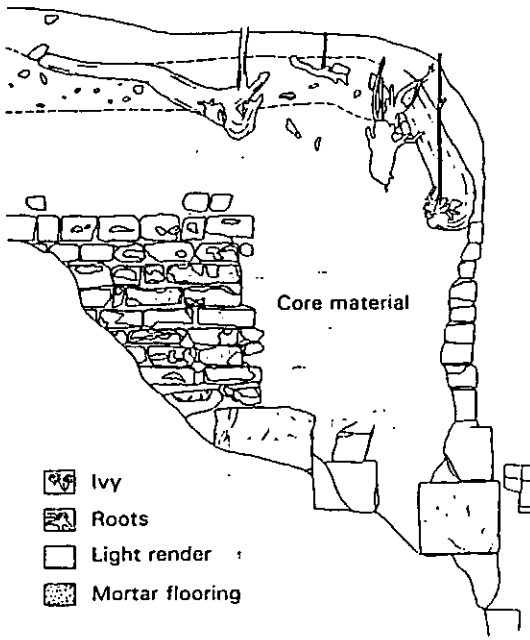


Fig. 6 NW facing elevation

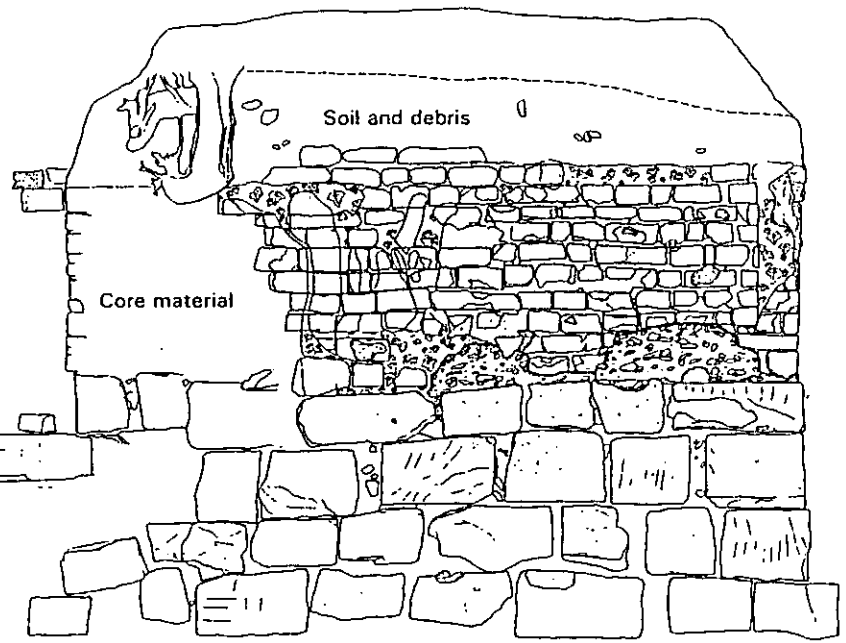


Fig. 7 SW facing elevation

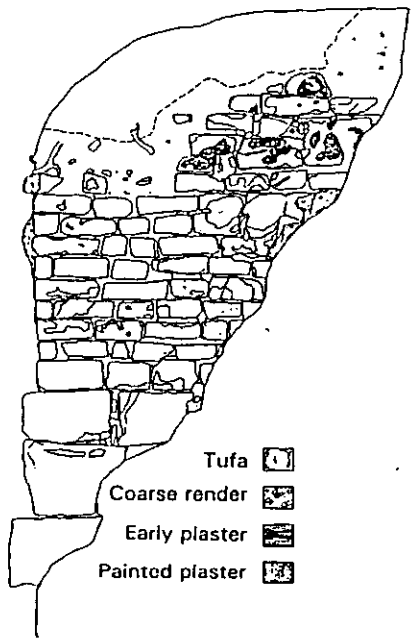


Fig. 8 SE facing elevation

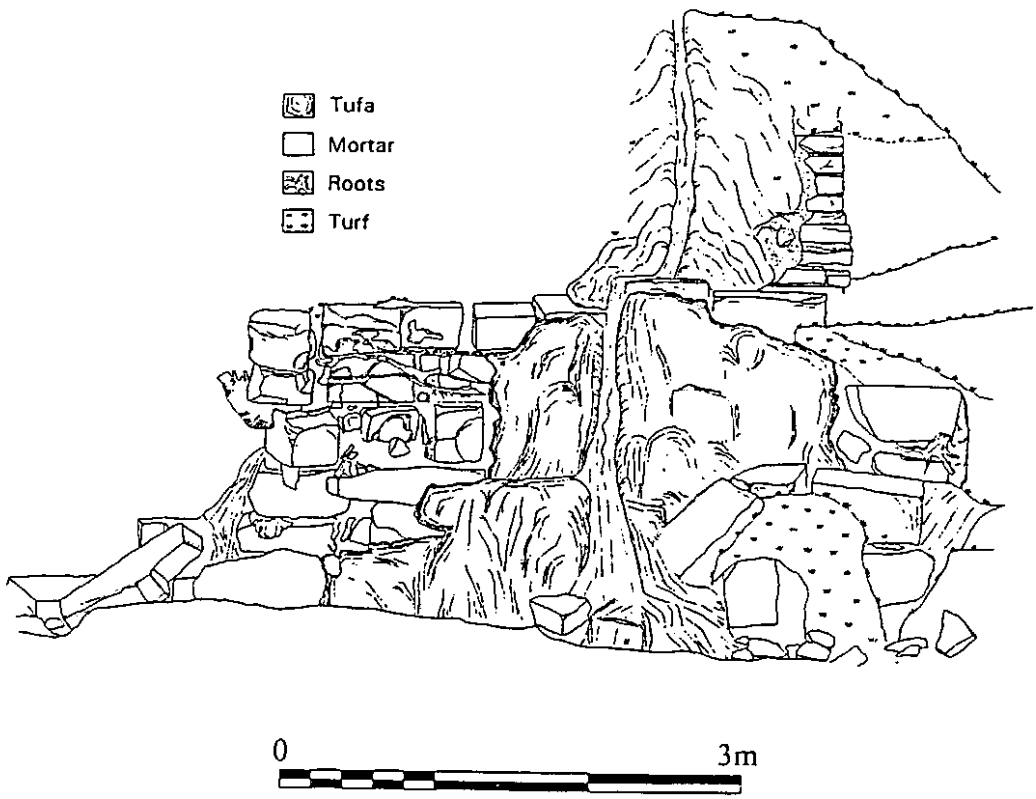


Fig. 9 SW facing elevation

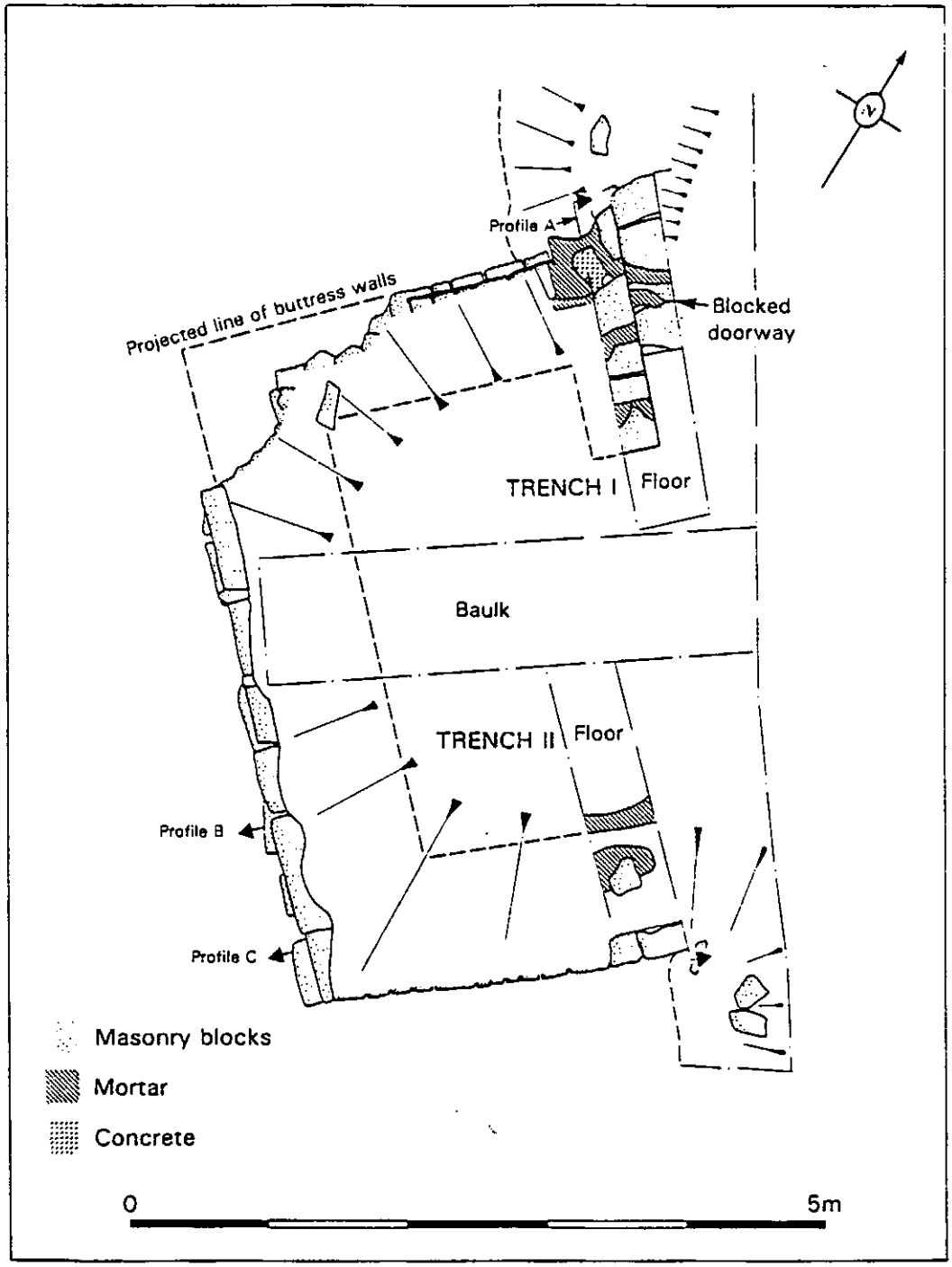


Fig.10 Plan of upper buttress

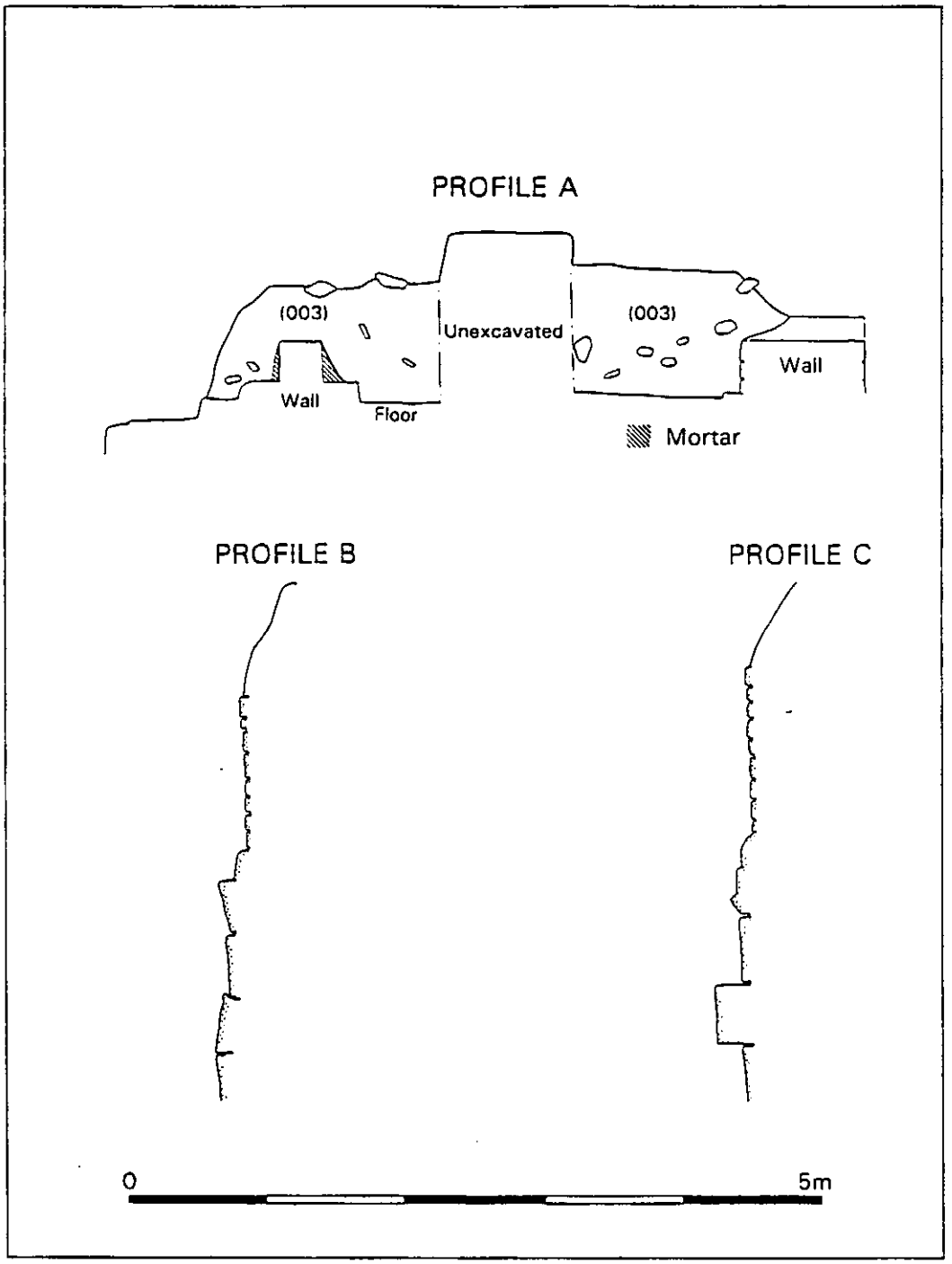


Fig. 11 Profiles A-C *(see Fig. 10 for profile locations)*

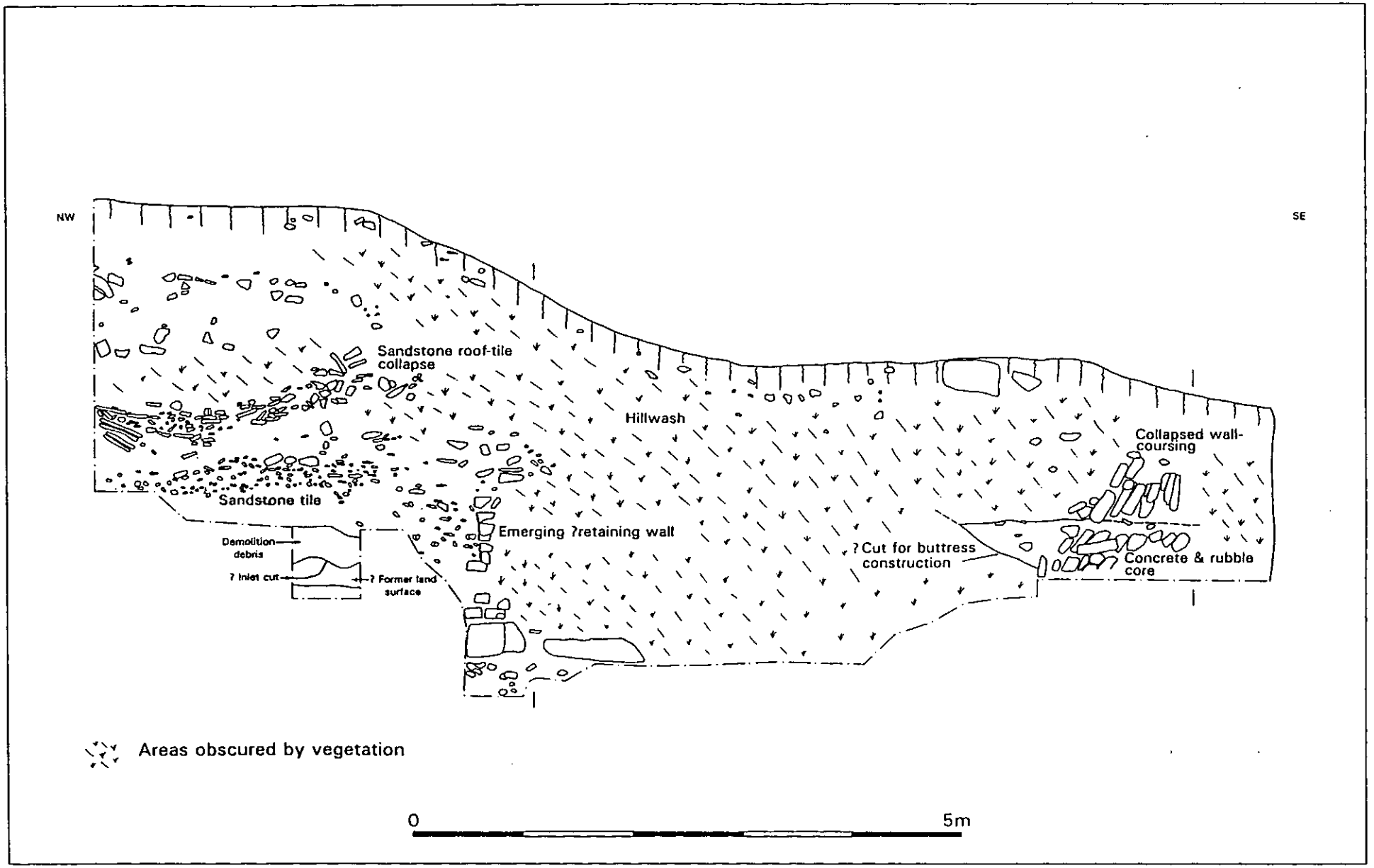


Fig. 12 Section A

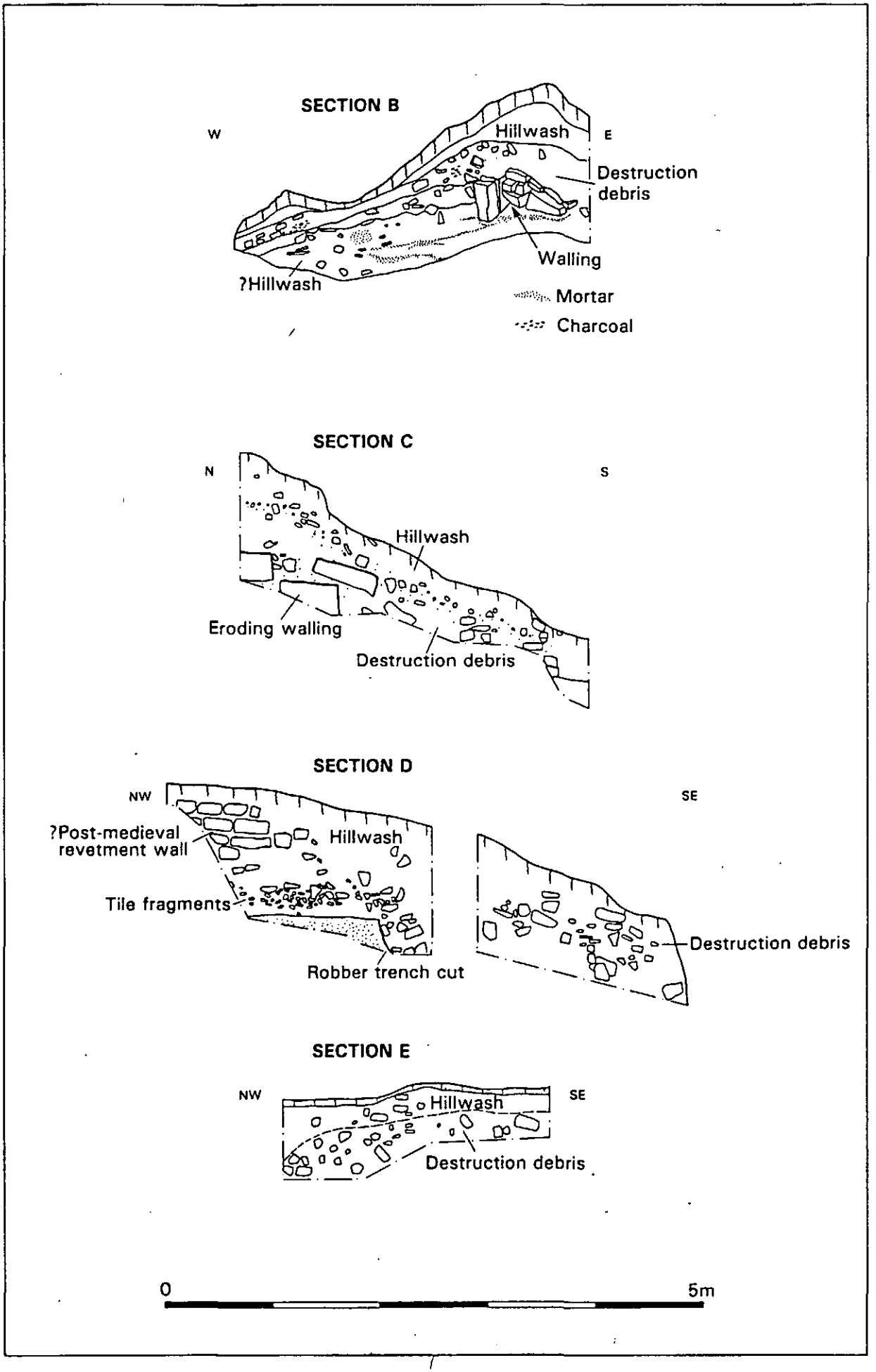


Fig. 13 Sections B-E (*see Fig. 4 for locations*)

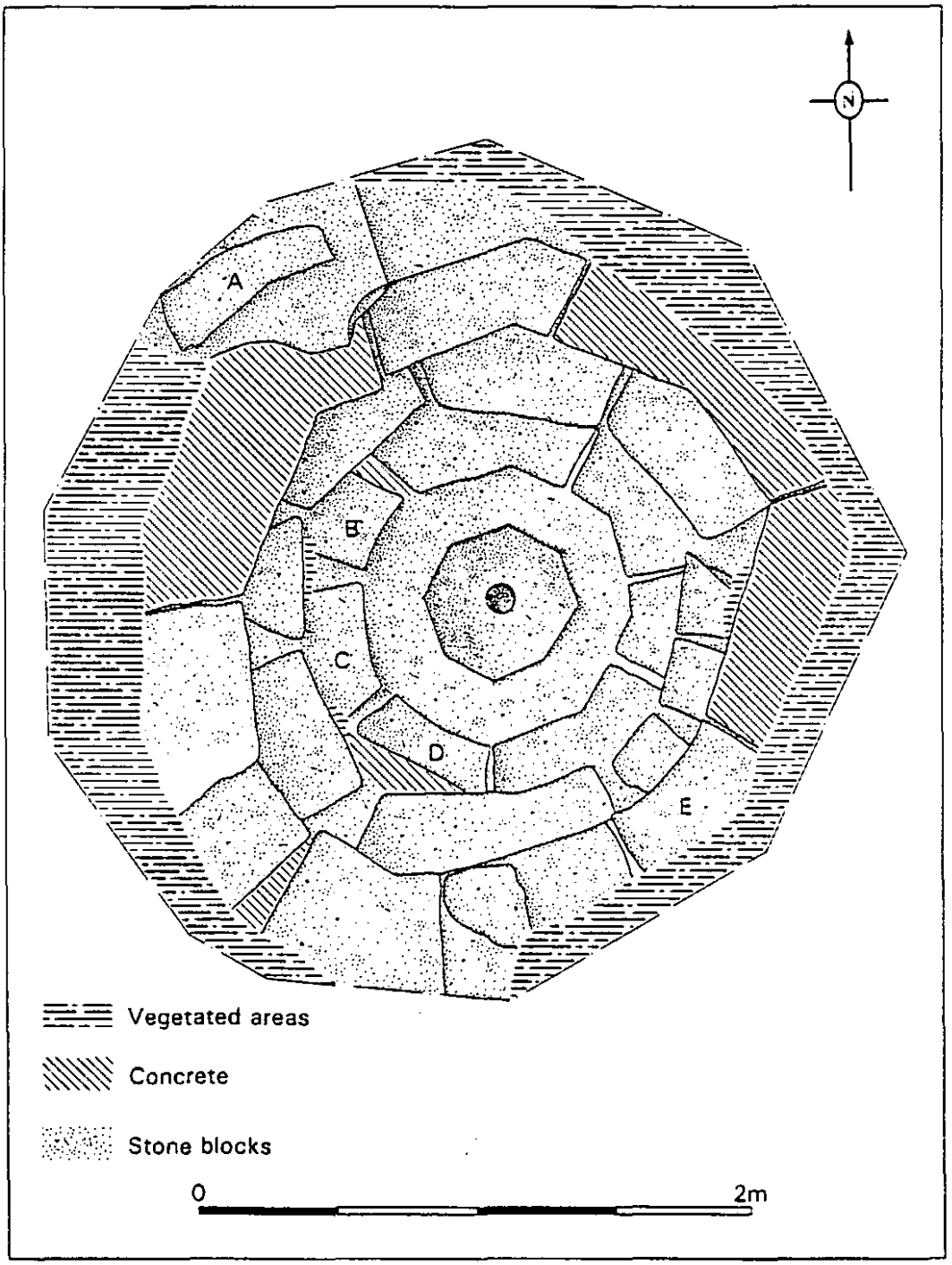


Fig. 14 Plan of cistern

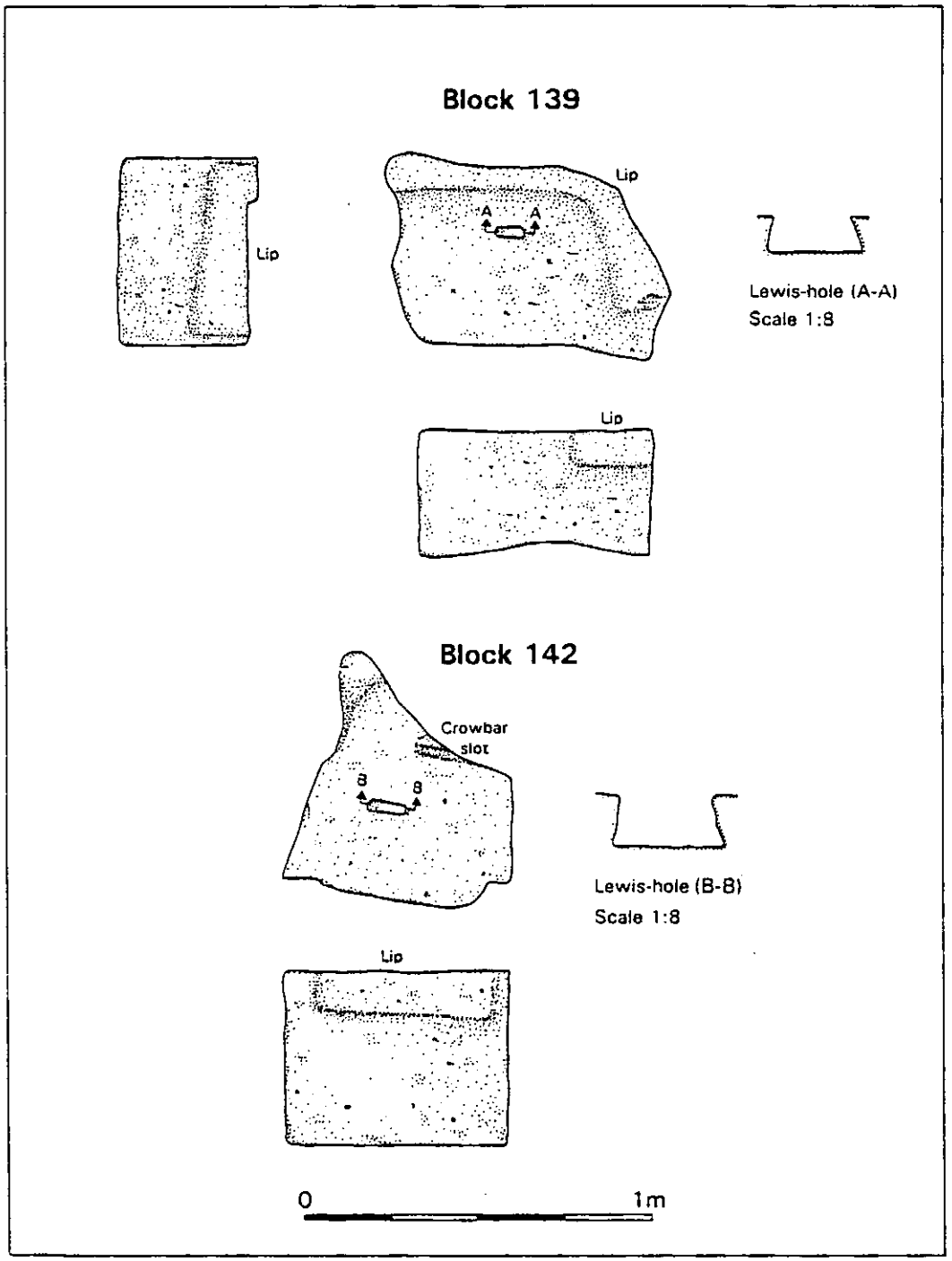


Fig. 15 Blocks 139 & 142

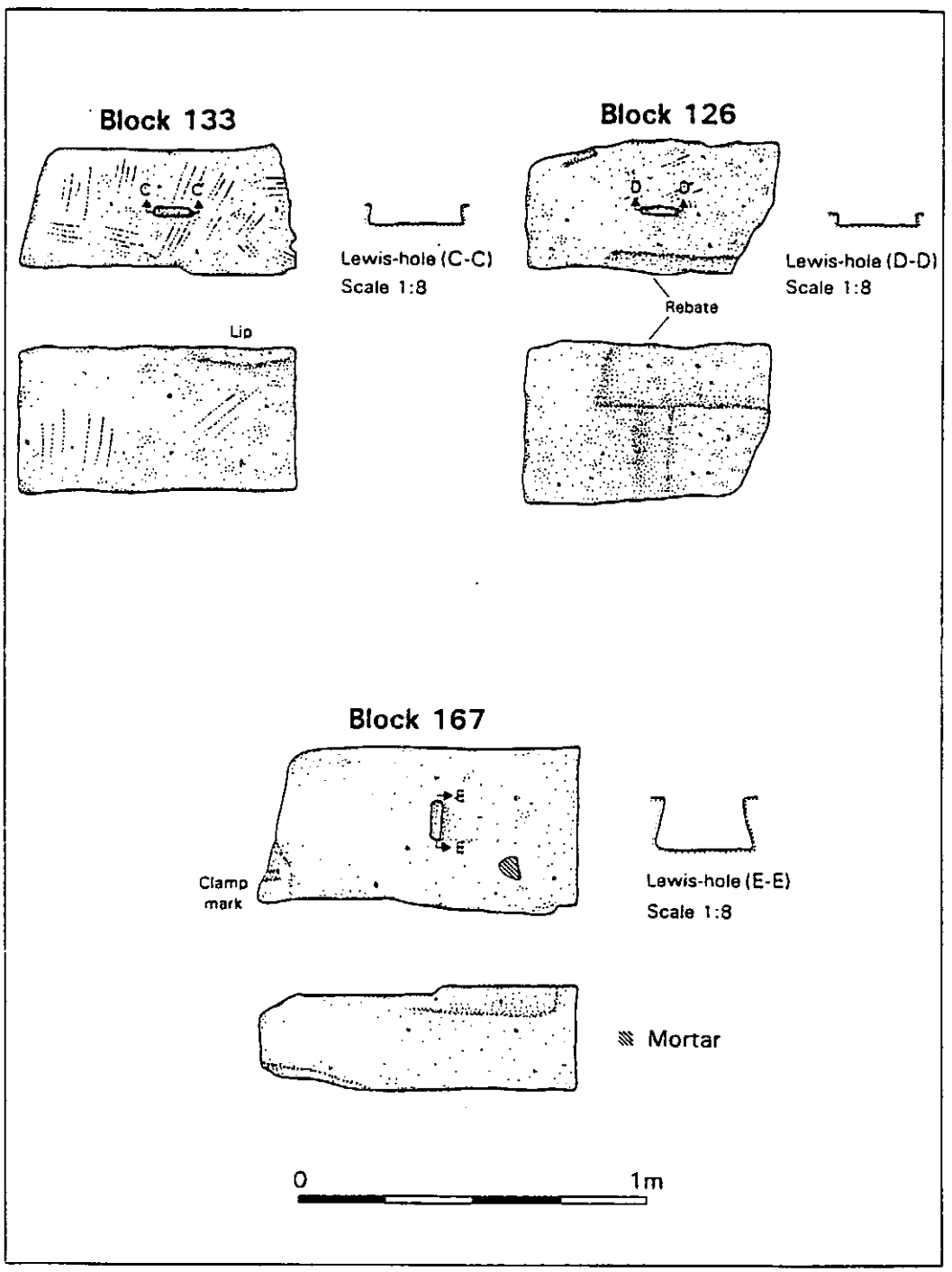


Fig. 16 Blocks 133, 126 & 167

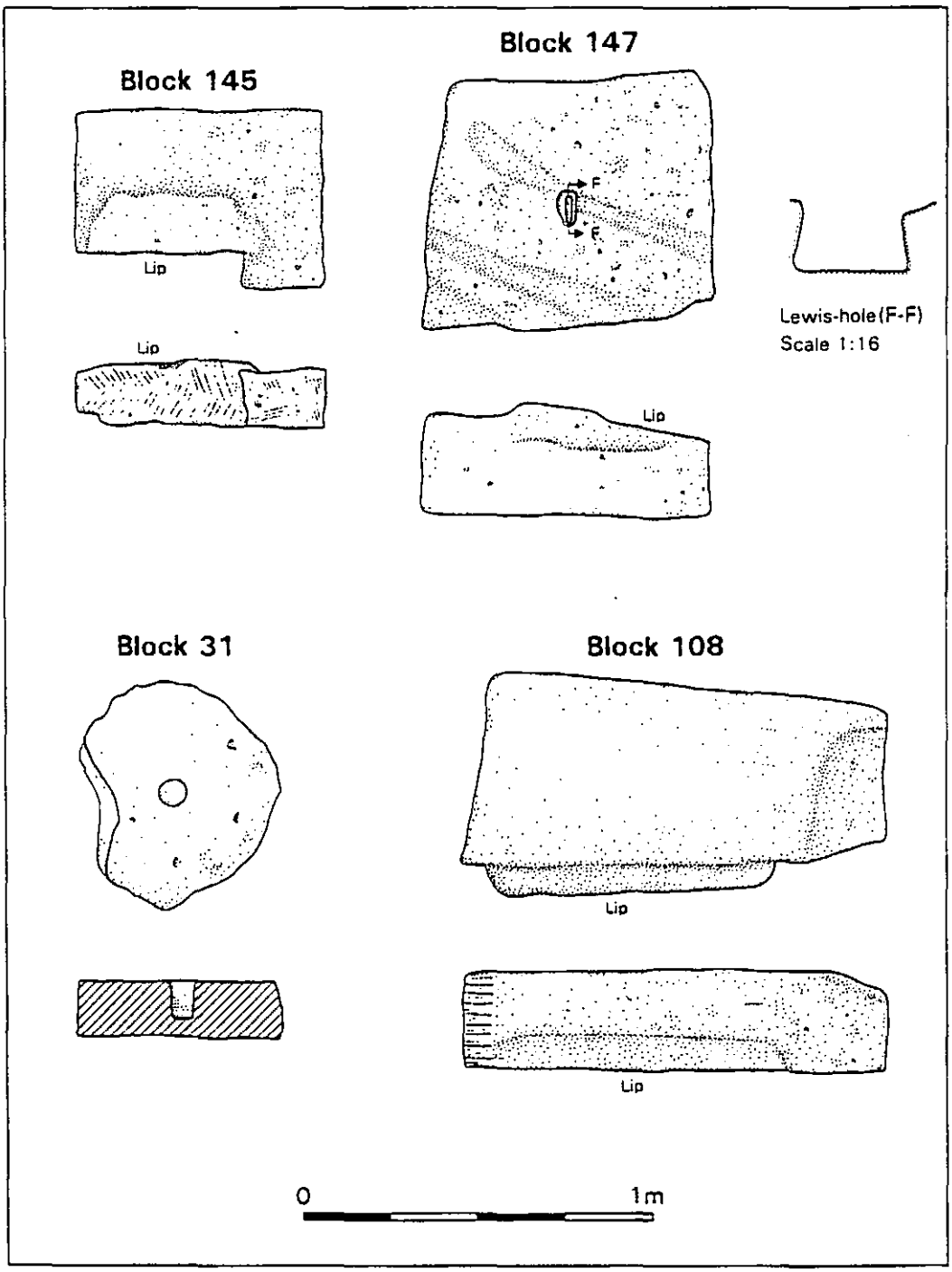
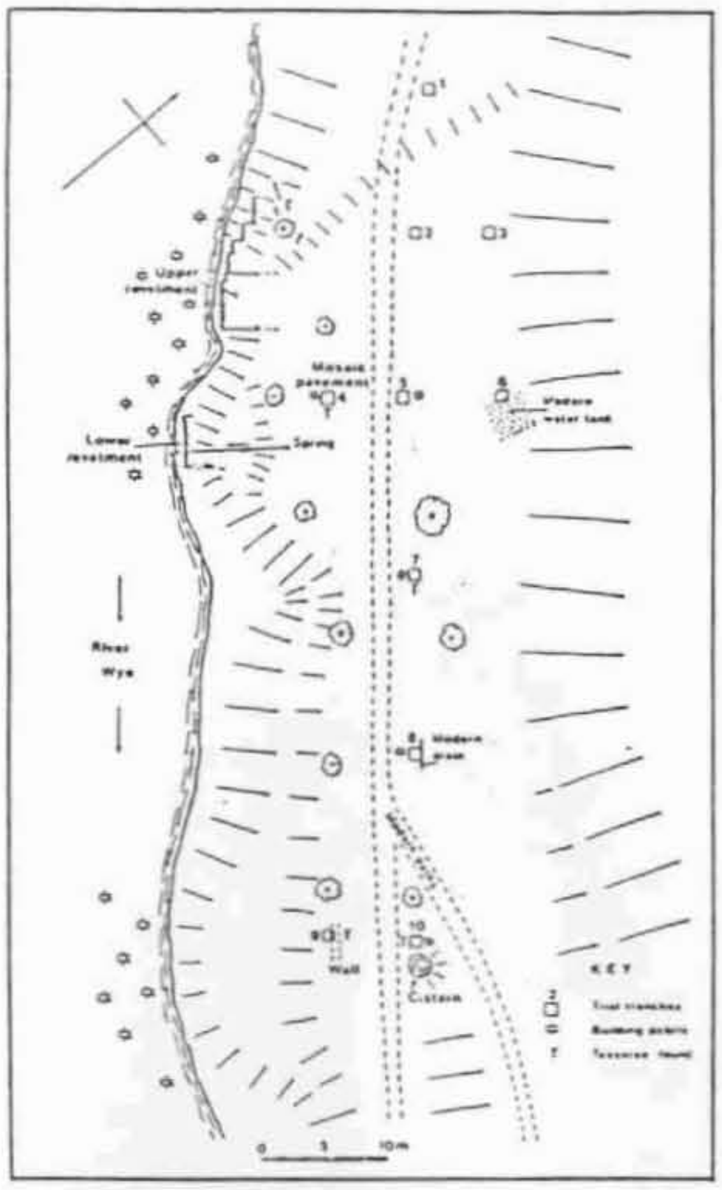


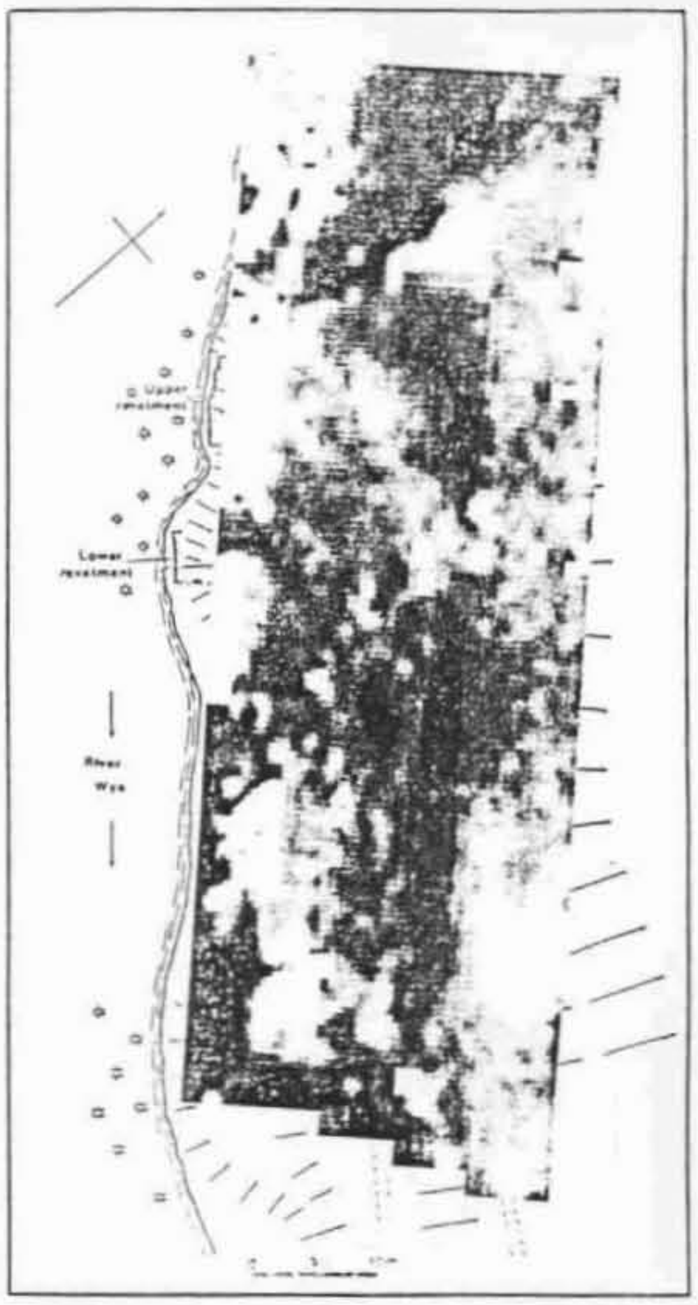
Fig. 17 Blocks 145, 147, 31 & 108

Fig. 18
Conjectural reconstruction of
Roman riverside frontage

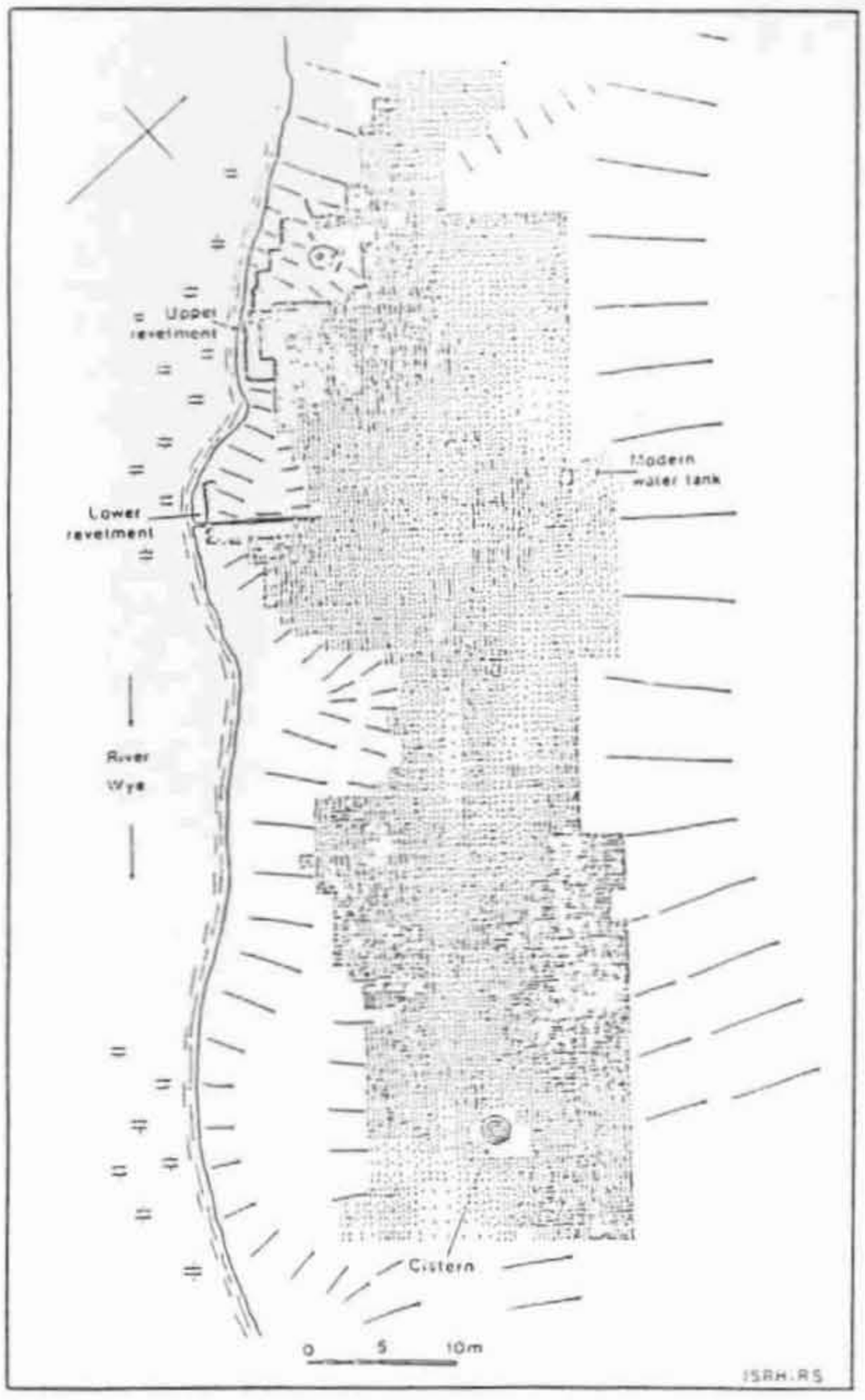
THE WEIR GARDEN, HEREFORDSHIRE

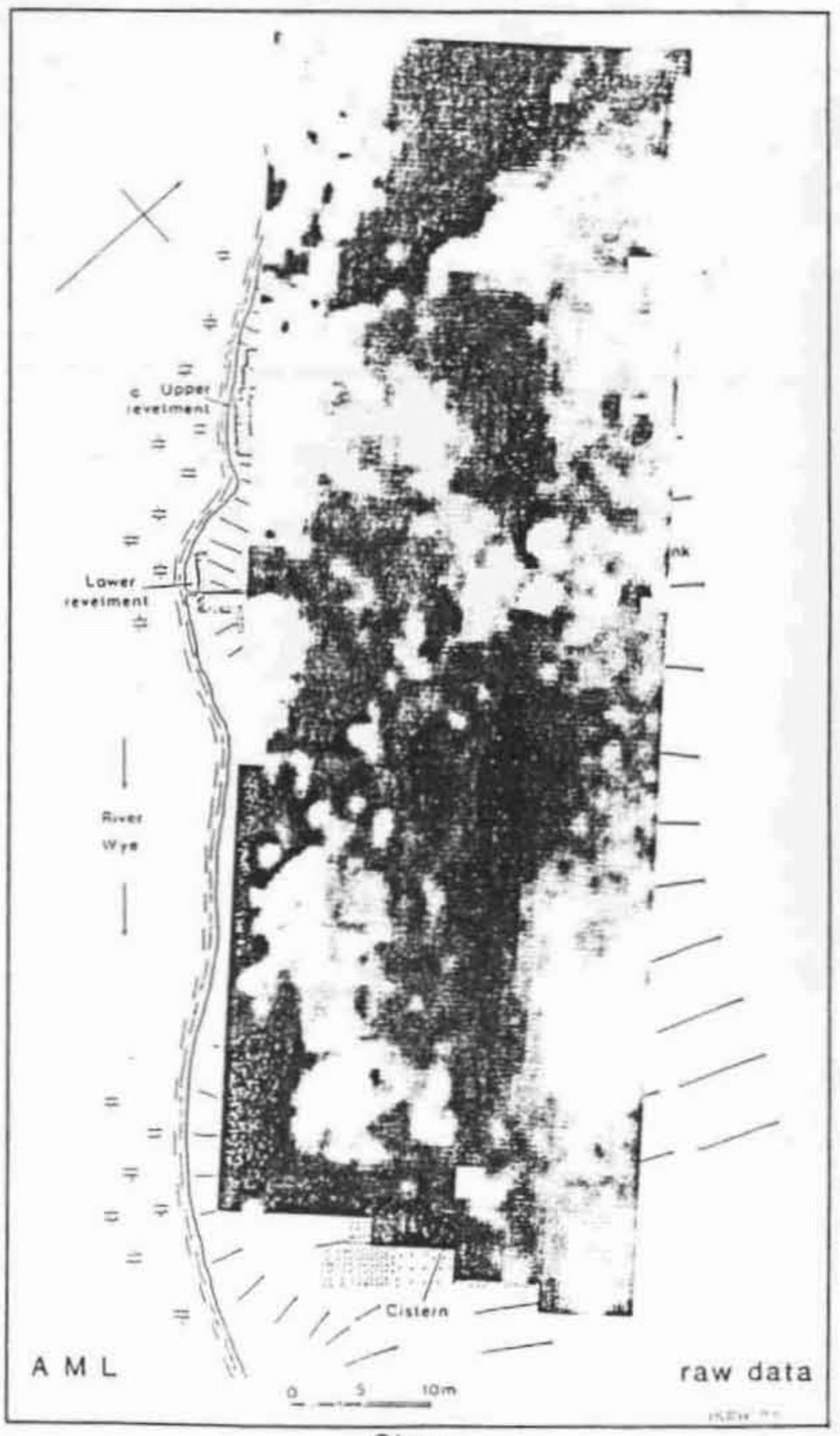


1. Relationship between Shoesmith's 1977 feature survey and Ancient Monuments Lab 1991 resistivity survey.



2. Relationship between Shoesmith's 1978 resistivity survey and A.M.L. 1991 resistivity survey.





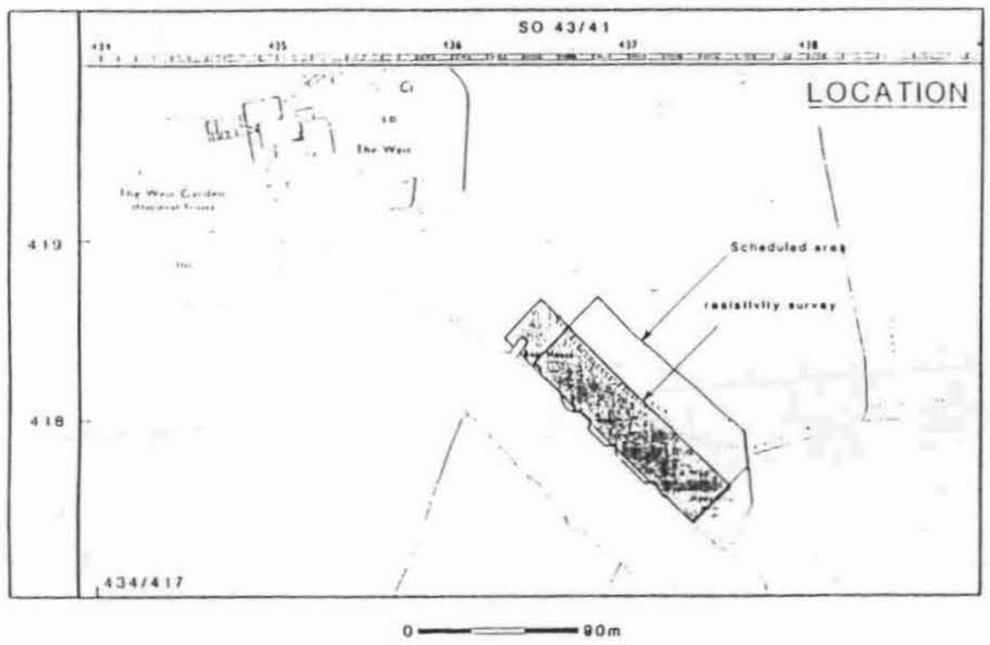
Ohms
16 ■ ◀- -▷ □ 204

Fig. 19 1991 Geophysical survey

THE WEIR GARDEN

SWAINSHILL, HERE & WORCS.

Resistivity Survey 1991



A

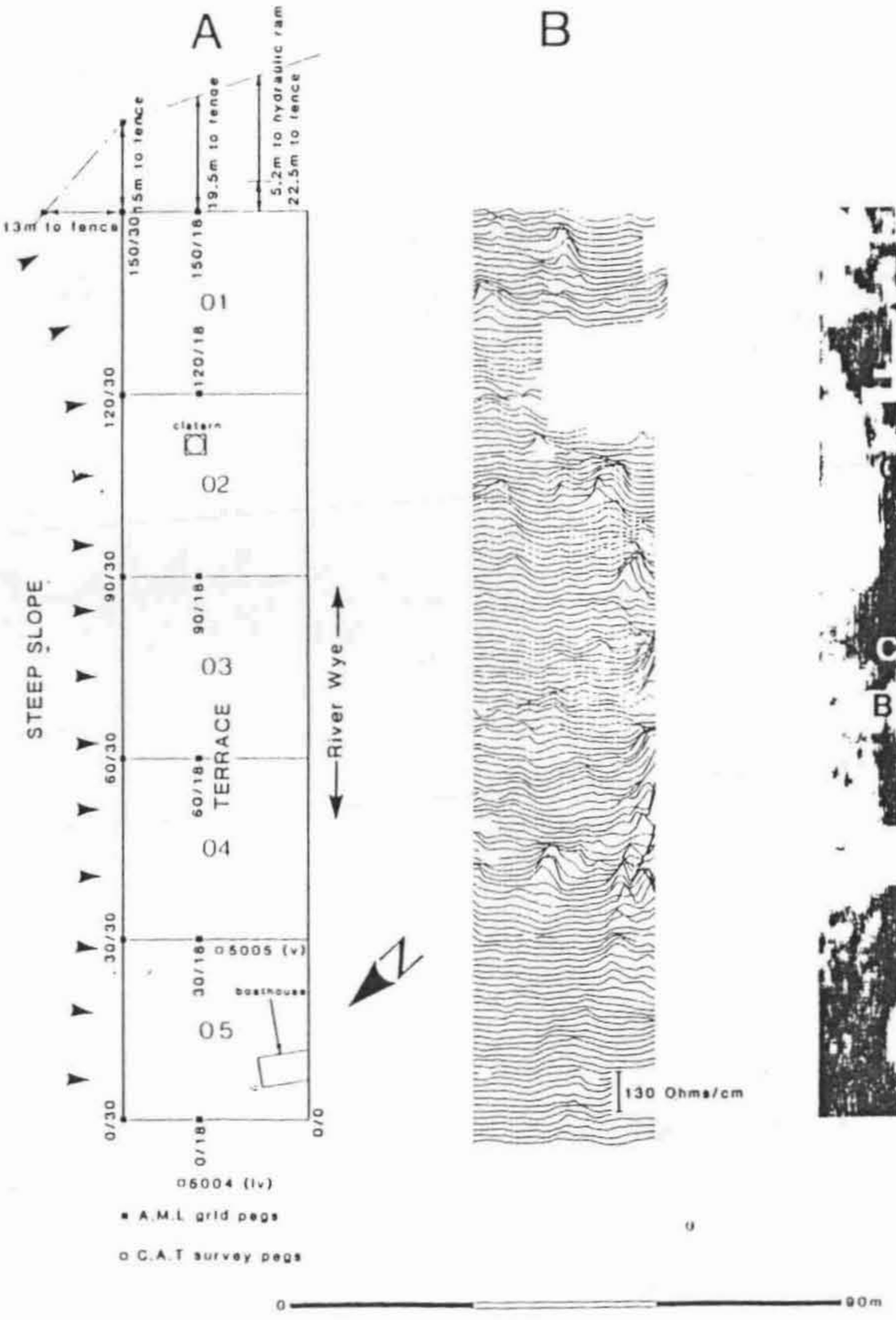
Survey location details

B

Profile plot of enhanced data

C

Grey-tone plot of enhanced data



Ancient Monuments Laboratory English Heritage 1991

Fig. 20 1991 Geophysical survey

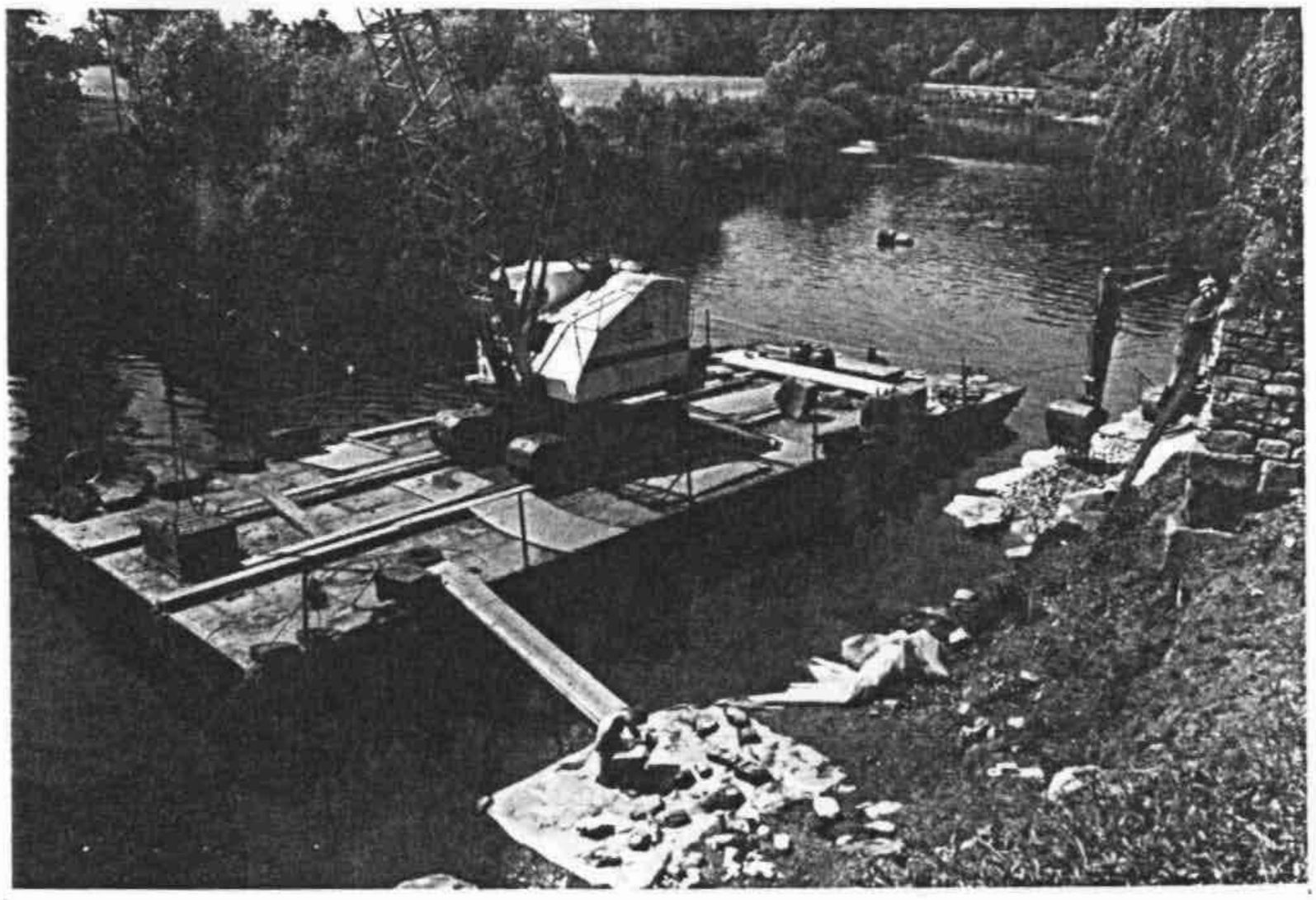


Plate 1

General view, looking south, showing riverside consolidation works and archaeological watching-brief underway.

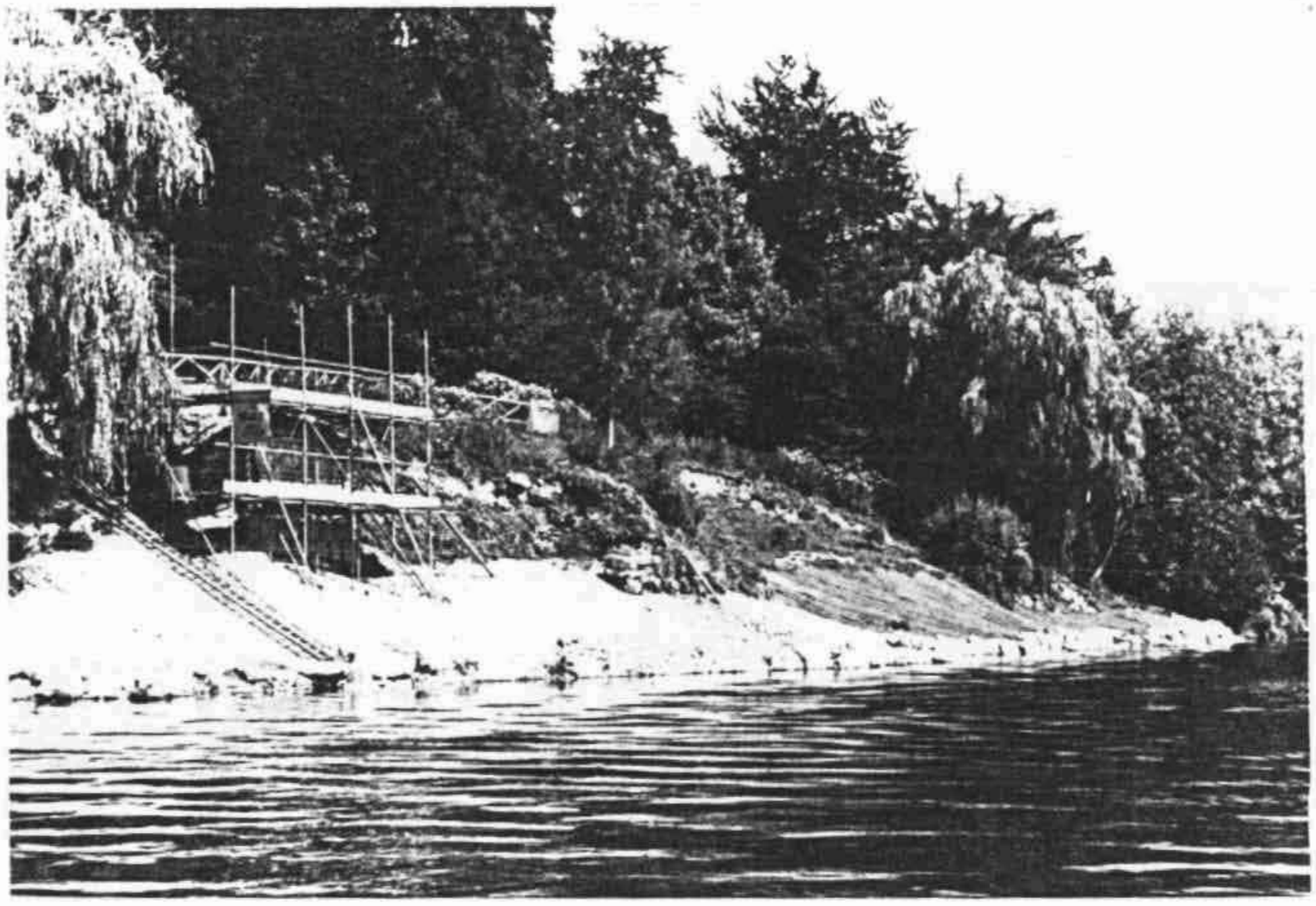


Plate 2

View, looking north-west, of the completed revetment line and protective stone apron; and of consolidation works to the Upper Buttress.

Plate 3

Pre-consolidation view of Upper Buttress and associated ?step structure. Four flights of steps appear to be recognisable.

Plate 4

View of Upper Buttress after completion of structural repairs and archaeological investigations.

Plate 5

Partial view of front elevation of Upper Buttress, showing the cutwater effect built into the second course of basal blocks.

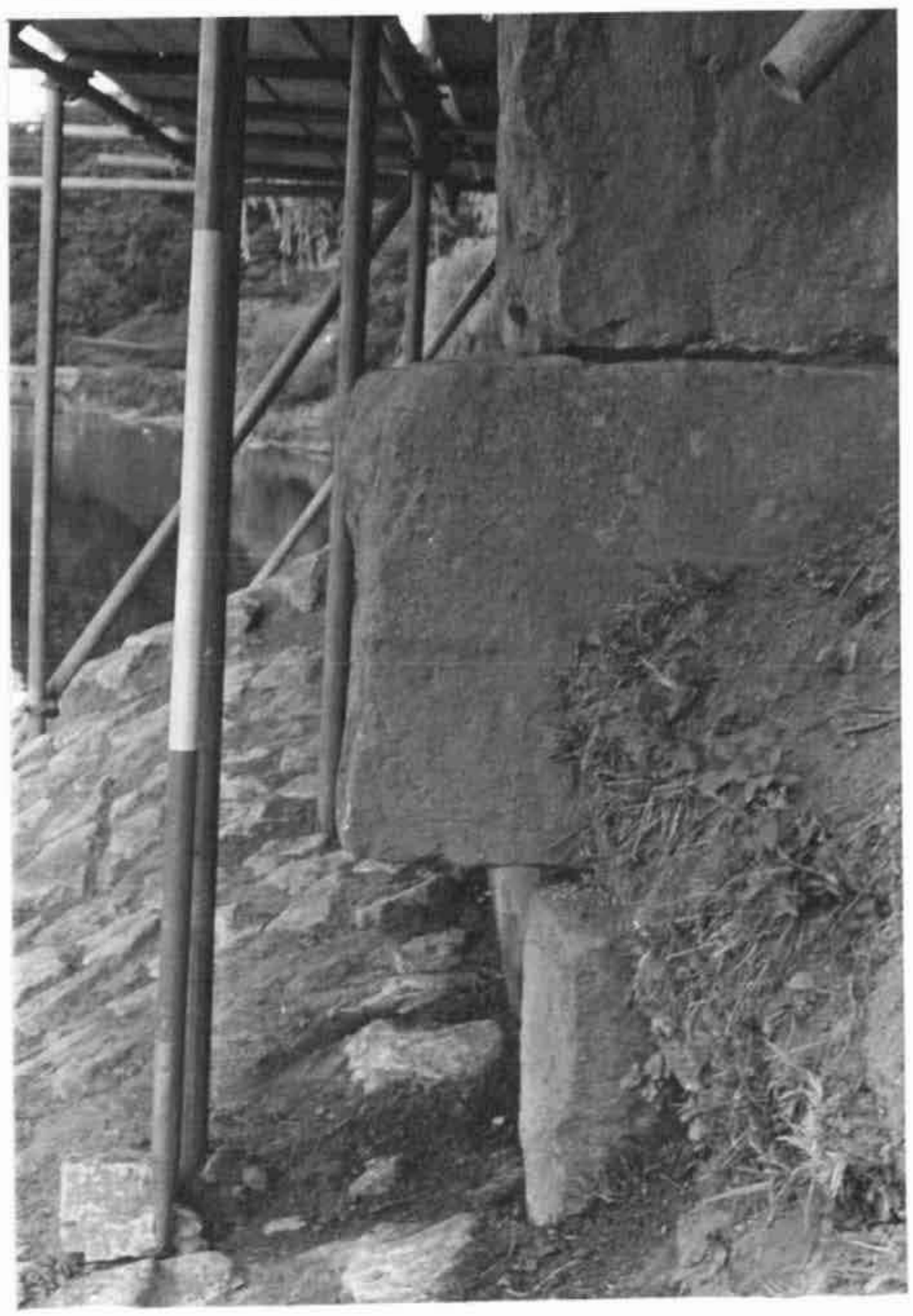


Plate 6

View, looking south-west, showing the cutwater effect in the second basal-block course in profile.

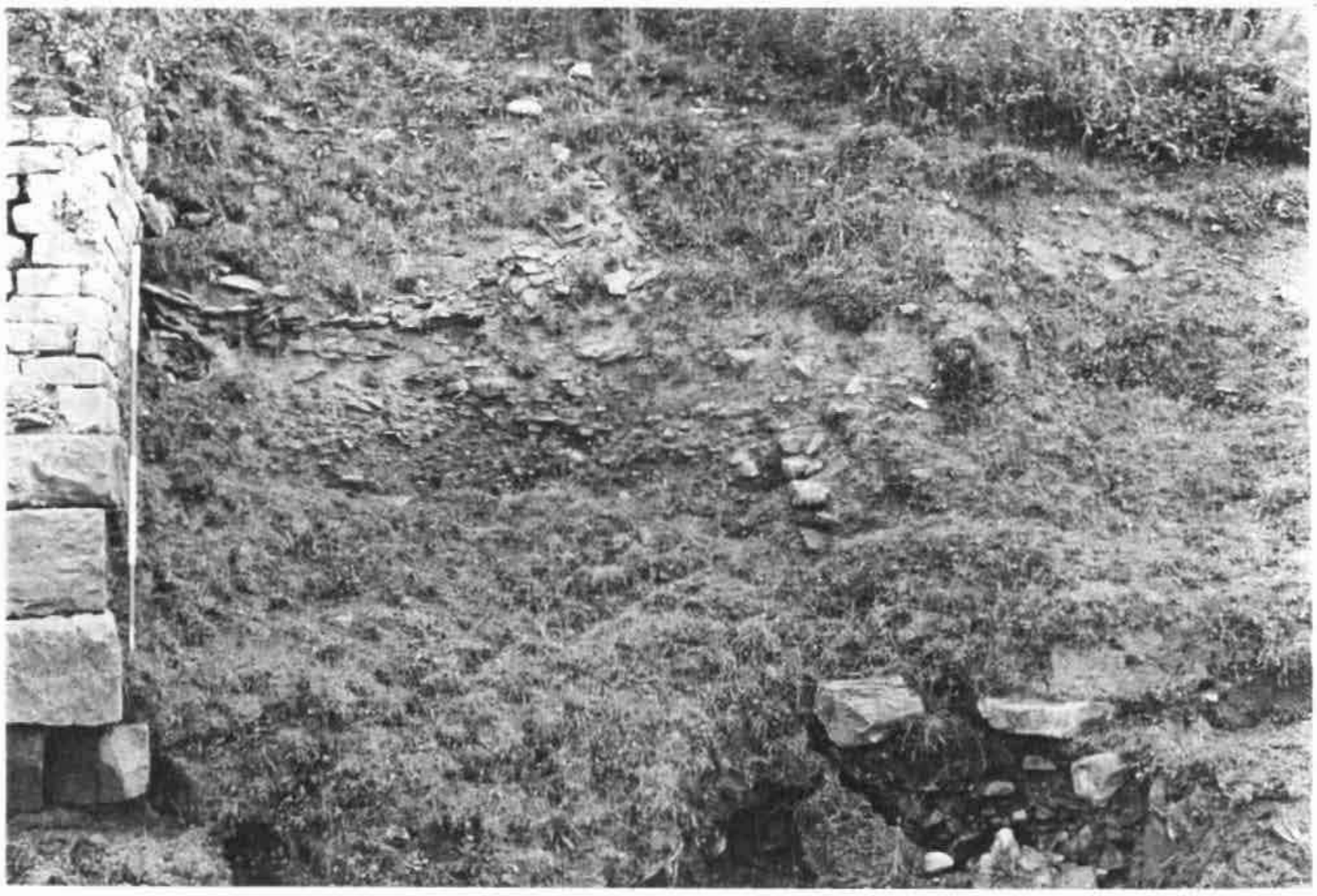


Plate 7

Roman remains in bank section between the Upper and Lower Buttresses. Two bands of sandstone roof-tile are recognisable, from a collapsed roof span, with the remains of a major wall emerging from the bank to their right.

Plate 8

Detailed view of smaller, upper, coursing of emergent ?retaining wall. This might have followed the natural contours of the riverbank, protecting the main building complex against river erosion, or formed part of a structure linked to the Lower Buttress.

Plate 9

View, looking north-east, of the ruinous state of the Lower Buttress. The advanced state of collapse and extensive tufaceous cover make assessment of its original form and function problematic.

Plate 10

Coursed blockwork seen in bank section immediately behind and upstream of the Lower Buttress (point A on plate 9 above). This walling overlies a concrete ?floor level, and may come from collapse of a structure or steps, in part supported by the buttress.

Plate 11
View, looking north, of the downstream edge of the Lower Buttress; with nine surviving wall-courses (facing a concrete/rubble core) supported by the buttress. Its function is unclear but may have formed part of a step-structure or link to buildings on the terrace.

Plate 12
Octagonal cistern, of probable Romano-British date, on the terrace. The much-disturbed structure contains both curving and angular blocks, and in reconstructed form may be a combination of more than one structure.

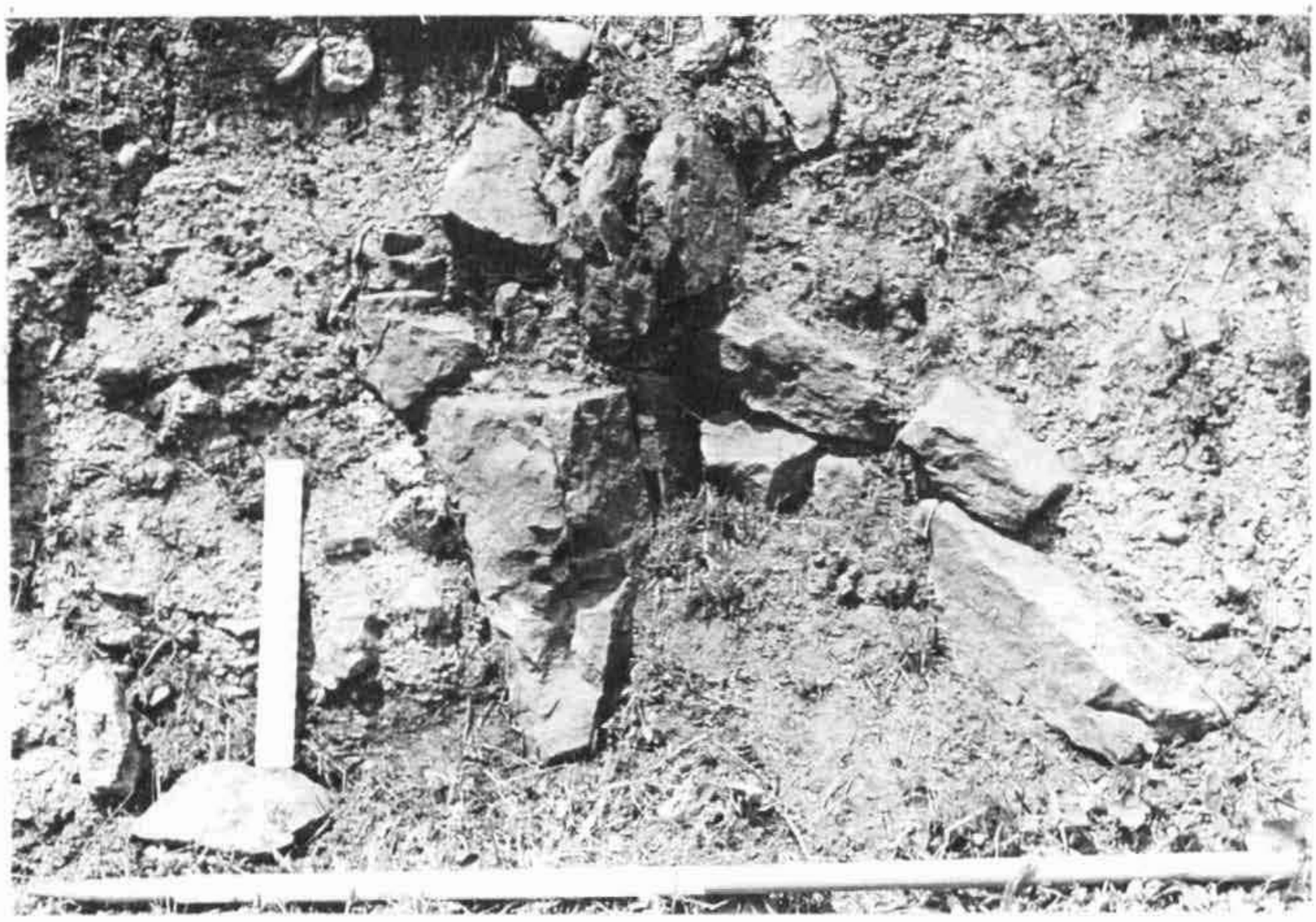


Plate 13

Two abutting Roman walls and demolition debris (section C, plan 4). exposed on the scarp face of the riverbank.

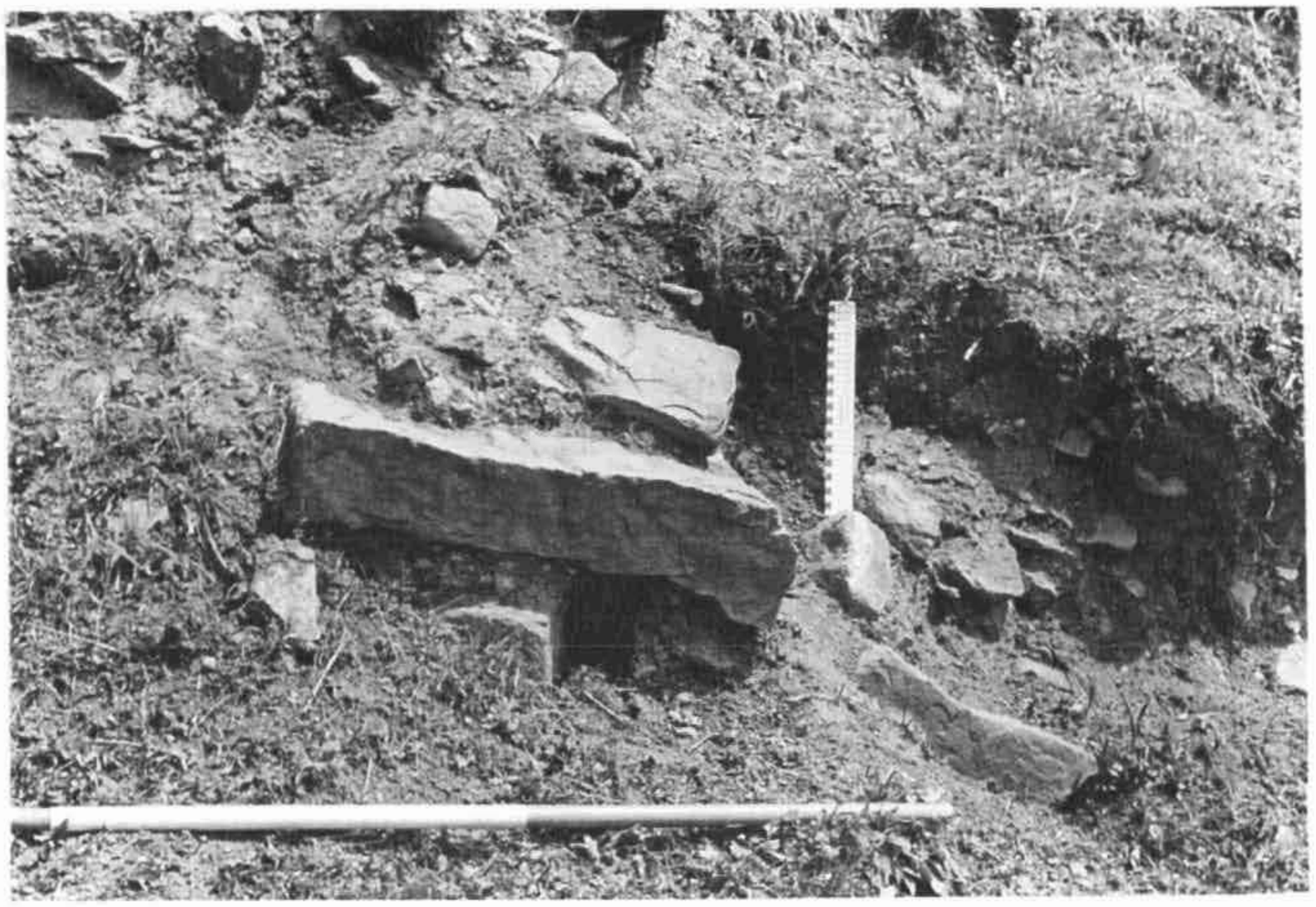


Plate 14

A second section of exposed Roman walling and debris (section B, plan 4).

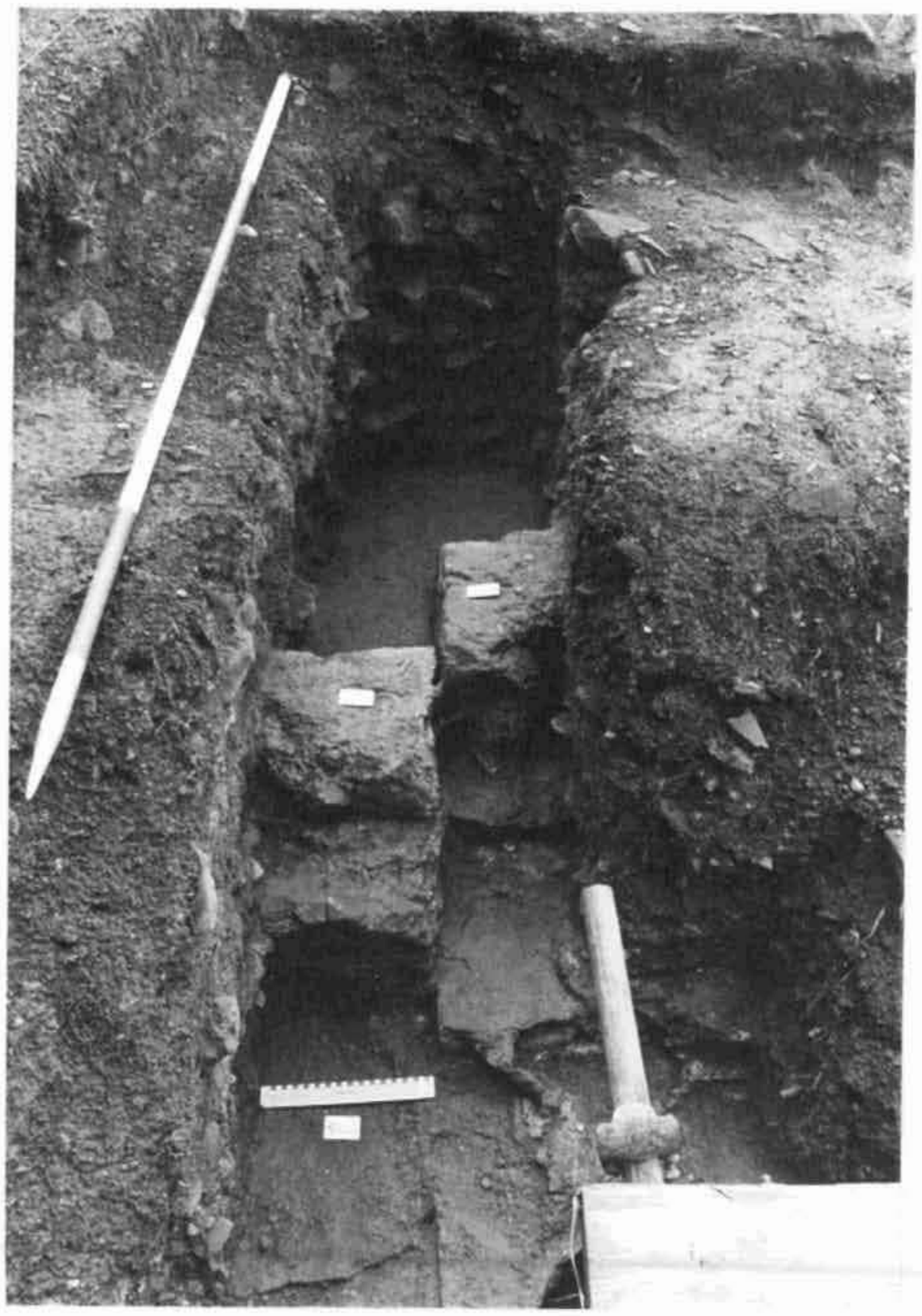


Plate 15

View of Upper Buttress excavation, looking east, across trench I; showing the fine internal floor, a parapet wall (005), the blocked doorway (006) and corridor floor (004), with subsequent wall-robbing and resultant debris (003).

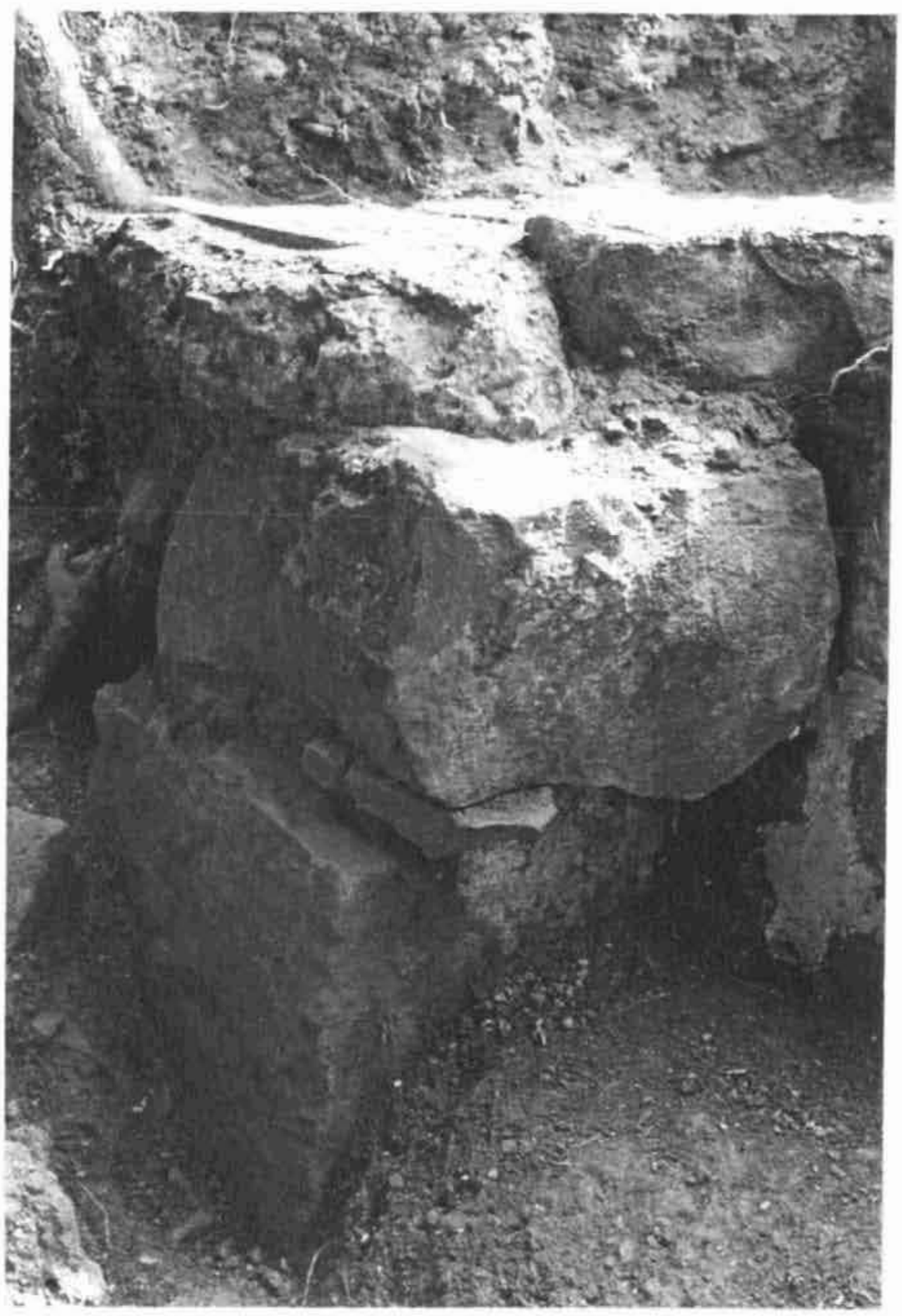


Plate 16

View, looking north-east, of return wall section abutting upstream elevation of Upper Buttress. The wall supported a mortar-skimmed concrete floor, ending where a doorway, now badly eroded, gave access to the monumental steps on the riverbank below.

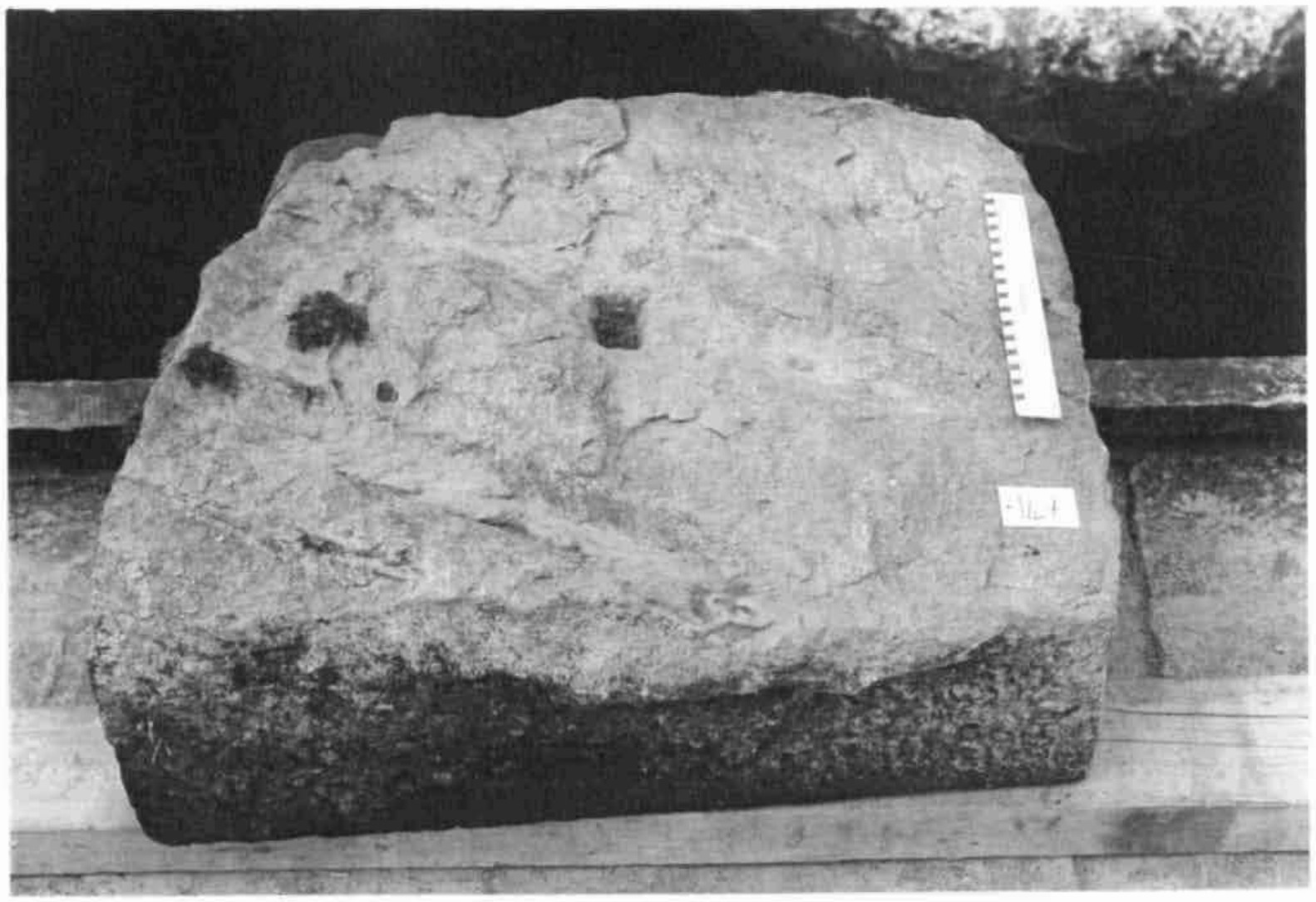


Plate 17

Block 147 with parallel linear quarry-marks. This also shows a typical lewis-hole cut for block handling.

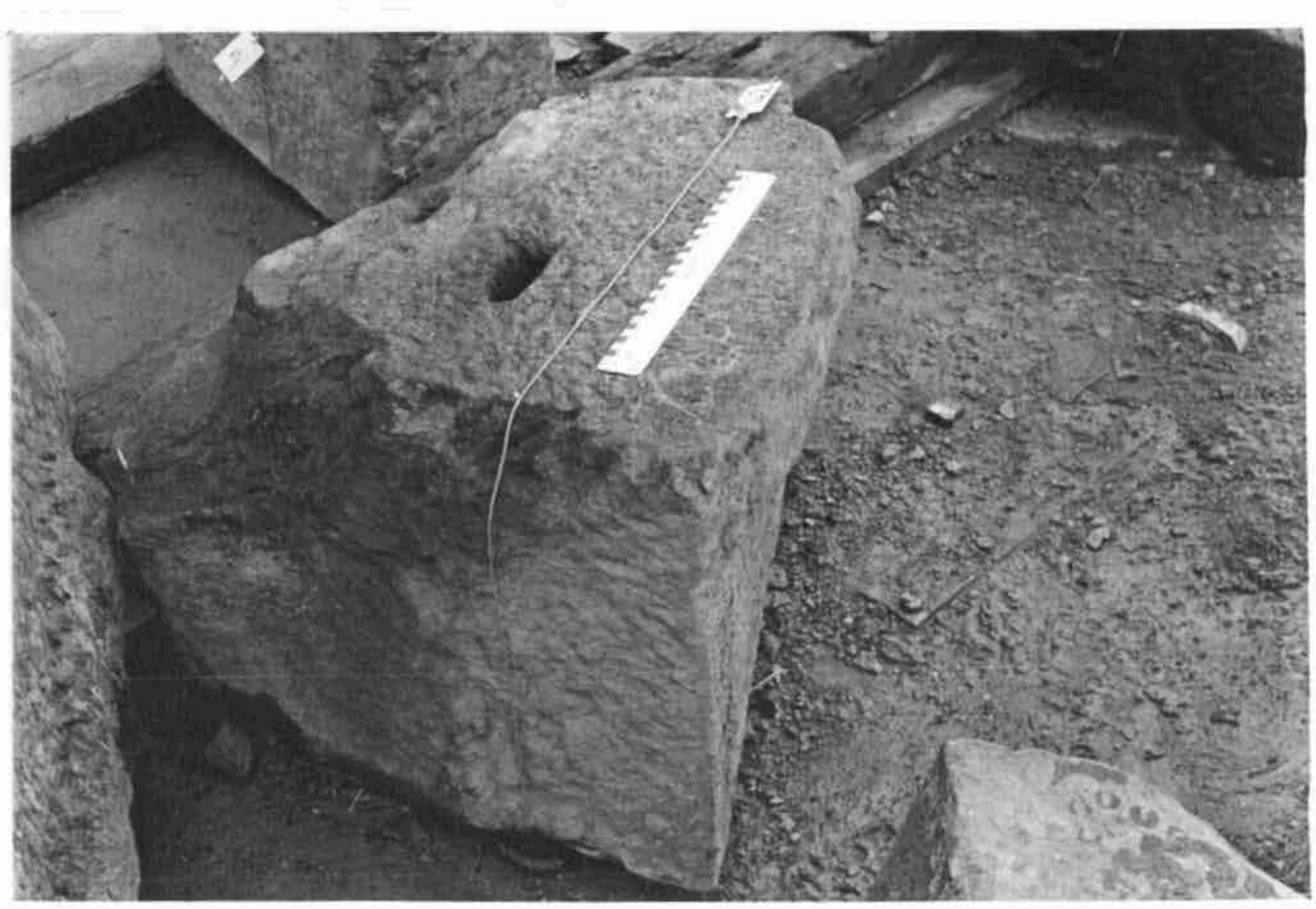


Plate 18

Block 142 with unusually angular shape and showing the presence of a crowbar slot, in addition to a lewis hole, to provide purchase in moving to position an overlying block.

Plate 19

Block 139 with a shallow recess perhaps designed to joggle with a block above, to create a stepped effect to the Lower Buttress.

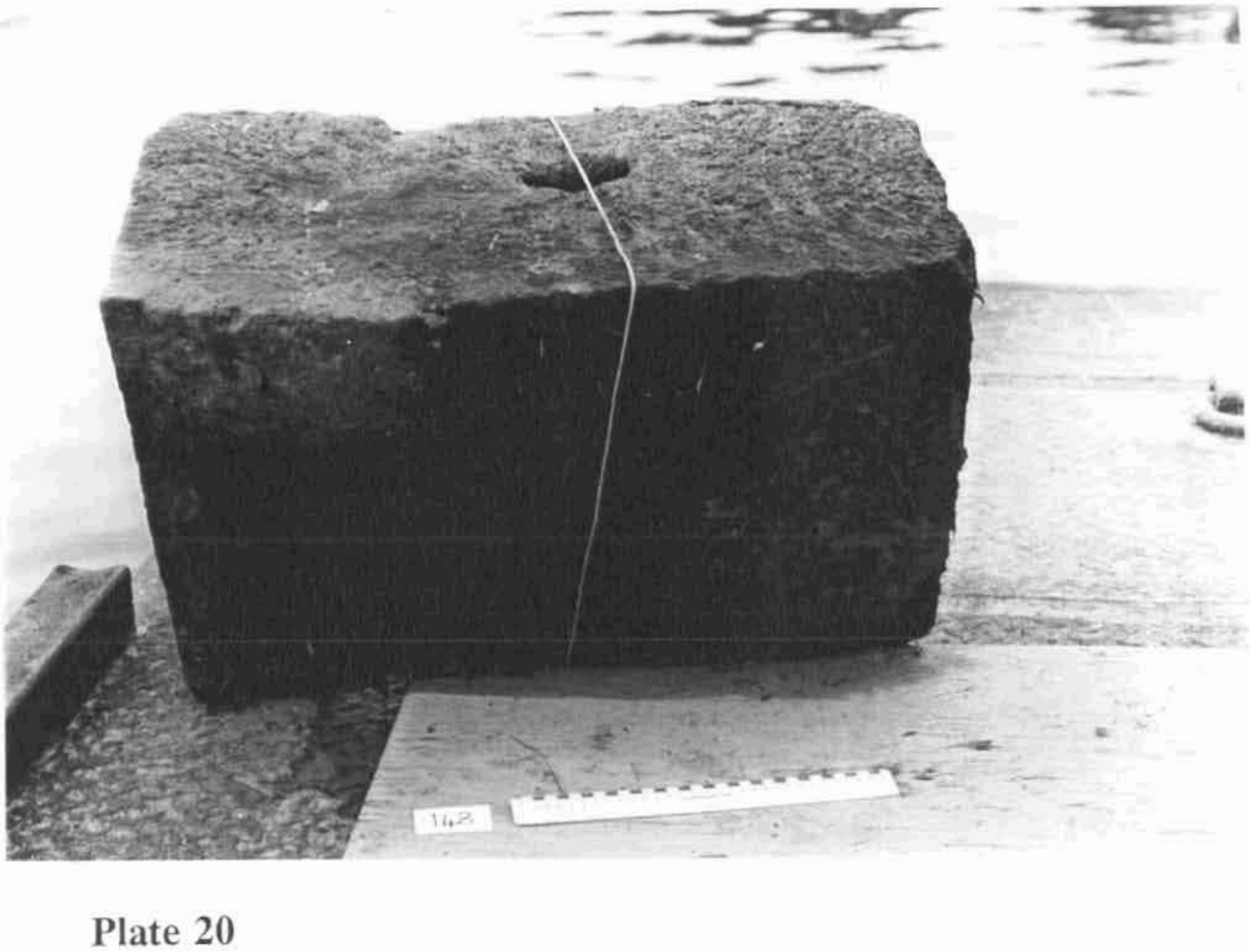


Plate 20

Block 148 with a rough but pronounced central lip. This may have formed an exterior face, or otherwise been a hidden face joggled with an adjoining block.

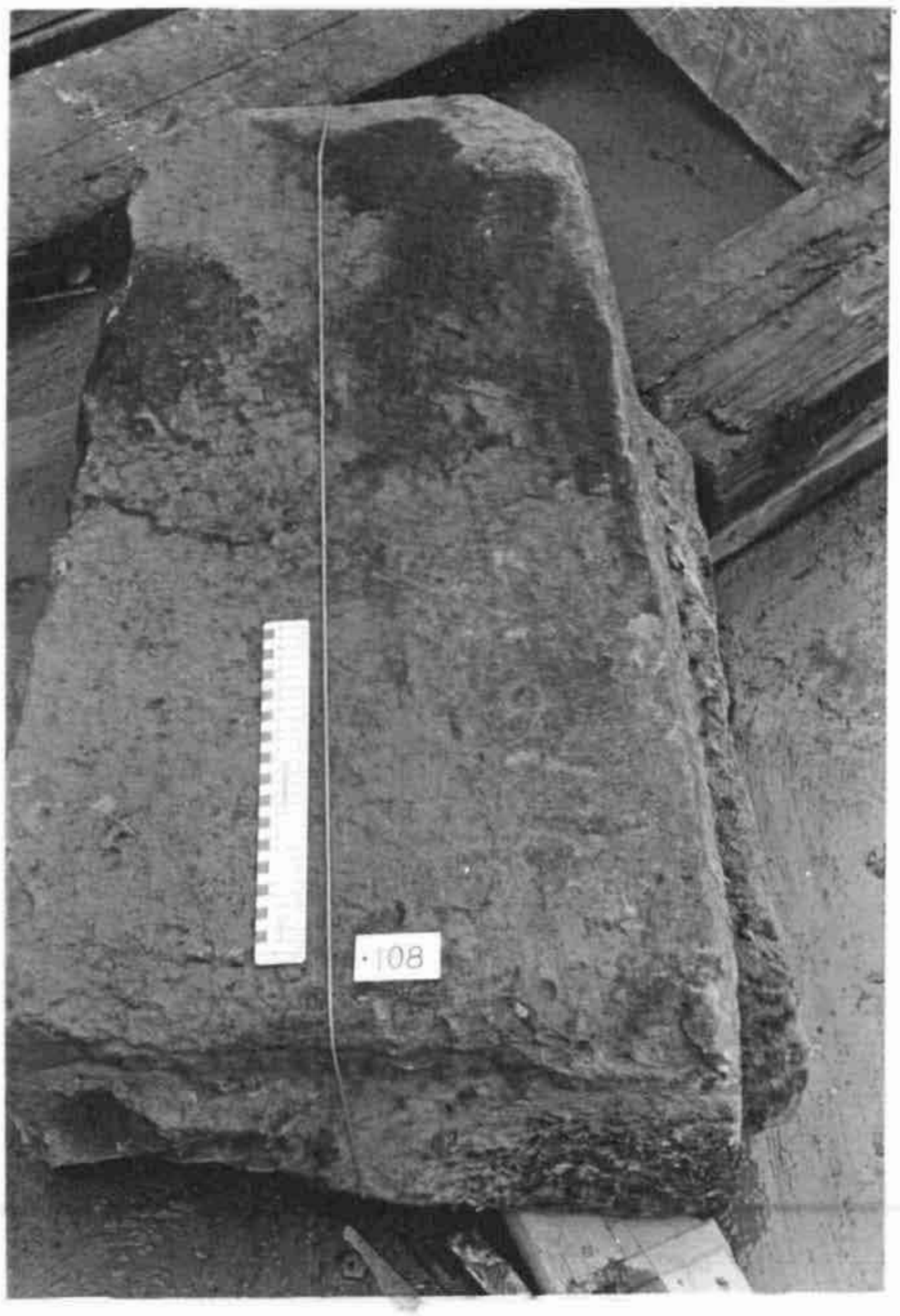


Plate 21

Block 108 with a stone lip on the lower part of its vertical face. The smooth nature of its long, tapered, lewis-free surface suggests this may have been a fine capping stone to the Lower Buttress.

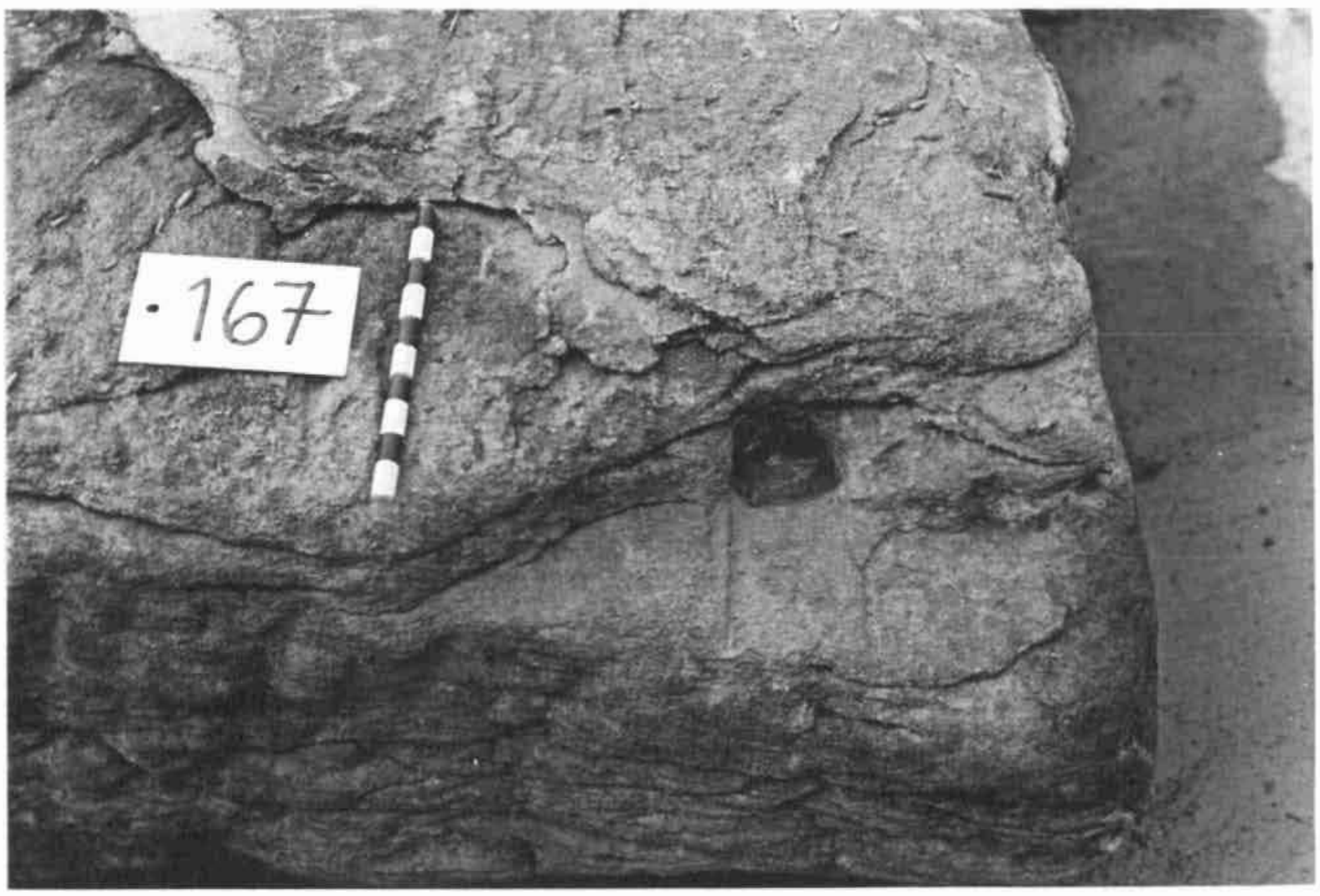


Plate 22

Block 167 with a clamp-mark on upper face.

Plate 23

Block 145 with a clear, deliberate, rebate designed to joggle with adjoining stones.

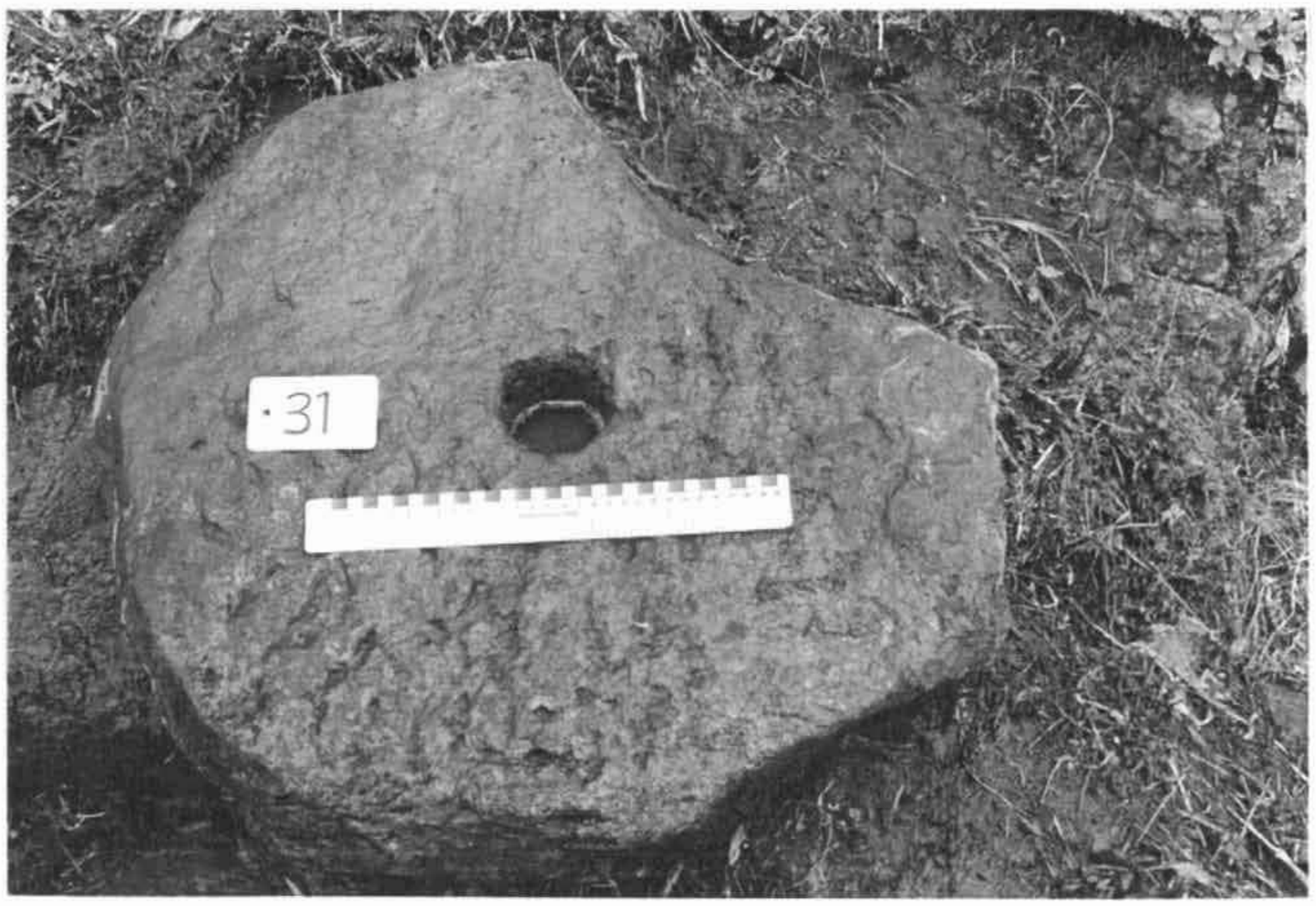


Plate 24

Block 31 was a rough circular stone with central dowel hole, probably a discarded column drum base.

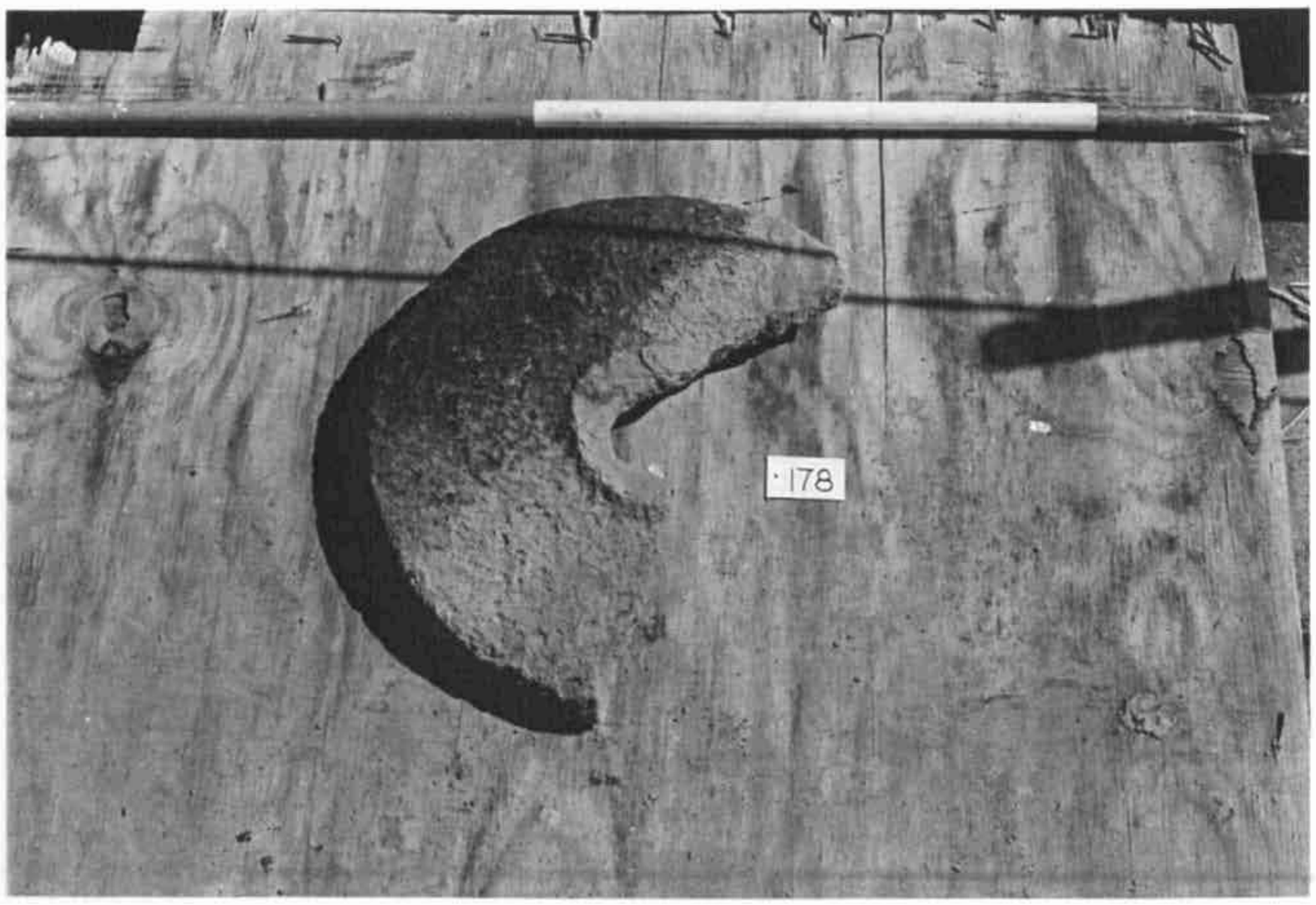


Plate 25

Quernstone fragment recovered from the riverbed.

APPENDIX

A: SMR DATA

PRN NO	*DESCRIPTION*	*NGR*
00039	Roman road	SO 4410 4310
00119	Roman villa, Broadhall	SO 4460 4260
00121	*Magna Castra* Roman town	SO 4410 4280
00258	Roman road	SO 4423 4143
00273	West Gate, Kenchester	SO 4382 4283
00718	New Weir Roman complex	SO 4368 4179
00784	RB sett. E of *Magna Castra* Farm, Kenchester	SO 4476 4264
00785	RB sett. E of *Magna Castra* Farm, Kenchester	SO 44524277
02961	RB statue, RAF Credenhill	SO 4510 4280
03938	?Roman road, Eltons Marsh	SO 4926 4380
06284	Roman well, Whitehouse	SO 4381 4466
06287	RB coins, Credenhill	SO 4489 4373
06288	RB brooch, Bishopstone	SO 4290 4290
06291	RB finds, Credenhill	SO 4500 4300
06297	RB pottery, Stretton Sugwas	SO 4586 4230
06298	RB coin, Stretton	SO 4600 4200
06299	RB coin, Kings Acre	SO 4710 4160
06883	Roman road	SO 4380 4030
06880	Roman marching camp, Brinsop	SO 4360 4480
07223	Roman villa, Bishopstone	SO 4170 4340
07251	RB altars, Kenchester	SO 4410 4280
07252	RB coin hoard	SO 4410 4280
07332	RB finds, Credenhill	SO 4510 4460
08302	undated double ditched enclosure, Weir Cliff	SO 4460 4170
08466	RB bronzes, Stretton Sugwas	SO 4680 4290
08927	RB finds, SW of Kenchester	SO 4380 4270
08929	RB milestone, Kenchester	SO 4380 4290
11129	Roman road	SO 4430 4270
11130	Roman road	SO 4430 4272
11131	Roman road	SO 4000 4352
12214	RB cemetery, Kenchester	SO 4430 4265
21744	Weir Gardens, NT property	SO 43 42
22855	?Roman enclosure, Canon Bridge west	SO 4390 4140
22856	?Roman enclosure, Canon bridge east	SO 4410 4120
22857	?Roman quarry scoop, Canon Bridge east	SO 4415 4100

B: GEOPHYSICAL SURVEY RESULTS

The Weir, Herefordshire - Geophysical Survey. Summary of results.

The survey results were somewhat ambiguous in nature, a rather formless pattern of resistivity values having been detected. The confusing results are probably due to a combination of complicating factors including:

i) Abrupt local changes in relief and soil hydrology, resulting in wide natural variations of soil moisture content.

ii) The problem of differentiating modern man made features (such as pipes) from earlier features and natural springs.

iii) Interference from tree roots.

iv) The masking effect of hill-wash.

These factors undoubtedly limited the extent to which archaeological activity could reliably be differentiated from other effects. Until a better understanding of the formation processes and later activity taking place on the site is available the interpretation of the results must initially be rather tentative. There is nevertheless some suggestion for the presence of archaeological features despite the above limitations.

Broad groupings of high resistance readings along the river edge may reflect the presence of coarsely textured building debris associated with Roman structures. However, structural definition is lacking, suggesting that if buildings are present they are too deeply buried for structural detail to be resolved, or that the survey has responded to collapsed material, perhaps overlying any in-situ walls. This series of anomalies (marked **A** on the plots), extends NW along the river from the vicinity of the cistern for a distance of approximately 90m upstream to a point roughly 10m SE of the boathouse. The zone includes the area containing the two exposed buttresses of Roman masonry. On a note of caution, the sharp change of topography, where the terrace borders the steep river bank, may also have contributed to the rise in resistance in those areas. These anomalies correspond to areas **E** and **F** on Ron Shoesmiths interpretation of his 1987 resistivity survey. The latter also interprets these anomalies as areas likely to contain building complexes of Roman origin, with the added support of his 1977 trial excavation findings. However his area **G**, thought to perhaps contain further buildings, is more likely a topographical effect.

A further imprecise area of high resistance (marked **B** on the plots) may correspond to additional building remains further away from the river. Trial trench 7 (Shoesmith 1978) close by uncovered fragments of tile and *tesserae*, at a depth of 0.60m,and the area is also interpreted as being significant on the 1978 resistivity survey.

Elsewhere on the plots several low resistance linear anomalies are visible. These probably correspond to natural or managed water courses. Anomaly **C**, originating at the cistern, appears to run parallel to the river along the NE side of the terrace. After a distance of 50m it veers towards the Wye, then becomes ill-defined. It may coincide with modern disturbance associated with disused drain-pipes identified by Shoesmith's trial excavations. A second anomaly (marked **D**) is clearly connected to the spring that emerges from the river bank above the lower revetment. However it is unclear from the survey whether this water course has been artificially managed in the past.

Andrew Payne, Archaeometry branch,
Ancient monuments Laboratory, EH.

C: FINDS REGISTER

1991 Survey

Area	Quantity	Description	Weight
scarp face	1	tufa voissoir block 280mm x 170mm x 90mm	2.8
	1	*opus signinum* frag 160mm x 190mm x 60mm	2.12
	1	*opus signinum* frag 130mm x 120mm x 100mm	1.75
	1	mortar frag. 60mm x 40mm x 60mm	250g
SF 1	1	*tubuli* frag.	250g
SF 2	3	unid.tile frags.	100g
SF 3	4	unid.tile frags.	300g
SF 4	15	*tesserae* 4 white, av.15mm 1 grey, 15mm 8 white, 2 red in mosaic frag. 50mm x 20mm.	
SF 5	3	*tubuli* frags.	100g
destruction debris and rubble 2m w. of section 2	2	*tesserae* 1 white, 15mm 1 grey, 30mm	
section E. of 1		RB pot sherd	
section 2.	1	*tesserae*, white, 15mm	
unstrat.	1	wall plaster frag. unpainted. 45 mm x 30 mm x 20mm	
	1	*tubuli* frag.	200g

Area	Quantity	Description	Weight
lower stone tile band, section 1.	1	Fe nail, 47 mm long, 8mm diam.	
section 3/1	1	Fe nail, 48 mm long, 5mm diam.	
	10	*tesserae*, 6 grey, 10mm 1 grey, 30mm 3 white, 10mm	
	2	RB sherds	
section 3/2	2	*tesserae*, white, 15mm	
	1	unid.tile frag.	
	4	animal bone frags.	
section 3/3	2	*tesserae*, 1 grey, 25mm 1 white, 15mm	
	1	RB sherd	
section 3/4	16	RB sherds	
	11	animal bone frags.	
section 4/1	1	? modern tile frag	125
	1	*tesserae*, grey, 30mm	
	2	RB sherds	
section 4/2	1	unid.tile frag.	
	2	animal bone frags.	
	6	*tesserae* 2 grey, c 30mm 3 grey, 10mm 1 white, 10mm	
section 2 5/6	4	animal bone frags.	
	1	tufa frag.	125
	1	*tesserae*, grey, 11mm	

1995 Survey

Context	Description	Quantity	Weight
001	*Tegula* frags.	3	0.75
	Imbrex frags.	9	0.5
	Pilae frags.	15	5.1
	Tubuli frags.	163	18.75
	unid.tile frags.	-	3.47
	mortar frags.	7	0.65
	stone tile frags.	7	4
	tesserae	35	-
	worked tufa	10	3.65
	unworked tufa	-	10.375
	composite building material (cement)	-	7
	opus signinum	6	0.3
002	*Tegula* frags.	8	2.65
	Imbrex frags.	2	1.75
	Pilae frags.	12	8
	Tubuli frags.	141	18.52
	unid.tile frags.	-	0.375
	mortar frags.	3	0.175
	stone tile frags.	-	0.35
	tesserae.	25	-
	worked tufa.	8	8.675
	unworked tufa.	-	14.9
	composite building material (cement).	-	7.1
003	*Tegula frags.*	2	0.375
	Imbrex frags.	1	0.5
	Pilae frags.	-	1.3
	Tubuli frags.	66	19.65
	unid.tile frags.	1	0.3
	mortar frags.	1	1.35
	tesserae	81	-
	plaster	0.8	1
	worked tufa	11	9.5
	unworked tufa	14.50	-
	composite building materials (cement).	5	8.15

SF NO.	Context	Description	Weight
1	riverbed	worked tufa frag.	0.375
2	riverbed	worked tufa frag	0.5
3	riverbed	*pila* frag.	1.25
4	riverbed	stone tile frag.	0.15
5	riverbed	stone tile w/calcitic deposit	1.3
6	(001)	worked tufa frag.	1.2
7	(001)	painted plaster frag (red)	0.5
8	(001)	worked tufa frag.	0.25
9	(001)	worked tufa frag.	0.375
10	(001)	worked tufa frag.	0.25
11	(001)	worked tufa frag.	0.375
12	(001)	moulded *opus signinum* frag .	0.25
13	(001)	mosaic frag. 10 tesserae, grey, av.15mm.	-
14	(001)	painted plaster frag (red). c.25mm x 40mm.	0.5
15	(003)	unid. FE object.	-
16	(003)	mosaic frag. 75 x 75 mm. 37 red, white and grey *tesserae* in pattern of repeated square blocks each c.40mm square. *Tesserae* average 15mm.	-
17	(003)	mosaic frag. 60 x 60mm. 13 grey and white *tesserae* average 15mm.	-
18	(003	mosaic frag. 40 x 45mm. 14 grey and white *tesserae* average 9mm.	-
19	(003)	mosaic frag. 35 x 45 mm. 10 grey *tesserae*. average 9mm.	-
20	(003)	mosaic fragment. 30 x 35mm. 5 white *tesserae*. average 15mm.	-
21	(003)	mosaic frag. 8 white *tesserae*. average 9mm.	-

SF NO.	Context	Description	Weight
22	(003)	mosaic fragment. 4 grey *tesserae*. average 9-10mm.	-
23	(003)	unid.FE object.	
24	(003)	glass slag fragment, with adhering mortar.	
Riverbed finds			
25	-	Quern fragment. 460mm diameter. 57mm deep. (Block 178).	>6.
26	-	*opus signinum* frag. (Block 41/116). 210mm x 185mm x 135mm deep	- -
27	-	masonry piece. (Block 51)	-
28	-	stone tile w/peg hole. (Block 53)	-
29	-	stone tile frag. (Block 54)	-
30	-	*opus signinum* frag. 100mm x 100mm x 80mm.	-
31	-	stone tile frag. (Block 78)	-
32	-	stone tile frag. (Block 79)	-
33	-	stone tile frag w/peg hole. (Block 84)	-
34	-	stone tile frag w/peg hole. (Block 85)	-

D: RECORD SHEETS

Examples of the main recording sheets used during the project are included overleaf.

CONTEXT RECORDING SHEET

Cotswold Archaeological Trust

Site Code:	Location:	Grid Ref.:	Type:	Context No.:

DEPOSIT

1. Colour
2. Composition / Particle size
3. Compaction
4. Inclusions
5. Horizon clarity
6. Contamination risk
7. Methods and conditions
8. Other comments

CUT

1. Shape in plan
2. Corners
3. Sides
4. Base
5. Orientation
6. Other comments

Draw profile overleaf

Plan No.	Section No.	Lgth	Wdth / Diam	Hgt / Dpth

Stratigraphic Matrix

This context

Earlier than	Contemporary with	Physical relationships	Later than
Covered by:			Covers:
Filled by:		Part of:	Fill of:
Cut by:		Includes:	Cuts:
Butted by:		Same as:	Butts:

Interpretation and discussion

Internal	External	Structural	Other

Provisional date:

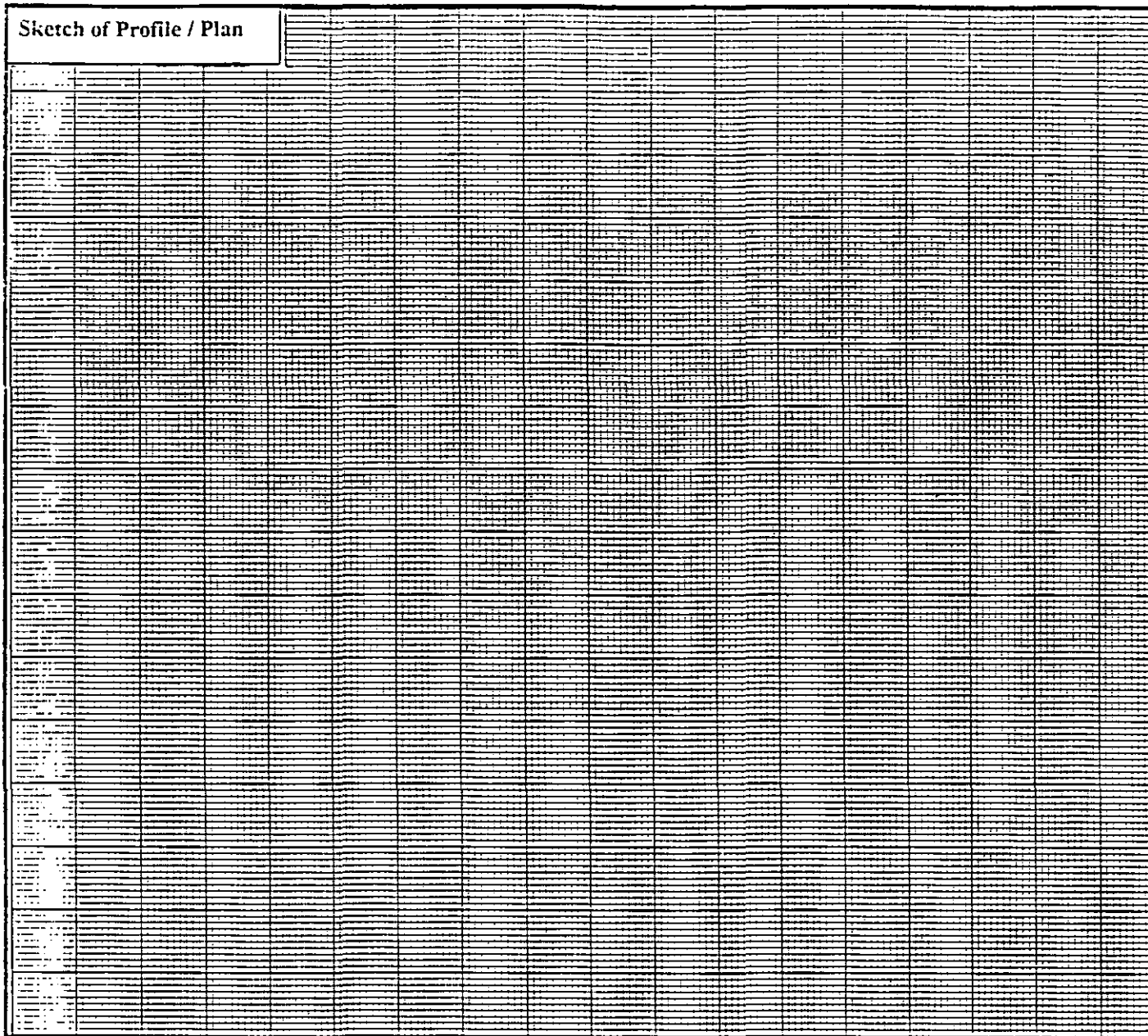
△ **Small Finds** (number and type)

◇ **Environmental Samples** (number)

Finds Specify anything not below

None	Pot	Bone	Glass	Metal	Wood	Leather	Flint
☐	☐	☐	☐	☐	☐	☐	☐

Sketch of Profile / Plan



Levels OD Top	OD Base	OD Others

Other Information

Site Book References	**Photo** (film and photo number) Black and white:
	Colour slide:

Provisional period	Group	Initials and date

Cotswold Archaeological Trust

Context Register

Site:

Context No	Context Type	Area	Recorded by	Checked by	Date

COTSWOLD ARCHAEOLOGICAL TRUST SMALL FINDS REGISTER

Project Title: Job No:
Project Code: Acc.No:

S.F. No	Trench	Context	Easting	Northing	Reduced level	Description & comments

Sheet___of___

S.F. No	Trench	Context	Easting	Northing	Reduced level	Description & comments

COTSWOLD ARCHAEOLOGICAL TRUST DRAWING REGISTER

Project Title:
Project Code:

Job No:
Acc.No:

Number Plan	Number Sect	Trench	Scale	Date & initials	Description

Sheet___of___

Number		Trench	Scale	Date & initials	Description
Plan	Sect				

COTSWOLD ARCHAEOLOGICAL TRUST

PHOTOGRAPHIC REGISTER (COLOUR SLIDE)

Site Name

Site Code

Sheet No.

Film No.	Frame No.	Date & Initials	Description

COTSWOLD ARCHAEOLOGICAL TRUST SURVEY SHEET 1: LEVELS

Project Title:
Project Code:

Job No:
Acc.No:

Levels No	Back sight	Inter sight	Fore sight	Collimation level	Reduced level	Remarks

Sheet___of___

Levels No	Back sight	Inter sight	Fore sight	Collimation level	Reduced level	Remarks