



**WORLD WAR II DEFENCES: STRUCTURES  
RELATED TO BUILDINGS 1-4  
PLANNING DELIVERY ZONE 6  
London E6**

London Borough of Hackney

Standing Building Survey Report

January 2009



MUSEUM OF LONDON

**Archaeology  
Service**

PRE-CONSTRUCT ARCHAEOLOGY

**WORLD WAR II DEFENCES: STRUCTURES  
RELATED TO BUILDINGS 1-4  
PLANNING DELIVERY ZONE 6  
London E6**

London Borough of Hackney

Standing Building Survey Report

Site Code: OL-01907

National Grid Reference: 537550 185368

Project Manager Nick Bateman & Kieron Tyler

Author Paul Thale

Graphics Juan José Fuldain González

**Museum of London Archaeology  
© Museum of London 2010**

Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED  
tel 020 7410 2200 fax 020 7410 2201  
molas@museumoflondon.org.uk  
www.museumoflondonarchaeology.org.uk

**PCA**

Unit 54, Brockley Cross Business Centre, 96 Endwell Road, Brockley, London SE4 2PD  
tel 020 7732 3925 fax 020 7732 7896

© MOL Archaeology – Pre-Construct Archaeology Limited 2010

## **SUMMARY (non technical)**

*Following previous work relating to World War II defences within the Olympic Park (OL-01907/OL-08007 Standing building survey MoLAS-PCA). The Museum of London Archaeology and Pre-Construct Archaeology (MOLA-PCA) were commissioned by the Olympic Delivery Authority to analyse and record further structures relating to a World War II anti-aircraft gun emplacement. All the structures were to be demolished in order to redevelop the site, and the archaeological investigation and a subsequent report were required as a condition of planning consent for the redevelopment. The investigation was undertaken from September to October 2009.*

*Two concrete gun platforms, a concrete service road linking the platforms, part of the inner control post and four foundation slabs for associated Romney huts were recorded. Post-war the gun emplacement was re-developed as a storage depot which was later replaced by a Civil Defence training ground in 1954. A large concrete slab and fence post that may relate to these periods were also recorded.*

*The civil defence training ground was closed in 1968, the buildings were partially demolished and the area used as a dumping ground during the early 1970's which resulted in the ground level being raised another 3m, covering the whole of the gun emplacement.*

## CONTENTS

<b>1</b>	<b>Introduction.....</b>	<b>1</b>
1.1	Site background .....	1
1.2	Planning background .....	2
1.3	Origin and scope of this report .....	2
1.4	Research aims and method of work.....	3
1.5	Organisation of this report and conventions used.....	3
<b>2</b>	<b>Topographical and historical background.....</b>	<b>5</b>
<b>3</b>	<b>The standing building survey.....</b>	<b>6</b>
3.1	Methodology.....	6
3.2	Description of the buildings .....	6
3.2.1	<i>General</i> .....	6
3.2.2	<i>Building 13: Romney hut base (c 1944)</i> .....	6
3.2.3	<i>Building 14: Southern gun platform (1938)</i> .....	7
3.2.4	<i>Building 15: Romney hut base (c 1945-6)</i> .....	7
3.2.5	<i>Building 16: Romney hut base (c 1945-6)</i> .....	8
3.2.6	<i>Building 17: Command post (1938)</i> .....	8
3.2.7	<i>Building 18: Romney hut base (c 1945-6)</i> .....	10
3.2.8	<i>Later structures</i> .....	10
<b>4</b>	<b>Conclusion .....</b>	<b>11</b>
<b>5</b>	<b>Potential of the archaeology .....</b>	<b>12</b>
5.1	Original research aims .....	12
5.2	New research aims .....	12
5.3	Significance of the data.....	12
5.4	Salvaged fixtures, fittings and materials.....	12
<b>6</b>	<b>Publication and archiving.....</b>	<b>13</b>
<b>7</b>	<b>Acknowledgements.....</b>	<b>14</b>
<b>8</b>	<b>Bibliography and references .....</b>	<b>15</b>
<b>9</b>	<b>NMR OASIS archaeological report form.....</b>	<b>16</b>
<b>10</b>	<b>Appendix: list of working drawings made on site.....</b>	<b>20</b>



## LIST OF ILLUSTRATIONS

Cover: AA command post, location and source unknown	
Fig 1 Site location plan	21
Fig 2 View of site looking south-east	22
Fig 3 Ordnance Survey Map of 1949	23
Fig 4 Plan of recorded structures	24
Fig 5 View of OL-01907: aerial photograph taken by the RAF, 17th June 1941	25
Fig 6 View of OL-01907: aerial photograph taken by the RAF, 7th August 1944	26
Fig 7 View of OL-01907: aerial photograph taken by the RAF, 2nd April 1946	27
Fig 8 Buildings 13 and 14	28
Fig 9 North-facing S5 of gun platform, Building 14, showing detail of holdfast	29
Fig 10 View of Romney hut, Building 13, looking south	30
Fig 11 Detail of Romney hut slab, Building 13, showing foot and paw prints	30
Fig 12 View of gun platform, Building 14, looking north-east	31
Fig 13 Detail of in-situ holdfast, Building 14, looking south	32
Fig 14 Detail of holdfast, Building 14, post-demolition	32
Fig 15 View of Romney hut, Building 15, looking west	33
Fig 16 View of gun platform, Building 4, Romney huts, Buildings 15 and 16, and part-demolished service road, looking south	34
Fig 17 Plan of command post, Building 17	35
Fig 18 South-east facing cross section (S1) of command post, Building 17, showing room A	36
Fig 19 South-west facing elevation (S2) of exterior of command post, Building 17	37
Fig 20 South-east facing cross section (S3) of command post, Building 17, showing room B	38
Fig 21 View of command post, Building 17, looking south-west	39
Fig 22 Detail of possible sockets for the mounting points of the rotating circular base of the predictor (mechanical computer) instrument	39
Fig 23 View of timber items recovered from command post, Building 17	40
Fig 24 View of doorway of Room A and steps of command post, Building 17, looking north-east	40

# 1 Introduction

## 1.1 Site background

The site is located in the north-west of Planning Delivery Zone 6 (PDZ6) of the Olympic, Paralympic and Legacy Transformations Planning Applications, in the London Borough of Newham, immediately east of the river Lea. The centre of the site area lies at National Grid reference 537550 185368. The site was previously open ground to the north of the former Manor Garden Allotments. Modern ground level in the area was variable at the time of recording: in the area of the proposed impacts, ground level is between 10.75 and 11.50m OD. See Fig 1 and Fig 2.

There are no listed buildings or scheduled ancient monuments located on the site.

The proposed scheme involves landscaping works; creating a slope, leading west down the eastern bank of the river Lea, involving both cut and fill; the latter in areas of a lower ground surface when compared to the remainder of the area (Fig 2). The landscaping will take the form of cut of depths between 3.21m and 6.06m in the area where fieldwork in 2007 has demonstrated that buried WWII structures survive. These were shown to extend into the area of the current impacts

The earlier recording of WWII structures in this area (Buildings 1–4), undertaken in 2007, has informed the present document. It was proposed that there would be a programme of recording of further structures integral to the complex that were uncovered during any future landscaping excavation.

The *standing building survey report* (MoLAS-PCA, 2008) on the 2007 fieldwork set out the results of the previous field recording undertaken at the site, before the present impacts were determined. This report on the results of these investigations should be read, although they can be summarised as follows for areas/structures affected by the proposed current impacts:

- The buildings (Buildings 1–4) recorded to the north of Manor Garden Allotments comprised two gun platforms, a possible cordite room, a magazine (all with associated poured concrete paving). All structures were constructed in 1938 and built of reinforced concrete. See Fig 3 and Fig 4 for location.
- Buildings 1–4 formed part of a HAA (Heavy Anti-Aircraft) gun emplacement, assigned the code ZE21 by AA Command. It was manned throughout the war, playing an important part in the defence of London. As part of the Inner Artillery Zone (IAZ) London, ZE21 was the first emplacement to lay claim to shooting down an enemy aircraft, on September 7<sup>th</sup> 1940. The emplacement was converted to a Civil Defence training ground during the 1950s and was decommissioned in 1968, before being partially demolished in 1971. At some point soon after this, the remains of the emplacement were buried beneath several metres of made ground.
- Buildings 1–4 were recorded in 2007, but the rest of the complex was not (constraints on areas available for excavation meant that the full extent of the Building 1 platform was not seen). Therefore, the remainder of the complex that survives beneath the post-1971 landfill is anticipated to survive beneath the current ground surface. Excavation will reveal the unrecorded structures integral to Buildings 1–4 that are located within the area of the proposed scheme's cut.
- Further to Buildings 1-4 noted above, a series of side-by-side Romney Huts were constructed west of and north of the gun emplacement site by 1946 and after 1944 – they appear on aerial photographs and maps from 1946 onwards.

The 2007 fieldwork recorded more WWII structures than those noted above: 12 were recorded overall. These were numbered sequentially (Buildings 1–12), although only Buildings 1-4 were adjacent/integral to the structures reported here. The structures

reported on here follow this numbering sequence – which applies to WWII structures across the Olympic Park overall – and therefore are numbered from Building 13 and so on upwards.

The Museum of London site code, by which the records are indexed and archived, is OL-01907.

This report should be read in conjunction with the following documents:

- Atkins Ltd, Dec 2008, *Planning Delivery Zone 6 Written Scheme of Investigation/Method Statement*
- MoLAS-PCA, May 2007, *Written Scheme of Investigation For Historic Building Recording (Level 3) of World War Two Defences (Planning Delivery Zone 6)*
- MoLAS-PCA, April 2008 *World War II Defences: within and extending from the former Manor Garden Allotments and on the Northern Outfall Sewer bridge over the River Lea. A standing building survey report*
- MoLAS-PCA, 2009, *World War II Defences: Structures Related To Buildings 1-4, Planning Delivery Zone 6, Olympic Park Method Statement For Archaeological Recording*

## 1.2 Planning background

Planning Consent was given to the proposed redevelopment by the Olympic Delivery Authority Planning Decisions Team on 6 November 2008 (ODA App No. 08/90310/FULODA). The following conditions relating to archaeology were included:

*PPR.32: Unless otherwise agreed in writing by the Local Planning Authority, all development shall be undertaken with the provisions of the Written Scheme of Investigation for Archaeological Works submitted to and approved by the Local Planning Authority pursuant to condition SP.0.38 of permission reference 07/90011/FUMODA. Any archaeological work shall be undertaken in accordance with the approved Written Scheme of Investigation. If significant archaeological finds are encountered, further archaeological works or design measures may be required to mitigate the impact of development on those remains. This condition may be discharged on a Planning Delivery Zone basis*

Reason: To ensure that archaeological remains are properly investigated and recorded and to appropriately dovetail with condition SP.0.38 of permission reference 07/90011/FUMODA.

*PPR.33: The results of the archaeological work and historic building recording shall be published and/or deposited in archives in accordance with arrangements to be agreed with the Local Planning Authority.*

Reason: To ensure that any archaeological or historic building information is properly handled and to appropriately dovetail with condition SP.0.38 of permission reference 07/90011/FUMODA.

*Demolition of any historic building specified for recording in the submitted Built Heritage Written Schemes of Investigation shall not take place until the recording set out in the relevant Written Scheme of Investigation has been undertaken and written confirmation received from English Heritage that the recording is satisfactory and that the building can be demolished. A report detailing the recording shall be submitted to the Local Planning Authority within six months of the written confirmation received from English Heritage.*

Reason: To ensure that buildings with an identified historic interest are recorded.

## 1.3 Origin and scope of this report

The archaeological work of analysis and recording, and the production of this report, were commissioned from the Museum of London Archaeology Service and Pre-Construct Archaeology (MoLAS-PCA) by the Olympic Delivery Authority. The work was carried out in accordance with a single *Method Statement For Archaeological Recording* (MoLAS-PCA, 2009).

However, the scope of the works undertaken was more limited than that outlined in the *Method Statement*. At the time of compiling the *Method Statement* it was envisaged that the full extent of both the northern areas to be landscaped as noted in the *Method Statement* would be subject to archaeological investigation and recording. The most northerly area was not available as part of these works and was not investigated, and therefore any WWII remains in that area remain unrecorded. Also, it was not possible to excavate the full extent of the area to the immediate south of that (as detailed in the *Method Statement*) due to the presence of an embanked working east-west access road, which limited the northern extent of the working area. Therefore, the excavation outline as shown on Fig 1 here was the maximum extent that could be investigated and recorded at this stage of the works. WWII remains integral to this complex located to the north have not yet been seen.

The report has been prepared within the terms of the relevant standards specified by the Institute of Field Archaeologists (IFA 2001) and corresponds approximately to the form of record and reporting at 'Level 3' for Buildings 13–18 and at 'Level 2' for the gun emplacement service road, later building slabs and fence posts in the specification *Understanding Historic Buildings: A guide to good recording practice*, recommended by English Heritage (2006).

This report presents the results of a survey carried out on the site between September and October 2009.

## 1.4 Research aims and method of work

The research aims of this archaeological work were defined in the *Written Scheme of Investigation* (MoLAS-PCA, 2007c) in conformity with applicable planning policies and English Heritage guidelines (Archaeological Guidance Paper No. 3, revised June 1998).

The overall aim of the programme of work was to secure 'preservation by record' of those aspects of the standing building and the site that were of architectural, archaeological and historical interest. The scope of the work as defined in the *Written Scheme of Investigation* was as follows:

Level 3:

'The exterior and interior of the structures will be viewed, described and photographed. Measured plans of the remains will be undertaken. A systematic written description will be undertaken, and a report presenting conclusions regarding the development, use, historical context and significance of the structures will be produced.' (MoLAS-PCA 2007, 3.3)

Level 2:

'The exterior and interior of the structure will be viewed, described and photographed. Sketch plans of the interior and elevations of the exterior will be undertaken. A brief written description will be undertaken, and a report presenting conclusions regarding the development and use of the structure will be produced' (MoLAS-PCA 2007, 3.3).

The investigation satisfied the research aims, and it was determined that it would not be necessary to investigate the buildings further during demolition.

## 1.5 Organisation of this report and conventions used

The areas and rooms formed by the structures are numbered as follows:

Heavy Anti-Aircraft (HAA) gun emplacement (OL-01907):

- Building 13 - Hut base
- Building 14 - Gun platform
- Building 15 - Hut base

- Building 16 - Hut base
- Building 17 - Command Post
- Building 18 - Hut base

The structures recorded in 2007 (also parts of this complex) were (Fig 4):

- Building 1 - Gun platform
- Building 2 - Magazine
- Building 3 - Cordite store with blast walls.
- Building 4 - Gun platform

All dimensions are given in metres or millimetres and heights are given where appropriate in metres above Ordnance Datum (mean sea level), abbreviated 'm OD'.

AA	Anti-Aircraft
ADGB	Air Defence of Great Britain
ATS	Auxiliary Territorial Service: women's branch of the British Army during WWII
Bldg	Building
Bty	Battery
DC(S)	Defence Committee (Supply)
DFW	Directorate of Fortifications and Works
DIY	Do It Yourself
English Heritage	English Heritage
GPO	Gun Positioning Officer
HAA	Heavy Anti-Aircraft
HO	Home Office
IAZ	Inner Artillery Zone
MoLAS	Museum of London Archaeology Service
MoWB	Ministry of Works and Buildings
MoWP	Ministry of Works and Planning
OD	Ordnance Datum (mean sea level at Newlyn, Cornwall)
OS	Ordnance Survey
NCO	Non Commissioned Officer
PCA	Pre-Construct Archaeology Ltd
RA	Royal Artillery
RCHME	Royal Commission on Historical Monuments, England
RSJ	Rolled steel joist
SSSI	Site of Special Scientific Interest
TA	Territorial Army
WO	War Office
WWII	World War II
ZE 21	Zone East 21: code identifying gun emplacement

Table 1 Abbreviations used in this report

## **2 Topographical and historical background**

A detailed description of the geology and history of the site was provided in the previous report: MoLAS-PCA, April 2008 *World War II Defences: within and extending from the former Manor Garden Allotments and on the Northern Outfall Sewer bridge over the River Lea. A standing building survey report.*

## 3 The standing building survey

### 3.1 Methodology

All archaeological analysis and recording during the investigation on site was done in accordance with the *Method Statement For Archaeological Recording* (MoLAS-PCA, 2009), the *Museum of London Archaeological Site Manual* (1994) and *MoLAS health and safety policy* (2005).

This description should be read in conjunction with the plans and sectional elevations (Figs 1-10) and selected photographs taken in September to October 2009.

The location and exterior of the structures were determined by site survey, and this information was imposed on the modern Ordnance Survey plan to show their location (Fig 2 and Fig 4). Please note that Fig 2 and Fig 4 show both revealed/extant structures in the area of the gun emplacement, and the projected location of structures not revealed/extant.

Plans of Buildings were drawn by EDM and GNSS (Leica smart rover) survey, and supplemented by dimensioned manual plans. Sectional elevations and external elevations were also recorded by both survey and by hand, with sufficient information to locate them accurately in plan.

Written descriptions of the structures' construction, development and function were also undertaken.

The site records comprise a series of digital colour photographic images, 11 site drawings, including 5 plans and 6 elevations and digital survey plans and elevations of all structures recorded. No objects or samples were collected. The site records will be deposited and indexed in due course in the Museum of London archaeological archive under the site code OL-01907.

### 3.2 Description of the buildings

#### 3.2.1 General

At the north-west of PDZ6, made ground covering the HAA gun emplacement complex was removed by machine and the structures revealed at a depth of c 3m below the surface (Fig 2). Due to the presence of a road and bridge in the northern part of the area, the excavation was limited in area and it not was possible at this time to fully expose the entire HAA gun emplacement complex.

The excavation revealed part of the previously recorded south-east gun platform (Building 4), the southernmost gun platform (Building 14), part of the command post (Building 17), the southern half of the concrete service road of the gun emplacement, the bases of four huts (Buildings 13, 15, 16 and 18), a large concrete slab in the west and the fragment of another concrete slab in the south-east (Fig 4).

The looped service road for the emplacement complex was constructed from a series of flat-surfaced cast concrete slabs that abutted each other (Fig 4).

#### 3.2.2 Building 13: Romney hut base (c 1944)

Building 13 represents the concrete base slab of a Romney hut, aligned on a north-south axis and located to the immediate south of the southern most gun platform (Building 14). All superstructure has been removed. See Fig 8, Fig 10 and Fig 11.

This structure is first seen on the aerial photograph taken 7th August 1944 (Fig 6). By 2nd April 1946 (Fig 7) the hut has been replaced by storage sheds.



The building slab, with a surface level of 7.97m OD, measured 9.20m N-S x 3.20m E-W and consisted of an 0.18–0.20m thick concrete slab overlying a 0.10–0.15m thick brick rubble and sand foundation.

A half-cylindrical roof of corrugated steel or curved asbestos cement panels would then have been erected around a frame. Along the eastern and western outer edges a 0.28m wide and 0.18m thick border of concrete was poured. The steel roof and frame structure are now gone but the impression of the corrugated sheeting was apparent in the gap between the outer border and inner slab.

Along the upper face of the western concrete border, a series of hob-nailed boot imprints and also those of a dog were seen (Fig 11). The impressions may be those of workmen during construction of the building or of a war-time service person and possible guard dog walking along the still-wet edge of the just-erected hut.

The truncated remains of the bottom course of bricks forming the south end-wall of the hut were recorded. A black painted line with inner white paint or plaster visible on the slab may represent the position of an inner rectangular structure abutting the south wall, perhaps a raised fire or heater. The close proximity of the hut to the southernmost gun platform (Building 14) suggests its use was for either: storage, workshop or shelter for the gun crew. Both the north and south walls of the hut would have been constructed of brick.

The sides of the building may have been protected by brick or concrete blast walls constructed on the outer border of the base, but no evidence of this was found. Alternatively, the sides of the building may have been protected, if at all, by earthworks.

### **3.2.3 Building 14: Southern gun platform (1938)**

Building 14 represents the remains of the southern gun platform (Fig 8 and Fig 9). Only part of this structure survives and comprises of the southern half of a large hexagonal concrete base with a central steel holdfast (securing bolts) for an HAA gun (Fig 13 and Fig 14).

The holdfast was recorded at a height of 8.57m OD and the slab was recorded at levels of between 8.24m OD in the north-east, where slumping caused by modern truncation had occurred and 8.56m OD in the centre of the structure. In plan, Building 14 measures roughly 14m E-W and 6m N-S and is constructed of a 2m-thick reinforced poured concrete slab.

Abutting both the south-east and south-west faces, the lower courses of two rectangular brick structures measuring 2m by 1.10m were recorded and may represent storage or shelter areas.

A linear north-south scar on the surface of the platform, towards the centre of the structure, may represent the position of an electrical cable duct. In the centre of the platform the holdfast had been truncated in half during previous demolition of the northern half of the platform and an elevation drawing of its setting within the concrete slab was recorded (Fig 6), also the remains of the gun mount were photographed during the present demolition phase (Fig 12). A detailed diagram of the design of an HAA gun emplacement holdfast was included in a previous report (MoLAS-PCA 2008, 3.3.1, Fig 44).

### **3.2.4 Building 15: Romney hut base (c 1945-6)**

Building 15 represents the concrete base slab of a Romney hut aligned north-west and south-east between the southern and eastern gun platforms (Buildings 4 and 14) (Fig 15).

It does not appear on the aerial photographs of 1941 (Fig 5), 1944 (Fig 6) and 1946 (Fig 7) and is also not seen on the Ordnance Survey map of 1949 (Fig 3). However, it is within (under) the footprint of the rows of parallel buildings surrounding the complex on the images from 1946 and 1949, and manifestly could have not been constructed after 1946 as its plot was then taken up. Therefore, Building 15 – not there during WWII – was



probably in use for the short period between 1945 and 1946, after which it was replaced by the parallel buildings in the 1946 and 1949 images.

The slab, which measured 7.55m by 4.08m, had been partially demolished and showed two phases of alteration. The structure consists of a double slab of concrete laid directly on top of an earlier slab, perhaps evidence of a complete rebuild or a repair due to slumping. (Fig 16).

The earlier slab, with a surface level of 7.65m OD, is 0.12m thick with an overlying 0.15m concrete foundation with a 0.21m slab laid directly above, with a surface level of 8.06m OD, that consists of a 0.12m thick concrete slab on 0.10m thick layer of brick rubble with a two course thick and two brick wide outer border of bricks.

The north-west corner and southern end of the structure have been truncated and although the total original dimension is lost it is probable that this represents a base for a similar structure to Buildings 13 and 16 to the immediate north and south.

### **3.2.5 Building 16: Romney hut base (c 1945-6)**

Building 16 represents the concrete base slab of a Romney hut aligned north–south, located close to the eastern gun platform (Building 4) between this and the contemporary concrete road system of the gun emplacement (Fig 4 and Fig 16).

Like Building 15, it does not appear on the aerial photographs of 1941 (Fig 5), 1944 (Fig 6) and 1946 (Fig 7) and is also not seen on the Ordnance Survey map of 1949 (Fig 3). However, it is within (under) the footprint if the rows of parallel buildings surrounding the complex on the images from 1946 and 1949, and manifestly could have not been constructed after 1946 as its plot was then taken up. Therefore, Building 15 – not there during WWII – was probably in use for the short period between 1945 and 1946, after which it was replaced by the parallel buildings in the 1946 and 1949 images.

Building 16 was 9.20m N–S and 3.40m E–W. It consisted of a 0.16m-thick inner slab on an 0.08m-thick bedding layer of sandy gravel with a 0.31m-wide and 0.22m-thick border of concrete on an 0.06m layer of brick rubble along the eastern and western sides of the structure.

The slab had surface levels of between 7.78m OD in the south and 7.87m OD in the north, a difference in height probably caused by slumping. A half-cylindrical roof of corrugated steel would then have been erected but were totally removed. But like Building 13, the impression of the corrugated sheeting can be seen in the gap between the outer border and inner slab. The close proximity of the hut to the gun platform (Building 4) suggests it was used for either storage or as a workshop.

### **3.2.6 Building 17: Command post (1938)**

Building 17 represents part of the command post of the emplacement and consists of two sunken rooms in the west with steps leading up to an open area in the east (Fig 17). It is a roughly rectangular concrete, single storey, semi-sunken structure aligned on a north-west by south-east axis (Fig 21). It is located in the centre of the gun emplacement complex at the northern limit of the working area (Fig 4). See Fig 18–Fig 20 for cross sections.

The structure continues north and east beyond the present limit of excavation where additional rooms associated would have been located. The command post would have had a plotting room, a telephone room and rest rooms, protected by a flat concrete roof with the whole structure probably protected by earth banks.

The eastern open area represents the floor slab of an open enclosure where an identification (or spotter's) telescope, a height (or range) finder and a predictor (a mechanical computer) would have been located and sited at ground level.

The walls of the structure were constructed of hollow concrete cement blocks that were filled with concrete. The walls of the structure were built on a reinforced concrete

foundation slab. The concrete blocks measured 0.45m length by 0.26m width by 0.23m height.

The two rooms uncovered during the survey have been numbered Room A (to the north) and Room B (to the south). The rooms were backfilled with the demolition material (concrete and brick rubble).

In plan, Room A measures 2.68m NW by SE and 1.80m NE by SW and survives to an internal height of 1.12m (8.81m OD). The walls are 0.32m thick and the exterior of the northern, southern and western walls are coated with tar waterproofing. Access is via a central doorway in the north-east wall, which retains the lower half of a damaged but *in situ* iron door frame (Fig 24). Beyond the doorway, to the north-west, a short flight of steps (top level 8.64m OD) lead up a concrete slab floor that continues beyond the northern limit of excavation and where the bottom course of bricks of an additional wall or step was recorded. The floor of Room A was at 7.72m OD.

There is a 0.90m wide gap between the two rooms, perhaps a blast damage precaution. A NE–SW ceramic drain was observed at a level of 7.60m OD within this gap. The space was then backfilled with brick rubble followed by a concrete slab at 8.44m OD with a drainage gutter and down pipe leading to the drain. This corridor leads to and forms part of the eastern open enclosure.

Room B was 2.85m NW by SE and 2.95m NE by SW and survives to an internal height of 0.92m (8.78m OD) and forms the south-west corner of the command post. The room consists of four 0.24m thick inner walls with the north-west, south-west and south-east walls having an additional 0.50–0.55m thick outer wall. Both inner and outer walls are constructed of concrete cement blocks with the outer three walls having an exterior coating of tar waterproofing. The floor of Room B was recorded at 7.88m OD.

Access is via two opposing stairways leading up to central doorways in both the SW and NE walls. The doorways and upper sections of walls have not survived demolition. Two internal and opposing brick plinths abutted the NW and SE walls and may have been part of the roof support or a later addition. The steps at the SW side of the room lead out of the command post; the steps at the NE side of the room lead up to the eastern open enclosure. The top step leading to the open area was covered with a compact concrete and brick rubble bonded to the steps. This may represent an alteration to the building, perhaps the blocking of a doorway or an unplanned result of the demolition process.

The eastern open enclosure consists of a series of reinforced concrete slabs, with surface levels of between 8.44m OD in the north and 8.53m in the south. The slabs continue north beyond the limit of excavation. In plan this area measures 3.70m NE by SW and 5.80m NW by SE. Only the very bases of the perimeter walls remain, as the entire structure has been truncated down to the slab height.

A reinforced concrete capped cable duct was diagonally aligned E–W across the centre of the southern half of the eastern open area and then continued NW, ending at the remains of an internal N–W wall. Located in the centre of the southern half of the open area and partially abutting the cable duct was a circular concrete cement pad, 0.90m diameter. Twelve symmetrical metal rings were set into the concrete. These may be the sockets for the mounting points of the rotating circular base of the predictor (mechanical computer) instrument. See Fig 22. An image of this device in use elsewhere is seen on the cover of this report.

An opening in the NE wall of the enclosure allowed access into the NE area of the command post, where floor slabs continue beyond the limit of excavation. To the NW concrete floor slabs continue beyond the limit of excavation and may represent the continuation of open enclosures within the command post. The slabs had been damaged and one was removed during excavation revealing a void with a concrete base sloping down to the south. This void can is seen on Fig 17.

Several discarded timbers found in the void may represent either building timbers or the remains furniture (e.g. tables, beds or shelving) (Fig 23).

### **3.2.7 Building 18: Romney hut base (c 1945-6)**

Building 18 represents the concrete base slab of a Romney hut aligned north-west and south-east and located in the south-east corner of the site. Building 18 measures 11.30m N–E by 5.25m E–W (Fig 4).

Like Buildings 15 and 16, it does not appear on the aerial photographs of 1941 (Fig 5), 1944 (Fig 6) and 1946 (Fig 7) and is also not seen on the Ordnance Survey map of 1949 (Fig 3). However, it is within (under) the footprint of the rows of parallel buildings surrounding the complex on the images from 1946 and 1949, and manifestly could have not been constructed after 1946 as its plot was then taken up. Therefore, Building 15 – not there during WWII – was probably in use for the short period between 1945 and 1946, after which it was replaced by the parallel buildings in the 1946 and 1949 images.

This structure consists of a 0.14m thick concrete slab on a 0.14m thick bedding layer of sandy gravel. Overlying this is a 0.07m-thick raised inner concrete slab with a 0.22m-wide double brick border (Fig 4).

### **3.2.8 Later structures**

By 1952, an aerial photograph (not reproduced) shows the storage sheds have been removed and in 1954, a training village for the Civil Defence was constructed on the site of the gun emplacement (*Ward 2007, pers comm*). Slabs 1 and 2 date to this post-storage shed period.

A large concrete slab (Slab 1) recorded to the immediate south-west of the gun emplacement and the remains of a metal fence post with concrete poured base represent physical evidence of these post-war alterations (Fig 4).

The remains of a heavily truncated concrete slab (Slab 2) located between Buildings 13 and 18 were also recorded (Fig 4).

## 4 Conclusion

Structures of three periods were recorded:

- From the WWII period
- From c 1945-6
- After c 1952

Overall, the remains of the HAA gun emplacement provides a particularly interesting example of part of the defences for the Inner Artillery Zone (I.A.Z) around London, little of which survives. The site possesses a number of structural and design features that were standard on the majority of gun emplacements commissioned at the time.

The remaining physical evidence suggests that Buildings 14 and 17 are largely of a construction single phase, contemporary with the previously recorded Buildings 1-4. Together and contemporaneously, these were all part of the same complex.

Most of the fixtures and fittings had been removed by the time of excavation. The layout of some of the gun platforms may have been altered over their life time, but unfortunately it is not clear when or how this took place, due the destruction of most of the upstanding structures after decommission in the early 1970s. However, most of the fabric recorded was original to the building's construction: added brickwork at the top of the steps leading from room A and possible brick work blocking on the northern steps of room B of the command post (Building 17) suggests a series of repairs and alterations.

Building 13, a Romney hut base, also dated from WWII, probably constructed c 1944.

Buildings 15, 16, and 18, also the bases of Romney huts, were constructed shortly after WWII and demolished c 1946, before the photograph in Fig 7 was taken.

The aerial photograph dated 2nd April 1946 shows considerable development in the area around the original WWII emplacement, with ranks of long sheds surrounding it representing the sites change to a military storage depot (Fig 7). By 1952, an aerial photograph (not reproduced) shows the storage sheds have been removed and in 1954, a training village for the Civil Defence was constructed on the site of the gun emplacement (*Ward 2007, pers comm*). Concrete Slabs 1 and 2 recorded to the south and west of the gun emplacement and the remains of a metal fence post with poured concrete base represents physical evidence of these later alterations.

Further structures integral to the HAA gun emplacement will survive to the north, under overburden beyond the limit of excavation.

## **5 Potential of the archaeology**

### **5.1 Original research aims**

The archaeological investigation has fulfilled the original research aims through the creation of a photographic, drawn and written record of the World War II Defences: HAA gun emplacement.

It has proven possible to reconstruct in outline, at least, the history of the buildings on the present site, both from archaeological investigation of their fabric and from documentary sources.

### **5.2 New research aims**

Further planned work on the site will impact on the remainder of the World War II Defences, yet to be recorded. This information will add to the overall assessment of the site.

Further research should involve detailed analysis of the sequence of change in the gun emplacement and further study of the complex as a whole.

Due to the secret nature of the site and the vast amount of information lost or destroyed during the war, the report has been limited in scope.

Further extensive research will bring more details of this period to light, and an attempt to contact any surviving servicemen or women who served in Hackney should be seriously considered.

The structures recorded and discussed were part of the World War II landscape of this area, and subsequent work should further ascertain their context in relation to that landscape.

### **5.3 Significance of the data**

The archaeological remains are of regional significance as a record of the role in the war played by Hackney, London, the AA Command, the Home Guard, and radar and gun technology. However, the HAA gun emplacement is of a standard type and other examples are known around the country.

Their survival is significant as such features do not normally survive in an urban context. Indeed, the reason for survival is due to their situation in a relatively unmanaged townscape. It is therefore paramount that now these features have been recorded and analysed, where not threatened by the proposed development they are integrated cohesively into the fabric of the area during regeneration.

The academic requirement to publish the results of the investigation will therefore be met by reporting the results in an appropriate professional journal, and in the annual excavation round-up in the *London Archaeologist*.

### **5.4 Salvaged fixtures, fittings and materials**

There was no archaeological requirement to salvage any of the materials or fittings.

## 6 Publication and archiving

A short summary of the results of the work will be submitted to the Greater London SMR and NMR (using the appropriate OASIS archaeological report form), and for publication in the 'Excavation Round-up' of the *London Archaeologist* and other period-based archaeological journals as appropriate.

It is recommended that the results of this exercise are assimilated into a site-wide assessment of all archaeological interventions to assign contextual significance and further refine the importance of the archaeological survival, and thereafter assimilated into any publication discussing/disseminating the results.

Information on the results of the survey will be made publicly available by means of a database in digital form, to permit inclusion of the site data in any future academic researches into the development of London.

The site archive containing original records and finds will be stored in accordance with the terms of the *Method Statement* (MOLA, 2009) with the Museum of London within 12 months of the end of the survey.

## **7 Acknowledgements**

The archaeological survey and this report were commissioned by the Olympic Delivery Authority, whom the project manager and author wish to thank. They are grateful especially to the staff of Morrison's and Atkins for on-site assistance and also David Divers of English Heritage for advice and support.

The author would also like to thank Catherine Drew, Neville Constantine, Sarah Jones and Mark Burch for the surveying work; Maggie Cox for photography and Sam Keenan, Steve White, Valeria Boesso and Robert Hartle of MOLA and Matt Harrison and Tristram Adfield of PCA for on site assistance. The project was managed by Kieron Tyler and Nick Bateman.



## 8 Bibliography and references

AIR 2/4768 Courtesy of the National Archives, Kew

Aerial Photographs:

RAF\_241\_AC4\_V83.TIF: 17<sup>th</sup> June 1941. English Heritage (NMR) RAF Photography

RAF\_106G\_LA\_29\_RP3253.TIF: 7<sup>th</sup> August 1944. English Heritage (NMR) RAF Photography

RAF\_3G\_TUD\_UK\_112\_YP2\_5191.TIF: 2<sup>nd</sup> April 1946. English Heritage (NMR) RAF Photography

Atkins Ltd, Dec 2008, *Planning Delivery Zone 6 Written Scheme of Investigation/Method Statement*

Brown, I. et al 2002, 20th Century Defences in Britain, An introductory guide

Department of the Environment (DoE), 1990 *Planning Policy Guidance 16: archaeology and planning (PPG16)*

Department of the Environment (DoE), 1994 *Planning Policy Guidance 15: planning and the historic environment*

English Heritage, 1991 *Management of Archaeological Projects* (2nd edition)

English Heritage (Greater London Archaeological Advisory Service), 1998 *Archaeological guidance papers*

English Heritage, 2006 *Understanding Historic Buildings: A guide to good recording practice*

Institute for Archaeologists (IFA), 2001 *Standard and guidance for archaeological investigation of standing buildings or structures*

MoLAS-PCA, May 2007, *Written Scheme of Investigation For Historic Building Recording (Level 3) of World War Two Defences (Planning Delivery Zone 6)*

MoLAS-PCA, April 2008 *World War II Defences: within and extending from the former Manor Garden Allotments and on the Northern Outfall Sewer bridge over the River Lea. A standing building survey report*

MoLAS-PCA, 2009, *World War II Defences: Structures Related To Buildings 1-4, Planning Delivery Zone 6, Olympic Park Method Statement For Archaeological Recording*

Museum of London Archaeology, 2009 *Health and safety policy*

Museum of London, 1994 *Archaeological site manual* (3rd edition)

OS Map 1949 edition (scale 1:1,000)

Ward, K. 2007. [Discussion on location and use of WWII AA Sites in Hackney] (Personal communication, 15 July 2007)



## 9 NMR OASIS archaeological report form

OASIS ID: molas1-70870

### Project details

Project name WORLD WAR II DEFENCES; STRUCTURES RELATING TO BUILDINGS 1-4, PLANNING DELIVERY ZONE 6

Short description of the project Following previous work relating to World War II defences within the Olympic Park (OL-01907/OL-08007 Standing building survey MoLAS-PCA).The Museum of London Archaeology and Pre-Construct Archaeology (MOLA-PCA) were commissioned by the Olympic Delivery Authority to analyse and record further structures relating to a World War II anti-aircraft gun emplacement. All the structures were to be demolished in order to redevelop the site, and the archaeological investigation and a subsequent report were required as a condition of planning consent for the redevelopment. The investigation was undertaken from September to October 2009. Two concrete gun platforms, a concrete service road linking the platforms, part of the inner control post and four foundation slabs for associated Romney huts were recorded. Post-war the gun emplacement was re-developed as a storage depot which was later replaced by a Civil Defence training ground in 1954. A large concrete slab and fence post that may relate to these periods were also recorded. The civil defence training ground was closed in 1968, the buildings were partially demolished and the area used as a dumping ground during the early 1970's which resulted in the ground level being raised another 3m, covering the whole of the gun emplacement.

Project dates Start: 21-09-2009 End: 09-10-2009

Previous/future work Yes / Not known

Any associated project codes reference OL-01907 - Sitecode

Any associated project codes reference OL-08007 - Sitecode

Type of project Building Recording

Site status Area of Archaeological Importance (AAI)

Current Land use Other 13 - Waste ground

Current Land use Other 1 - Allotment

Monument type WWII ANTI-AIRCRAFT DEFENCES Modern

Significant Finds NONE None

Methods & 'Annotated Sketch','Measured Survey','Photographic techniques Survey','Survey/Recording Of Fabric/Structure'

Prompt Direction from Local Planning Authority - PPG15

**Project location**

Country England

Site location GREATER LONDON NEWHAM STRATFORD World War II Defences on and around Manor Allotments OL-01907, PLANNING DELIVERY ZONE 6

Postcode E15

Study area 10000.00 Square metres

Site coordinates TQ 37557 85344 51.5496994411 -0.01583446691170 51 32 58 N 000 00 57 W Point

Lat/Long Datum Unknown

**Project creators**

Name of MoLAS/PCA Organisation

Project originator brief ODA

Project originator design MoLAS/PCA

Project director/manager Nick Bateman

Project director/manager Kieron Tyler

Project supervisor Paul Thrale

Type of Landowner sponsor/funding

body

Name of Olympic Delivery Authority  
 sponsor/funding  
 body

**Project archives**

Physical Archive No  
 Exists?

Physical Archive LAARC  
 recipient

Digital Archive LAARC  
 recipient

Digital Archive ID OL-01907

Digital Contents 'Survey'

Digital Media 'Images raster / digital photography','Survey','Text'  
 available

Paper Archive LAARC  
 recipient

Paper Archive ID OL-01907

Paper Media 'Plan','Report','Section','Survey ','Unpublished Text'  
 available

**Project  
 bibliography 1**

Publication type Grey literature (unpublished document/manuscript)

Title World War II Defences:Structures related to buildings 1-4, Planning  
 Delivery Zone 6

Author(s)/Editor(s) Thrale, P

Date 2010

Issuer or publisher MOLA

Place of issue or London  
publication

Entered by Paul Thrle (molas@molas.org.uk)

Entered on 22 January 2010

## 10 Appendix: list of working drawings made on site

<b>Drawing</b>	<b>Description</b>
Building 13	Romney hut Building 13): plan
Building 14	Southern most Gun Platform(Building 14): plan
Building 15	Romney hut (Building 15): plan
Building 16	Romney hut (Building 16): plan
Building 17	Command Post (Building 17): plan
Section 1	South-east facing cross section of Command Post (Building 17) showing room A
Section 2	South-west facing elevation of exterior of Command Post (Building 17)
Section 3	South-east facing cross section of Command Post (Building 17) showing room B
Section 4	North-east facing elevation of Romney hut foundation slab (Building 15)
Section 5	North facing section of gun platform (Building 14) showing detail of holdfast
Section 6	South-west facing cross section of Romney hut (Building 15) northern foundation slab

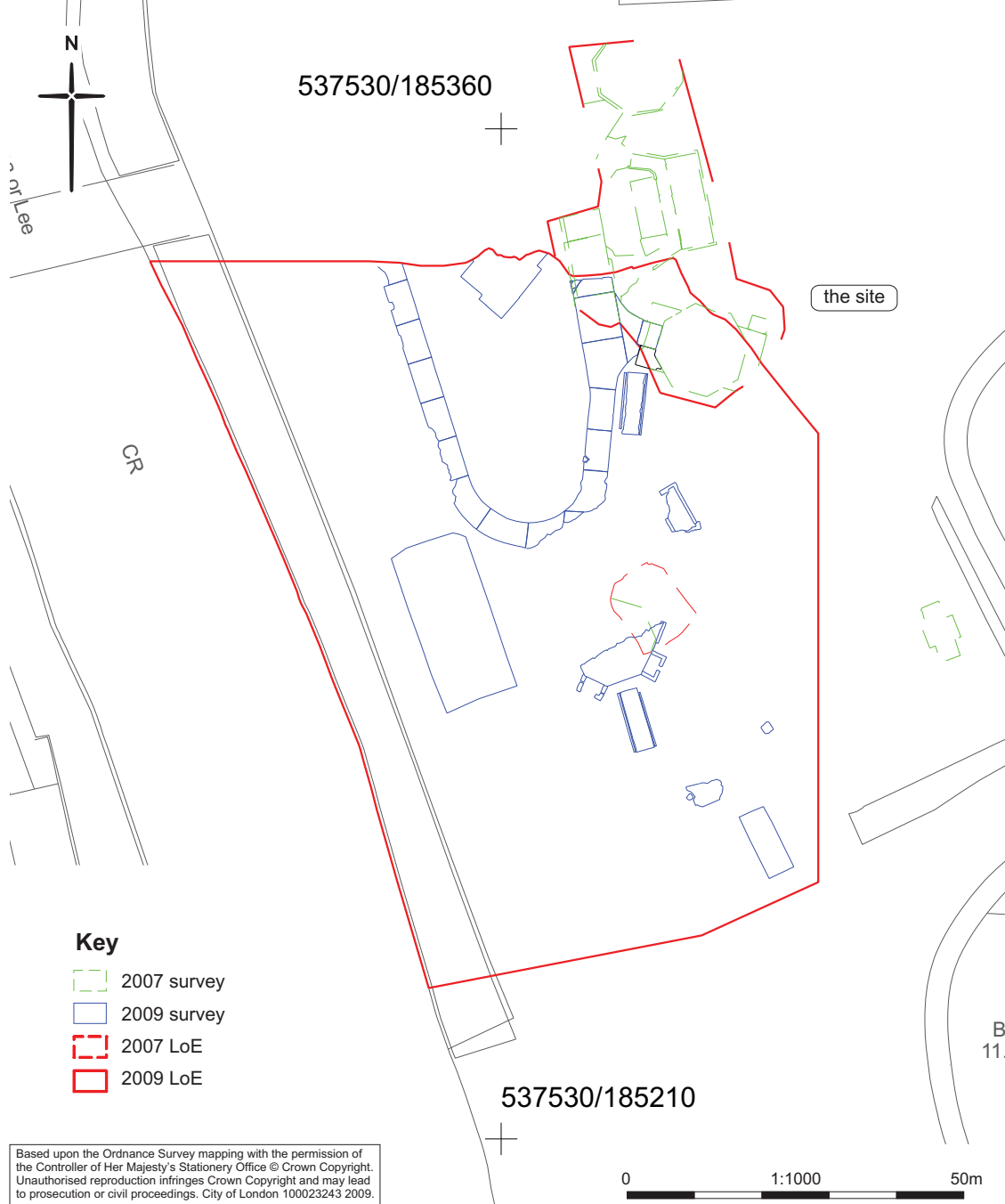
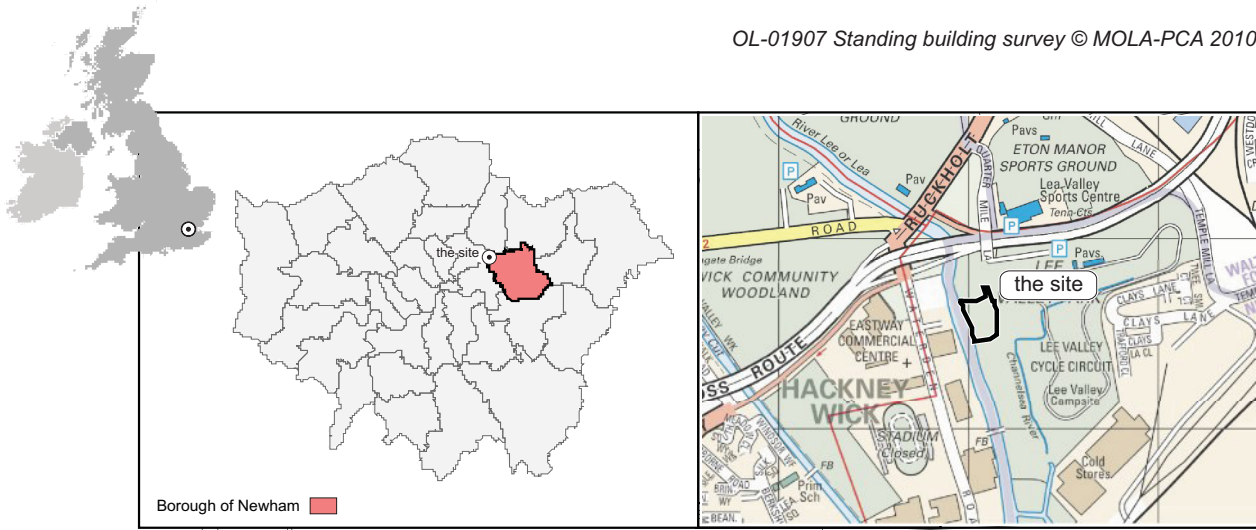


Fig 1 Site location plan





Fig 2 View of site looking south-east



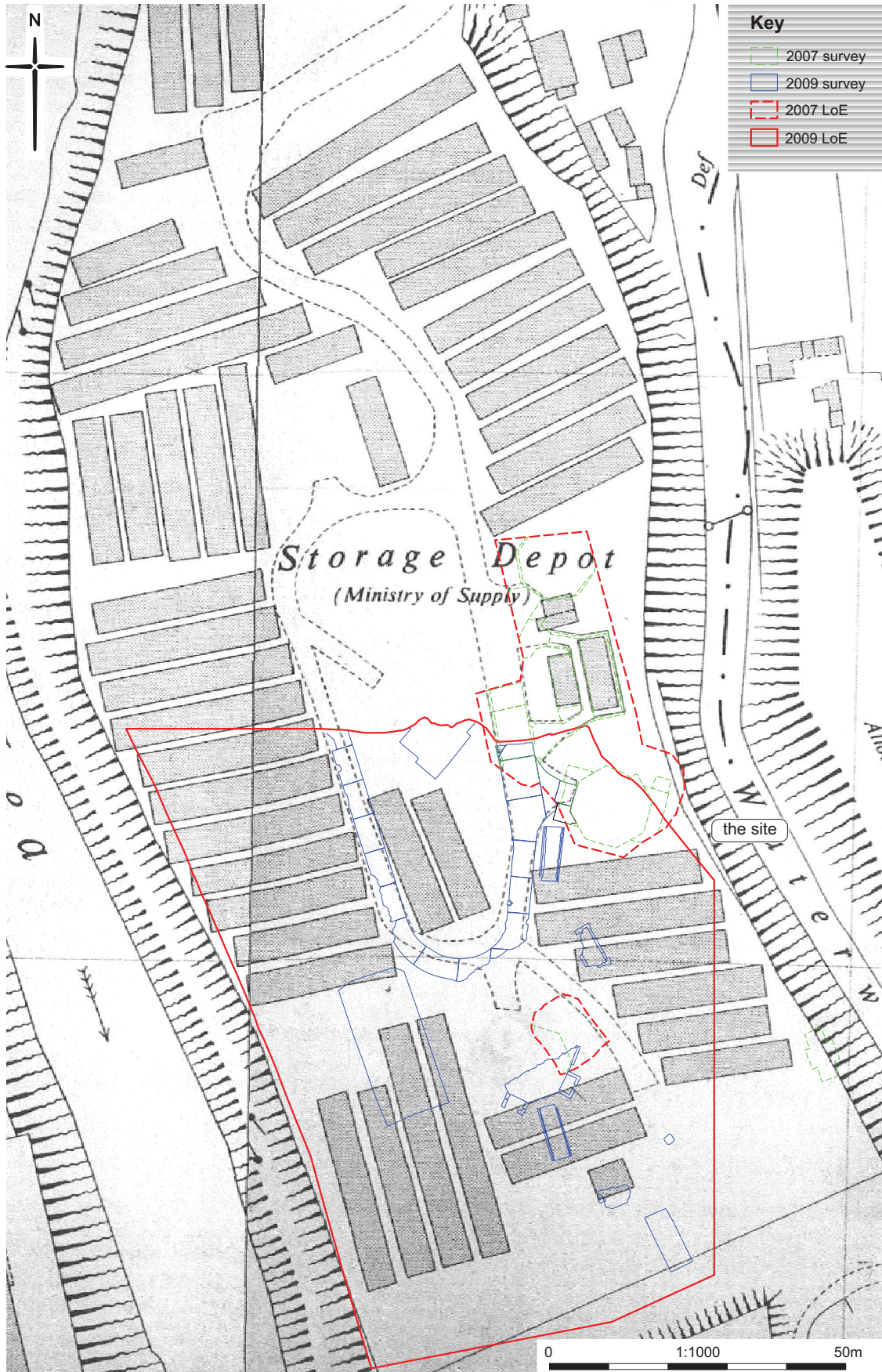
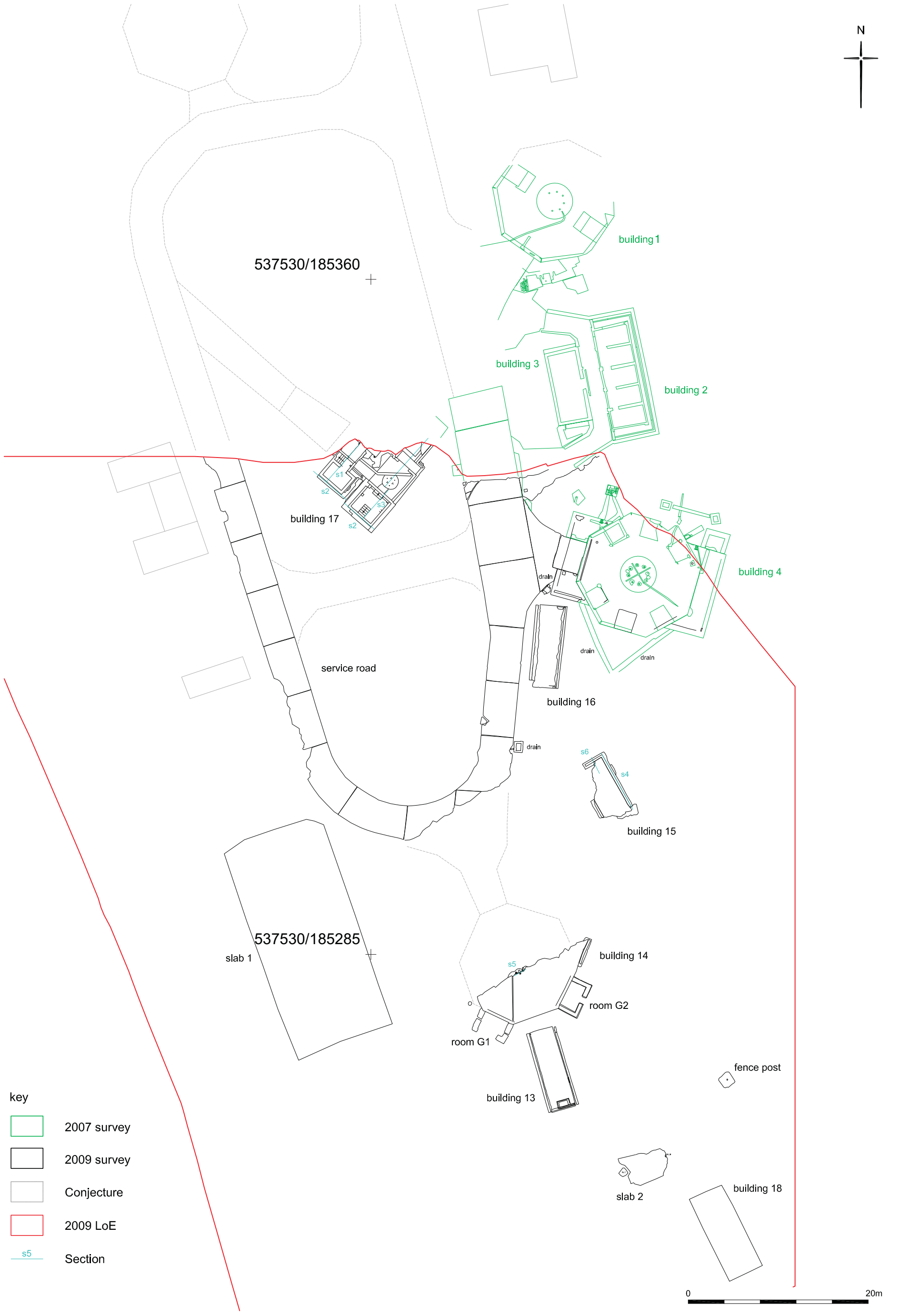


Fig 3 Ordnance Survey Map of 1949





- key
- 2007 survey
  - 2009 survey
  - Conjecture
  - 2009 LoE
  - s5 Section

0 20m

Fig 4 Plan of recorded structures

MULTI10720L\_01907SBR10#04

OL-01907 Standing building survey © MOLA-PCA 2010



Fig 5 View of OL-01907: aerial photograph taken by the RAF, 17th June 1941





Fig 6 View of OL-01907: aerial photograph taken by the RAF, 7th August 1944





Fig 7 View of OL-01907: aerial photograph taken by the RAF, 2nd April 1946

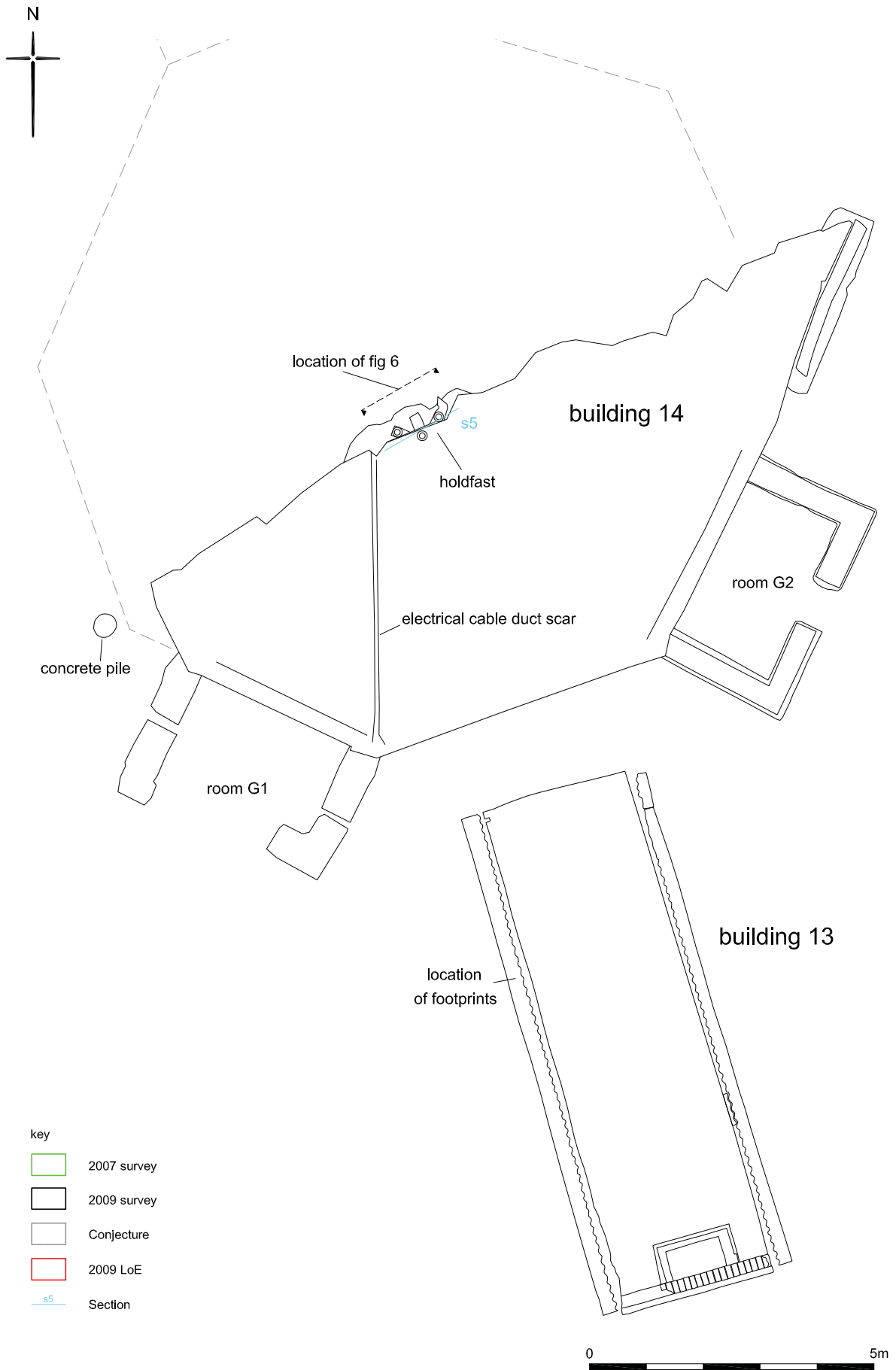


Fig 8 Buildings 13 and 14

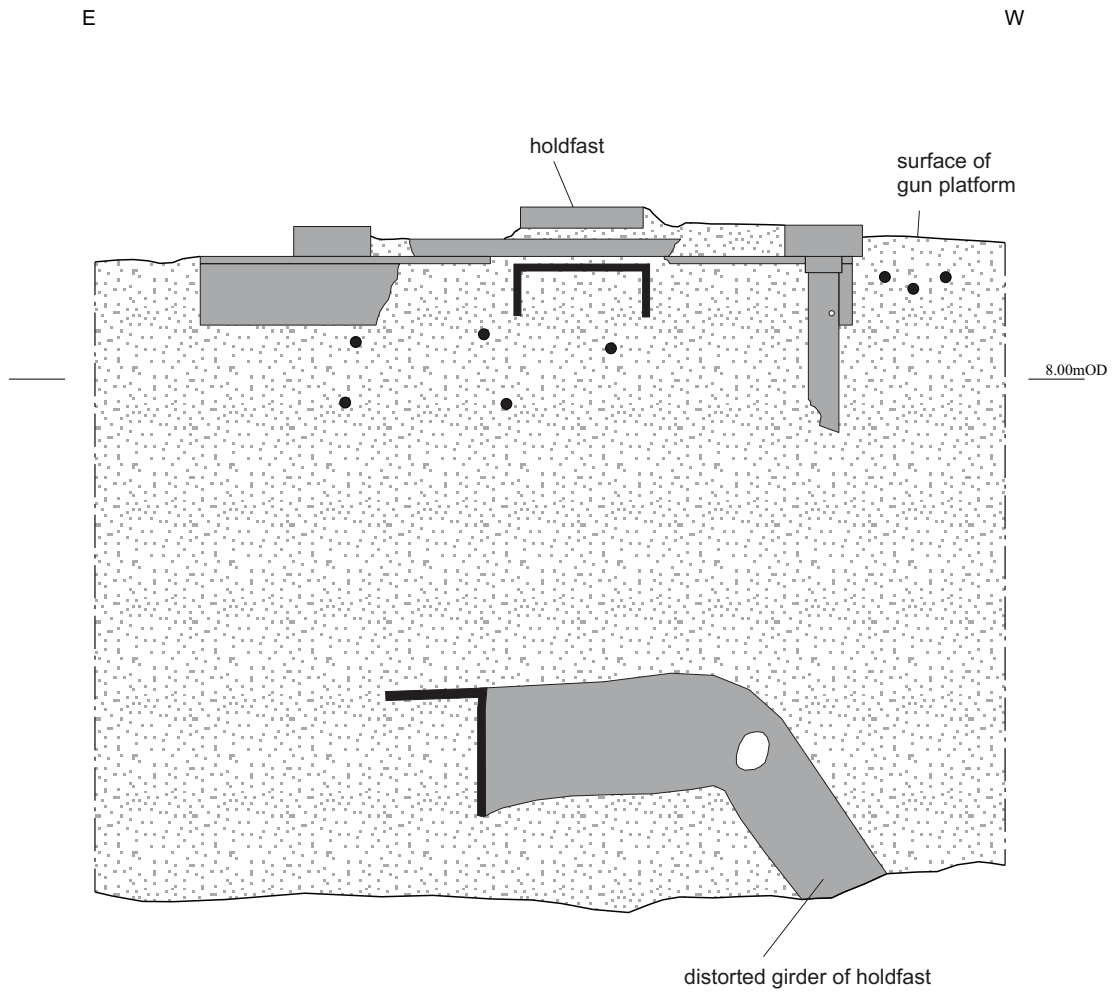


Fig 9 North-facing S5 of gun platform, Building 14, showing detail of holdfast





Fig 10 View of nissen hut, Building 13, looking south



Fig 11 Detail of nissen hut slab, Building 13, showing foot and paw prints





Fig 12 View of gun platform, Building 14, looking north-east





Fig 13 Detail of in-situ holdfast, Building 14, looking south



Fig 14 Detail of holdfast, Building 14, post-demolition





Fig 15 View of nissen hut, Building 15, looking west





Plate 16 View of gun platform, Building 4, nissen huts, Buildings 15 and 16, and part- demolished service road, looking south

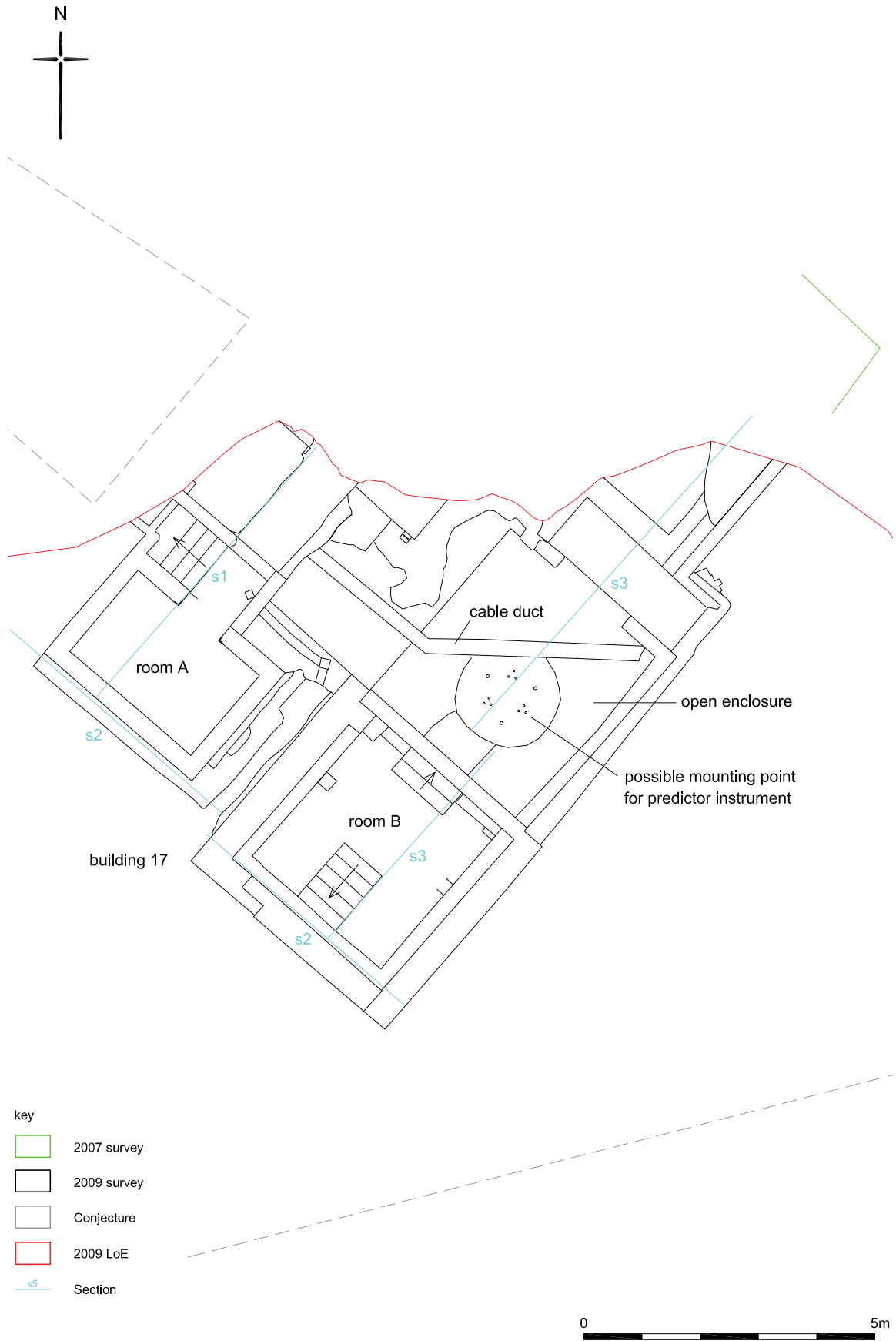


Fig 17 Plan of command post, Building 17

SW

NE

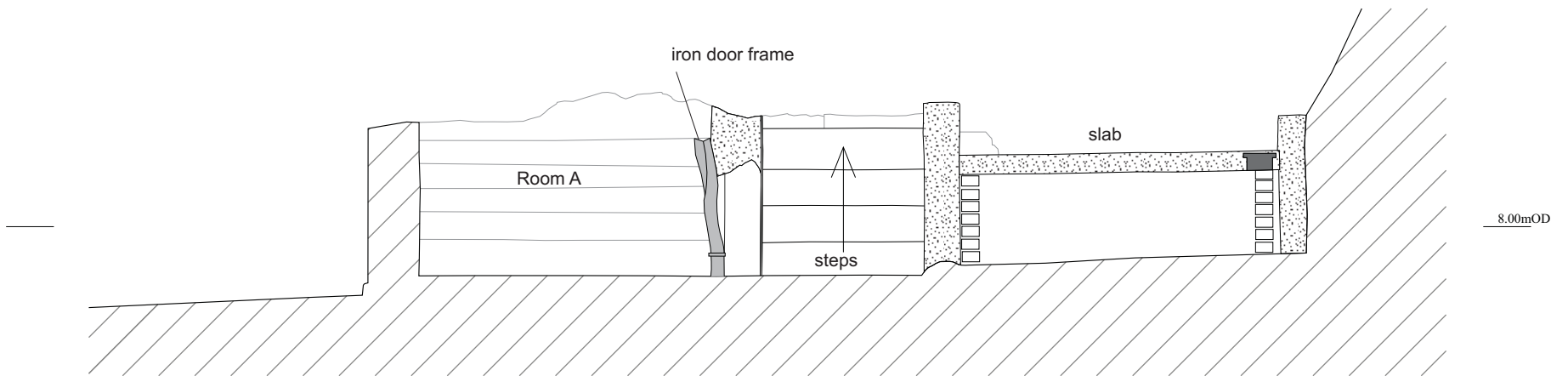
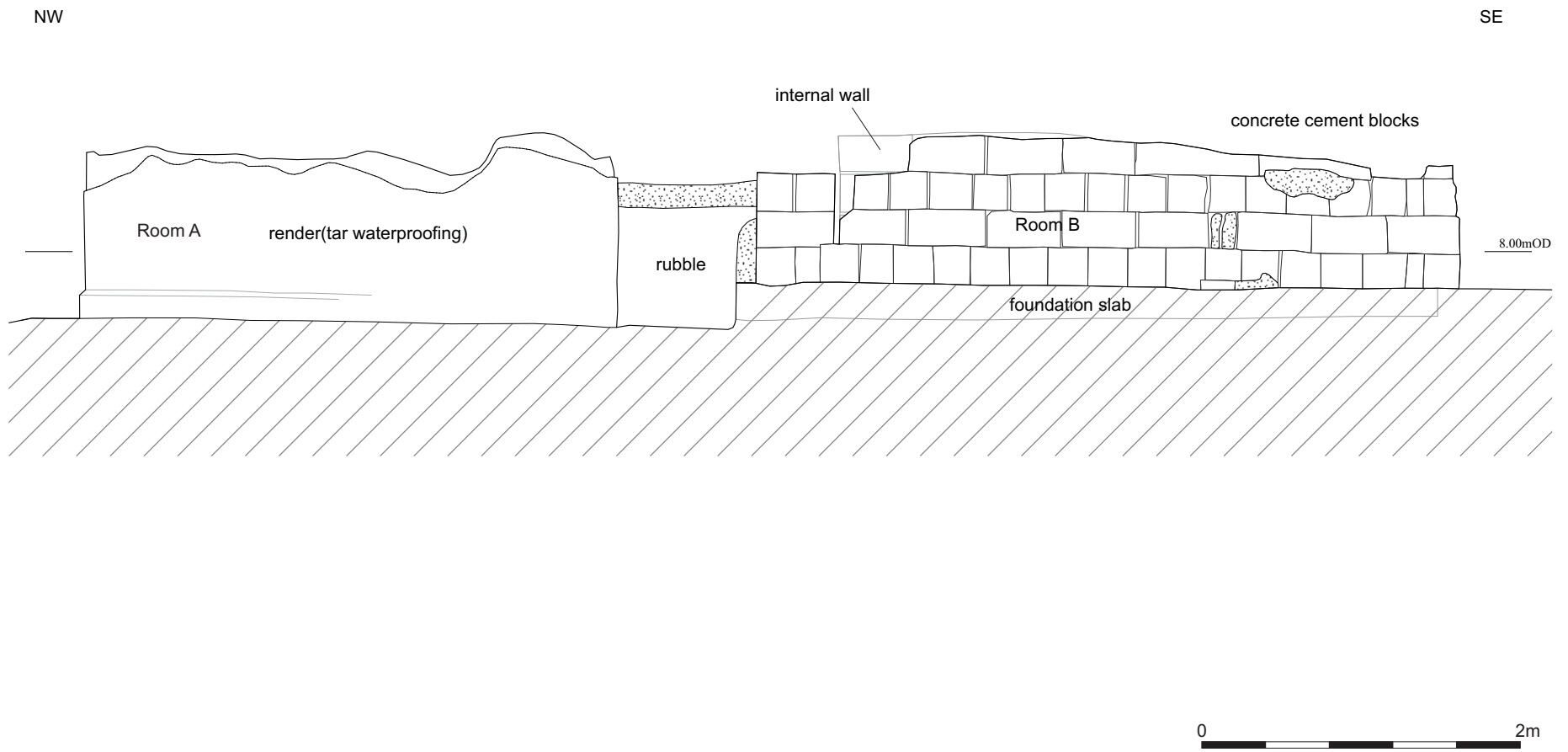


Fig 18 South-east facing cross section (S1) of command post, Building 17, showing room A



MULTI10720L\_01907SBR10#19

OL-01907 Standing building survey © MOLA-PCA 2010

Fig 19 South-west facing elevation (S2) of exterior of command post, Building 17



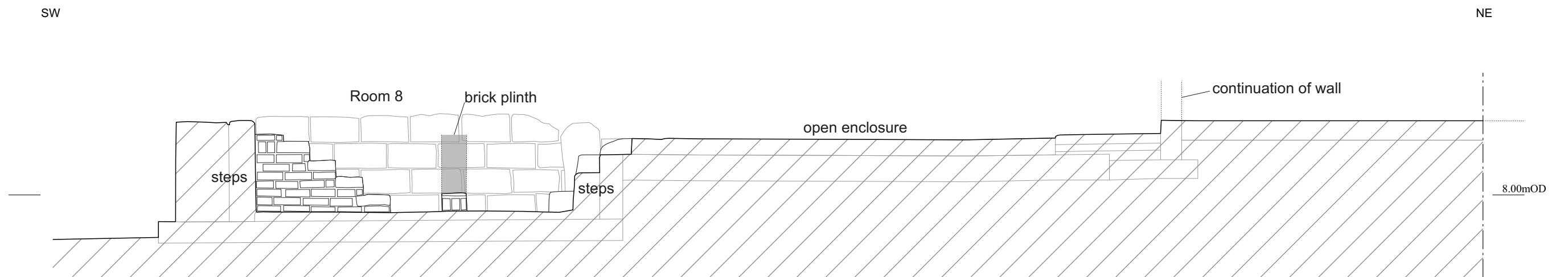


Fig 20 South-east facing cross section (S3) of command post, Building 17, showing room B



Fig 21 View of command post, Building 17, looking south-west



Fig 22 Detail of possible sockets for the mounting points of the rotating circular base of the predictor (mechanical computer) instrument





Fig 23 View of timber items recovered from command post, Building 17



Fig 24 View of doorway of Room A and steps of command post, Building 17, looking north-east