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Broome Mill and Cottage Pools, Churchill & Blakedown, Wyre Forest, Worcestershire:

Conservation Statement

Birmingham University Field Archaeology Unit
Project No. 930
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Broome Mill and Cottage Pools, Churchill and Blakedown, Wyre Forest, Worcestershire: Conservation Statement

by
Sarah Watt

For further information please contact
Simon Buteux or Iain Ferris (Directors)
Birmingham University Field Archaeology Unit
The University of Birmingham
Edgbaston
Birmingham B15 2TT
Tel: 0121 414 5513
Fax: 0121 414 5516
E-Mail: BUFAU@bham.ac.uk
Web Address: http://www.bufau.bham.ac.uk

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Summary

A Conservation Statement was prepared by Birmingham University Field Archaeology Unit in July 2002 for a series of former mill pools in Churchill and Blakedown, North Worcestershire (NGR SO 884881 – SO 891888). The Environment Agency has put forward a proposal to restore two of the pools, Broome Mill Pool and Cottage Pool, to wetland status. The Conservation Statement consisted of three stages. The initial stage comprised a desk-based documentary and cartographic assessment of all five of the pools in the series, and the results of a topographic survey designed to map any features of archaeological and historical interest. The second stage drew on information collated from the first stage to determine the principle conservation issues relating to the site. The third stage provided outline policies relating to the future conservation and restoration of the site.

The assessment found that the pools were currently badly degraded as wetlands and would require either drastic action to restore water-levels, or only partial restoration. It was recommended that an area of alder coppice should be retained in more-or-less its current condition as a wildlife habitat. Various sluices and other infrastructure relating to the pools' former use as mill pools were still intact and in varying states of preservation, and it was recommended that these should be retained and, where necessary, restored. Public accessibility to the pools was considered to be poor.

1.0 Introduction

1.0.1 This Conservation Statement has been prepared by Birmingham University Field Archaeology Unit (BUFAU) on behalf of the Environment Agency, who consulted the Planning Advisory Section, Worcestershire Archaeological Service, for advice on their proposal to undertake a watercourse restoration project for a series of pools that once fed Broome Mill, Churchill and Blakedown, Worcestershire (SMR WSM07561). The aim of the Environment Agency is to restore two of the pools, Broome Mill Pool and Cottage Pool, to wetland status. The work has been carried out in accordance with a Brief prepared by Worcestershire Archaeological Service in March 2002 and a Method Statement prepared by BUFAU.

1.0.2 The work has been carried out in three stages, as follows:

- Stage 1: Data Collection – this stage examined all the sources listed in Section 13.0 to attempt to build up a chronology of the history of the site, in order to provide a basis for the next two stages. It also included the results of a field survey.

4.0 Method

4.0.1 Data collection was undertaken at the Sites and Monuments Record, the Worcestershire County Record Office, and the University of Birmingham Library and Map Library.

4.0.2 The topographic and photographic (including walkover) surveys were carried out of Broome Mill Pool and Cottage Pool. The method used for both surveys is outlined in Section 10.0. A detailed topographic survey had already been provided by Worcestershire County Council, so the survey carried out by BUFAU confined itself to mapping features of archaeological or historical interest.

4.0.3 The pools are referred to by current names throughout the text. From west to east, these are as follows: Harborough Pool, Pavilion Pool, Cottage Pool, Broome Mill Pool and Windmill Pool.

5.0 Geology and Soils

5.0.1 The land around the pools in Churchill and Blakedown comprises soils of the Newport Series of brown earths in their loamy and stony phases. The drift geology is derived mainly from Triassic sandstone and is of a sandy texture. South of Windmill Pool in Broome the soils are brown earths of the Bromsgrove Series and the geology comprises coarse loam over Triassic sandstone (Keuper). (Soil Survey of England and Wales Sheet SO87, 1974).

6.0 Background

6.0.1 The Environment Agency is proposing a watercourse restoration project for Broome Mill Pool and Cottage Pool, two of a series of five pools which once fed the now disused Broome Mill and Harborough Mill. They are known to be part of a post-medieval industrial mill complex located at Harborough Hall, which is situated at the western end of the series of pools.

6.0.2 Windmill Pool, at the eastern end of the series, is considered to have been irreversibly re-landscaped and effectively destroyed, while the other pools are in variable condition. Some of them have had their water levels reduced due to water abstraction in the 1980s and there is now a desire, both from the Environment Agency and the landowners, to restore the water levels and flow. A Roman road is known to pass through the area of Windmill Pool, and is likely to have been affected by the re-landscaping there.

6.0.3 An ecological assessment of the pools has been carried out by the Worcestershire Wildlife Trust (1998), the results of which are summarised in Section 9.0.

7.0 Stage 1: Data Collection Results

7.1 SMR Information (Fig. 3)

7.1.1 There are seven sites within the study area listed on the SMR. These are as follows:

- WSM00499: Harborough Hall, Blakedown. Grade II listed building. A survey of the Hall was carried out in 1998 on behalf of the Hagley Historical & Field Society (WSM30113), which concluded that, from the documentary evidence, the site had been occupied since at least the late 13th century, and that the core of the present house dates to the early to mid-17th century.
- WSM03157: Possible evidence of a Roman road, south of Windmill Pool, Broome – identified from a cropmark.
- WSM03158: Possible evidence for a Roman road north of Windmill Pool, Broome – identified from an earthwork (holloway).
- WSM07561: Mill Ponds, east of Harborough Hall, Churchill and Blakedown.
- WSM08171: Broome Mill and Windmill Pool, Broome.
- WSM27225: Pierced-brickwork drying barn, Halborough Court, Blakedown.
- WSM30081: Survey at Broome Mill by the Hagley Historical and Field Society.

7.1.2 There are nine sites within approximately 300m of the study area, as follows:

- WSM03154: Possible section across the Roman road, Stoney Lane/Kidderminster Road, Clent.
- WSM07214: Barrow, Stakenbridge Lane, Clent Heath. Other sites related to this site and within 500m of the study area are WSM07213, 07215 and 07216.
- WSM07560: Deserted medieval settlement, Harborough, Churchill.
- WSM15123: Churchill and Blakedown Station.
- WSM15132: Cropmark enclosure north of new pool, Blakedown.
- WSM17178: US Army base and stores, Lynwood Estate, Blakedown.
- WSM30215: Local fieldwalking project relating to West Midlands Orbital & Hagley Bypass.
- WSM30217: Fieldwalking east of Harborough Farm, Churchill and Blakedown.
- WSM30393: Possible evidence of the Roman road, southwest of Broome Lodge Farm, Broome.
- WSM07559: Possible hillfort on Harborough Hill.

7.1.3 The above sites, where relevant, will be mentioned in more detail in the following section. Fig. 3 shows some of these sites in relation to the pools.

7.2 *Brief Historical Background of the area (Plate 1; Fig. 4)*

7.2.1 Prehistoric

There are five barrows to the northeast of the study area, and within about 500m of it (WSM03148 and 07213-07216). In the late 18th century, Nash excavated one of them and discovered a large quantity of burnt wood and ashes at a depth of 14 feet. Two others were excavated also; in the centre of one of these, an urn filled with small human bones was found about 2 feet deep. Two feet lower, on the western side of this barrow, was another large quantity of bones, ashes and burnt wood. In the centre of the third barrow was a circular cavity filled with human bones and burnt wood (Nash 1799).

7.2.2 An undated cropmark enclosure (WSM15132) lies 300m from the study area. This has not been investigated and is unlikely to extend within the study area. However, the presence of similar features in the vicinity, such as WSM15131 on Blakedown Common and various sites in Hagley, suggests that the area may possess evidence for prehistoric occupation.

7.2.3 Harborough Hill (WSM07559), approximately 300m from the study area, is a prominent rise with a pronounced negative lynchet on the eastern side caused by ploughing and subsequent soil movement on the slope. A steep step in the western hillside is probably due to the underlying geology. It has previously been interpreted as a possible hillfort, but the reasons for this may be more attributable to geological features and later anthropogenic activities, as described above. Numerous hollow features on top of the hill have been variously interpreted as prospection pits, quarries, and shooting hides.

7.2.4 Romano-British

A Roman road is thought to run north-south, apparently through the middle of Windmill Pool. Possible evidence for a section of the road south of Windmill Pool (WSM03157) comes from a cropmark shown on aerial photographs (CUAP AGD48, Plate 1) which shows the line of the road continuing in a straight line from its known alignment. It lies on the general alignment of a road numbered 192 by Margary (1967) which ran from Greensforge to Droitwich. He states that the course of the road is generally well-marked for considerable distances by old roads and lanes and by parish and county boundaries. It passes from Stakenbridge to Yieldingtree, thereby passing through Windmill Pool.

7.2.5 Another possible section of the road on the east side of Windmill Pool was apparently excavated, although the results were not published. However, there appears to be some doubt as to whether the road would have passed through the site of the excavations (WSM30215, SO89967877, as this would take it beneath the outbuildings of Lodge Farm, to the southeast of Windmill Pool, and would indicate several alignment changes. Apparently, the farmer at Lodge Farm has reported abundant pebbles encountered during ploughing (the geology here comprises Bunter pebble beds).

7.2.6 A local fieldwalking project carried out in relation to the West Midlands Orbital Route and Hagley Bypass Proposals (Pagett, 1990; SMR WSM30215) failed to observe any visible evidence of the course of the road at the locations recorded on the SMR. However, they stated that 'the course of the road, as a bridle track, a minor road and line on the map when extended north and south, suggests the possibility of finding evidence that would confirm its existence.' Nash (1799) refers to a Roman road passing through part of Hagley Common, 'called the King's Head-land; but I have some suspicion it was more anciently called the Portway, a name common to the Roman military highways.' This theory is based on a court-roll of the Manor of Clent in the time of Elizabeth I, which refers to the Portway on the lord's waste.

7.2.7 Saxon - Medieval

The study area is split between two parishes; the four western pools are in Churchill and Blakedown, and Windmill pool and Broome Mill are in the parish of Broome. At the time of the Domesday Book, Broome was part of the manor of Clent. It was separated from it in 1154, when Henry II granted it to Maurice de Ombersley. About 1200, the manor was given by King John to the Black Nuns of Brewood, who held it until 1539 when the Whortons of Enville acquired it. The study area lies on the former Hagley boundary, which has been Churchill and Blakedown since 1933. Broome was included in the county of Staffordshire from the 12th century and lay within Seisdon Hundred.

7.2.8 Harborough lies at the western end of the original manor of Hagley. The earliest spelling of the place-name, in a Lyttleton charter from the end of the 13th century, is *Herdeberue*. This is thought to mean *hill of the herds* (Gelling 1984). The element *borough* can refer to a natural hill or to a tumulus or barrow. The site of the deserted medieval settlement of Harborough (WSM07560), referred to in documents from 1275, is purported to lie to the east of Harborough Farm at SO 89107920. If the suggested location is accurate, it is probably not likely that the site extends within the study area, as it would have been situated north of the Kidderminster Road (A456).

7.2.9 Post-medieval

Broome was transferred from Staffordshire to Worcestershire under Acts of 1832 and 1844 and now lies within Halfshire Hundred. Broome and Harborough Mills lay within a landscape of post-medieval watermills situated on the Wannerton Brook and the Belne Brook and their respective tributaries (Fig. 4). These brooks flow southwestwards from the Clent Hills to the River Stour. Fifteen mill sites exist along the Wannerton Brook and its two tributaries: Harborough Mill and Broome Mill, with their associated pools, lie on the tributary called the Garlow Brook, which flows to the west. Much of the land (including the study area) on what is now the Churchill and Blakedown side of the parish border, which runs north-south through the middle of Broome Mill, was part of the Harberrow Estate,

as it was known in the early 19th century, when it was owned by Sir Edward Dolman Scott, Baronet, of Great Barr Hall.

7.2.10 The Harborough Estate, owned by the Penn family from the 14th-18th century, and the Dolman-Scotts in the 19th century, has been used as a gentleman's residence and for farming purposes. It has been suggested (Pagett 1998b) that the site has been occupied since at least the late 13th century. On the 1832 mapping, the estate is referred to as Harberrow, by 1835 it was Harborough House and, by the end of the 19th century, it was known as Harborough Hall, showing its rise in status. The building was given a Grade II listing in 1952. The present building's core dates to 1635, and it was restored in the mid-20th century. It has a two-storey symmetrical facade and is timber-framed and stuccoed. The farm buildings associated with the Hall are all timber-framed and of various periods, and include a barn, stables, an air raid shelter, a possible granary, and various other structures. One of the barns (WSM27225) is a post-medieval pierced-brickwork drying barn.

7.3 The Mills

7.3.1 Harborough Hall Mill

Harborough Hall Mill was fed by a string of four pools (from east to west: Broome Mill Pool, Cottage Pool, Pavilion Pool and the pool by the Hall which shall hereafter be referred to as Harborough Pool). In 1993, Harborough Pool was the only one still filled with water. The mill was situated in the centre of a brick, earth and dressed stone dam. The dam had been altered by the construction of a substantial reinforcing wall on the mill side, presumably to cope with heavy farm traffic (Pagett 1993). A sluice was then still visible. Another sluice at the other end of the dam stands 3.0-3.6m out into the water but was thought to be a plug for emptying the lake, rather than a feature of the mill. Pagett also notes that South Staffordshire Water had recently sunk a bore-hole for 130m and pumped millions of gallons of water into the lake. A brick-lined wheel-pit, c.1.4m wide, was also discovered in the dam on the A456 side of the pool, and a race on the north side of the valley would have fed an earlier mill located at the end of the dam. The former mill race ran parallel to the northern edge of Harborough, Pavillion and Cottage Pools before rejoining the brook and entering Broome Mill Pool.

7.3.2 In 1817, Harborough Mill was described for let as 'an overshot watermill and a pool of water of 12 acres which has been used and occupied by Mr. James Pitman for the last twenty years for dressing leather' (Gwilliam 1980).

7.3.3 Broome Mill

According to correspondence from 1955 (Guttery Collection), Broome House was used as a water-powered scythe mill before 1780. Edward Cromp[illegible] was a scythesmith and worked as a blade-mill. He died in 1686, and the lease of the house and mill went to Edward Cole and John Cromp (the house belonged to Mr. Harrie Sparye of Clent). It is not clear whether these references are to the Broome Mill and house within the study area, or to another mill in Broome, but it seems

likely that this is the same mill, as another reference is made to Sarah Crump still paying rents on the house and mill in 1845. This is supported by the fact that the tithe award of 1838 lists her as occupying buildings at the southern end of Windmill Pool, and names Broome Mill Crump's Mill, Malthouse, etc. The Crump family appear to have lived in the parish for about 200 years.

7.3.4 A brief survey was carried out of Broome Mill in 1992 (Pagett 1993). The survey found that very little remained of the mill, as the former mill house had been extensively modernised, and there was no sign of the original mill or its overshot wheel. The only visible remains were a dry pool and a dam faced with dressed stone and brick at its western end, adjacent to the mill.

7.3.5 The mill was surveyed again in 1995, this time in more detail (Pagett 1998a). The survey report suggests that the mill may have been two or three storeys high, and some of the original cellar area was thought to have survived. On the south side of the building, running from the east side of the dam, two cast iron pipes bolted together were observed, which presumably had once supplied water to a wheel. The pipes ran from a brick-lined pen trough or reservoir built into the dam and originally fed from the pool (Pagett 1998a). When the mill ceased working, it would appear that this water supply was bricked up and that the pool was used for fishing and boating purposes.

7.3.6 The pool, in 1992, measured about 320m long by 80m wide. Pagett also suggests that the vertical inside face of the dam was raised approximately 2m as a result of the pool's area being doubled to 2.8ha between 1779 and 1822 (these dates relate to the period between the Enclosure Act and Greenwood's county map – see Section 7.4). The Enclosure Act makes reference to a Bradford Meadow which Pagett (1998a) notes is listed as having become part of the mill pool on the Benefactions Board in Broome Church.

7.3.7 Survey work on the dam (Pagett 1998a) suggested that the original dam was capped by sandstone blocks, and notes that, at the time the dam was increased in height, the wall was constructed of machine-made 9 inch thick bricks, using English Bond. At the north end of the dam, some repair work had been undertaken, and a stretch of wall is stiffened by three narrow piers. A tidemark on the wall indicated the level of water was 1.02m below the top of the capping stones.

7.3.8 The name of Windmill Pool, rather than being indicative of the location of a windmill, given that it is in a valley, may derive from the Old English *winn*, meaning meadow, thus referring to a meadow by the mill pool. Otherwise, it could just be a reference to the former mill. There is a possibility that the mill may actually once have been used for milling broom, which would make it quite rare, but there is no evidence to support this.

7.4 *The Maps (Figs. 5-12)*

7.4.1 Late 18th century

The Hagley tithe map depicts a mill or forge to the west of Harborough Pool. The series of four pools has been landscaped, although there appears to have been the site of water-powered industry to the north of the present Harborough Hall. It is perhaps the case that, despite their having an industrial function, the pools were landscaped to improve their amenity value due to their proximity to the house, which was of a relatively high status and used as a gentleman's residence, as well as a farm.

7.4.2 1815-1822

All five pools were present in 1815, as shown on the Ordnance Survey map of that date (Fig. 5), although the mapping shows a slight discrepancy between their respective positions relative to those on the 1831 Ordnance Survey map (which was drawn up from the unpublished 1815 map with any additions) and the Inclosure map surveyed about twenty years later: Harborough, Cottage and Pavilion Pools appear much more spaced out than they do later. A building lay near the southwest corner of Cottage Pool, and several buildings lay at the western end of Harborough Pool in the vicinity of Harborough Hall. There was, as yet, no road or marked trackway running south from the A456 to Broome Mill, although the mill was extant. Two buildings were located on the mill site to the west of Windmill Pool. Harborough Common lay to the north of the pools, while to the south were fairly irregular enclosed fields. Beyond these lay Bleak Down, which later became Blakedown.

7.4.3 Greenwood's map from 1822 (Fig. 6a) does not depict Harborough, Pavilion, Cottage or Broome Mill Pools, although it shows the full course of the Ganlow Brook feeding Windmill Pool, whose alignment appears slightly different to that on later maps. It is perhaps possible that the other pools were considered too small to be shown, although Harborough Pool is of a similar size to Windmill Pool. The area along the brook was marshy, so it could be that the pools had dried out and become poorly-defined at the time the survey was carried out.

7.4.4 The area in which Lodge Farm is now situated was occupied by a building called Corner House. North of Windmill Pool and the road that runs parallel to it, was an area of land named Tinkers Bush. This would indicate a piece of land on, or near, which itinerant tinkers camped (Field 1972). To the west of this was an area known as Con Common. No mill is shown on the mapping, but the scale of the map may not allow for this amount of detail. Harborough is shown as a cluster of about three buildings against the brook.

7.4.5 1830s

Although the name Harborough was used on earlier mapping, it is referred to at this time as Harberrow. All of the pools are back on the maps again, making a series of five, ending with Windmill Pool in the east (Fig. 6b). Broome Mill is

also now clearly marked on the maps at the western end of Windmill Pool. Despite a cluster of buildings at Harberrow, no mill appears to have been in evidence in 1831, although it is possible that it is simply not marked. The area of common was now known as Harberrow Common. The buildings situated at the southwest corner of Cottage Pool were still standing. By this time, the road that separates Windmill Pool from Broome Mill Pool had been constructed.

7.4.6 By 1834, and the surveying of a large-scale map of the area for the Harberrow and Blakedown Inclosure Act (Fig. 7), Broome Mill Pool was named Long Pool. Broome Mill was situated at the end of a track that ran southeast from the Kidderminster Road (A456). This track became part of the parish boundary in 1928, when land that formerly belonged to Churchill and Blakedown was annexed to the parish of Broome.

7.4.7 Windmill Pool does not appear to have been connected to the other four pools, although the latter were clearly connected to one another via leats or races. Windmill Pool would have had access to its own water supply from the Ganlow Brook, which flowed into it from the southeast, although it did appear to have been connected to the others in 1815, and this may simply be due to a lack of detail on the mapping or that they were connected by a buried channel. The pools appear at this time to have had a similar shape and size to that shown on modern Ordnance Survey maps, although Harborough Pool was slightly longer at its eastern end, ending in a teat shape that is not later present. Broome Mill/Long Pool was also shorter than on the modern maps, its eastern end not extending all the way to the parish boundary, as it did later.

7.4.8 At the southwestern corner of Harborough Pool was a collection of buildings within the Harberrow Estate, presumably Harborough Hall and its associated farm buildings. The estate was owned by Sir Edward Dolman Scott, Baronet. Land to the north of the pools still comprised Harberrow Common, owned by Sir Edward Dolman, Wade Brown and William Henry Lord Lyttleton, lord of the manor. This land was allotted for the common right. Land against the parish boundary with Broome was allotted to the poor of Hagley.

7.4.9 For the purposes of the Broome Tithe Award in 1838 (Fig. 8), Windmill Pool was divided into two separately measured areas, both occupied by Sarah Crump and totalling 2.92ha. The western half of the pool was called Part of Mill Pool and Embankment, and the eastern half was Part of Mill Pool. The land to the south of it was also occupied by Sarah Crump and comprised arable land in enclosures named *Close, Further Acres, House Close, Upper Kirbys, and Lower Kirbys*. The area of land at the eastern end of the pool was a withy bed (which was probably used to cultivate willow for basket-making) and beyond that was an area of meadow adjacent to Sarah Crump's house and garden, etc. Parallel to the western edge of the pool was a dam or embankment. Broome Mill straddled the parish boundary and comprised one large building and another smaller one. The Tithe Award names it Crump's Mill, Malthouse, etc. (The Hagley tithe schedule has the

7.4.15 Another pump was situated at the southern end of the embankment against Windmill Pool. Broome Mill was still out of use. An area of marshland extended southwards from the pool, at the end of which was another hydraulic ram and a sluice. Considering that the use of hydraulic rams would have been a fairly recent development at this time, they must have served some other function, given that the mills were no longer operational. The 1924 map shows an arrangement at the southern end of the marshland which could indicate that the hydraulic ram here controlled a sluice gate which fed water from the brook into a small holding pond or tank, and then fed it into the marshy area. In 1838, the marshy area was being used as a withy bed, and, given that basketwork was fashionable in the 1920s, the land may still have been in use for this purpose. It would seem that the water would have been flowing in this direction anyway, due to gravity, which would mitigate against the idea that water was being drained out of the marsh.

7.4.16 A map from 1928 also shows the hydraulic rams (marked as 'hydrauntic' and 'hydratic' respectively). The map is not very clear, but Pavilion Pool appears to be out of use; at least, its northern edge is not defined here.

7.4.17 There does not appear to have been much change in the period between 1924 and 1938, except for the installation of another hydraulic ram at the western end of Windmill Pool, and the addition of two further buildings close to the boat house. A small copse or plantation had also been added to the north of this pool.

8.0 Discussion of Historical Evidence

8.0.1 It would appear that Broome Mill may have been in use since at least the late 16th century, and has served a variety of functions. At that time, it may have been used as a blade mill. In 1838, it is referred to as a mill and malthouse, indicating that it may have seen a change of use, possibly providing power for some function related to hops production. By 1889 the mill is referred to as a disused corn mill. The mill appears to have been owned by the Crump family from at least 1586 through to 1845.

8.0.2 Windmill Pool has presumably been in use for the same amount of time as the mill itself, although it saw an expansion in size in the late 18th/early 19th century, indicating the growth in importance of the mill, and has also been extensively landscaped. The pool was probably used as a boating and fishing lake in the late 19th century.

8.0.3 Harborough Mill, and its series of four pools, is known to have been in operation since at least the 18th century. In 1817, and for twenty years prior to this, the mill was used in the industrial process of leather-dressing. Whether the mill's construction was broadly contemporary with the construction of Broome Mill has not been ascertained, but it has been suggested that the nearby site of Harborough Hall saw occupation from the late 13th century, and it is known that the core of

the present house dates from the early-mid-17th century. Perhaps the growing status of the Hall was related to a growth in industry on the adjacent mill site.

8.0.4 Two of the pools associated with the mill underwent some changes in size between c.1840 and 1889, which may have been associated with a conversion to recreational use for boating and fishing.

9.0 Ecology

9.0.1 The Worcestershire Wildlife Trust carried out a wetland ecological survey in 1998 on the sites of Windmill, Broome Mill, Pavilion, and Cottage Pools, the results of which are summarised below:

9.0.2 Windmill Pool

An artificially dammed pool which, partly due to being on a droughty sandstone aquifer, has begun to suffer acute water stress as a result of over-abstraction for domestic/industrial water supplies around Birmingham. The pool is now a badly-degraded wetland site. Because of 'vanished' water table, the habitat is well past the point of viable restoration. The site has effectively been destroyed. Its condition with regard to conservation value is described as being poor as wetland, although the scrub will hold some value for certain bird species and for invertebrates. Restoration of the pool itself would require radical action, such as a borehole augmentation scheme.

9.0.3 Broome Mill Pool, Cottage Pool and Pavilion Pool

Part of a chain of former mill pools originally artificially created by building dams. The Broome Mill complex consists of three separate pools divided by dams or waterways (the other two being Cottage and Pavilion Pools). Broome Mill and Cottage Pools are dry. Broome Mill Pool has a small ornamental garden pond. The majority of the site is deciduous woodland scrub or nettle bed. The site has also been badly affected by ground water abstraction in the Blakedown/Kidderminster area. A 1978 survey reported that the two easternmost pools were dry and beginning to show a transition to damp deciduous woodland, which situation has worsened. Broome Mill Pool has been cleared and converted to use as a clay pigeon shooting range. The only vestiges of wetland habitats are behind the dam walls in the two easternmost areas. The site would probably require an augmentation borehole in order to restore it as wetland. Pavilion Pool borders on private gardens belonging to the 'Pavilion' and the 'Cottage' on its south side, and to its north a partly ornamental plantation woodland on the bank of the pool. The pool itself is more of a garden pond than a natural wetland site.

10.0 Topographic Survey and Photographic Survey (Plates 2-8)

10.0.1 Method

A detailed topographic survey of the area of the pools was provided by Worcestershire County Council. This served as a basis for a further contour survey and photographic survey carried out by Birmingham University Field Archaeology Unit in May 2002. Both the photographic and contour survey targeted the surviving archaeological features surrounding Broome Mill pool and Cottage Pool, in order to record the extent of preservation of these features. The photographic survey was conducted using mainly black and white and colour print photography. The contour survey was conducted using an EDM, taking extensive readings of outline and heights of the features, which, together with general information from the previously conducted topographic survey, produced a contour plan of the study area. Figs. 13-16 comprise the survey drawings.

10.0.2 All photographs taken are stored in the archive, currently held at BUFAU. As part of the survey, each part of the study area was recorded on *pro forma* Enclosure Record sheets, which also form part of the site archive. What follows is a summary of each pool area.

10.0.3 Broome Mill Pool

The path to Broome Mill is accessed from the A456 and is naturally banked on either side. The site of the mill appears to lie in a natural hollow. A brick-built structure within the garden of the house backs on to Windmill Pool, with an arched entry and a small rectangular access, both sides having vaulted rooves containing small arched recesses. At the northeastern end of the structure, a large-gauge metal pipe was observed. A further small brick structure lay in the garden to the southwest of the house.

10.0.4 Adjacent to the northwest corner of the house is a small ornamental pond, which appears to be in alignment with a hollow area to the northeast of the driveway, and the beginning of Broome Mill Pool. Beyond the garden are a fenced boundary and a bridleway. This area is banked on either side with large trees, including oak, ash, sycamore, alder, rowan, and some willow. The gradient of the northwestern bank is much steeper, with a more gradual increase on the southeastern edge. The willows become more prevalent as the ground becomes wetter towards the pool bed. To the southwest of the garden pond, there is a linear hollow lined with large pieces of stone or hardcore, representing a shallow water channel leading to the main pool (Plate 2). The lining of this channel may be associated with the apparent waterworks being carried out at this site by the landowner.

10.0.5 The bank down to the main pool is very steep on both sides, and a second bank lies between Broome Mill Pool and Cottage Pool. On the southern side of Broome Mill Pool, near the dividing bank, a low wall of stone can be seen, running around the base of the southern side of the pool (**Plate 3**). It was not clear whether this structure had anything to do with water movement between the pools or just

formed a path or retaining wall. At the time of this visit, there was more water in the pool than on a subsequent visit in June – this was probably due to the change in weather conditions in the intervening period.

10.0.6 Beyond the bank to the west is a relatively dry area, containing scrub and overgrown with sycamore, holly, ivy, rowan and alder, and nettle beds (**Plate 4**). A channel representing a former leat (presumably the original course of the Ganlow Brook) can be seen starting from a stone and brick 'step' structure at the southwestern edge of Broome Mill pool (**Plate 5**). This appears to peter out as it curves around the southern bank, but may be present beneath fallen tree detritus. Another branch joins it from further along the eastern bank. To the west, the ground again becomes marshy/boggy toward the eastern edge of Cottage Pool.

10.0.7 Cottage Pool

Where this pool's eastern edge begins is unclear. The bank on either side remains steep and covered in large trees of various species. Growing out of the pool are many trees, including willow (**Plate 6**). The pool has a sharply-defined western edge, where it is divided from Pavilion Pool by a footpath. Roughly halfway along the western edge of the pool is a sluice gate of brick and wood construction. This appears to be in a good state of preservation (**Plate 7**). Near to the northwestern corner of the pool is a further brick shaft with a metal panel facing into the pool. This is presumably another sluice gate, missing the wooden part of its structure (**Plate 8**).

11.0 Stage 2: Assessment

11.0.1 The following sections provide a pool by pool summary assessment, taking into consideration any current land use issues, third party pressures, uncontrolled vegetation, future threats from development or erosion, and potential conservation or restoration issues for the dams, sluices and leats.

11.0.2 Broome Mill Pool

This pool is now mainly dry, with some low-level standing water at its southwestern end. It is boggy underfoot from build-up of sediments, and contains much vegetation, including fallen trees. Willow and oak appear to comprise the original planting and there is a lot of regenerated invasive sycamore. The pool has been used as a clay pigeon shooting range, but it is not clear whether or not it is still in use as such. In 1998, at the time of the ecological survey (WWT 1998) there was a mown grass fairway along the centre of the pool. However, this has not been maintained. The pool has suffered from scrub and bracken invasion, and from drainage, and at its western end supports a relict marsh community. The rest of the former pool comprises various highly disturbed and ephemeral vegetation with many nettles. The sides of the pool are banked up fairly steeply. At the western end of the pool is a dam wall and causeway.

11.0.3 Other features which may once have been connected with the main body of the pool are a small garden pond close to the house at Broome Mill, and a linear hollow lined with large pieces of stone or hardcore which becomes a shallow water-eroded channel leading into the main pool. This hollow has been effectively destroyed as a water channel.

11.0.4 A bridle path leads from the driveway to Broome Mill, but there appears to be no easy public access to the pool banks.

11.0.5 Between Broome Mill Pool and Cottage Pool is an area of mostly dry land, the ground consisting of soft oxidised peat. The flora includes a very old alder coppice, fallen dead wood, and secondary regenerated sycamore. A brick and stone structure relating to water level alteration remains at the southeastern corner of the area at the start of a now dry water channel. It is possible that this area was originally a section of the brook, which was kept open, and what remains is what was left of the landscape after the pools were created.

11.0.6 Cottage Pool

There is still some shallow standing water in this pool, which has osier and willow scrub throughout. Roughly halfway along the western edge of the pool is a sluice gate of brick and wood construction. This appears to be in a good state of preservation. Near to the northwestern corner of the pool is a further brick shaft with a metal panel facing into the pool. This is presumably another sluice gate, missing the wooden part of its structure. If these sluice gates are to be retained, issues will eventually arise with regard to their conservation. The intact wooden part of the structure on one of the sluices is likely to degenerate over time. If the other sluice gate also originally had such a structure, it may need to be replaced. If it is intended to return these sluices to operation, issues may arise regarding the pools upstream and downstream from here (not included in the restoration proposals), as these may also be affected by any alterations to water flow at this point. It must be borne in mind that the two pools under consideration were part of a larger system of connected pools and this context should be taken into account during any works, both with regard to their historical function and to the physical problems that might occur, such as changes in water level throughout the system as a whole.

11.0.7 Neither Broome Mill Pool nor Cottage Pool currently possess easy access. Vegetation overgrowth, steep-sided banks and boggy ground underfoot currently preclude safe public access and therefore the pools do not currently have a high public amenity value. The area between the two pools, through which the eroded and dry water channel runs, currently occupied by vegetation including coppiced alder, is not easily accessible either and may, in fact, suffer from increased public access.

11.0.8 The provision of public access to the pools may be problematic. Given the steepness of the banks, these may be under threat from erosion; neither are they

particularly safe for pedestrians, particularly if open water is restored. Vegetation removal from these banks in order to clear a pathway may also encourage water run-off and subsequent erosion, leading to further silting-up of the pools. Nature conservation bodies have identified inappropriate forms of human recreation as a threat to wetland reserves, which include too many people trampling sensitive vegetation (Coles 1995b).

11.0.9 The following section briefly describes the current state of Windmill Pool, Pavilion Pool and Harborough Pool in order to set Broome Mill Pool and Cottage Pool in context.

11.0.10 Windmill Pool

This pool has been considerably re-landscaped, its original form effectively having been destroyed. There has been damage from scrub invasion and tipping. The ecological report (WWT 1998) found that the scrub may have some conservation value for certain bird species and invertebrates, but that it was a badly degraded wetland site which had gone beyond the point of viable restoration -- it had, in effect, been destroyed. At this time, the pool had no standing water, and the surface peats were oxidised. At the time of the visit in 2002, the pool contained water and had presumably been refilled by the owner as part of some on-going works on the pool (see below).

11.0.11 Broome Mill itself is no longer extant, although the dam adjacent to the mill, some piping, and parts of the cellars still stand. This is in private ownership and forms part of the garden attached to the house next to the site of the mill. Some works were being carried out on this site at the time of a visit on 20th June 2002, probably in relation to the pool owner's own plans for its future. At the time of writing, it was understood that these plans involved redevelopment for recreational/sports use. As the pool has already been extensively landscaped, possible erosion resulting from this kind of use may be perceived to be of little threat.

11.0.12 However, it is probable that a Roman road runs north-south through the pool, and thus its environs have historical and archaeological value. It is not currently clear to what extent traces of this feature adjacent to the pool may already have been affected.

11.0.13 Pavilion Pool

The southern edge of this pool borders on gardens belonging to the 'Pavilion' and the 'Cottage.' Along its northern edge is a bank containing partly ornamental plantation woodland. The pool contains standing water, although it is considered to be more in the nature of a large garden pond rather than a natural wetland site. It contains various aquatic vegetation and mallard ducks. Woodland at its eastern end, where the ground is mostly dry, but boggy in places, is similar to that around

Cottage Pool. There is some coppiced alder, old horse chestnut, and some sycamore invasion.

Two sluices, in good condition, were observed at the southwest and northwest corners of the pool. The one in the northwest still retained some of its operation – the brook, formerly used as the mill race, could be seen freely flowing through it into an area of woodland between this pool and Harborough Pool. This area of land, which was mostly dry but quite boggy underfoot, contained species such as Scots Pine and horse chestnut, presumably part of the ornamental planting along the banks of Harborough Pool. The pool appears to be well-maintained as a garden pond.

11.0.14 Harborough Pool

This pool still contains standing water and is well-maintained, being part of the grounds of Harborough Hall. Two well-preserved sluices were observed, one standing 3.0-3.6m out into the water; Pagett (1993) states that this was a plug to empty the lake and not a mill feature. The pool is planted on its northern and southern banks with ornamental species as well as local species, including rhododendron, cedar, alder, cherry, ash, Scots Pine, mature sycamore, and horse chestnut. A high brick, earth and dressed-stone dam stands at the western end of the pool, and the mill was originally situated in the centre of the dam.

12.0 Stage 3: Recommendations

12.0.1 Ecology

A major problem that can affect restoration initiatives is that the restored habitat does not faithfully mimic all of the properties of the original. It can also be divorced from the landscape processes (water supply mechanisms, etc.) that were once critical to its former character (Wheeler *et al.* 1995). It can sometimes be necessary to redefine restoration objectives, so that they are compatible with current ecohydrological conditions. In the case of Broome Mill and Cottage Pools, the original system of water supply, the use of the Ganlow Brook as a mill leat, is no longer in operation as it was originally. The former function of the series of five pools as a distinct entity, forming a system that fed two post-medieval mill sites, no longer exists as the pools are in different ownership, and only two of them are being considered for restoration. In order not to affect the whole system, any restoration of interconnecting water channels between the two pools under consideration may have to be reconceived as a discrete system existing only between these two pools.

12.0.2 The ecological report (WWT 1998) concludes that both pools under consideration comprise highly-degraded wetland sites, where the principal wildlife interest now centres on the broadleaf woodland in the vicinity of Cottage Pool. The only vestiges of wetland habitats were considered to be the relict (weedy and highly

disturbed) marshy ground just behind the dam wall at the western end of Broome Mill Pool, and the damp area behind the dam wall in Cottage Pool (the area of standing water in 2002, which is densely vegetated with osier and grey willow scrub). The report concluded that it was doubtful whether either wetland could be restored to its former status without such radical action as augmentation boreholes, and that the sensible course of action would be to create small pools behind each dam, which might take the form of clearing the present vegetation, such as nettles and willow scrub, in those areas, excavating shallow scrapes, and 'puddling' them with clay. It may then be appropriate to transplant rhizomes from neighbouring sites.

12.0.3 Vegetation control may be necessary, particularly where plant species appropriate to drier habitats have invaded. In the long term, raised water levels should drown them out, which is preferable to uprooting or the use of herbicides (Coles 1995b).

12.0.4 The area of woodland and scrub which lies between the two pools may benefit from some 'tidying-up,' including clearance of invasive species such as sycamore, but should essentially be left in its current state. The ecological report (WWT 1998) does not count this area as wetland. The area comprises alder woodland and contains fallen dead wood. Alder woodland, particularly damp alder coppice, is a rapidly disappearing habitat, as is dead wood. They comprise two of the rarer and most endangered environments for insects. Therefore, nearly all insects which feed on alder, including about twelve species of beetle, are considered endangered species. Over thousands of years, about an eighth of insect species has become extinct due to the disappearance of dead wood. An English Nature conference on dead wood (Kirby and Drake 1993) highlighted the loss of this habitat. English Nature's Position Statement on Environmentally Sustainable Forestry and Woodland Management (2002) states that 'natural processes such as the use of natural regeneration, the retention of dead wood and veteran trees...should be favoured in woodland management...' Therefore, it may be considered appropriate to retain this area as a wildlife habitat. Machine access through this area should be avoided if possible, or planned to cause the least damage. Machines should not be permitted access in the area of the former channel or leat that runs along the southeastern edge of this area.

12.0.5 <u>Archaeology</u>

The quality of the archaeological record from wetlands can be very high, and can enable good integration of the archaeology with palaeoenvironmental evidence. In the process of restoring wetlands, operations such as earth moving, alterations in water level, and the encouragement of certain vegetational types, can affect buried archaeological evidence (Coles 1995).

12.0.6 The extent of any buried archaeological remains on the site is not known, although there may be a likelihood of the presence of remains relating to the former milling industries, and also to the proximity of the pools to the Roman

road which passes through the area of Windmill Pool to the east. The potential for palaeoenvironmental evidence may be good where landscaping or recreational use has not heavily disturbed the sediments. The fact that areas of the pools still contain standing water and that the remainder of the ground is quite boggy, may indicate good potential for the presence of waterlogged deposits. Palaeoenvironmental sampling may provide information about the 'life' of the pools and what happened to them during their use and afterwards. It may also show the environment as it existed before the pools were created or dammed. The record of pollen and other microbotanical remains in peat can reveal the changes in vegetation. Studies of preserved wood can provide evidence for woodland management practices such as coppicing or pollarding (Corfield 1998).

- Restoration work should allow for the protection or investigation of archaeological and palaeoenvironmental remains. Some wetland restoration activities, such as the creation of dams or moats or shallow excavations can damage or expose archaeological remains, and such work should be monitored by a suitably qualified archaeologist. If archaeological remains are discovered, sampling or excavation may be required. For exceptional finds, the restoration design may require adaptation to ensure preservation *in situ* of some of the evidence.

- The impact on archaeology of other operations such as restoration of some types of wetland vegetation should also be considered. The ecological report suggests that it may be appropriate to transplant rhizomes e.g. of iris, reedmace or *Phragmites* (WWT 1998). However, the roots and rhizomes of plants such as *Phragmites* can penetrate heavily decayed archaeological levels (Coles 1995), so that it may be preferable, from an archaeological point of view, if 'a water regime could be established which ensured that roots and rhizomes had no incentive to penetrate deeply' (Coles 1995).

- Existing infrastructure relating to use of the mills and the control of water levels should be retained, and restored where necessary. The two sluice gates at the western end of Cottage Pond are in good condition but would repay some sensitive conservation. If left untouched at the time of pool restoration, their state of preservation is likely to degenerate, so conservation issues relating to these should be addressed at the same time as pool restoration. If the water levels are to be restored, and there is a need to use the sluice gates then they will require restoring to their full working state. Alternatively, they might be retained as they are and new alternative sluices created in another location on the dam. The step at the western end of Broome Mill Pool, and the channel associated with it, are more problematic. If the channel is cleared and water re-introduced to it, this should be done with minimal disturbance to the flora in that area. The return of any structure associated with water level change to operational condition must be undertaken with care regarding changes to the whole system of five pools. If water is to be returned to the channel of which it

is a part, care should be taken regarding the level of water that it contains, and it should not be replaced with large-scale piping or stone channelling.

12.0.7 Public Amenity

- As only two of the pools out of an original series of five are being considered for restoration, their historical value is somewhat diminished by this loss of context. The loss of the mill buildings, with remaining structures being in private gardens, compounds this. Their value therefore as a site of historical interest for the public is less than it might be if the remaining mill structures were more publicly accessible and if the series of five pools was to be restored as a single connected entity. Other more complete mill sites exist within North Worcestershire and in the vicinity, such as Churchill Forge, to the north, which holds open days for the public, and Spring Brook Forge in Blakedown, where the pool, mill and wheel still exist.

- Other issues regarding public amenity are the lack of good public access to the pools under consideration, and the possible threat of erosion of the banks, which may be caused by future visitors. If it is intended to make the pools publicly accessible after restoration, this should be done with regard to possible erosion threats.

- If it is intended to make the pools publicly accessible after restoration, an information board could be provided to place the pools in their original context.

13.0 Acknowledgements

This report was written by Sarah Watt, with contributions by Dr. Roger White, Ellie Ramsey and Kate Bain. The topographic and photographic surveys were carried out by Ellie Ramsey, Kate Bain and Erica Macey. A further walkover survey was carried out by Dr. Roger White and Sarah Watt. The illustrations were prepared by Nigel Dodds. The work was monitored, and the report edited, by Dr. Iain Ferris.

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Guttery Collection for a history of Broome: held at Worcestershire County Record Office

Cartographic Sources

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Late 18th Century	Hagley Tithe Map
1815	Ordnance Survey 2 inch map
1822	Greenwood's Map of Worcestershire
1831	Ordnance Survey 1 inch map
1834	Harberrow and Blakedown Inclosure Map
1838	Broome Tithe map
c.1858?	Map of the Harborough Estate
1889	First Edition Ordnance Survey map 25 inch and 6 inch
1903	Second Edition Ordnance Survey 25 inch and 6 inch
1924	Third Edition Ordnance Survey 25 inch
1928	Ecclesiastical Parish of Broome
1938	Ordnance Survey 25 inch

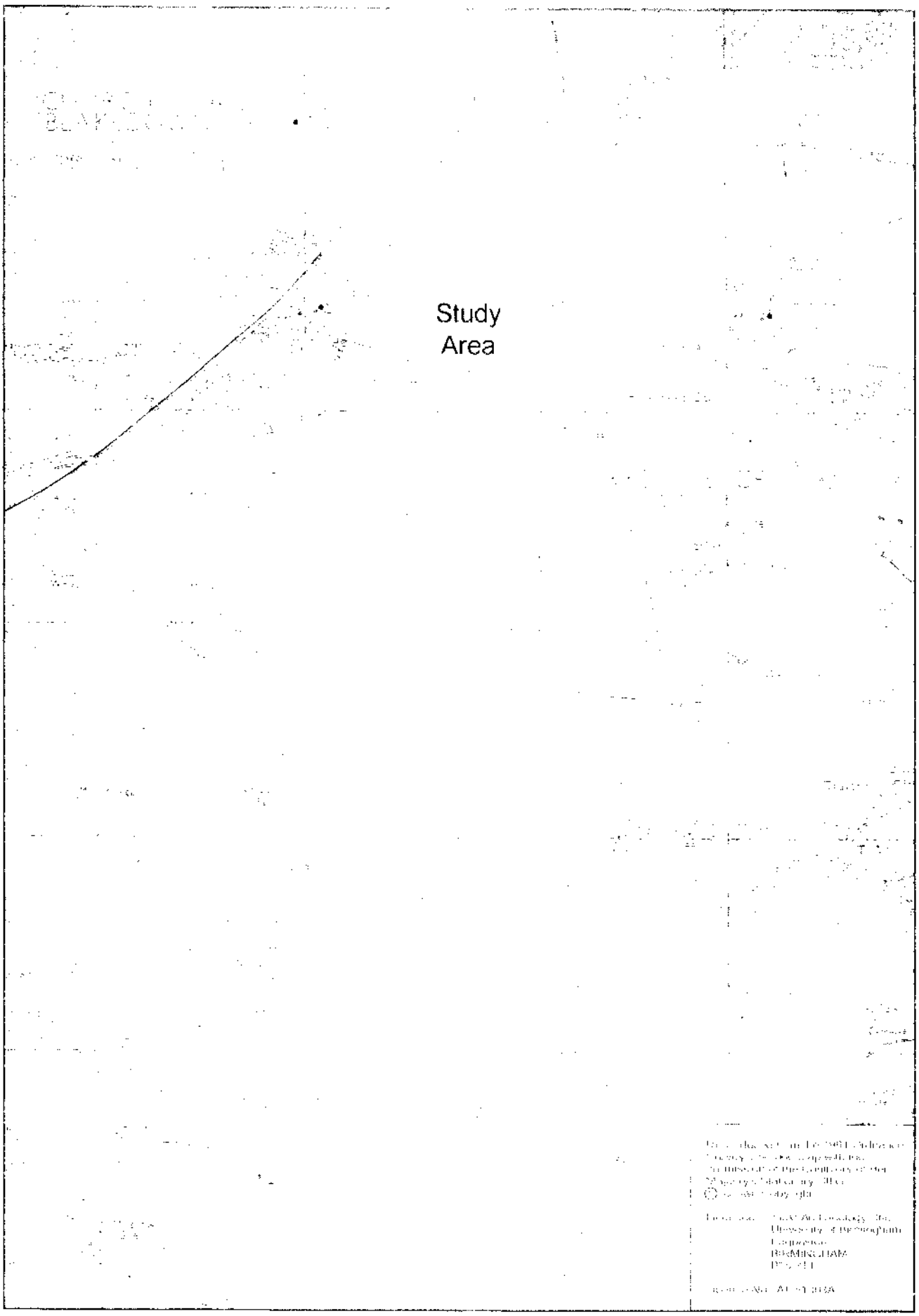

Fig 1

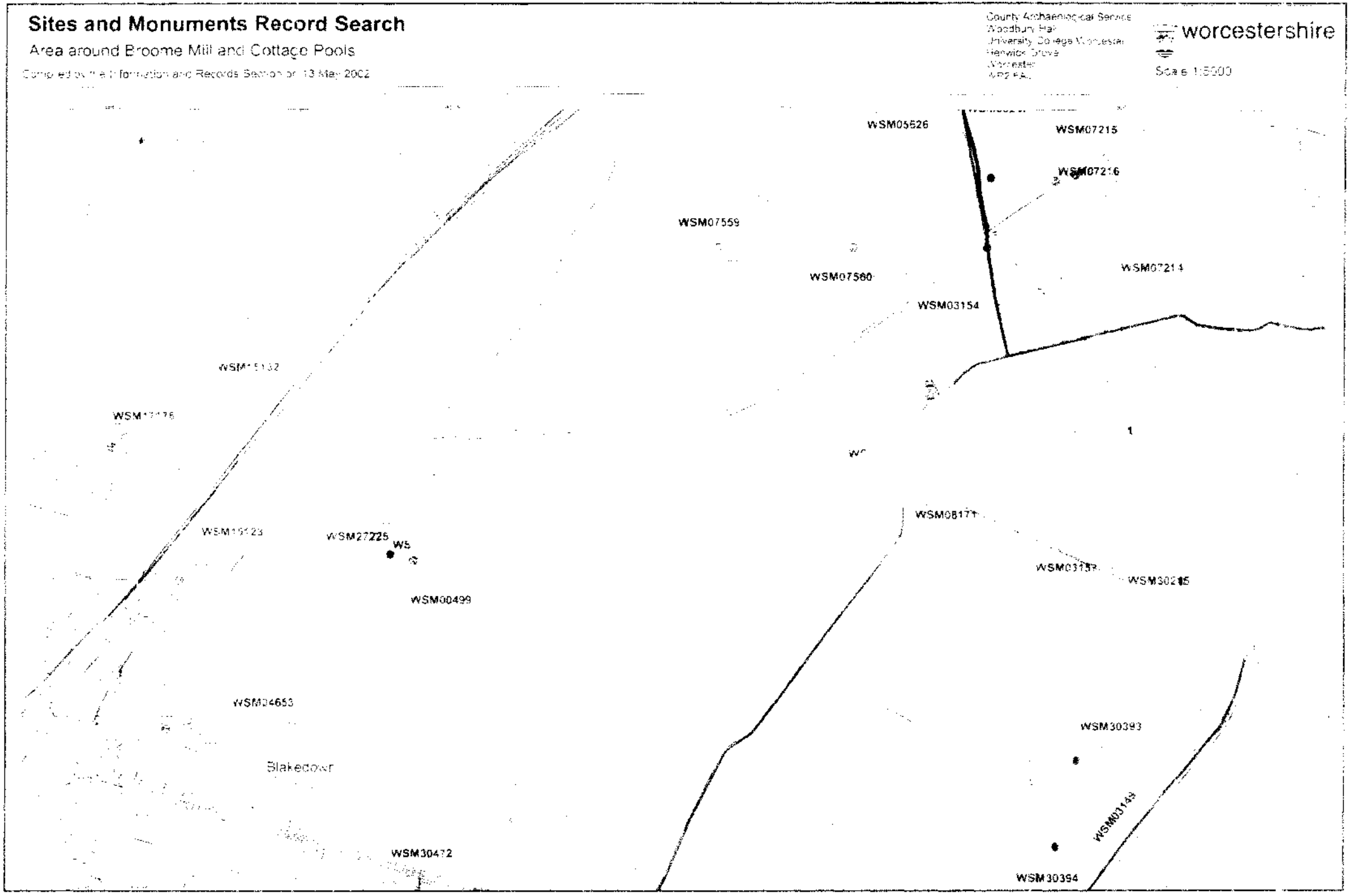
Sites and Monuments Record Search
Area around Broome Mill and Cottage Pools
Completed on the Information and Records Section on 13 May 2002
County Archaeological Service
Woodbury Hall
University College Worcester
Henwick Grove
Worcester
WR2 6AJ
worcestershire
Scale 1:5000
WSM05526
WSM07215
WSM07216
WSM07559
WSM07560
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Fig.3 (SMR Map)

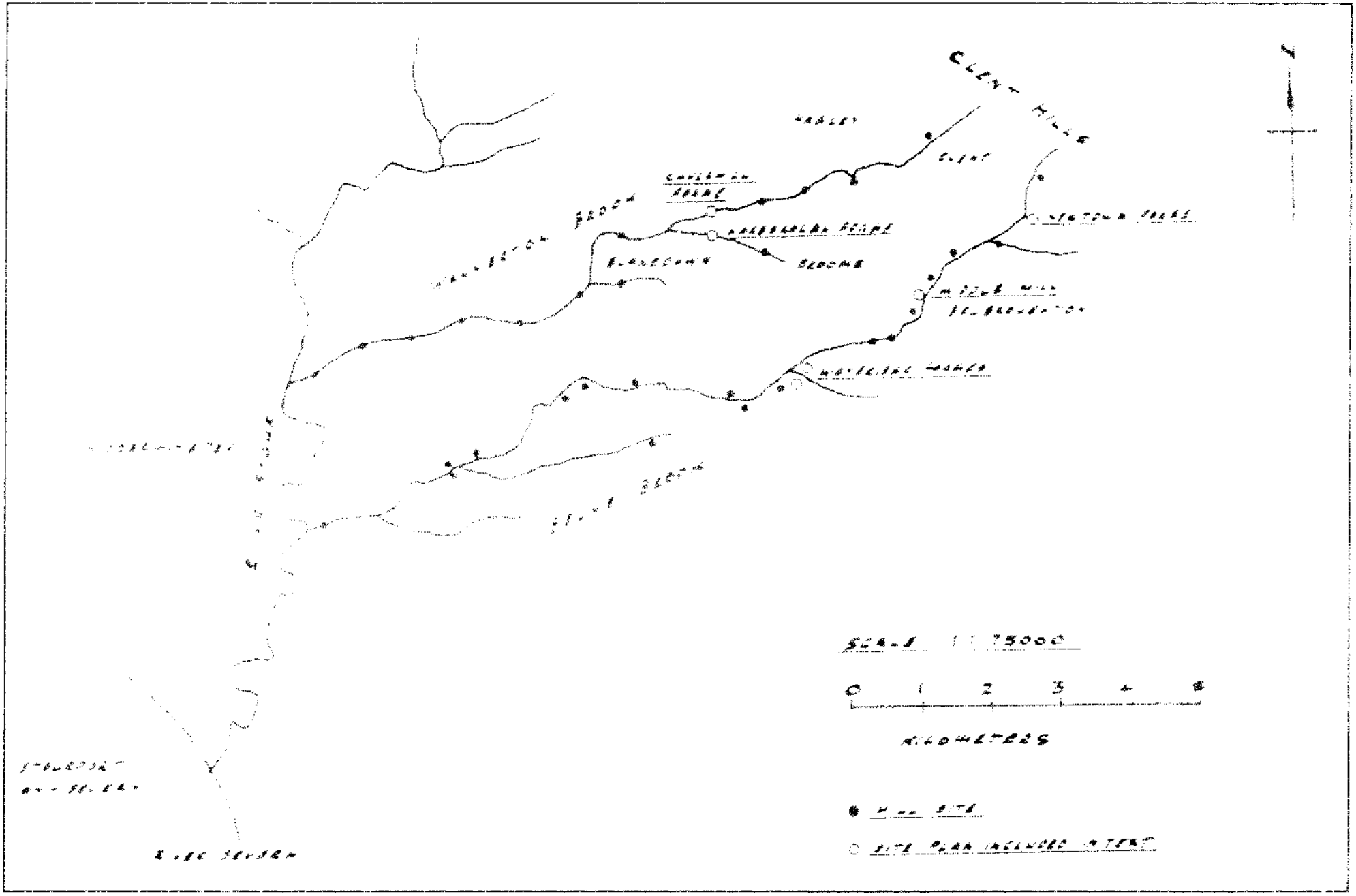


Fig.4 (after Pagett 1993)

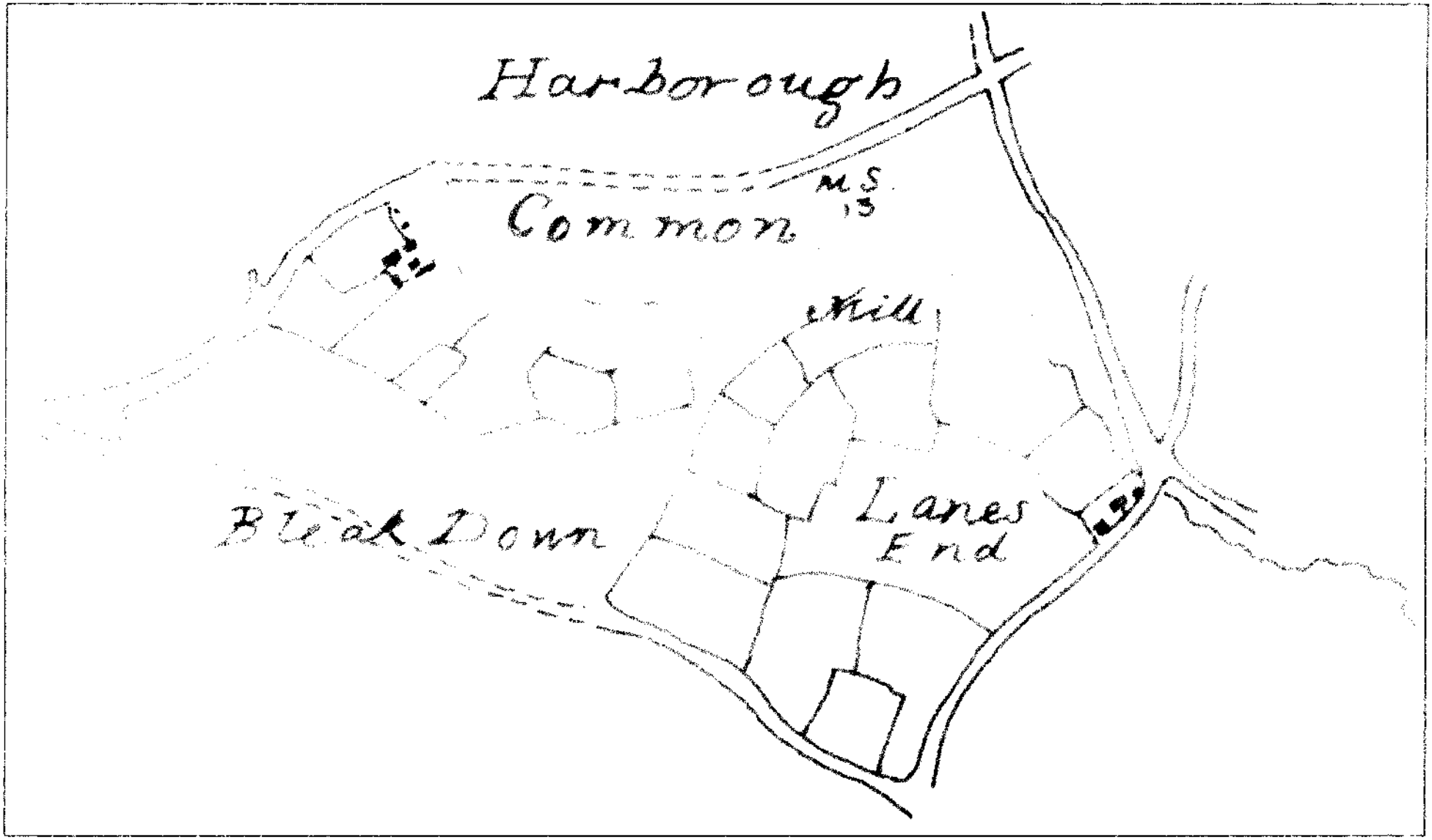


Fig.5 (OS.1815)

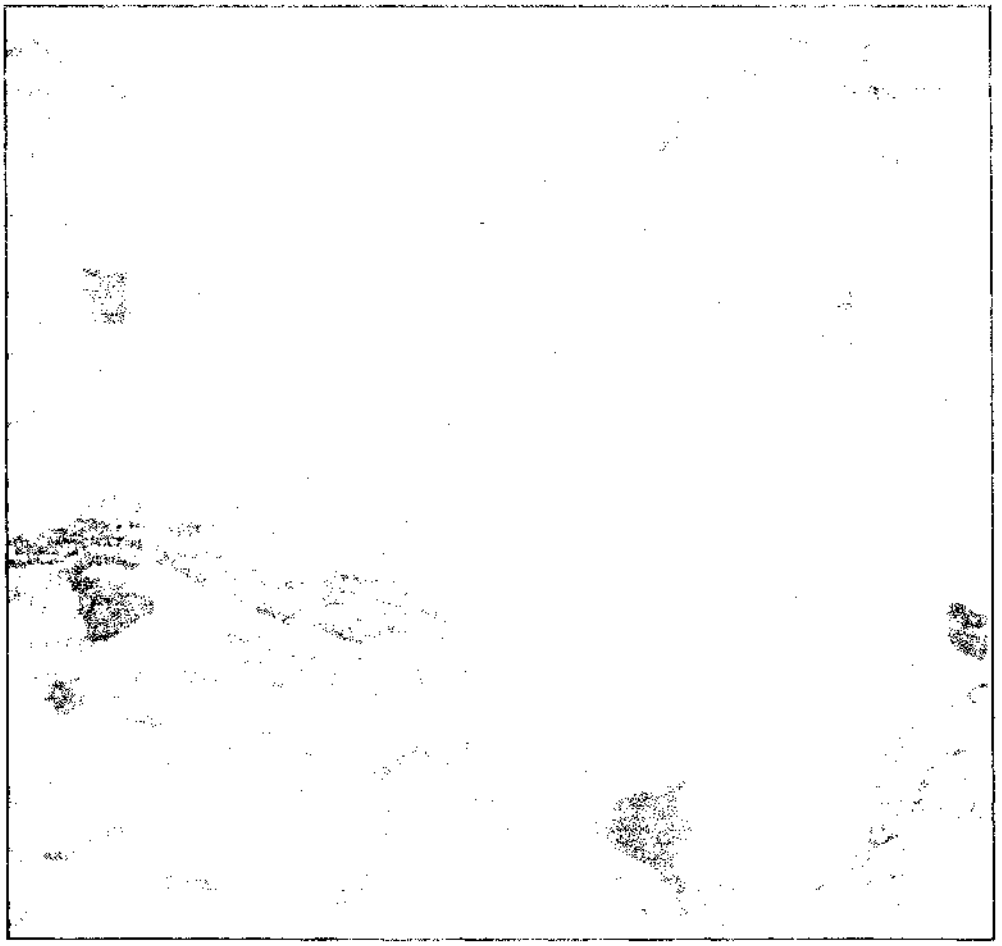


Fig.6a (Greenwood's Map 1822)

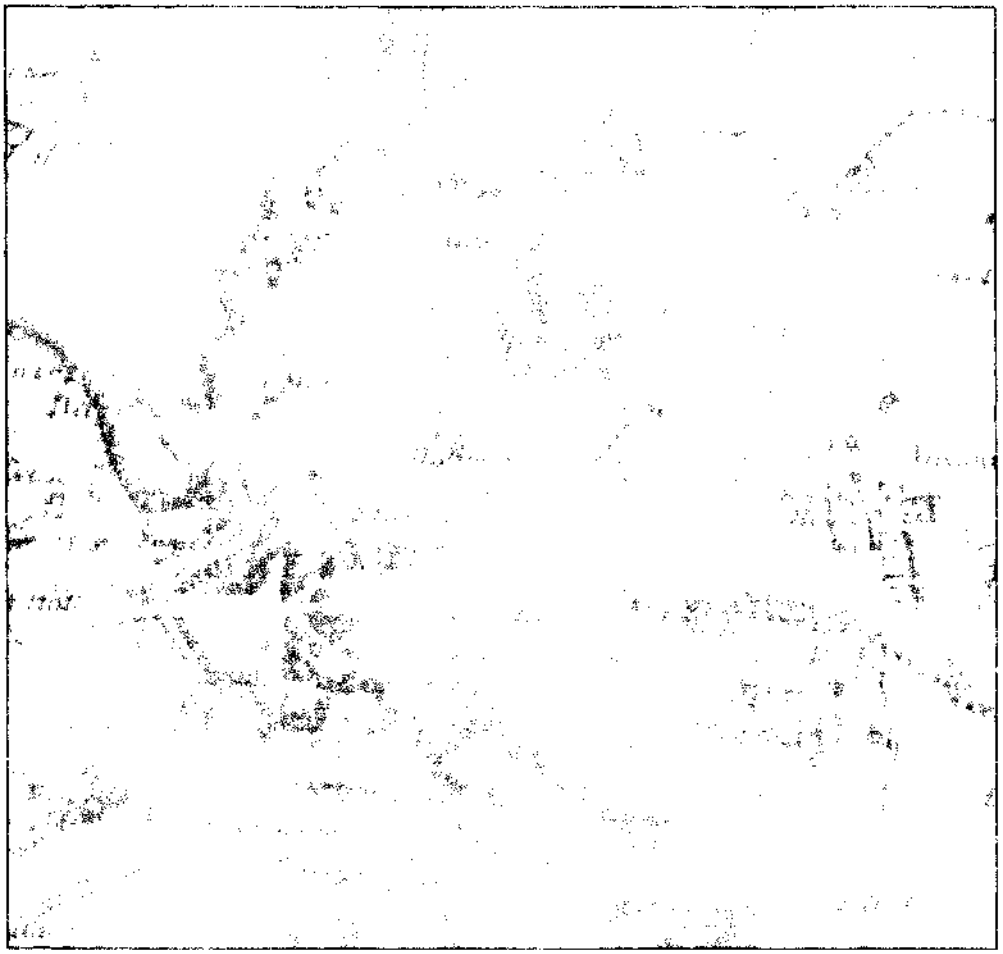


Fig.6b (OS 1831)

Fig.7 (Enclosure Map 1834)

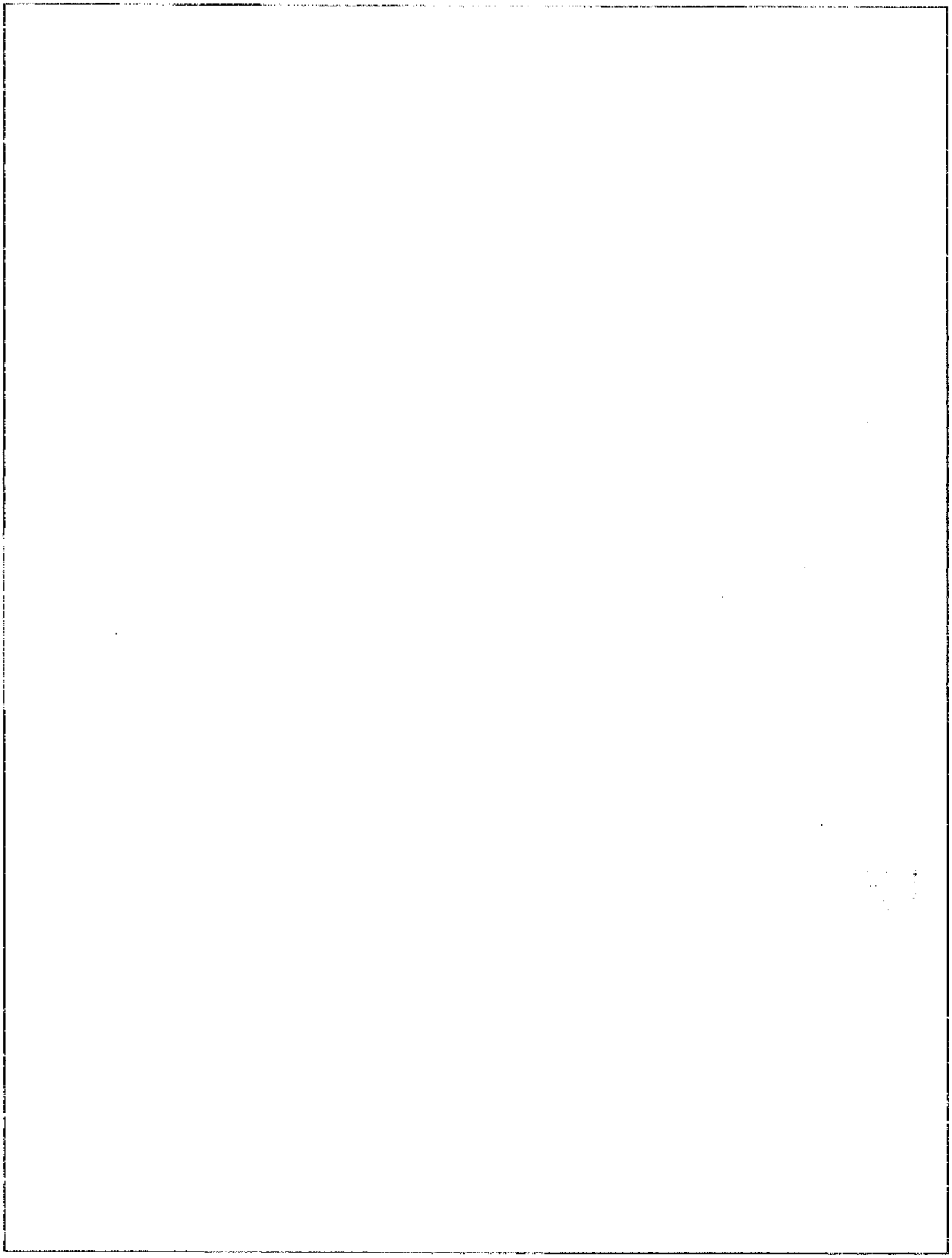


Fig.8 (Tithe 1838)

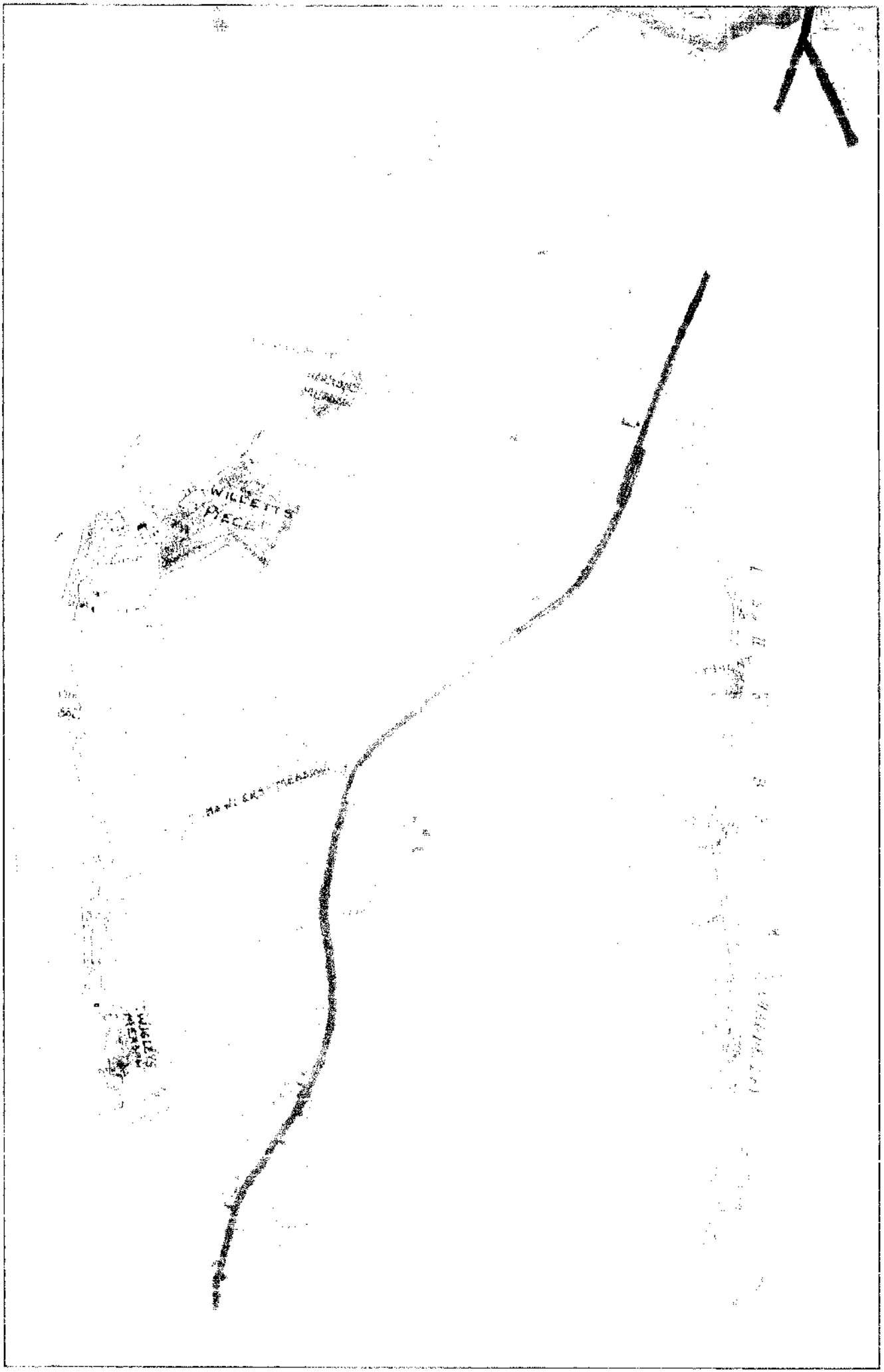
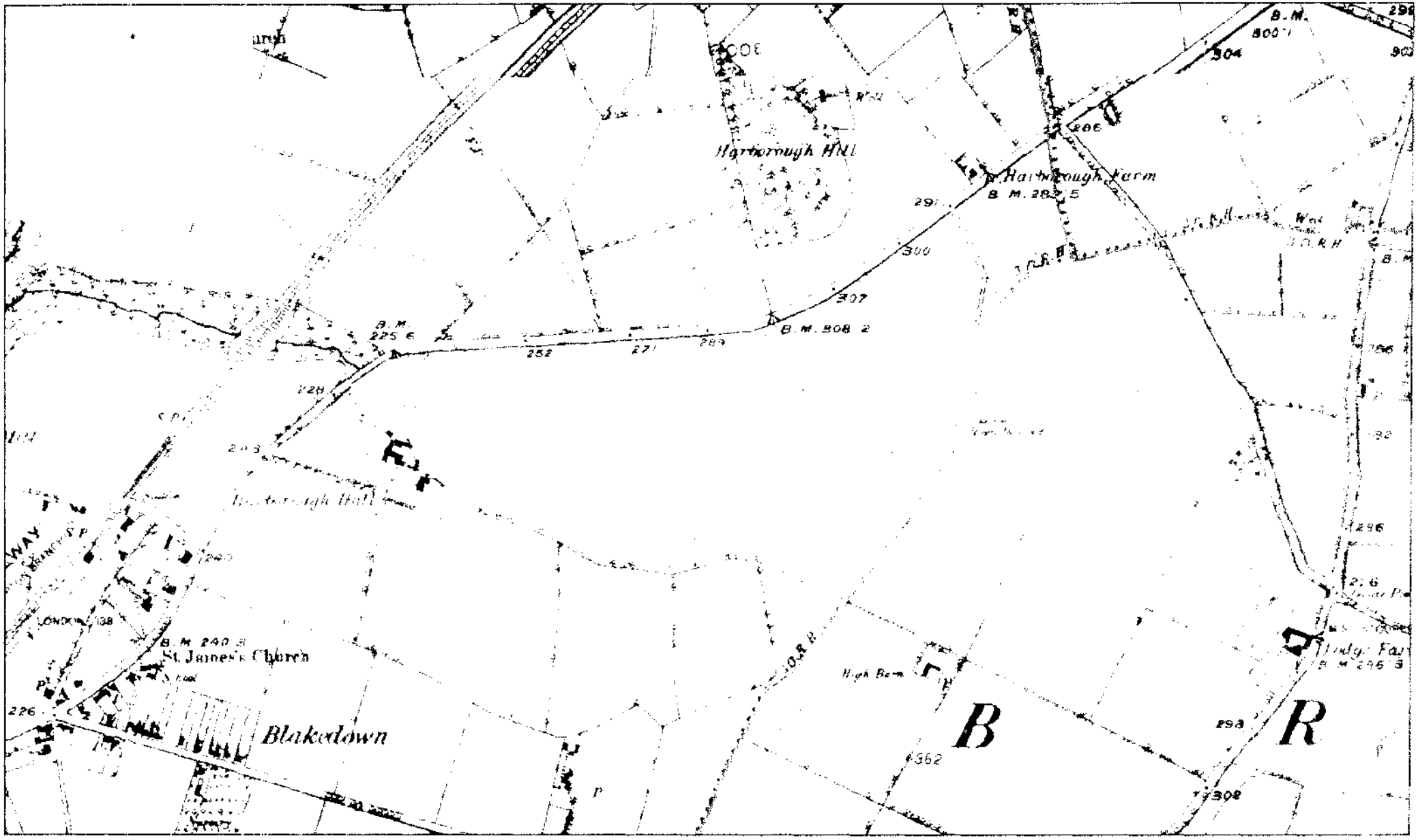


Fig.9 (c 1838)



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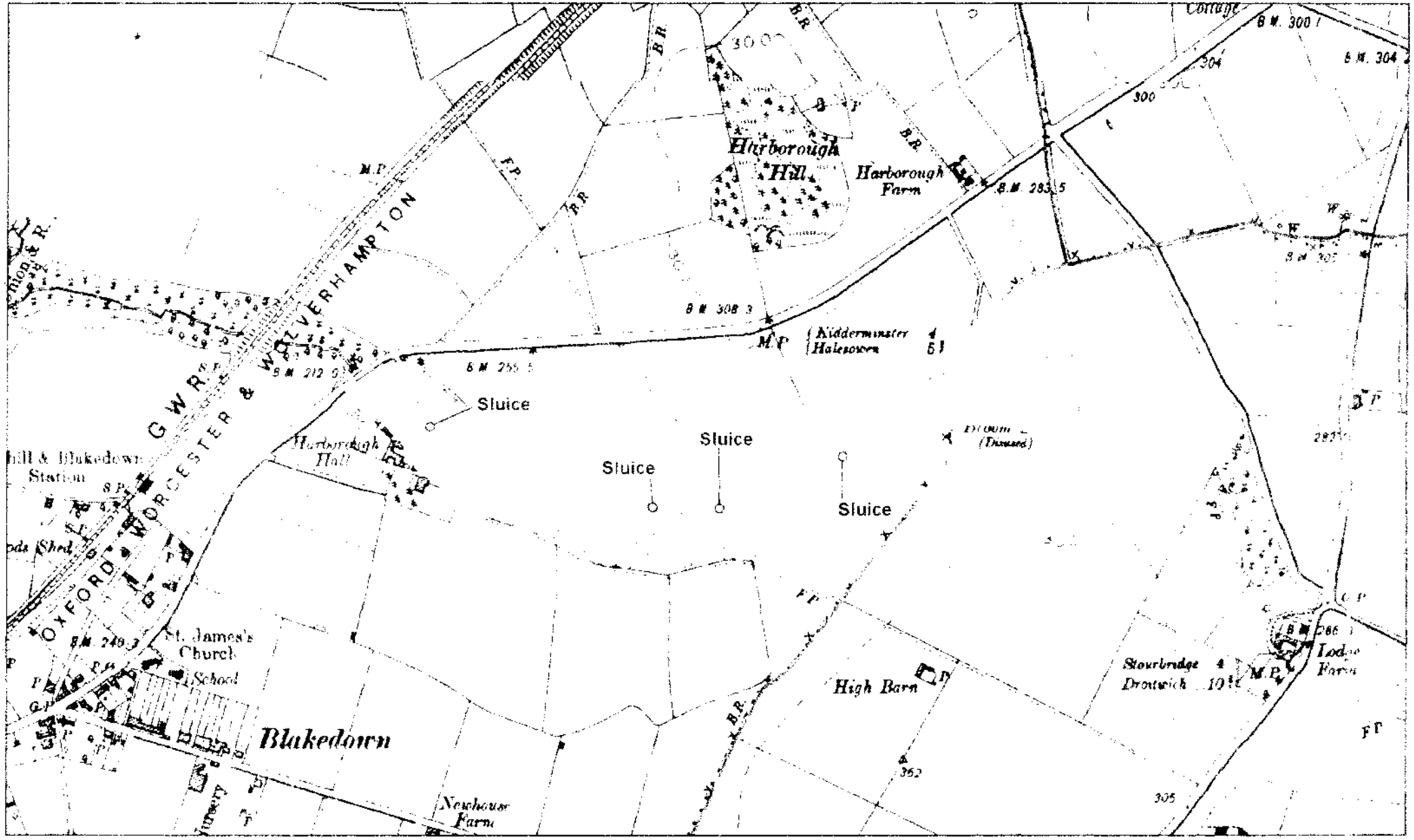
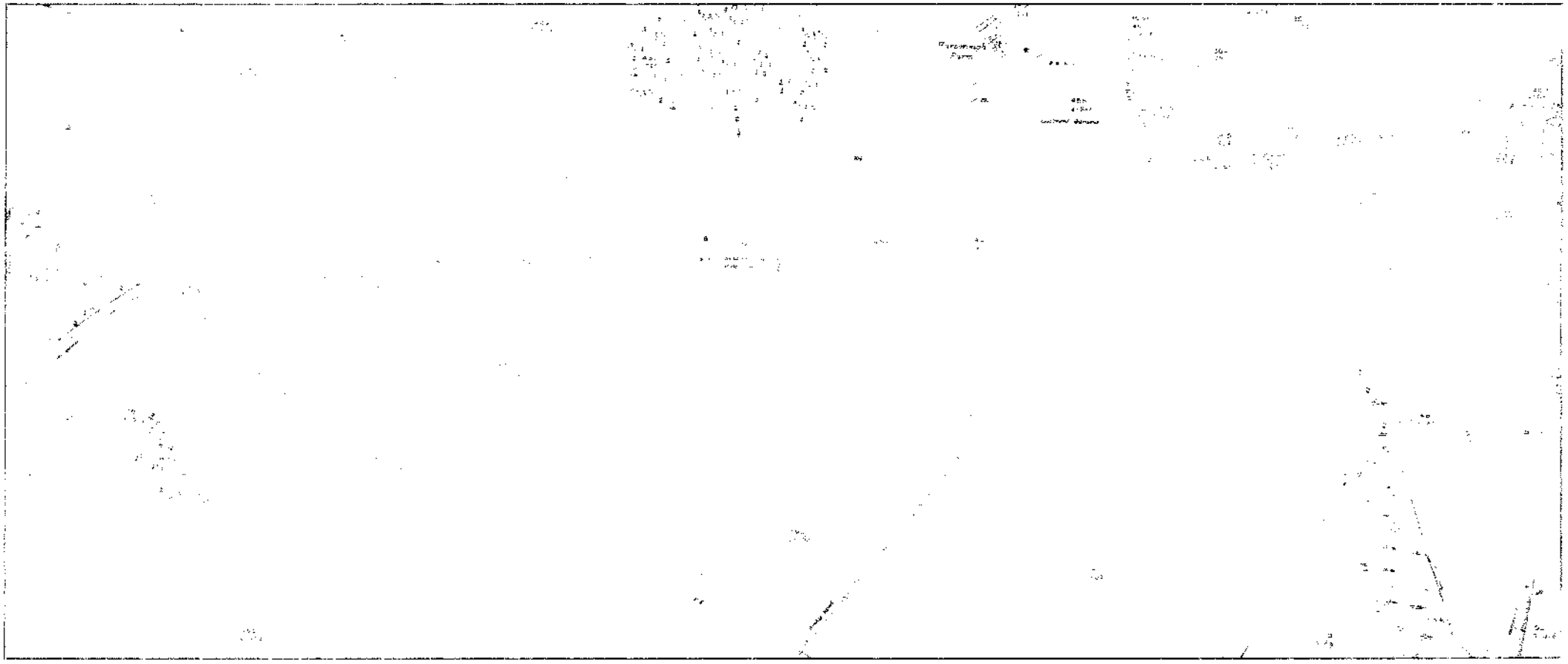


Fig.11 (OS.1903)



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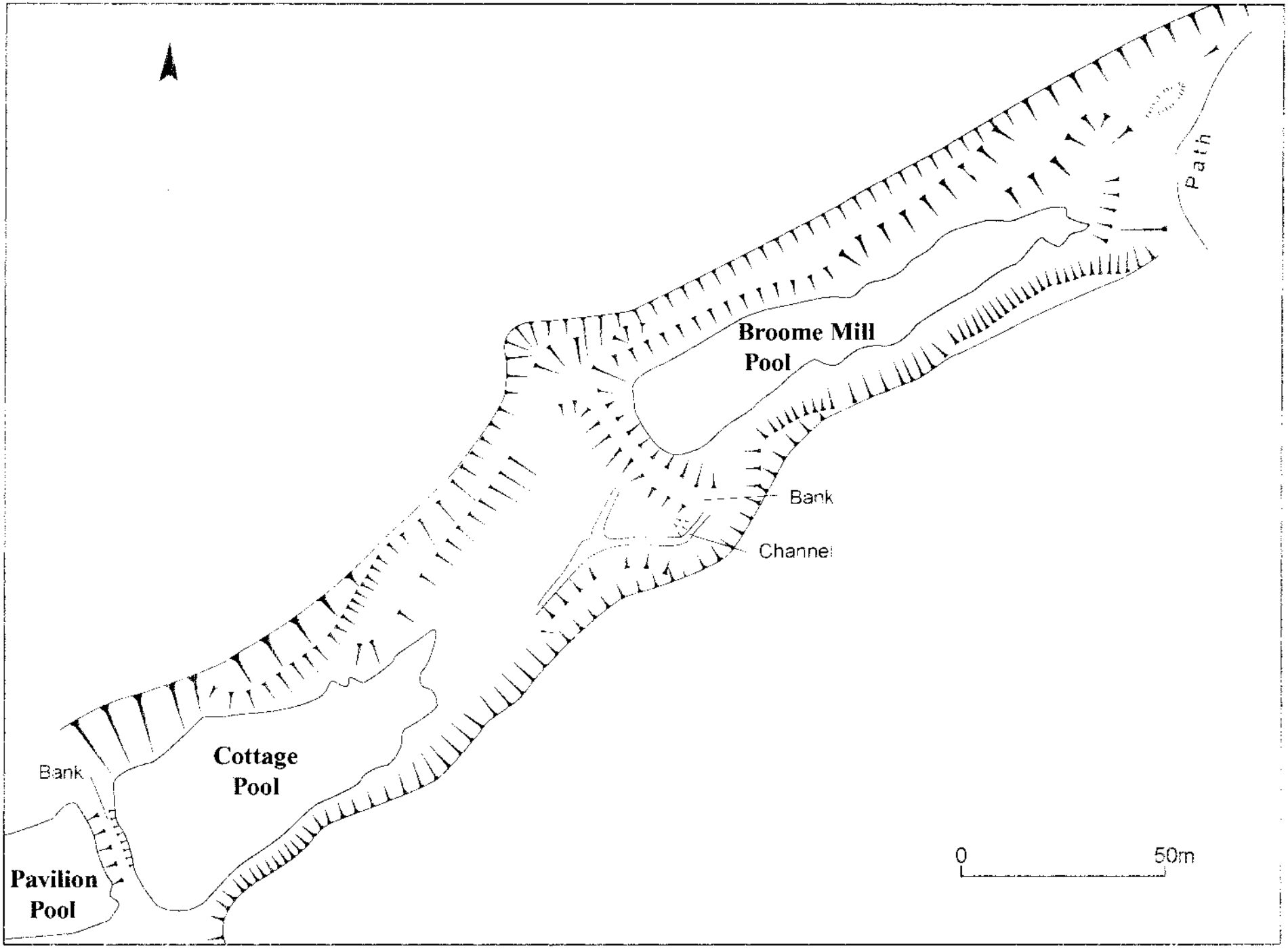
Path
Broome Mill
Pool
Bank
Channel
Bank
Cottage
Pool
Pavilion
Pool
0
50m

Fig.13

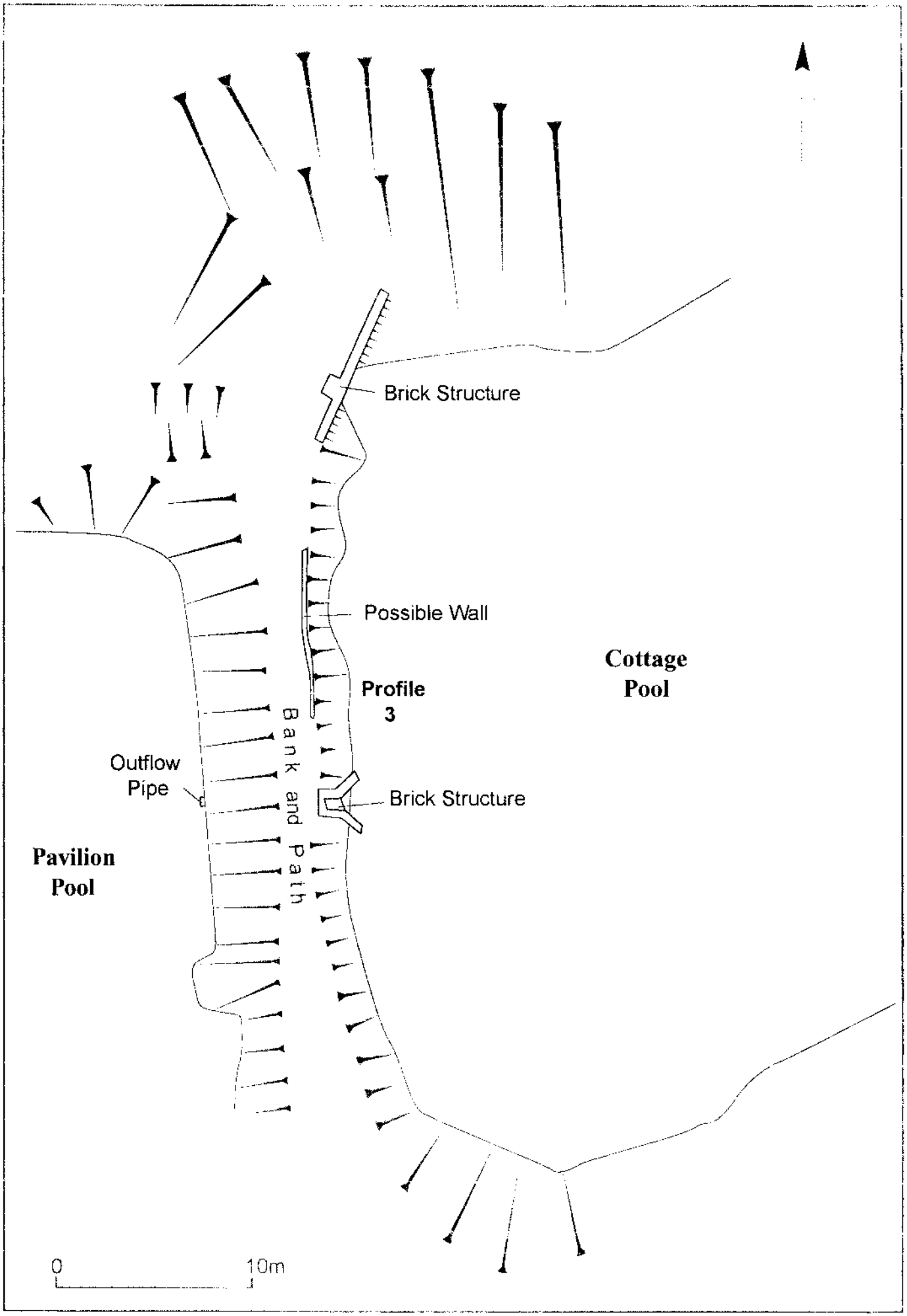
Brick Structure
Possible Wall
Cottage
Pool
Profile
3
Bank and Path
Outflow
Pipe
Brick Structure
Pavilion
Pool
0
10m

Fig. 14

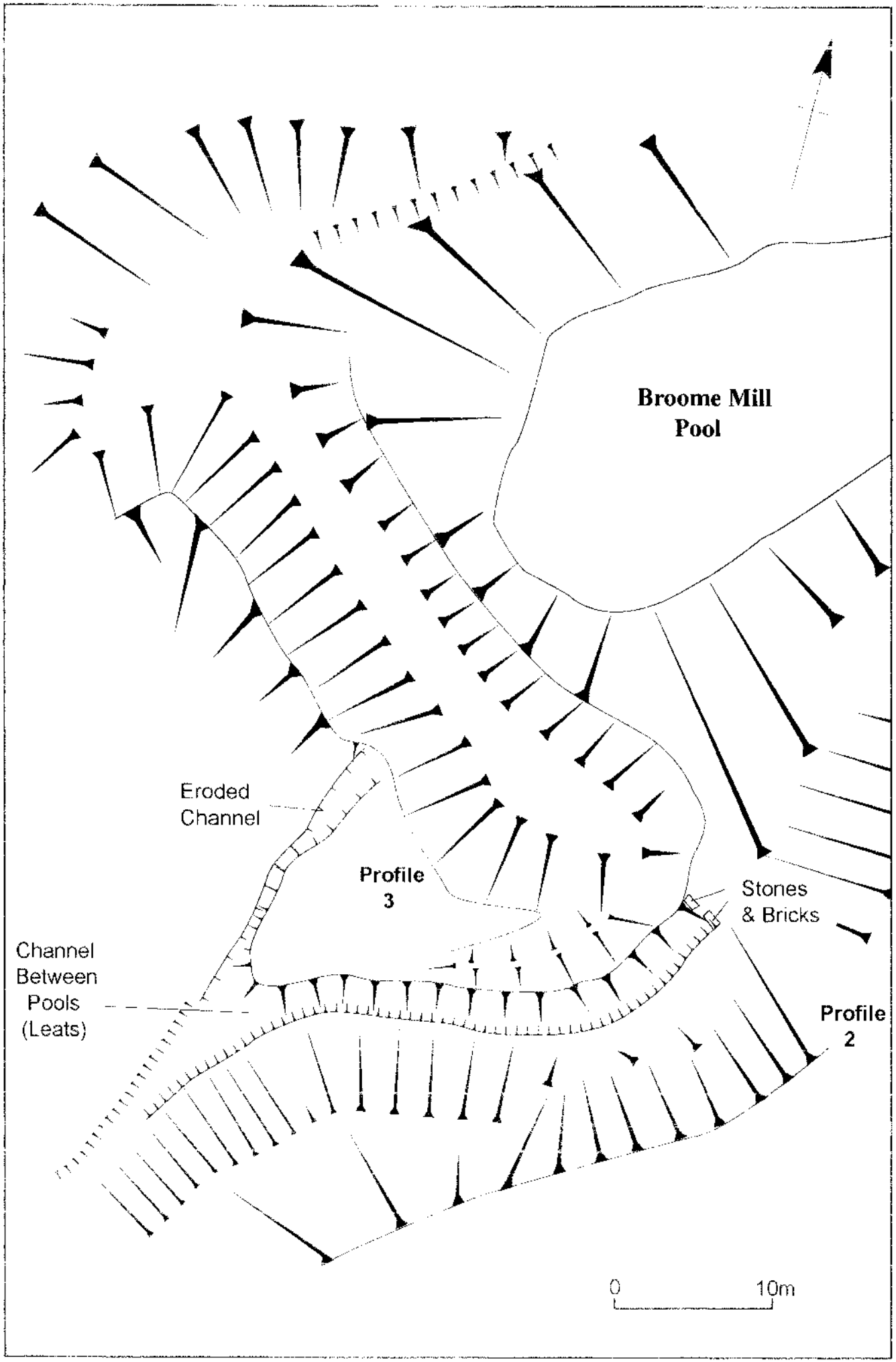
Broome Mill
Pool
Eroded
Channel
Profile
3
Stones
& Bricks
Channel
Between
Pools
(Leats)
Profile
2
0
10m

Fig 15

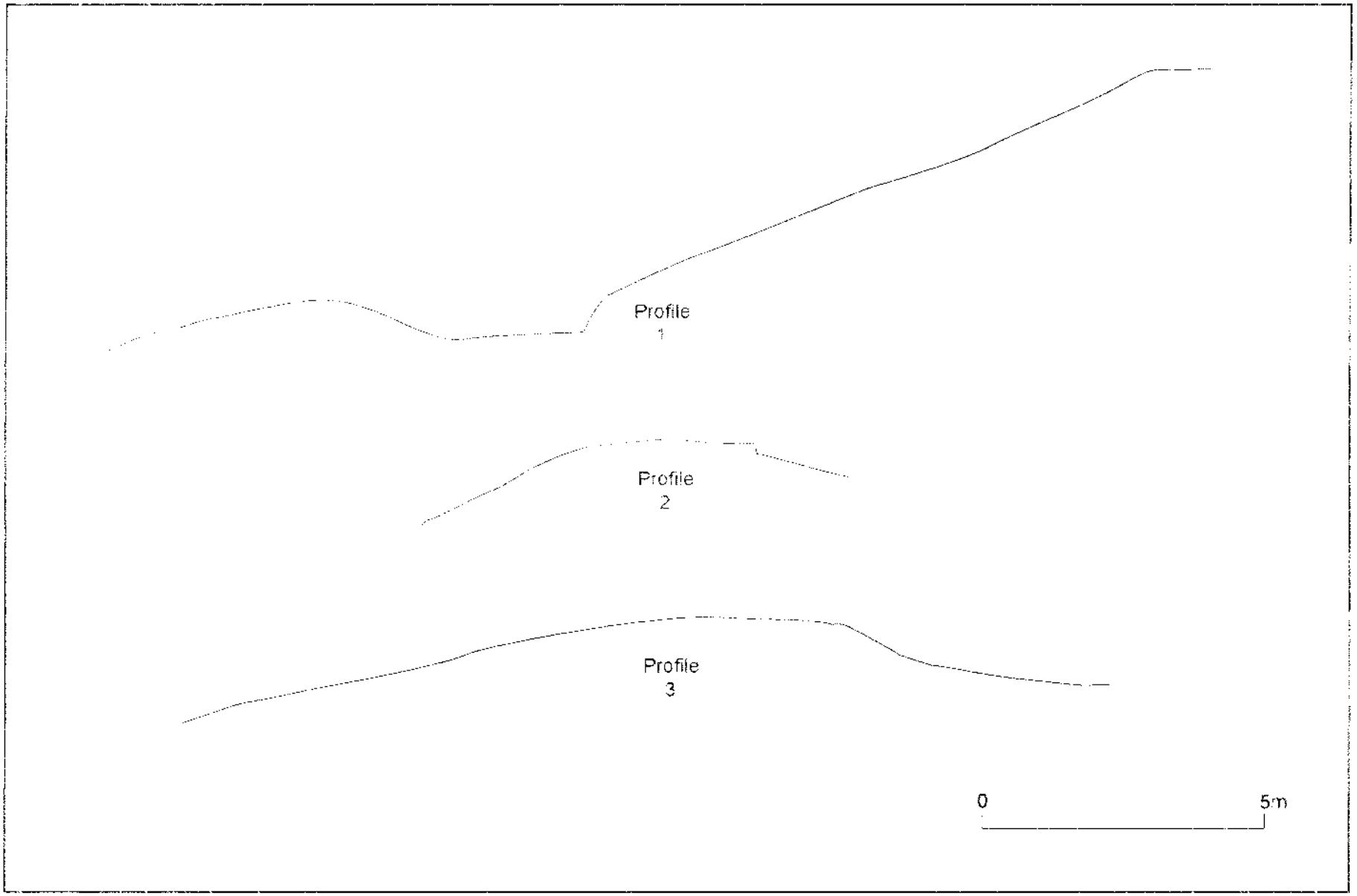

Fig.16

Plate 1

Plate 2

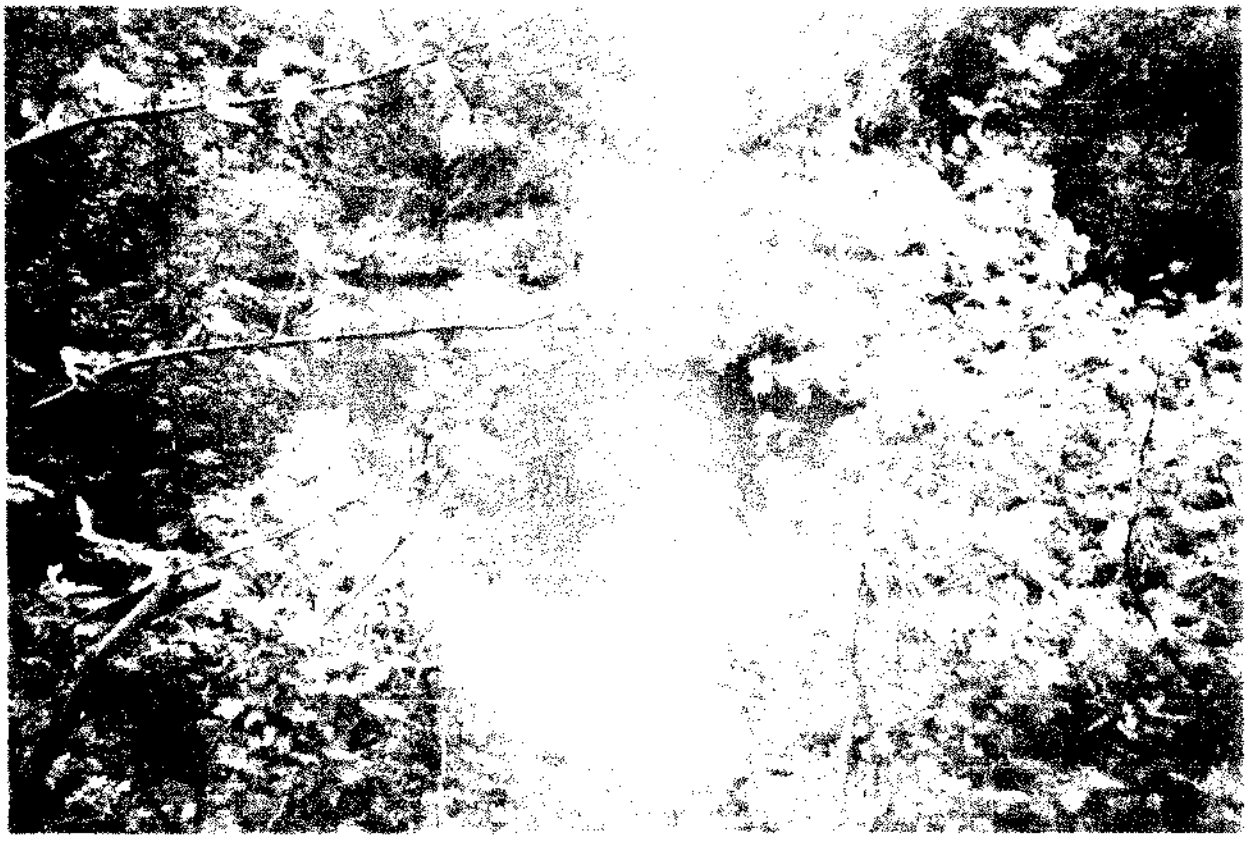

Plate 3

Plate 4

Plate 5

Plate 6

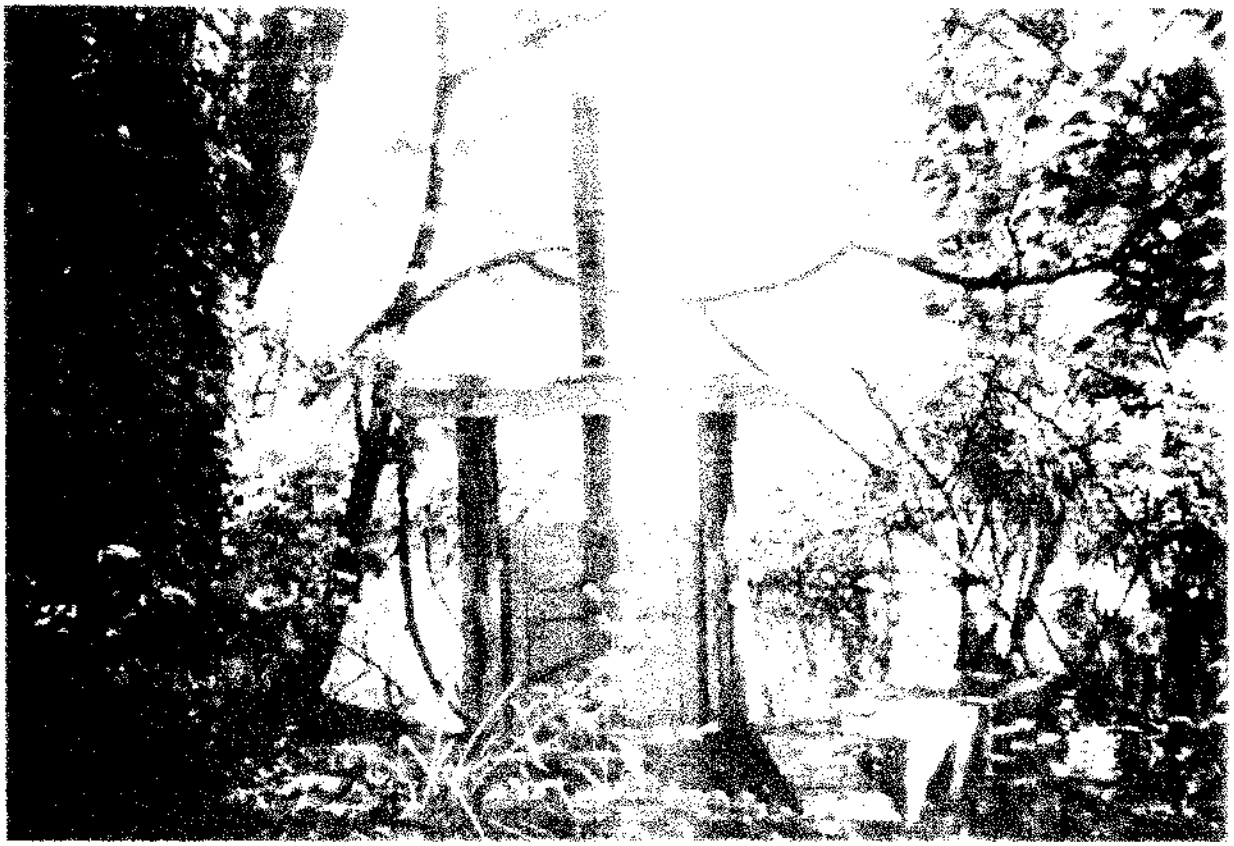

Plate 7

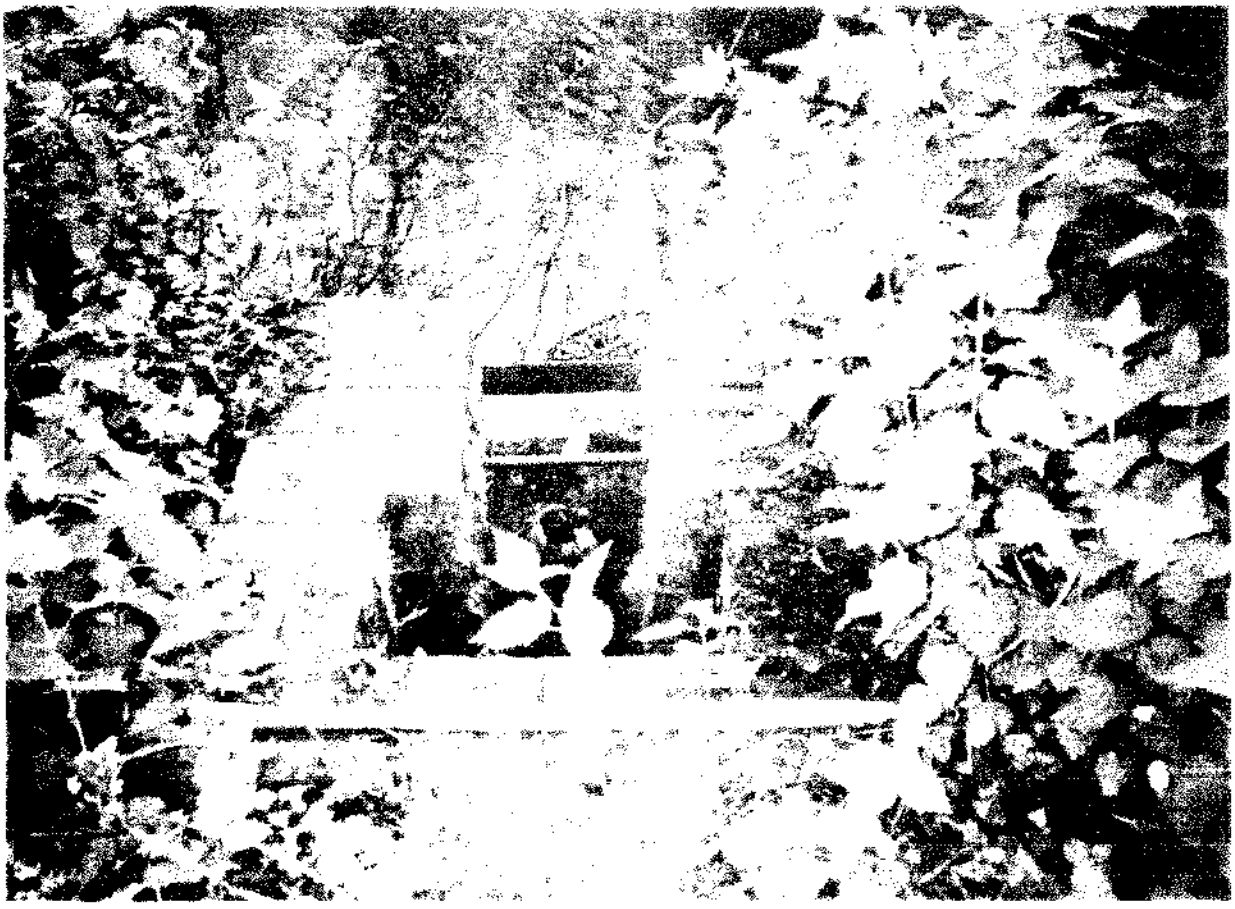

Plate 8