A World War II Air Raid Shelter at Bilston Girls High School, Bilston, Wolverhampton

Birmingham University Field Archaeology Unit
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A World War II Air Raid Shelter at Bilston Girls High School, Bilston, Wolverhampton

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Contents

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1.0 Summary

In 1940 an air raid shelter was built within the grounds of Bilston Girls High School, Bilston, Wolverhampton, West Midlands (NGR SO 9448 9692). In February 2001 Birmingham University Field Archaeology Unit (BUFAU) was appointed by Wolverhampton College to undertake an earthwork survey, excavation and building recording of the shelter prior to redevelopment of the site. Excavation revealed that the shelter was a covered-trench type, constructed from pre-fabricated, reinforced, concrete panels. It comprised a series of eleven inter-linked corridors, set at right angles to each other in a zig-zag formation. These were buried within a mound made up from the underlying clay and mudstone that had been excavated during the construction of the trenches. Four entrances were located, one was excavated revealing doglegged brick blast walls flanking the entranceway. No internal fixtures and fitting were observed.

2.0 Introduction

This report describes the results of a survey and building recording carried out on an air raid shelter (BCSMR No 10492) situated in the grounds of the former Bilston Girls High School (hereinafter referred to as the site). Birmingham University Field Archaeology Unit (BUFAU) undertook the work reported on here in February 2001, on behalf of Wolverhampton College.

In accordance with the guidelines laid down in Planning Policy Guidance Note 16 (DoE 1990), a recommendation for a programme of archaeological work to accompany a planning application was made by the Black Country Archaeological Officer. The archaeological work complied with a brief defining the scope of the required survey outlined by the Local Planning Authority (Shaw 2000, Appendix I).

2.1 The Site and its setting

Bilston Girls High School was founded in 1918/19 in Brueton House. In 1930, the school moved to the purpose-built premises in Green Lanes, centred on NGR SO 9448 9692. The school, a Grade II listed building (BCSMR No 5325), was constructed in 1929-30 by Col G. C. Lowbridge, architect for Staffordshire Education Committee (Shaw 2000, Appendix I, section 4.2). In 1976, the building became a Sixth Form College and, since 1983-4, has housed part of the Bilston Community College.

2.2 Aims

The primary aim of the survey was to establish the current state of the structure. Then, based on initial findings to survey, and then record in detail, the air raid shelter prior to redevelopment of the site.

3.0 Methodology

Documentary and cartographic research was undertaken prior to work commencing on site. An earthwork survey was carried out on the existing mound (Fig. 1), then, two hand-excavated sondages were excavated. These revealed that the entrances, although comprehensively backfilled, and the roof had remained intact. A mini-digger was then used to mechanically remove spoil banked against one of the entrances, and to clear the entranceway that led down in to the shelter.

The structure was recorded by plans (at 1:100) and details of elevations (at 1:20 and 1:10), supplemented by monochrome and colour print, and colour slide photography. It is intended to deposit the paper and photographic archive at Walsall Records Office.

4.0 Results

4.1 Documentary Research *by Sarah Watt*

In the Wolverhampton area, the Local Council decided not to build air raid shelters at schools until the actual outbreak of war. This was probably due, in part, to financial concerns. Once war did break out, the re-opening of many schools after the summer holidays was delayed until shelters were built, or until alternative arrangements could be made. Some schools did not get around to building their shelters until two years or more into the war. The Bilston Council Minutes of 29th June 1939 record that the Education Committee had deferred providing shelters at schools until information was received regarding the Ministry of Health's intentions with regard to evacuation of local school children.

Several references were found in primary sources relating to the erection of air-raid shelters in Bilston. The Minutes of a meeting of the Governors of Bilston Girls High School on 28th November 1939 state that, 'Plans of the proposed trenches were submitted and considered'. It was resolved that the plans be approved subject to the architect's attention being drawn to the high water table in the district which had caused serious flooding of trenches already constructed.

The *Bilstonian* magazine from July 1940 notes that the 're-opening of School after the summer holidays was delayed' due to the outbreak of war. Later in July 1941 the same magazine notes that the school was happily spared any serious disturbances in the shape of constant air raids or wholesale evacuation.

4.2 Field Survey (Fig. 2)

The mound is visible as a large earthwork along the eastern perimeter of the playing fields (Plates 1 and 2). The mound measured 60m by 11m across its base and stood up to 1.5m high at its northern end. The surrounding ground level sloped down towards the north, ranging from 139.8m AOD at the south, to 138.42m AOD to the north, making the earthwork more pronounced at its northern end. A hachure survey of the mound itself was undertaken prior to excavation.

4.3 Building Recording (Fig. 2)

A series of eleven inter-linked corridors were found within the mound. They were set at right angles to each other in a zig-zag formation. The seven principle corridors measured 10m in length and were linked by shorter sections measuring *c.*5.5m. Four main entrances were located (as detailed on the 1990 OS Map, Fig. 1), and further investigation revealed two emergency exists in the roof of the structure, one at each end. Both had been blocked (Plate 3), although the northern exit was visible externally, having been capped with concrete (Plate 2).

The whole shelter was constructed from prefabricated, reinforced concrete sections (Fig. 3, Plate 4). The wall sections measured 2m in height, 0.3 wide and 0.1m thick at their deepest point. The floor and roof panels were flat, 1.5 long, 0.3m wide and 0.05m thick and were designed with rebated panels. The roof of each corridor was predominantly flat with panels angled over concrete plinths at each of the four entrances and at the junctions of the corridors (Plates 5 and 6). Some floor panels were displaced due to subsidence. Wall, floor and roof panels were indented at the ends so that they could be slotted together (Plate 4). No internal fixtures or fittings were found.

In consultation with the Black Country Archaeological Officer it was decided that excavation of only one of the entrances (Entrance 2) was necessary. All doorways were built of brick, and abutted the concrete superstructure (Plate 7). Entrance 2 was flanked by a series of brick blast walls (Plate 8), that were dog-legged in plan. The elevations were predominately stretcher bond with an occasional header to tie in the double wall (a *single brick* wall in military building terminology). Excavation revealed that access was originally down a ramp that had been cut through the underlying clay and mud stone. There was no evidence for the entrance having been surfaced, although it may originally have been with wood or scalpings. A sondage excavated on top of the mound revealed that a 0.5m layer of clay and mudstone had been banked up over the shelter. The floor level was reached at a height of 137.49m AOD.

The other entrances are clearly defined by blast walls on the 1990 OS Map (Fig. 1) and must, therefore, have been sealed after this date. They were blocked by partial brick walls with steel shuttering above. The upper courses of some sections of the blast wall leading to Entrance 2 had been demolished and used to back-fill the entrance way.

5.0 Discussion

In 1937 the Air Raid Precautions (ARP) Act was passed which compelled local authorities to provide protection from air raids and gas attack for the local civilian population (Burridge 1997, 61). The most common type of shelter produced was the ubiquitous *Anderson shelter*, and their corrugated iron shells can still be seen rusting away in many gardens today. Public shelters were also provided by local authorities; simple trenches were dug in public spaces, and shops and some public buildings had their basements reinforced (*ibid*).

Covered trench shelters developed out of simple trenches, and were widely used due to their versatility. Plans could be customised and each one could be purpose built to fulfil local needs. They were generally constructed using a *cut and cover* technique where spoil from the excavation of the trench was banked onto and against the shelter to give extra protection from blast (Lowry 1999, 67). They were constructed from pre-cast concrete panels and arrived on site in kit form. This allowed for great flexibility in design which varied from simple single trenches to V-shaped configurations. The zig-zag design of the Bilston shelter was probably intended to provide greater protection from blast.

This type of shelter was generally used "..to provide refuge for school children, those living in narrow terraced streets, workers and those caught away from home" (*ibid*, 66). Burridge notes that they are most commonly found on airfields, occurring in a much more dispersed pattern in civilian contexts (1997, 63). Several of this type have been recorded in the Midlands. One at Diglis Island, Worcester (pers comm. Wilkes), provided protection for troops stationed there, while a second located on the Croft Hill Industrial Estate, Willenhall, was intended to both protect the workforce and maintain optimum production at the foundry, which may have been producing parts for aircraft (Nichol and Ramsey 2000, 7).

Shelter construction was at its peak in Britain during the immediate pre-war period, the *approach* to war, and then in response to heavy bombing by the Luftwaffe during the Blitz in the autumn and winter of 1940-41. Across the country many factories and foundaries were given over to the production of munitions and war material as part of the war effort. The industrial nature of the Midlands meant that there was a concentration of so-called *arms towns* and this made them targets for bombing raids.

In *Frontline* (Anon 1942, 96) the description of Birmingham is typical of much of its immediate area, including places such as Bilston and Willenhall. It is described as being ".....the home of medium-sized metal industries, all now adapted to war uses. Their factories and workshops are scattered among houses and behind stores higgledy-piggledy...". It was for this reason that schools in the industrial heartland of Britain began building their own defences against air attack.

Bilston Girls High School began planning the construction of their shelter in 1939 when tenders were invited for the excavation of trenches (Bilston Council Minutes Novemeber-December 1939). The Governors had waited for confirmation as to whether local children were to be evacuated. It seems likely that the shelter was not constructed until the summer of 1940, as return to school after the summer holidays was postponed (Watt, section 4.1 above). It is clear, however that other shelters of

trench-type had already been constructed in the vicinity, as the architect is warned of the high water table flooding trenches opened previously.

Moreover, the shelter was indeed needed, and used, as the Editors of *The Bilstonian* (the School Magazine) wrote in July 1941,

> "We are thankful that our school has been so happily spared any of the serious disturbances in the shape of constant air raids or wholesale evacuation which have come to many schools this year. We have not, however, been by any means free from interruptions. The sirens have called us many times from our work to take cover in the shelters. We missed our week's camping at Stratford last summer, too, and are likely to miss it till the war is over, but our losses have been small, if we consider that we still have our fine building, and that our school life can still go on as before".

This entry was written as Operation Sea Lion was abandoned and Germany's intention to invade Britain had waned, the last great air strike that the Midlands was to endure had already taken place on May 16 1941 (Anon 1942, 88). With the launch of Operation *Barbarossa* against the Soviet Union, German air raids over Britain dwindled.

The shelter at Bilston is virtually complete, and in a relatively good state of preservation. It is a fine example of how the standard format of this type of shelter could be reworked into a design which best suited local needs. Shelters such as this are well documented, and the description of this shelter, now fully recorded will be passed on to the *Defence of Britain Project* to update their records.

6.0 Acknowledgements

The project was commissioned by Wolverhampton College. Thanks are due to Andrew Brodie for monitoring the project on behalf of the college. Thanks are also due to Mike Shaw who monitored the project for the Local Planning Authority. Work on site was carried out by Edward Newton, Kirsty Nichol, and John Sterenberg. Sarah Watt undertook the documentary research. Kirsty Nichol produced the written report which was illustrated by Nigel Dodds and Kirsty Nichol, and edited by Steve Litherland, who monitored the project for BUFAU.

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OS Map 1965.

OS Map 1990.

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The Bilstonian, July 1940.

The Bilstonian, July 1941.

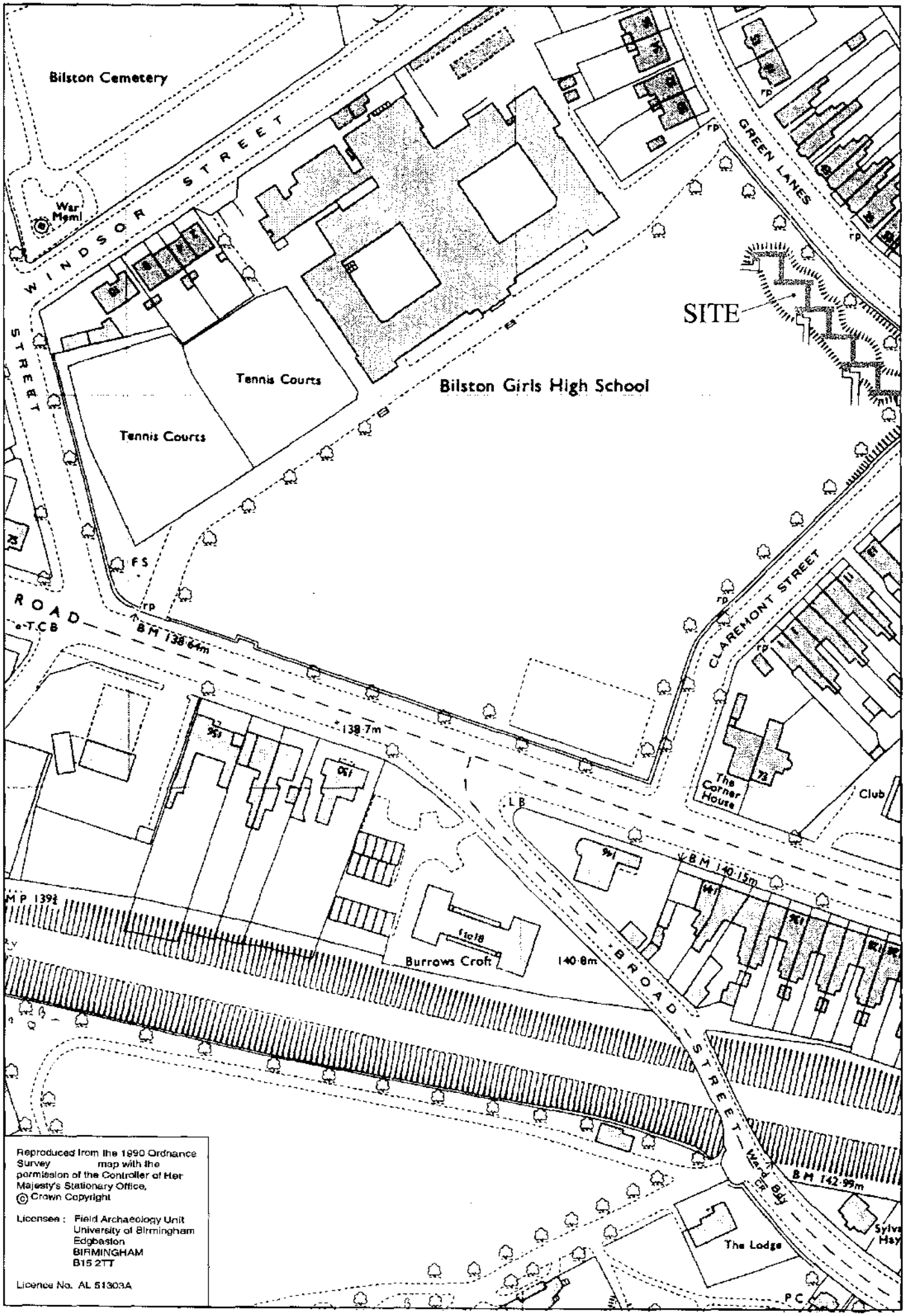
Bilston Cemetery
WINDSOR STREET
War Mem'l
GREEN LANES
SITE
Tennis Courts
Tennis Courts
Bilston Girls High School
STREET
FS
rp
ROAD
T.C.B
BM 138.64m
138.7m
CLAREMONT STREET
The Corner House
Club
LB
BM 140.15m
MP 139
Burrows Croft
140.8m
BROAD STREET
BM 142.99m
The Lodge
PC
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Fig.1

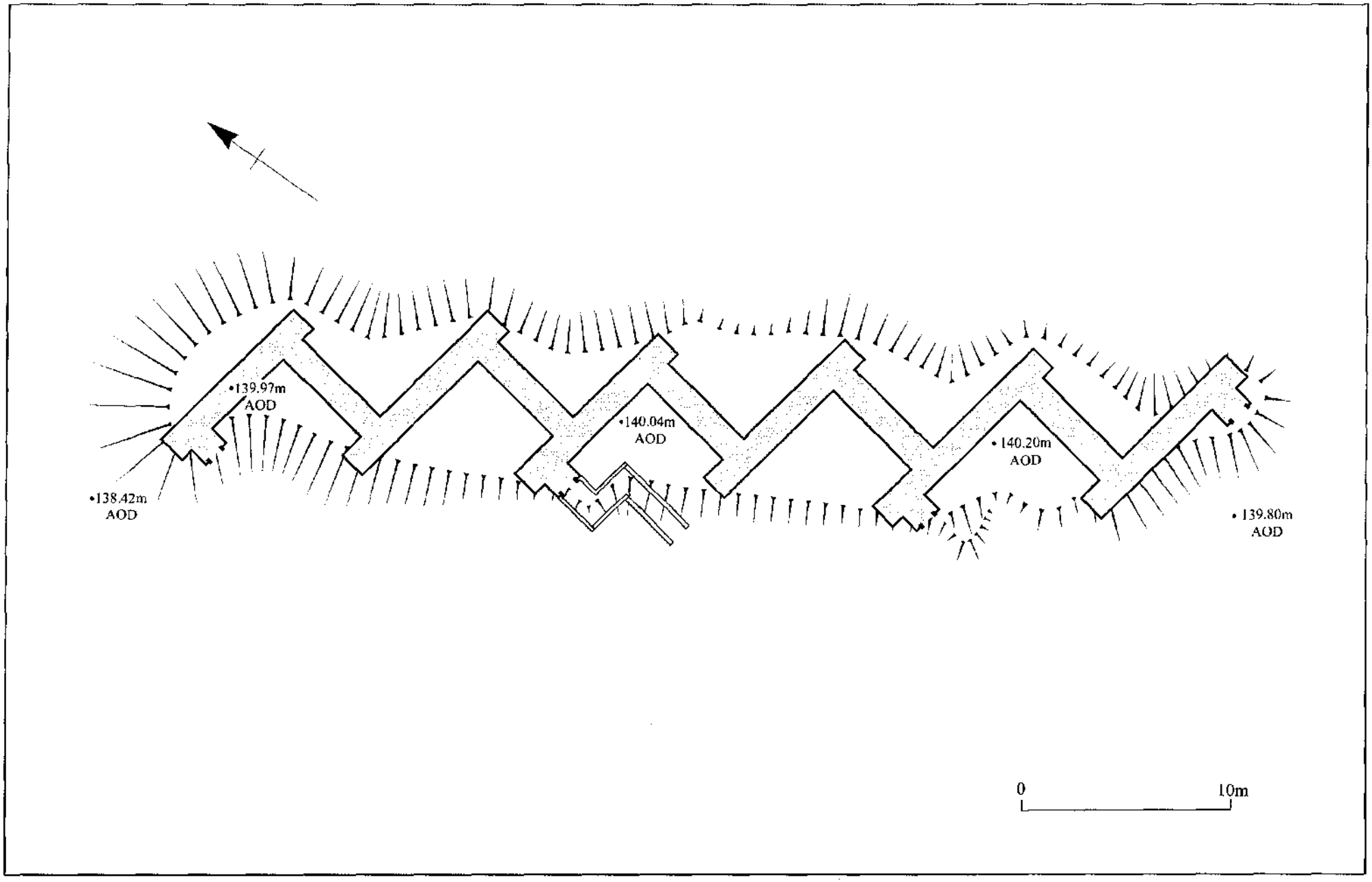
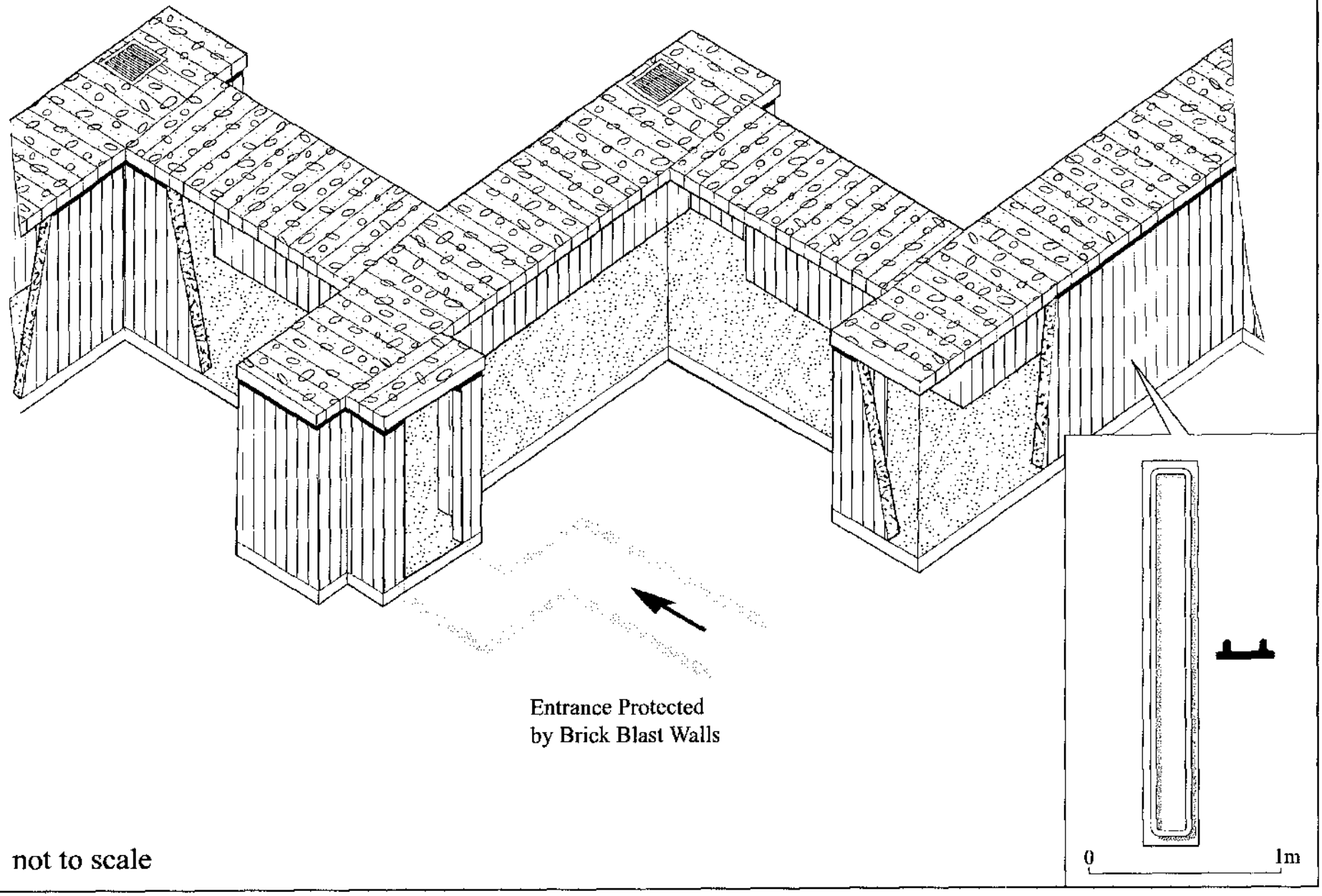


Fig.2

Schematic Section of the Shelter



not to scale

Fig.3

Plate 1 Pre-excavation view of the mound

Plate 2 View over the top of the mound, the zig-zags follow the line of the underground corridors, one of the emergency exits is visible capped in concrete

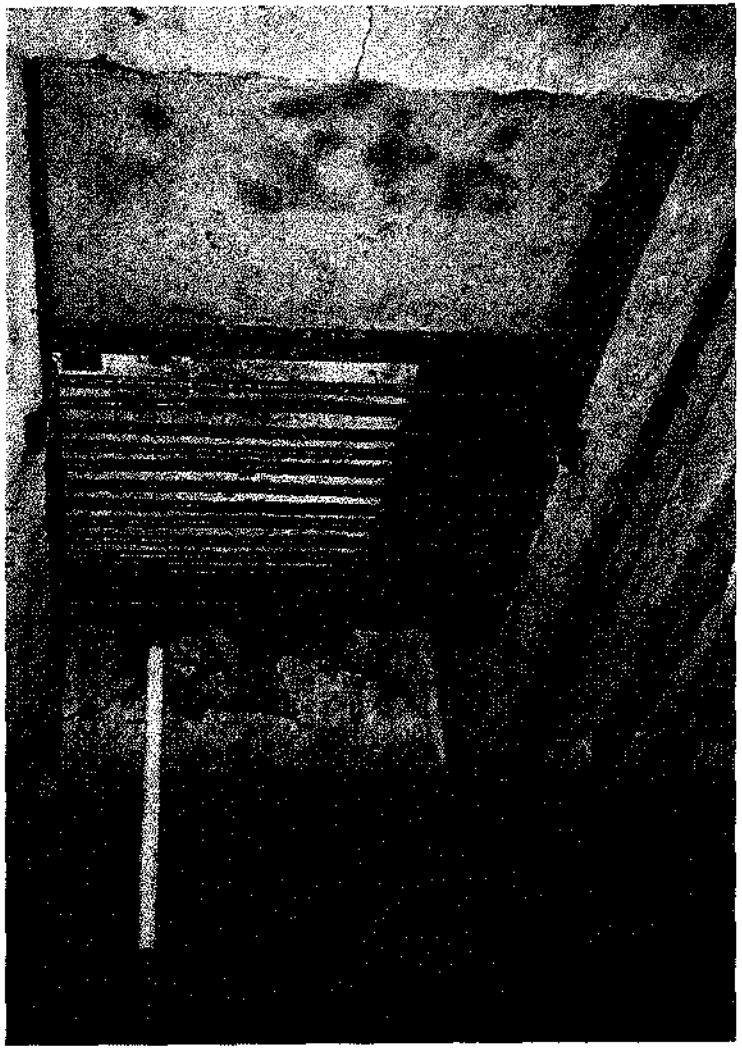


Plate 3 Detail of an emergency exit

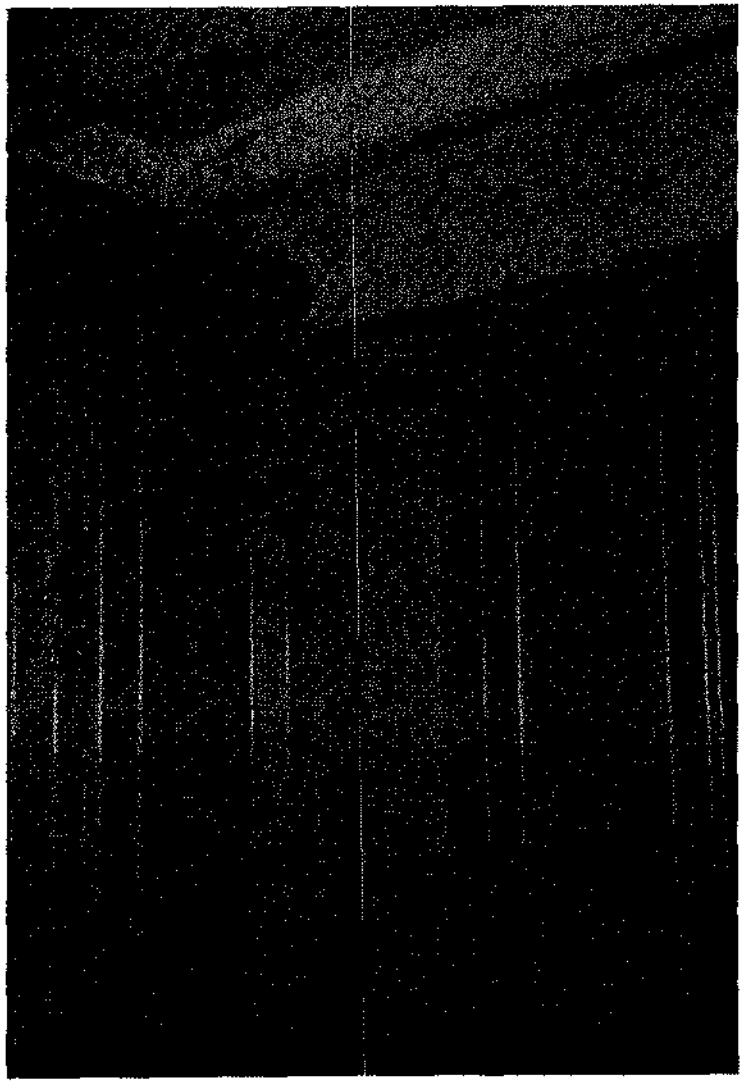
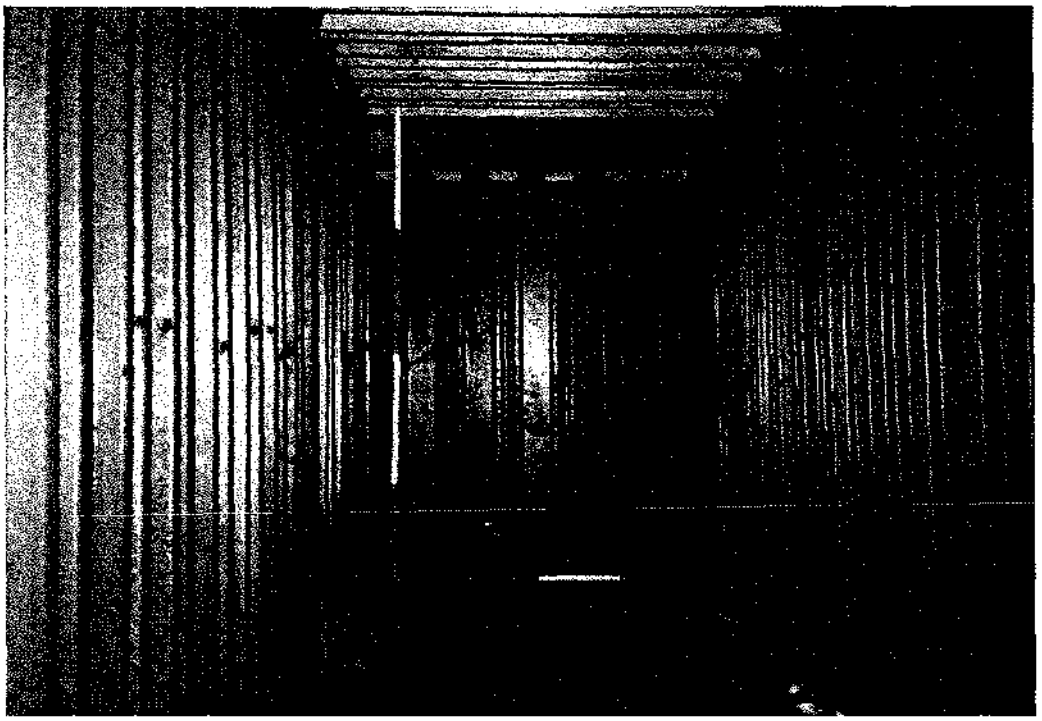


Plate 4 Detail of the interlocking wall and roof panels



Plates 5 and 6 Internal elevations

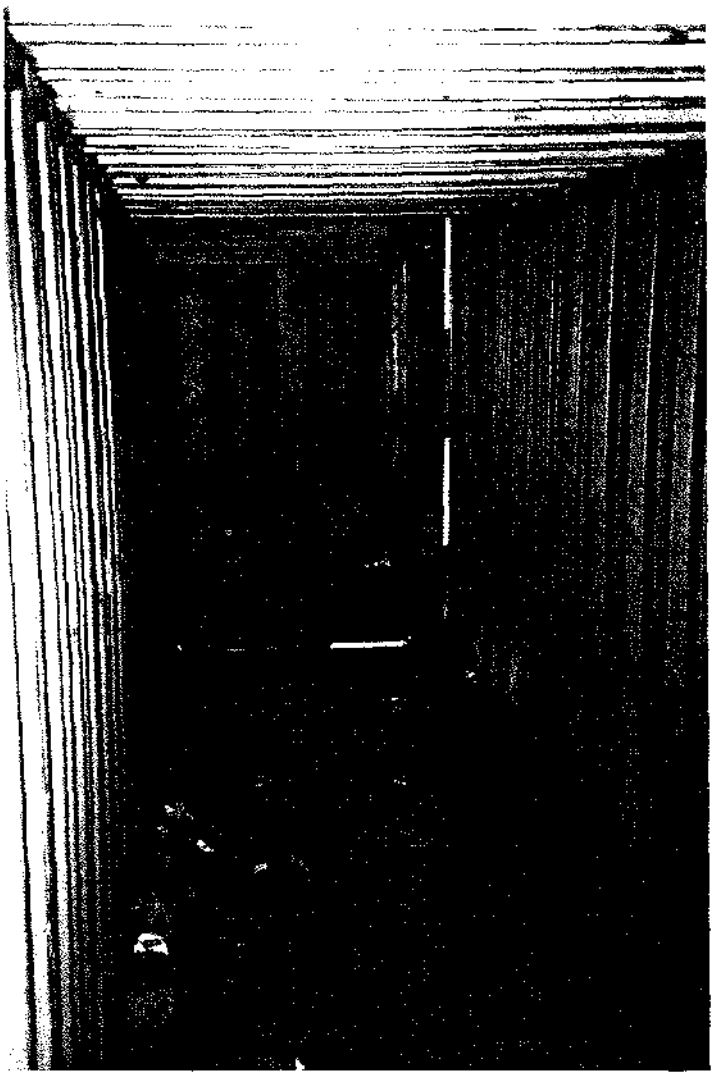


Plate 7 Internal view of one of the blocked entrances

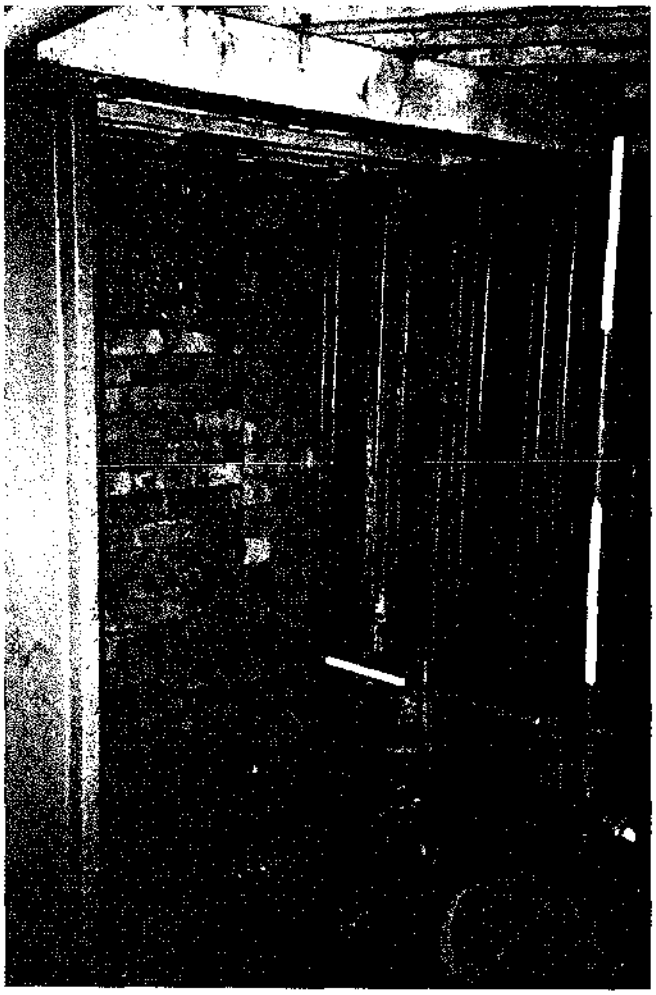
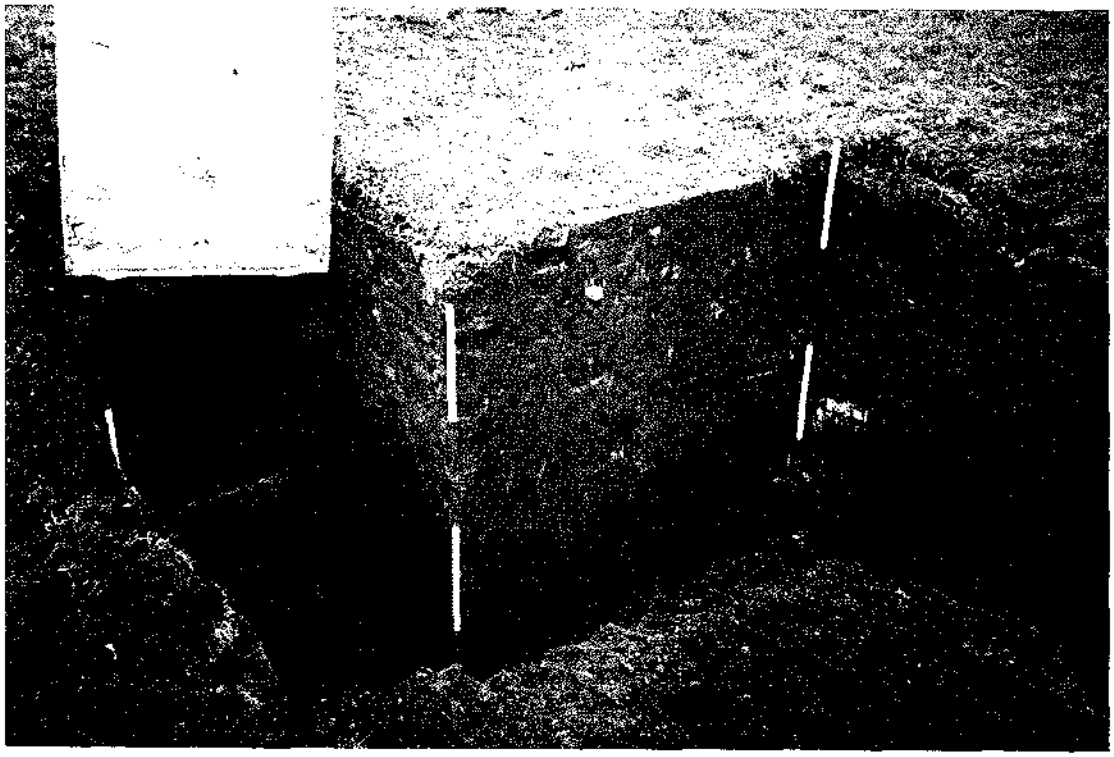


Plate 8 Blast walls flanking the opening of Entrance 2



APPENDIX I

Former Bilston Girls High School: Brief for Archaeological Recording.
Mike Shaw 2000.

Former Bilston Girls High School

Brief for Archaeological Recording

1. Summary

1.1 An air raid shelter in the grounds of the former Bilston Girls High School has been identified as of historic importance. The brief sets out the work necessary to record the structure in advance of and during any development.

2. Site location and description

2.1 The former Bilston Girls High School lies at the north west end of Bilston at SO94409695.

3. Planning background

3.1 A draft development brief for the site has been prepared by Wolverhampton MBC (September 2000). The brief highlights the importance of the air raid shelters in the school grounds and the necessity for a survey and record of the structures.

4. Archaeological Background

4.1 The site lies outside the historic core of Bilston. Prior to the building of the school the area had been mined for coal. The Ordnance Survey 1st edition map (1880s) marks a number of old shafts in the area. From the 1880s until the building of the school the land was derelict.

4.2 The school was built 1929-30 by Col G C Lowbridge, architect for Staffordshire Education Committee. It is a Grade II listed building (Black Country Sites and Monuments Record No 5325).

4.3 In the grounds of the school there is a large World War II air raid shelter (BCSMR No 10492; SO94489692).

5. Requirements for work

5.1 As the site lies outside the historic core of Bilston there is no requirement for archaeological work other than the recording of the air raid shelter.

5.2 A plan of the current state of the air raid shelter should be made to at least 1:100 scale and related to the national grid.

5.3 Elevations along and across the mound of the shelter should drawn to at least 1:100 scale and related to the Ordnance Datum.

5.4 A documentary search should be made at the local archives service for earlier plans, surveys or descriptions of the shelters.

5.5 If the air raid shelters are to be destroyed or affected by the development a plan and survey of the internal structure of the shelter should be made during the work.

5.6 A photographic record of the shelter should be made before and during development.

5.7 On completion of the work a report should be produced detailing the results. The report should contain:

- A written summary of the findings together with appropriate illustrations, which should be related to the national grid.
- A copy of this brief
- An assessment of the importance of the structure related to similar structures elsewhere.
- A summary of the findings to be included in West Midlands Archaeology and any other appropriate local and/or national journals.

6. **General conditions**

6.1 The work should be carried out by a suitably qualified archaeological or building recording specialist. A list of archaeological contractors who have expressed an interest in carrying out work in the Wolverhampton area is available from the Black Country Archaeologist, Wolverhampton MBC (tel: 01902 555493).

6.2 An appropriate recording strategy should be used and the method and justification for this stated in the report.

6.3 The code of conduct, standards and guidance of the Institute of Field Archaeologists should be adhered to, in particular the *Standard and Guidance for the archaeological investigation and recording of standing building and structures (1999 revision).*

6.4 Archive deposition

On completion of the work the site archive should be deposited with the Wolverhampton Archives Service.

6.5 Publication and dissemination

Two copies of all reports should be submitted to the Black Country Sites and Monuments Record and two copies to the local planning authority. Unless there is a specific request for confidentiality, the reports will be made publicly available six months after their publication and a copy will be deposited with the borough archives service.

6.6 Health and Safety

It is the responsibility of the contractor to ensure that all work is carried out in accordance with relevant Health and Safety regulations.

Site procedures should be in accordance with the guidance set out in the Health and Safety Manual of the Standing Conference of Archaeological Unit Managers

6.7 Monitoring

The work will be monitored by the Black Country Archaeologist on behalf of the Planning Authority and provisions for monitoring should be agreed with him. At least five working days notice of commencement of any fieldwork should be given to the Black Country Archaeologist.

Prepared on 3 November 2000 by Mike Shaw, Black Country Archaeologist, on behalf of Wolverhampton MBC