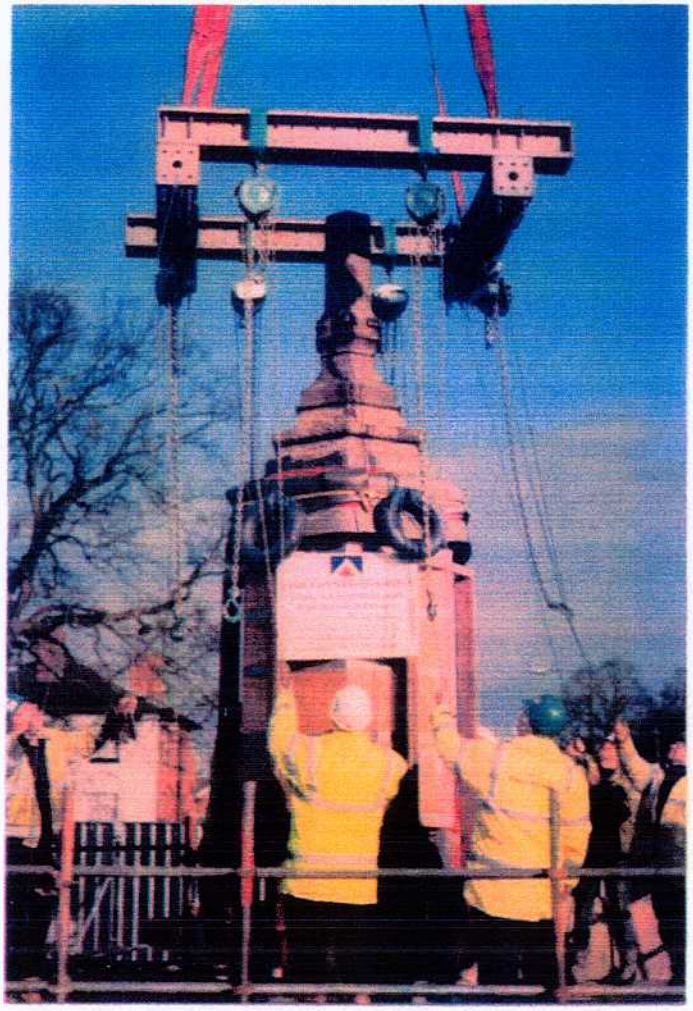
The Whitecross Monument
Whitecross
Hereford
(NGR SO 493 407)

Archaeological recording and monitoring of a Scheduled Ancient Monument.



H.A.S 729
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This report is produced by

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Cover picture *The Whitecross monument during essential repair works.*

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1. Summary

Archaeological Investigations Ltd were commissioned by Hook Mason Architects on behalf of the client Herefordshire Council Environment to carry out archaeological recording and monitoring of repair works being carried out on the Whitecross monument. The monument had been damaged by a car crashing into it.

An application for Scheduled Monument consent was made to the Department for Culture, Media and Sport by Hook Mason Architects and Surveyors. The consent related to repairs and consolidation of the 14th century medieval cross at Whitecross, which is a Scheduled Ancient Monument (National Monument No SAM 27553).

No formal brief was issued for the archaeological work, Julian Cotton of Herefordshire Archaeology and Tony Flemming of English Heritage agreed a verbal brief in a telephone conversation on 15/2/06, requiring a detailed record of the steps and position of the monument base, adding further records to this as the monument was dismantled and details emerged.

Permission to carry out the work was granted under the Ancient Monuments and Archaeological Areas Act 1979, section 2, with the condition that an Archaeologist should be present during the dismantling operation to record the structure.

The main aims of the project were to record the monument during the dismantling operation and monitor repairs and reinstatement.

Nineteenth century pottery was found in fill material below the pedestal base, there were also a variety of Post medieval-modern cement/mortar types present indicating earlier repairs to the monument steps.

2. Introduction

Archaeological Investigations Ltd were commissioned by Hook Mason Architects, on behalf of the client, Herefordshire Council Environment to carry out archaeological monitoring and recording of repair works being carried out on the Whitecross monument. The monument had been damaged by a car crashing into it.

The fieldwork was carried out between the 23rd February and 25th May 2006.

The project came in response to Scheduled Monument Consent being granted for the repair and reinstatement of the Whitecross Monument (SAM 27553).

Permission to carry out the work was granted under the Ancient Monuments and Archaeological Areas Act 1979, section 2, with the condition that an Archaeologist should be present during the dismantling operation to record the structure.

The monument had been the subject of previous archaeological assessment and the extent to which archaeology had been preserved on the site had been established during a watching brief conducted in 1994 by the City of Hereford Archaeology Unit. The results of the watching brief concluded that "the approach trenches produced no features of archaeological significance" and "within the immediate vicinity of the cross the ground appeared to have been stripped to the top of the subsoil, presumably when the roundabout was constructed". Further to this the roundabout is surrounded by a multitude of trenches carrying services which would have severely truncated surviving archaeological features.

The site is one and a quarter miles to the west of the historic medieval core of Hereford (Fig 1).

The site is located at NGR SO 493 407 and close to 61m O.D. The underlying geology consists of Glacial Till, Morainic deposits and Fluvio Glacial deposits. Currently the site is a scheduled Ancient Monument.

3. Historical-Architectural Background

Though the Whitecross monument (SAM 27553) has not been precisely dated it is believed to have been erected circa 1365 by Lewis Charlton, Bishop of Hereford from 1361 to 1370.

Architectural motifs which suggest a date in the second half of the 14th century are; *"the bases of the pedestal stage, which though eroded are probably of a form not known in the first half of the 14th century, and the developed form of the roll and fillet moulding. The combination of details used show that the monument employed well established forms as well as some newer forms. There are no developed Perpendicular forms, though the influence of proto Perpendicular is present. This may suggest that the monument is of the third quarter of the century, prior to the widespread use of Perpendicular in this region.*

It is clear then, that the architectural forms used support a date in the second half of the 14th century, and therefore tend to confirm the ascription of the monument to Lewis Charlton. If the monument was erected in the 1350s, prior to Charlton's consecration as bishop, it was undoubtedly in the forefront of architectural developments, and even if it is ascribed to his episcopate it was up to date in its detail" (Stone 1992).

"The monument was erected marking the alternative market site for the sale of produce during the second outbreak of plague in the city. Food was placed there to be collected by people from the city, who would leave the coins for payment in bowls of vinegar on the steps of the cross in an attempt to disinfect them.

Bishop Charlton's predecessor, Bishop Trellick had arranged at the beginning of the first outbreak of plague twelve years earlier, for the shrine of Saint Thomas Cantilupe to be carried through the streets, in an attempt to ward off the plague. By the time the second plague visitation was over the population of Hereford had dropped from around 3,000 people to a few more than 1,000 people. In the Hereford diocese, the Episcopal register records that "it (the plague) swept away half the population" (Shoesmith 1992).

"The cross consists of a hexagonal base of eight steps supporting a pedestal that is 2.40m high. The six faces of the pedestal each have a shield set centrally which alternately display the arms of the Charlton family and the personal arms of Lewis Charlton himself. This is topped by a hexagonal shaft and the cross itself, which are together 5.35m high. The cross is a Scheduled Ancient Monument.

By 1619, when the earliest known drawing was made of the monument (Fig 2), *it had lost its cross* (drawing reproduced in T. Dingley, "A History from Marble", 1867). James Wathen the local artist made a painting of the cross sometime between the years 1770-1820 (Fig 3), the monument still had no cross at the time it was painted. J. Duncumb's book "History of Herefordshire" published in 1804 also includes a drawing of the monument (Fig 4) which appears to be quite accurate, again there is no cross on the monument.

A "Plan of the City of Hereford" produced in 1802 by H. Price, shows the location of the monument (Fig 5). The 1886 Ordnance Survey map shows closer detail of the monument in its setting on White Cross Road (Fig 6).

The cross *was replaced in 1864 by the Reverend Lord Saye and Sele, who commissioned Sir Gilbert Scott to repair the monument and design a new shaft and cross.* In 1952 the setting of the cross had not changed (Fig 7), in the late 50s *the cross became the part of a roundabout island (Fig 8) and by the early 1990s consolidation works were considered necessary to combat the effect of traffic vibration and erosion"* (Appleton-Fox 1994).

The former City of Hereford Archaeology Unit (the predecessor of Archaeological Investigations Ltd) produced a detailed survey of the Whitecross monument in 1991 (HAS 122), and carried out a watching brief on a minor excavation in 1992 (HAS162). There was also a watching brief carried out on pipe trenches for new sewage works in 1994 (HAS 226). The RCHME surveyed the monument in the 1930s, the entry relating to the monument's condition says - "fairly good".

It had been thought by some that the monument had been moved from its original position at the time of the restoration, this appears not to be the case as can be seen in the map progression, the road layout around it has changed but the monument has not moved, the cross is shown in its present setting on figure 8.

4. Aims and Objectives

The project was considered likely to affect a Scheduled Ancient Monument and is therefore of National archaeological importance.

The main aim of the project was to adequately record the monument as it was dismantled.

The main objective of the work was to:

a. Record the monument during the dismantling and re-assembling operation and monitor the repairs and reinstatement of the monument.

b. Produce a record of the structure and any further constructional details revealed by the project.

5. Method

Documentary.

The following repositories were consulted

Sites and monuments record

The following sources were searched

Cartographic evidence
Geology and soil maps
Secondary sources
Reports on nearby excavations

General archaeological method.

The location of the monument was tied into features shown on the Ordnance Survey 1:2500 mapping. There is a bench mark on the monument with a value of 61.27m O.D.

All archaeological features were planned at 1:20 scale and photographed using B&W and colour 35mm film after cleaning.

A system of context records was used in this case to record the internal elements of the monument. Recording was in accordance with Archaeological Investigations Ltd's site manual. Registers were kept for context records, photographs and drawings on site.

No general biological samples were taken.

Pottery was recovered from the excavation within the structure of the monument, it was retained for identification. Site notes and sketches were made in a site notebook.

6. Results

A detailed Architectural description of the monument can be found in "The White Cross, Hereford, Survey and analytical description" (HAS 122), the results section below contains new information and expands on the original analytical record a little.

Parts of the monument had been damaged and left in a dangerous state following a car crash. As a result the monument required partial dismantling, repair and re-building. Prior to work starting on the monument the roundabout was closed off with a high fence to secure the site and the monument was shored up to prevent it from collapsing and causing a hazard. Work started with the clearing up of the broken off pieces of masonry, followed by the careful removal of the cross and its shaft.

6.1. The cross and shaft.

The cross shaft consisted of three sections between the crown of the pediment and the crown below the cross itself. The shaft had to be carefully sawn through the joints in order to dismantle it. The pieces were examined by an archaeologist after it had been dismantled. The inside of the shaft had been drilled out and contained a vertical iron tie rod. The middle shaft section broke along a bedding flaw and required fixing with resin.

The cross was badly damaged as a result of the accident, the stem needed replacing with new stone below the cross arms, and some of the lobes decorating the head had to be fixed with resin.

Rusting of the original rod had caused some small cracks to form in the shaft, cracking was also observed in the short section of shaft projecting from the crown of the pediment, the cracks were monitored to assess the need for repairs.

When the cross was removed from the top of the shaft it was noted that the rod entering the cross piece was of bronze not iron. The bronze rod passed through the crown below the cross, terminating in a squarish cast bronze block under the crown. It appeared that the bronze block may have been internally threaded, implying that the bronze section originally screwed onto the top of the iron tie rod, linear twist marks near the top of the bronze rod seemed to reinforce this hypothesis.

Offset drilled holes (approx 2" diam) in the bottom section of the cross shaft appeared to have been intended to dowel the shaft to the crown of the pediment, possibly to prevent the shaft from twisting, the holes were not the same on both faces and appeared never to have been finished, these holes do not appear to have been utilised in the final event.

6.1.1. Dismantling of the steps.

The top three sets of steps were removed as some of them had been damaged or displaced as a result of the accident (plate 1). The removal of the steps was observed by an experienced archaeologist who made photographic records and described the operation in notes in a site notebook, context sheets were also used for recording purposes.

The top set of steps (step 1) consisted of a solid layer of six stones with no core work. The central stone (1E, 1F) on the top layer had to be cut to remove it (Fig 9). When the stone was removed a square socket hole was revealed cutting through it. The socket was less than 10cm square, and located centrally below the pedestal base (plate 2).

Behind the displaced stones below step 1, the core work was exposed, it consisted of large stones in a matrix including red-brown sand and frequent small pebbles, pottery found in the fill suggested that the fill was not of a great age and was probably part of previous repairs to the monument.

Some pottery finds were located in gaps that had formed immediately between the fill material and the internal faces of the steps, some of these finds could have got in through gaps in the masonry, either accidentally or during previous repairs and reinstatement.

The gaps behind the steps were the result either of shrinkage of the fill or movement of the steps due to vibration from traffic, or a combination of both. The wear patterns on the upper faces of the steps, where the steps meet the layer above, suggested that certain steps had indeed moved, but this could have been a direct result of the crash.

The stone core work of the second step (step 2, Fig 10) was recorded photographically and notes were made describing it. The core work consisted of two layers of roughly shaped stone blocks around 0.20m deep per course. The stones were bonded with dark brown mortar with flecks of what appeared to be creamy mortar or lime inclusions. After the pediment had been completely secured and the core work of the second step had been recorded the stone core work was removed.

The third layer of steps (step 3, Fig 11) was removed along with the earth and stone fill. The loose stones removed from the top three sets of steps were then set aside and recorded using drawing and digital photography with scales. Details on the stones were recorded, including the contractors numbering system for re-assembly.

6.1.2. The hexagonal pedestal.

The iron rod observed within the cross shaft appeared to pass through the body of the hexagonal pediment. The rod projected from the pediment base by approximately 0.40m, carrying through the socket in the top step, into the middle of the second step. The bottom end of the iron rod had been deliberately splayed to form a wedge. Lead and rounded pebbles had been poured into the socket in the stone to fill the socket and provide a secure fix (plate 3).

A quick look at the underside of the pedestal base showed that at least the bottom section had been built using large wedge shaped blocks with a small amount of core work at the centre. The core work consisted of mortar and stone chips. No construction details of the pediment section were previously known (see plate 3).

The pediment was supported during the removal of the steps using acro props, chocked with timbers to prevent movement. The removal of the steps exposed the core work inside the monument (Plate 4).

After the removal of the stone core work from the top three sets of steps, shuttering was constructed below the suspended pediment for the casting of a concrete shaft, which was cast onto the bottom of the pediment replacing the stone core work. The concrete shaft had to be covered to protect it from the weather and left to cure for two weeks. During the casting of the concrete shaft, bolts were inserted for attaching to steels to further stabilise the pedestal before it could be removed (Plate 5).

Before the pediment of the monument was removed, it was clad in polystyrene sheets, and secured with tape, ply wood panels were then strapped and taped around the pediment to further stabilise it. Planks were also used to secure the pediment prior to its removal. The embattled top section was covered in foam rubber to protect it from possible damage during the move.

The pediment was then lifted off the steps, carefully placed on a concrete base already prepared within the compound for it and set aside to allow for the next stage of work. The removal was observed and recorded photographically by an archaeologist.

6.1.3. Archaeological examination of the fill of Step 4.

Once the pedestal and the newly cast concrete shaft had been set aside, the fourth layer of steps (step 4), was prepared for the next stage. The earth and stone fill within the monument was to be removed to a depth of 250mm and replaced with a concrete pad. Before the fill could be removed, it was cleaned off and examined for evidence that could give clues for dating, construction or previous repair, the top of the fill was then planned archaeologically along with the fourth layer of steps (Fig 12).

Overlying the exposed fill was a very compacted deposit of red-brown sand and frequent small pebbles (1006) used to bed the steps. It is interesting to note that this material was different to the materials used below in the construction of the monument and probably indicated a phase of repair or renovation.

The fill was removed under the observance of archaeologists who recorded changes in it and looked for finds and other archaeological evidence; recording was done using context records, site notes and photography.

The steps had been bedded on dark brown cement mortar (1001, 1002 and 1003) overlying the fill; within context 1002 was a single sherd of thick, cream glazed 19th century pottery. Also found within 1002 was a small (5x4x2cm) squared block of fine grained, grey-brown stone (small find No1). The stone had been smoothed on three faces, it had been roughly hand sawn on one face and there were two fine incised lines in the same position on two opposing faces that appear to be setting out lines, mortar has adhered to two sides of the stone where it appears to have been bonded to something - unknown. A sample of mortar was retained from context 1001 for possible future identification and dating purposes.

The dark brown mortar overlay the main fill (1005), which consisted mostly of fine brown sand with rare small stone inclusions. Un-worked blocks of stone of various sizes (1004) were located within the fill clustered around the centre of the monument to give support to the structure above.

It was noted on the context sheet that 1005 seemed unusual for medieval construction "The sand was uniformly graded where as fills of medieval structures tend to be much more mixed with respect to the size of material used" (pers' com Andy Boucher). A pigs (or boar?) tooth (small find 2) was found within the fill as well as a piece of charcoal, partly covered with mortar (sample1) and retained for possible future examination.

6.1.4. Reinstatement of the monument.

Before the concrete pad was poured, the two centrally located steps on the east facing side of step 4, and one stone below them from step 5 were removed and re-set as the stones had been loosened by the crash. During the removal and replacement of these stones, pink mortar and concrete bonding was observed on the back faces the stones.

After the fill material had been removed to the required depth, a concrete pad was poured and levelled and marked up for the re-location of the pedestal shaft. Once the concrete had cured the pediment was raised again by crane (King Lifting, heavy lifting contractors) and manoeuvred back into its position on the stepped base. The pediment was then carefully re-positioned using crow bars to pry it into the correct level and vertical position, also using levels and a plumb bob.

Following the repositioning of the pedestal, the steps were carefully re-laid. Any voids around the stones were filled as they were encountered and the faces of the affected masonry were re-pointed with a mortar of a similar colour and type to that already present on the exposed faces.

The final stage of the work was to re-erect the shaft and cross. A new stainless steel rod was inserted as replacement for the iron, and the three sections of cross shaft and the cross were re-positioned on the top.

7. Discussion.

The monument has been repaired and altered more than once in its history and the constructional description below refers to the construction detail as seen during these latest repairs, how much of the original medieval construction remains is not entirely clear, though it seems likely that most of the monument, if not all of it, was re-built in 1864 at the time when the new cross and shaft attributed to Gilbert Scott were added.

On the basis of the observations from this exercise the construction methods employed on the Whitecross Monument appear to have involved setting out the first hexagonal ring of steps, then filling the centre with sand and rubble. The fill was probably rammed or compacted to make it solid, following that, the same process was repeated above with each set of diminishing steps to the top. The top step was finished with a large stone (now broken into 1E and 1F) to make the structure solid. The pediment (and also probably the original short cross) on top were built using block masonry and mortar bonding. There is surviving evidence present on the monument's surfaces suggesting the monument was originally plastered and painted.

The cap/key stone below the pediment had been cut through with a central fixing hole to take a tie rod, this was not part of the medieval construction, demonstrated by the fact that the tie rod passed all the way through and to the top of the later added, and much taller than original cross shaft.

The monument would have had to be dismantled and re-built to accommodate the tie rod, figure 13 shows the cross section of the known internal details of the monument as it was prior to this stage of repairs, figure 14 shows a section of the monument as it has been rebuilt and figure 15 shows a plan of the monument and steps, locating steps which were removed and re set. Plates 6-35 show all the stones removed from steps 1-3.

At the time of writing "The White Cross, Hereford, Survey and analytical description" (HAS 122) the internal construction details of the monument were not known. It had been stated in the report that "the constructional details of the steps are uncertain. The outer edge of each step sits on the inner edge of the step below, but the form of the inner support is unknown".

It was further stated "The corner stone between the NW and W faces on the second step above present ground level had been partially removed and proved to have a fill of mixed earth and mortar above loose rubble. This suggests that the construction may have consisted of a core of

unbonded stone rubble with consolidation of mortar and earth just below the steps, providing a firmer seating for them". The latest observations on the monument confirm these suspicions. The report also said it wasn't known if the pedestal was block built or face and core, from the latest observations it is now known that the pedestal is block built with a very small amount of core material, possibly a later addition to accommodate the iron tie that passed through the structure.

8. Conclusions.

In conclusion the evidence suggests that the majority of the monument structure was re built in 1864 when the new cross and shaft was added.

The aims of the project were to enable the monument to be adequately recorded in the areas affected by the proposal.

The work carried out on the monument was monitored and assessed and a record of the observations was produced.

9. Bibliography

RCHME, Hereford 1931, "An inventory of the Historical Monuments in Herefordshire, Vol 1", *Royal Commission on Historical Monuments, England.*

Stone, R., 1991, "The Whitecross, Hereford, Survey and analytical description". *Herefordshire Archaeological Series 122.*

Morriss, R,K,. and Knight, M,. 1992, "The Whitecross, Hereford, An interim report on archaeological work carried out on the monument in 1992", *Herefordshire Archaeological Series162.*

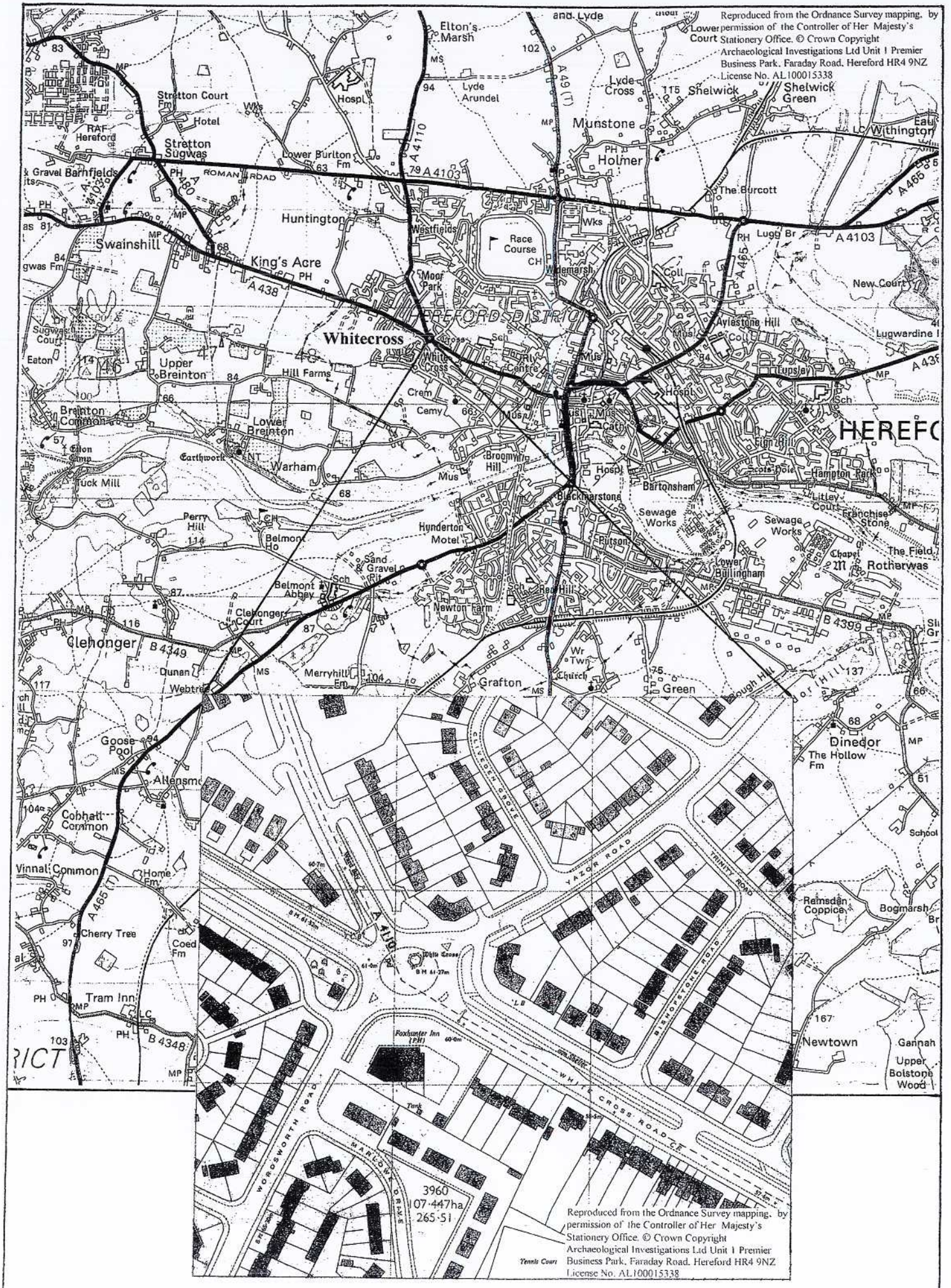
Appleton-Fox, N., 1994, "The Whitecross, Hereford, Herefordshire, A watching brief on new sewage works", *Herefordshire Archaeological Series 226.*

Shoesmith, R., 1992, "Hereford, History and Guide", *Alan Sutton Publishing.*

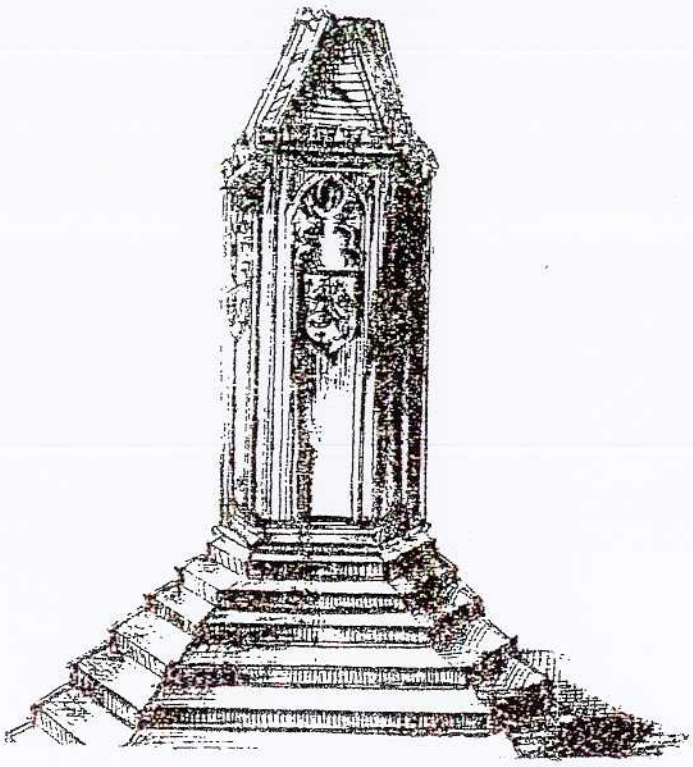
Appendix 1. Site Archive (Accession No 2006-28)

The archive will be held by Hereford City Museum.

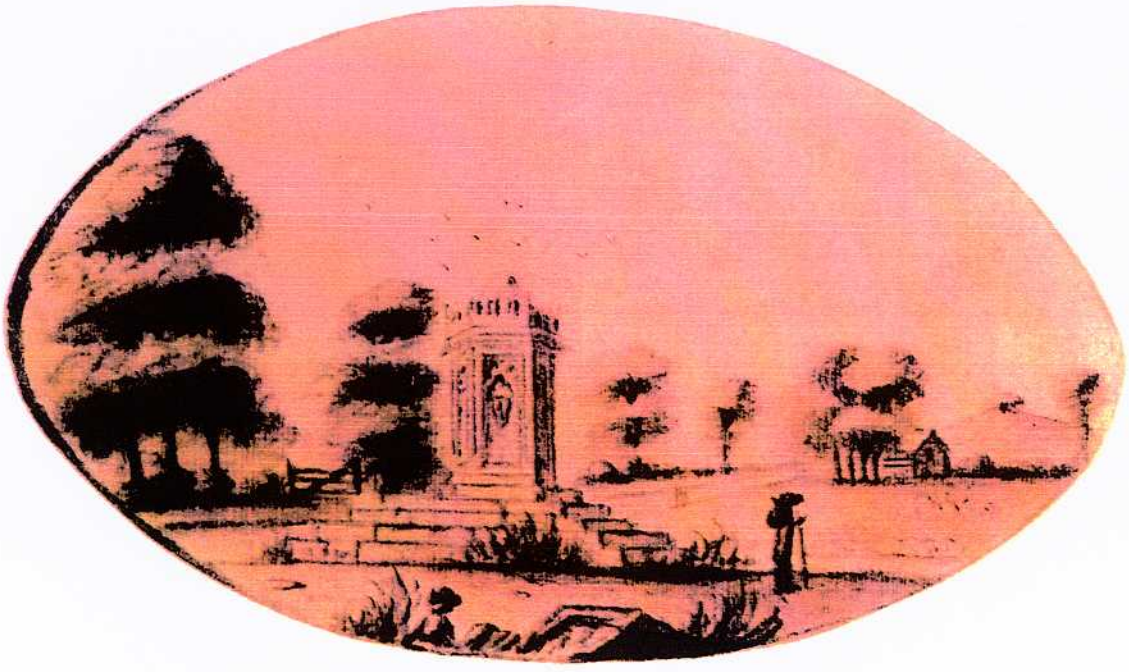
1 Scale plan (top down of steps/core work) at 1: 20
28 measured sketch plans of removed individual stones
9 Pages of site note book notes and drawings
1 Copy of this report
11 Photographic registers
9 Sets of colour prints from 35mm, 36 exp film
4 Sets of black and white prints from 35mm, 36 exp film
1 Context register
7 Context sheets



Location of the Whitecross monument near Hereford, Fig 1.



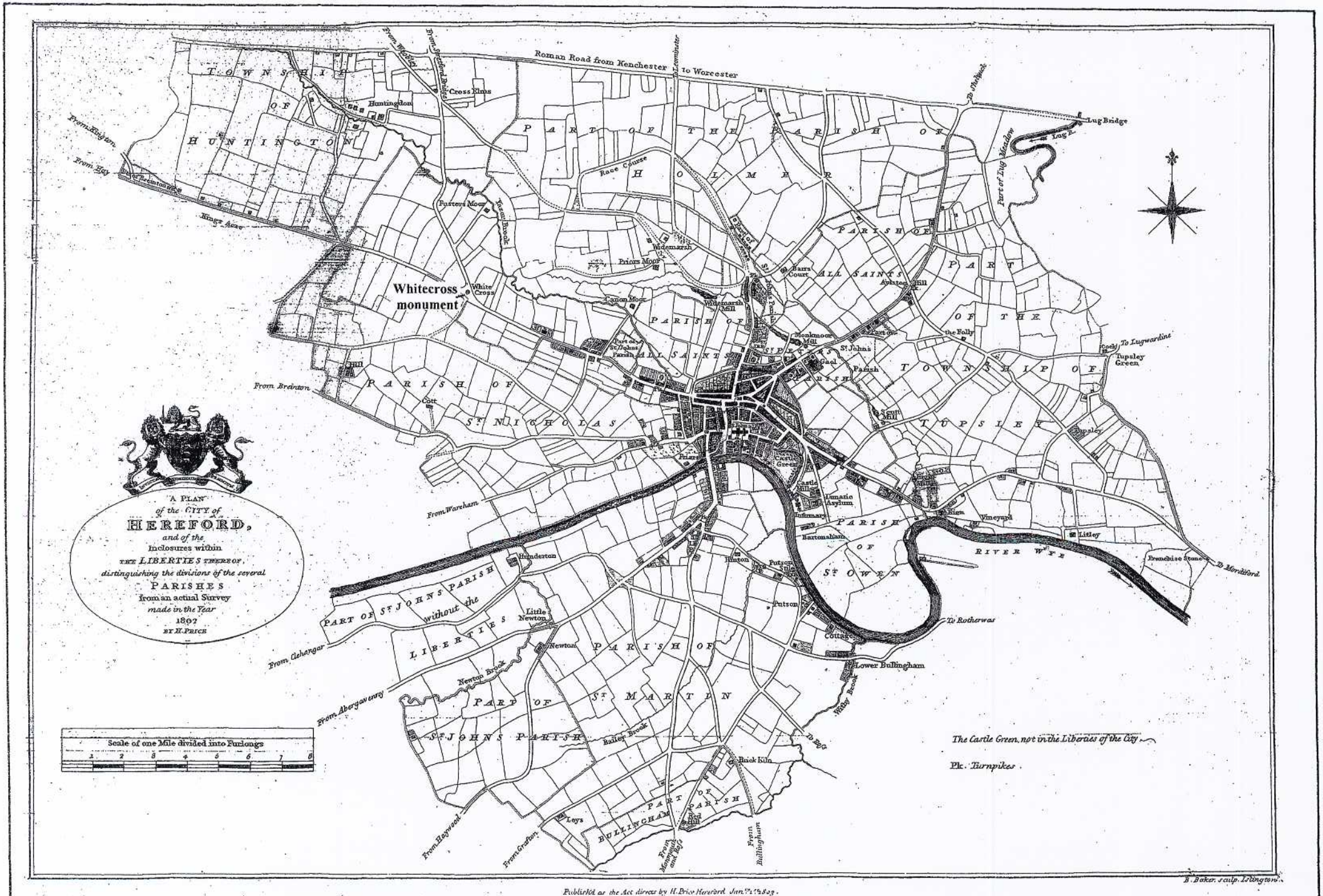
Drawing of the monument in1619, from T. Dingley, Fig 2.



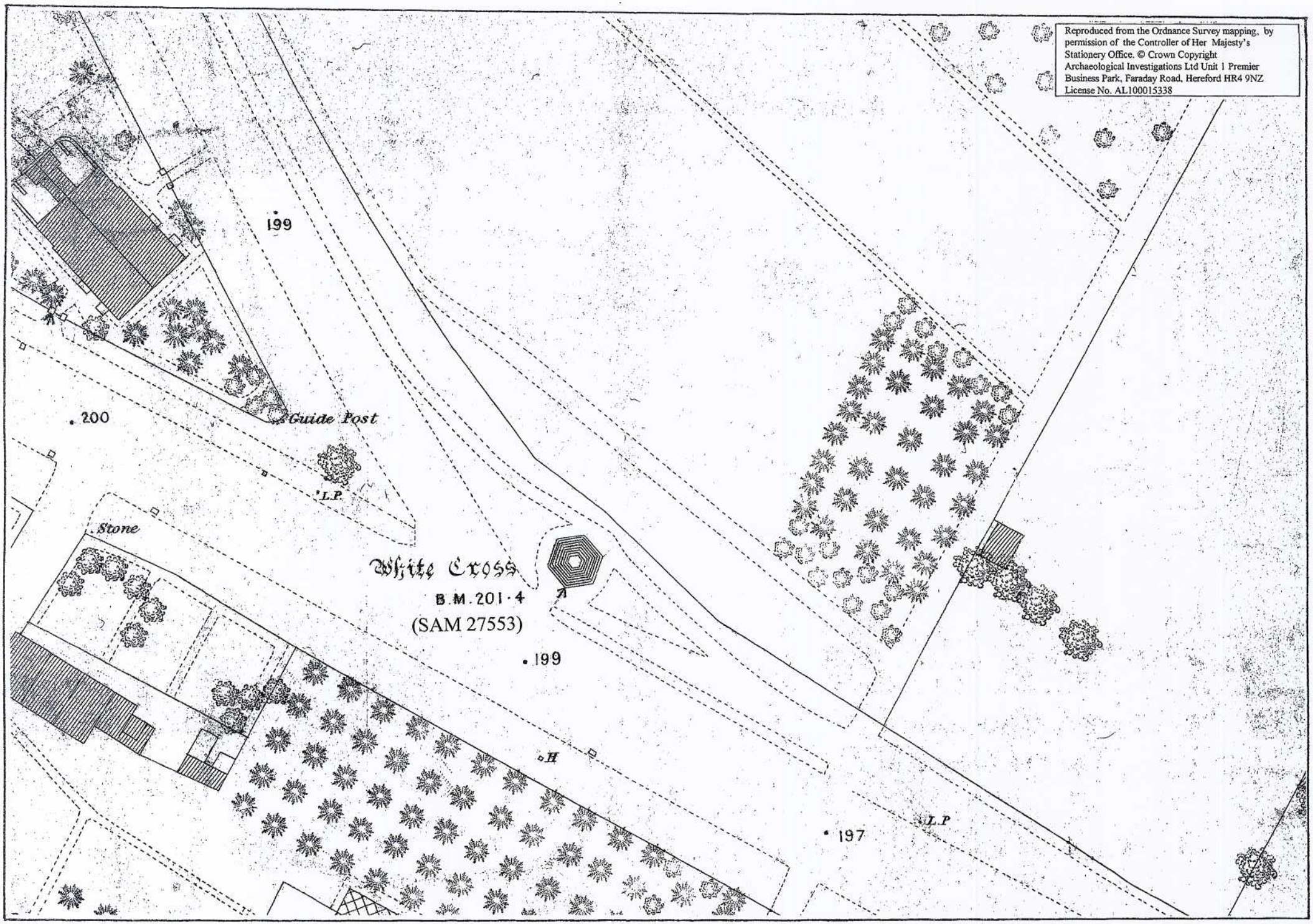
Painting of the monument by J. Wathen (between 1770-1820), Fig 3.

BISHOP CHARLTONS CROSS
near the Above Eigne Suburb

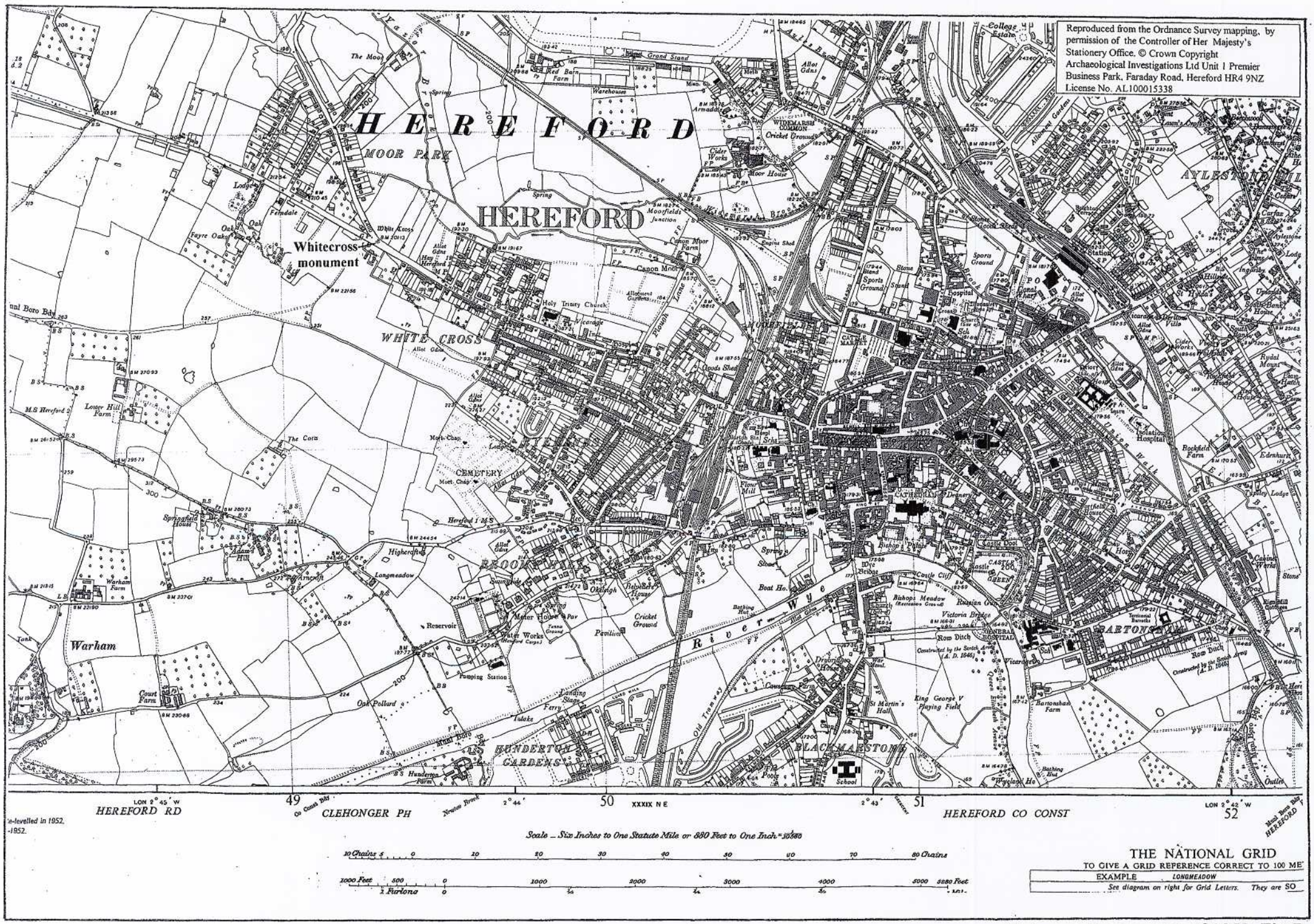
Drawing from J. Duncomb 1804, Fig 4.



"Plan of the City of Hereford" published by H. Price of Hereford 1803, Fig 5.

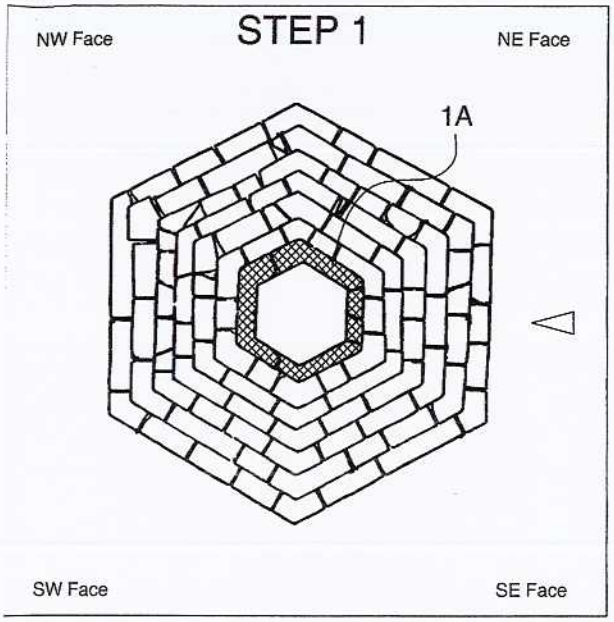


1st Edition Ordnance Survey map of 1886, Fig 6.



Ordnance Survey map of 1952, Fig 7.

Modern Ordnance Survey map, Fig 8.



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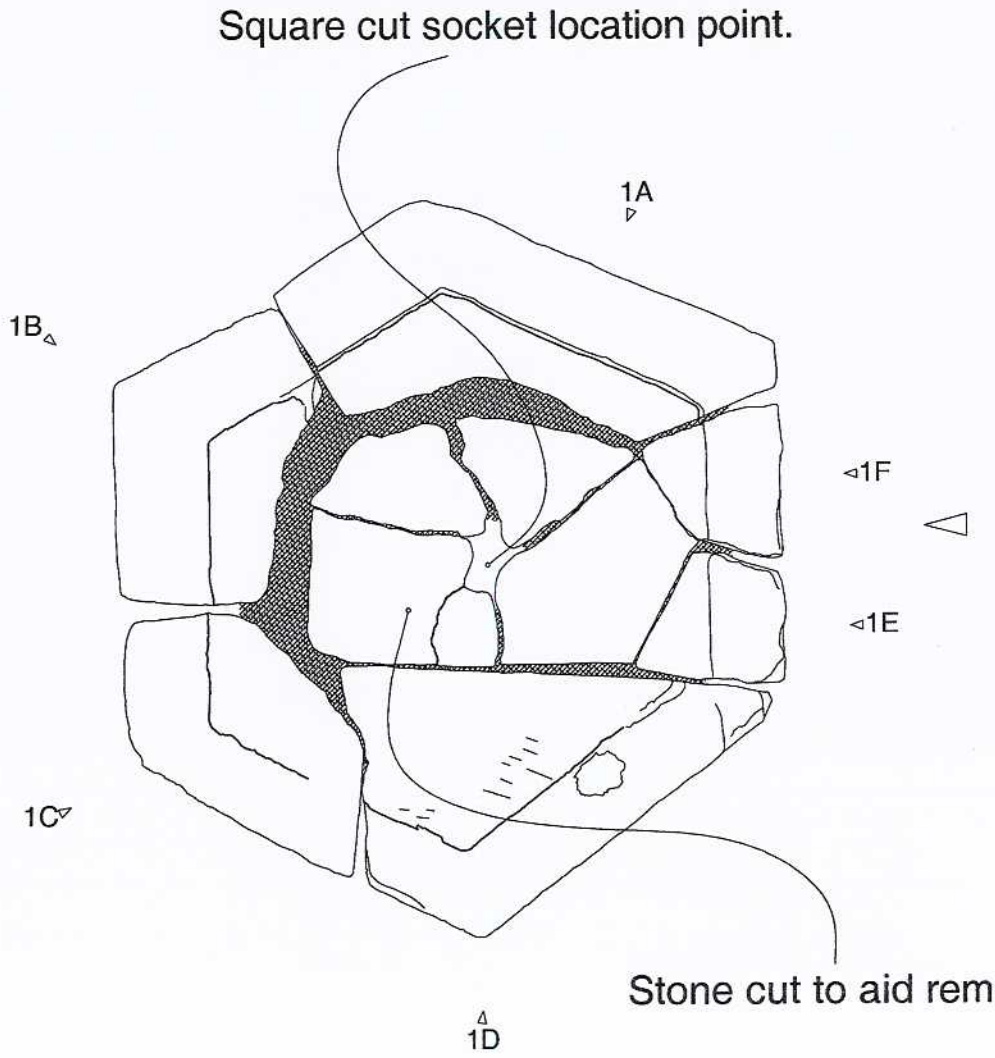
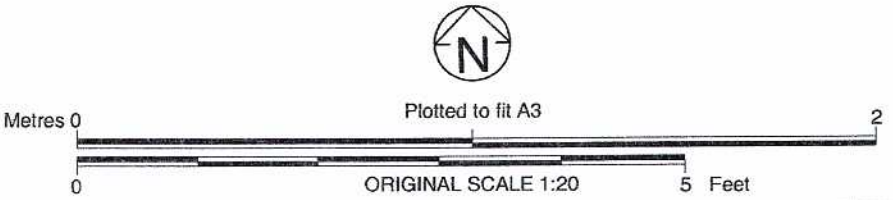


STEP 1



Step 1, with key stone detail, fig 9

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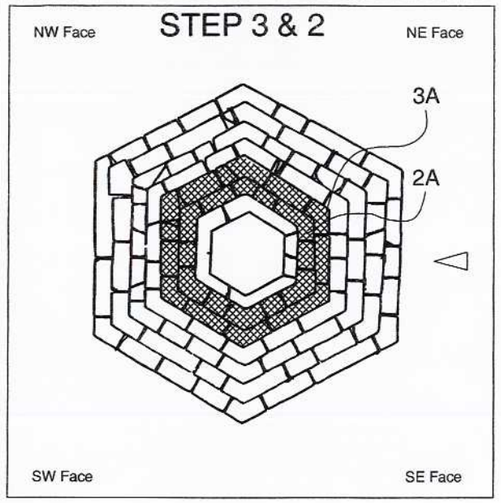
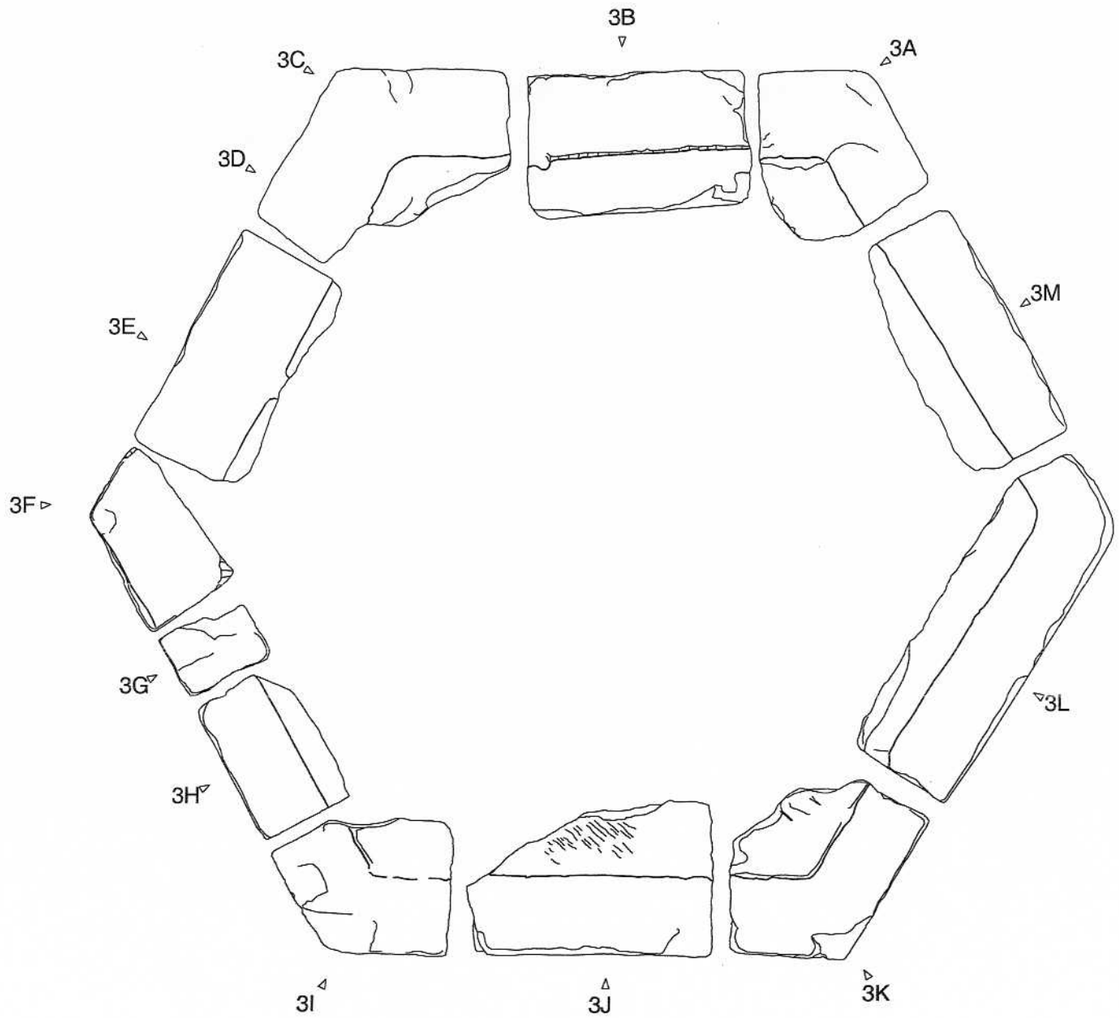
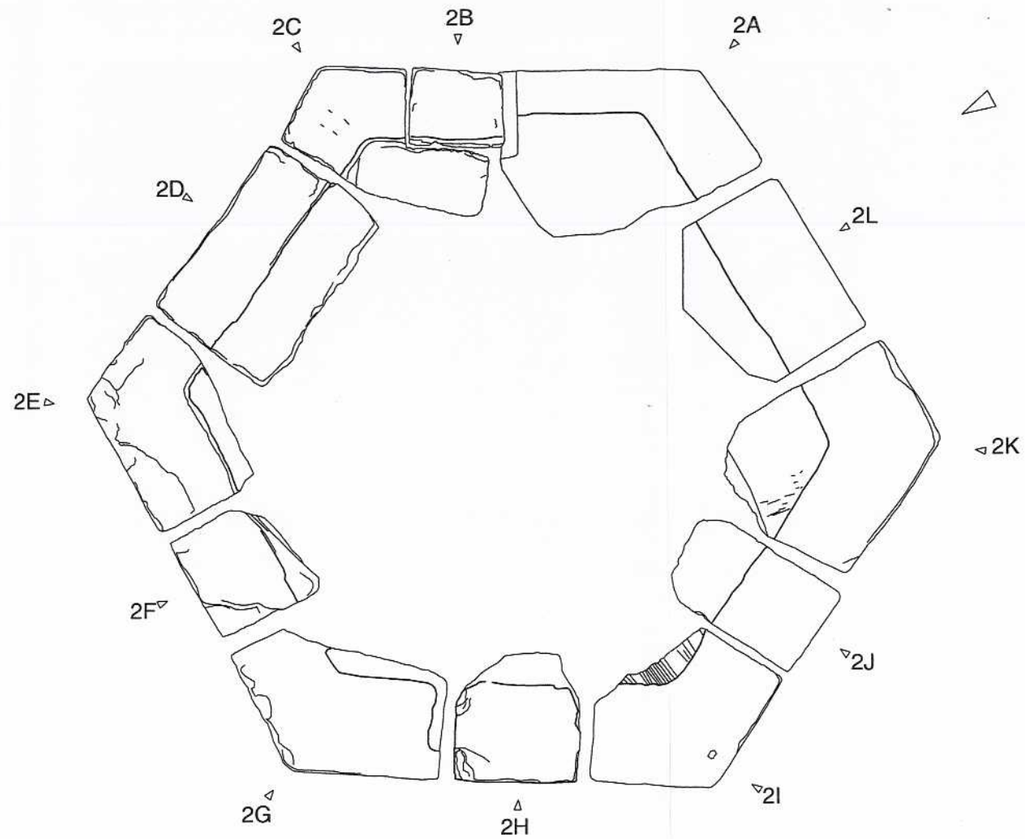
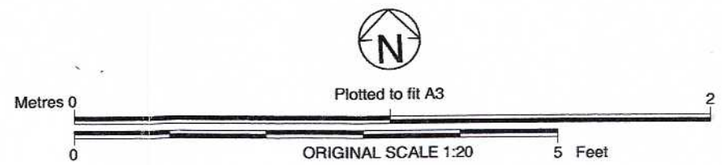




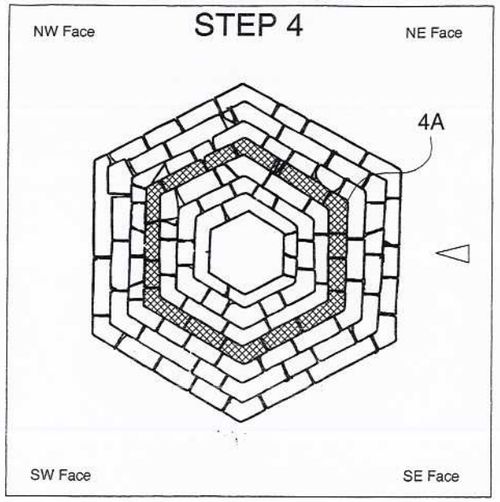
STEP 3



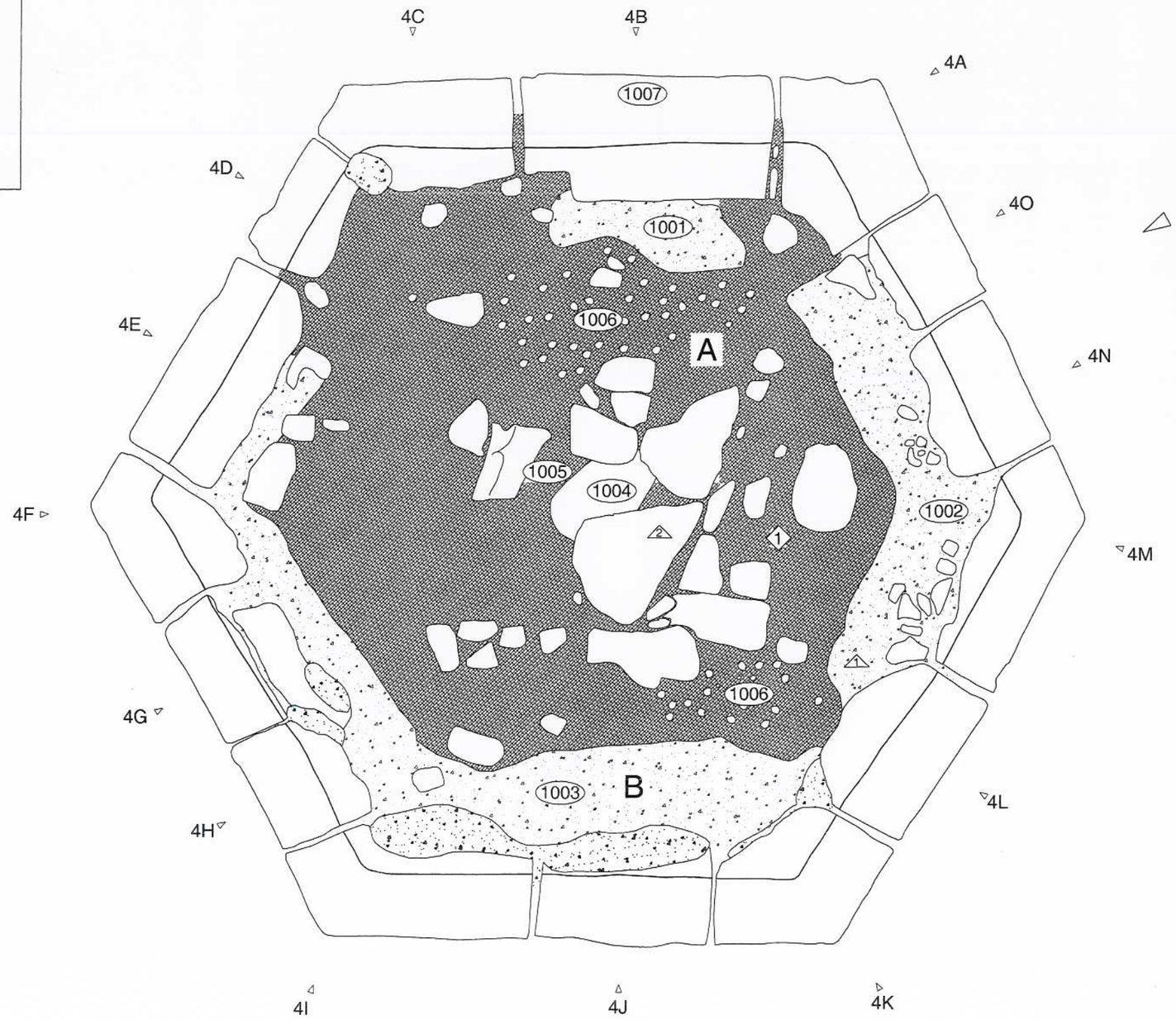
STEP 2



Steps 2 and 3. figs 10 & 11



WHITE CROSS MONUMENT
Acc No 2006-28 Project 995



A= Mid brown Fine Sand- reddish Hue
B= Mid dark brown Fine Sand & Mortar

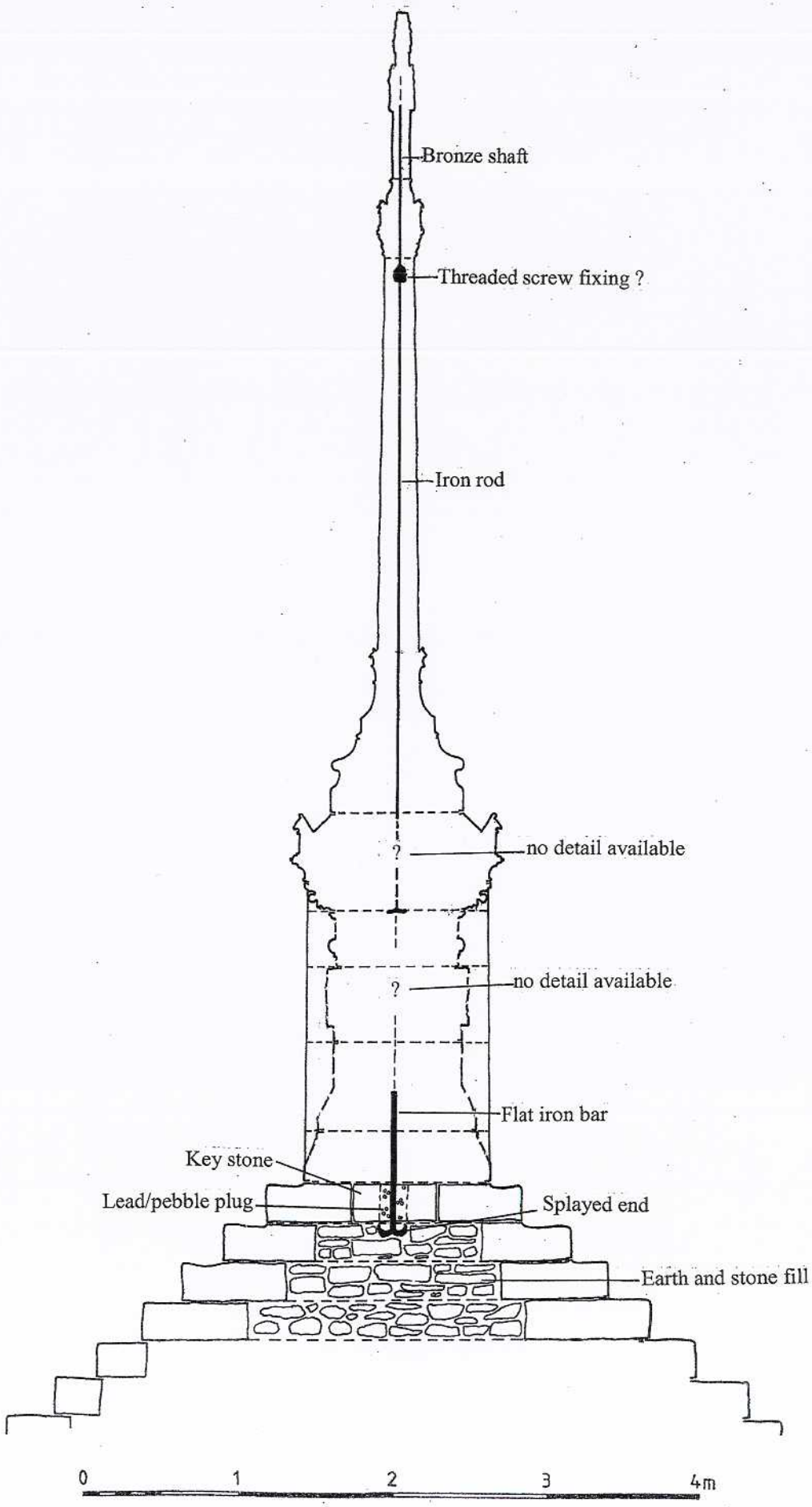
◇1 = 180mm below this level.
△1 = 150mm below this level.
△2 = 400mm below level.

N

Metres 0 — Plotted to fit A3 — 2
0 — ORIGINAL SCALE 1:20 — 5 Feet

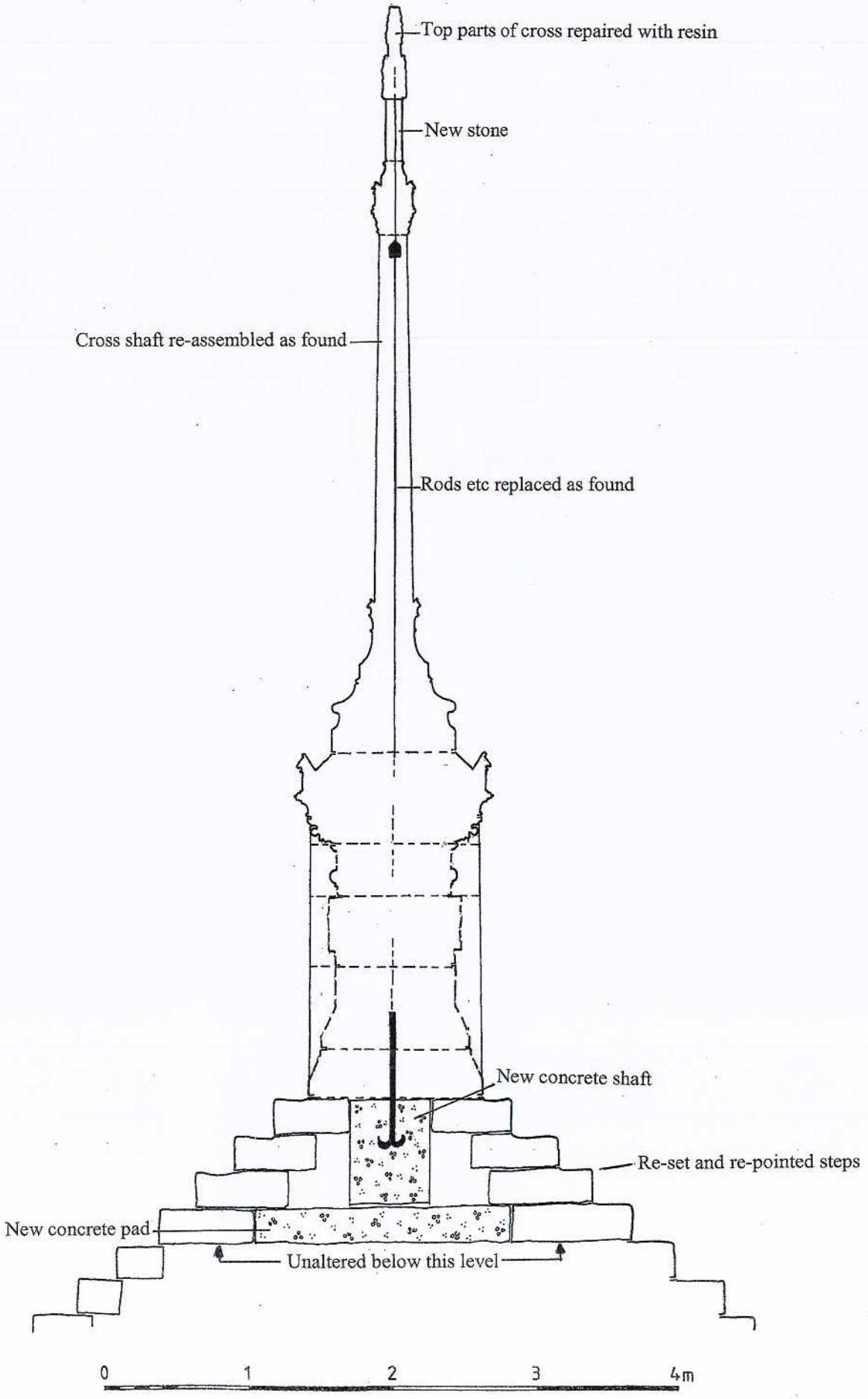
The fill enclosed within Step 4, fig 12

Drawing based on 1991 Whitecross survey (HAS 122)

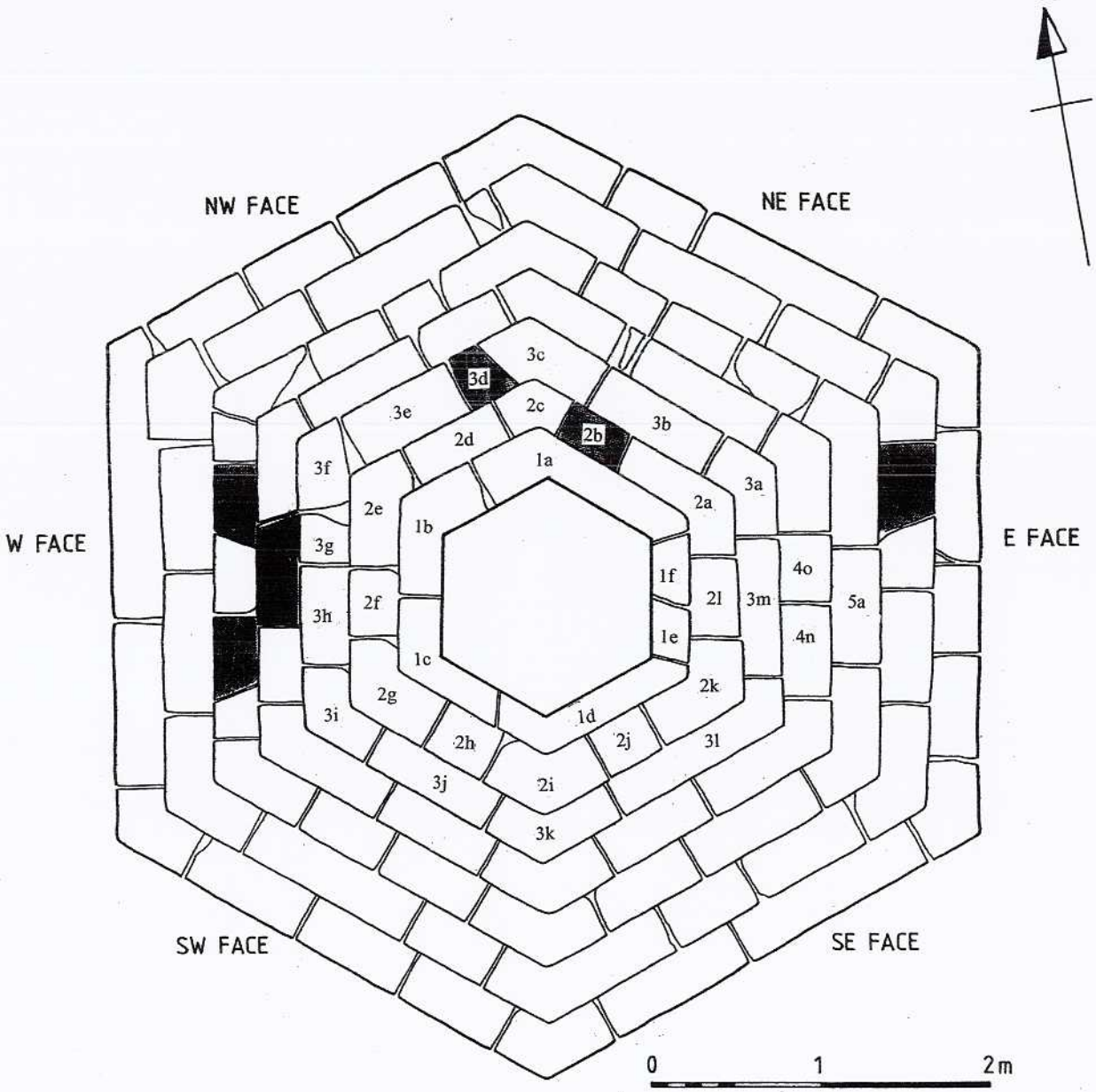


Vertical section through the monument showing construction detail as it was before the repair works, Fig 13.

Drawing based on 1991 Whitecross survey (HAS 122.)



Vertical section through the monument showing details of the repair work, Fig 14.



Numbered stones were removed and re-set in 2006

Masonry replaced in 1991

White Cross monument plan, Figure 15.

Plate 1, Damage to the monument steps resulting from the accident.

Plate 2, Broken "key stone" 1E/1F, with 10cm square socket hole in the centre.

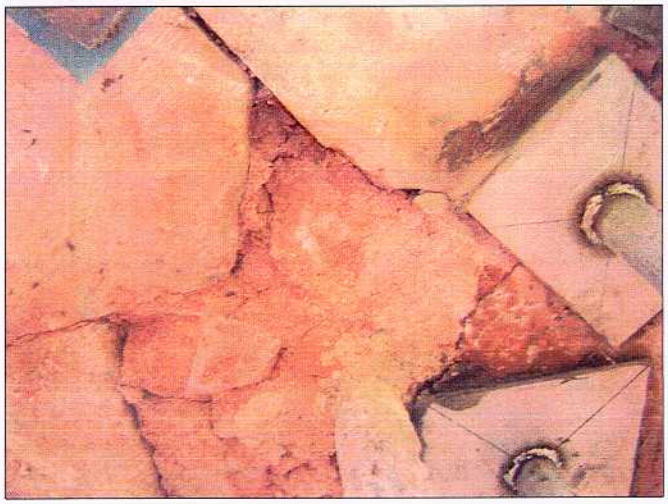


Plate 3, Construction of hexagonal pediment, viewed from below, lead plug encasing iron rod at the bottom of the picture.

Plate 4, After partial removal of the key stone, exposing the iron tie rod and its securing lead/pebble plug.

Plate 5, Cast concrete shaft with fixing/securing holes, on the bottom of the pediment, after being re-positioned on its new concrete pad.

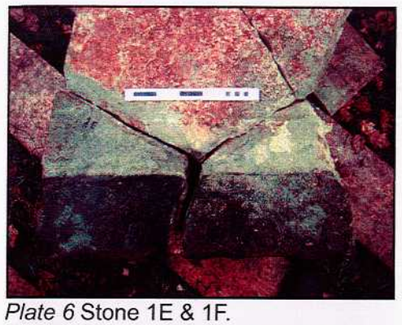


Plate 6 Stone 1E & 1F.

*Plate 7*Detail of Sq cut socket.

Plate 8 Stone 1A.

Plate 9 Stone 1B.

Plate 10 Stone 1C.

Plate 11 Stone 1D.

Plate 12 Stone 2A

Plate 13 Stone 2B..

Plate 14 Stone 2C.

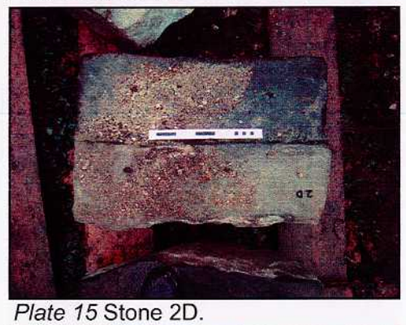


Plate 15 Stone 2D.

Plate 16 Stone 2E.

Plate 17 Stone 2F.

Plate 18 Stone 2G.

Plate 19 Stone 2H.

Plate 20 Stone 2I.

Plate 21 Stone 2J.

Plate 22 Stone 2K.

Plate 23 Stone 3A.

Plate 24 Stone 3B.

Plate 25 Stone 3C.

Plate 26 Stone 3D insert.

Plate 27 Stone 3E.

Plate 28 Stone 3F.

Plate 29 Stone 3G.

Plate 30 Stone 3H.

Plate 31 Stone 3I.

Plate 32 Stone 3J.

Plate 33 Stone 3K.

Plate 34 Stone 3L.

Plate 35 Stone 3M.

Sample of photographically recorded stones