



**BUILDINGS SURVEY AND
ASSESSMENT OF SIGNIFICANCE**

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**FORMER
MINISTRY OF DEFENCE DEPOT**

**KILLINGWORTH
NORTH TYNESIDE**

prepared for

Bellway Homes Ltd

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FORMER MINISTRY OF DEFENCE DEPOT

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BUILDINGS SURVEY AND ASSESSMENT OF SIGNIFICANCE

Summary

Bellway Homes is proposing to redevelop the site of the former Ministry of Defence Depot, south-east of Killingworth in North Tyneside for residential housing. The site is one of two former World War II Anti-Aircraft Supply Depots within the Tyne and Wear area and is recorded as a heritage asset within the Tyne and Wear Historic Environment Record. The complex is not designated and is not included in North Tyneside Council's Register of Buildings and Parks of Local Architectural and Historic Interest.

The site is not well documented and Northern Archaeological Associates Ltd (NAA) was engaged by Bellway Homes to undertake a standing buildings survey and assessment of significance in support of the planning application. This work is being undertaken in order to meet the requirements of local and national planning policy and has been agreed in writing with the Tyne and Wear Archaeology Officer.

The former MoD complex at Killingworth was originally built as a facility for servicing anti-aircraft batteries defending the conurbations, industry and airfields north of the River Tyne. It was built c.1938 and is one a relatively small number of known Emergency Equipment Ammunition Magazines (EEAM) constructed throughout the UK in anticipation of war with Germany. It originally had a dual function; to act as the primary local supply depot for ammunition used by anti-aircraft facilities in the area and to act as a centre for the storage and maintenance of the vehicles and armaments required by the batteries. Subsequent to the war the complex served as a depot for the maintenance of vehicles by the REME until 1976, and from 1979 until the mid-1990s the complex was used as a central store for the Area Health Authority. Many of the buildings of the complex were demolished or underwent alteration and modification during this period, and as the site has remained unused since the Area Health Authority vacated the premises the buildings have gradually fallen into disrepair.

Prior to this survey, there appears to have be very little recorded about this particular military depot complex and it is an example of a 20th century military site type for which there is little available historical documentation at a national, regional or local level and for which there is very little in the way of published conservation guidelines. Whilst military depots are a recognised site type, they do not appear to have been assessed by English Heritage as part of its review of military structures and buildings.

The survey has demonstrated that the extent of survival of the original army depot complex is poor and as a result, the original site extent and building functions is at present, imperfectly understood. There appear to be three distinct zones of activity; ammunition storage and distribution; vehicle and armament storage and maintenance and accommodation, welfare and administration. There is also some suggestion that there was once an auxiliary camp, or other establishment, located in the field to the north and east of the complex.

It is considered that the site is unlikely to be of sufficient significance to warrant statutory protection and that the extent of survival of the original army depot complex and the poor condition of the surviving buildings and structures do not warrant the preservation of the complex in situ.

Prior to the current survey, the Tyne and Wear Archaeology Officer and English Heritage advised that, the site was potentially well preserved and survived almost as-built. Against this understanding, it was their opinion that the site should not be destroyed in its entirety and that consideration should be given to preserving one concrete bunker and the former boiler/generator building.

The study has demonstrated that site is not as well preserved as first assumed; of the thirty-four buildings present at the complex in 1948, twenty have since been demolished and the remaining fourteen buildings are not in a particularly good state of repair, their condition is deteriorating and many have been modified as a result of subsequent reuse. Whilst the bunkers appear to have been the least affected by these processes, they are still suffering from deterioration, ongoing decay and vandalism. It is considered that the nature and condition of the buildings on this site means that they do not readily lend themselves to preservation in situ and that a requirement to preserve the boiler/generator house and a bunker would be both onerous and unreasonable when considered against the relative importance of these buildings.

This assessment of significance has also concluded that it is the complex as a whole which is of interest, not particular individual buildings, and that because the survival of the total site is poor, this interest can only be properly realised through combining further survey of the buildings with additional documentary research of more primary sources of information. Preserving two buildings would not secure preservation of the significance of the site. Once the remainder of the complex has been removed, it is considered that the significance value of the remaining buildings would not justify the significant costs involved with their restoration, preservation and long-term management, a factor which could affect the economic viability of the proposed development.

In the absence of statutory protection, it is considered that the site will be vulnerable to continued decay, and/or the ad hoc demolition of buildings for which there is no viable modern use. It is therefore considered more important to view the proposed development as an opportunity to better understand the form, function and manner of operation of the site as an entity than consolidate individual elements of the complex in isolation. This could be achieved by a programme of further documentary research, survey and recording, the results of which would be made publicly accessible. Such an approach would be in accordance with both national and local planning policy with respect to preserving the significance of heritage assets.

Taking into account the results of the buildings survey, assessment of significance and proposed mitigation, it is concluded that the proposal fully accords with national and local development plan policy with respect to heritage protection and that there is no reason in terms of heritage impacts why permission for the application should not be granted.

1.0 INTRODUCTION

- 1.1 Northern Archaeological Associates Ltd (NAA) was commissioned by Bellway Homes to undertake a desk-based assessment and standing buildings survey in support of a planning application for a proposed residential development at the former Ministry of Defence (MoD) complex (referred to as the Site) south-east of Killingworth, North Tyneside (NZ 2800 7075 centred) (**Fig. 1**). The Site was latterly used as an Area Health Authority stores facility but was vacated in the mid 1990s and has remained unoccupied since.
- 1.2 The Site is recorded in the Tyne and Wear Historic Environment Record (HER) as one of two former World War II Anti-Aircraft Supply Depots within the Tyne and Wear area. A number of the depot buildings were known to survive within the site and the National Planning Policy Framework (NPPF) requires that any application affecting heritage assets needs to include an assessment of the significance of the asset, including its setting and consider the impact that the proposed development may have on this significance.
- 1.3 This report has been produced in response to the NPPF requirements and the recommendations of Jennifer Morrison, the Tyne and Wear Archaeology Officer. It provides a summary of the history and development of the site and assesses the significance and rarity of the site based on desk-based research and the results of the standing buildings survey. It concludes with an assessment of the effects of the development on this significance and makes recommendations to effectively mitigate the loss of the complex through redevelopment.

2.0 SITE DESCRIPTION

Location

- 2.1 The Site is located on the eastern outskirts of the village of Killingworth and lies on the south side of the B1317 (**Fig. 1**). It is a relatively level brownfield site, at c.75m AOD and is surrounded by the agricultural land of Killingworth Moor (**Illus 1**). The site contains a number of standing buildings relating to the former military depot complex with associated areas of slab concrete yards, roadways and areas of demolished buildings. The last recorded use of the site was as an Area Health Authority storage depot, but it is now unoccupied and the complex is falling into disrepair.
- 2.2 The Site is not designated through either scheduling or listing and is not included in North Tyneside Council's Register of Buildings and Parks of Local Architectural and Historic Interest Supplementary Planning Document (SPD) (adopted November 2008). It is currently identified as an area for potential development within the North Tyneside Local Plan Consultation Draft (November 2013).

Geology

- 2.3 The solid geology of the area site comprises Westphalian Coal Measures of the Carboniferous period (Institute of Geological Sciences 1979) overlain by Boulder Clay and Morrainic Drift deposits (Institute of Geological Sciences 1977) The soils in the area consist of the stagnogleys and greyish brown drift soils of the Dunkeswick Association (SSEW 1983). The site is located within the Natural England National Character Area 14: *Tyne & Wear Lowlands*, described as

an area of undulating landform of gently rolling hills incised by the broad river valleys of the Tyne and Wear and their tributaries (www.naturalengland.org.uk).



Illus. 1: Aerial photograph showing location of site (© Google Earth)

3.0 SCOPE OF WORK AND METHODOLOGY

3.1 The work was undertaken in accordance with the methodology set out in the scope of work document (**Appendix A**) and agreed with Jennifer Morrison, the Tyne & Wear Archaeology Officer. It was agreed that the scope of work should focus solely on establishing the significance and rarity of the former army complex and should comprise:

- a review of the available documentary, cartographic and aerial photographic sources for the site to provide an understanding of the history, development, full extent and former uses of the site; and
- a standing buildings survey to inform an assessment of the extent of survival of the original army complex and the condition of the buildings.

3.2 This assessment was undertaken in accordance with the following standards and guidance:

- *Standard and Guidance for Historic Environment Desk-based Assessment* (Institute for Archaeologists (2012)
- *Yorkshire, Humber and the North-East: A Regional Statement of Good Practice for Archaeology in the Development Process* (West Yorkshire Archaeology Advisory Service revised 2012).

- *Understanding Historic Buildings – A Guide to Good Practice* (English Heritage 2006)
- *Standard and guidance for the archaeological investigation and recording of standing buildings or structures* (Institute for Archaeologists 2013)
- *Military Sites Post 1500 - Scheduling Selection Guide* (English Heritage 2013a)
- *Military Structures - Listing Selection Guide* (English Heritage 2011)
- *Conservation Principles, Policies and Guidance for the sustainable management of the historic environment* (English Heritage, 2008a)

3.3 The principal aims of the assessment were to:

- Identify any original buildings and/or original elements of the buildings surviving at the facility;
- Assess the degree of alteration and modification to those buildings;
- Identify the original and later functions of the surviving buildings where possible;
- Assess the current conditions of the surviving buildings where feasible;
- Record the surviving structures by survey, descriptively and photographically in order to preserve them by record;
- Identify any features or areas which require further survey in order to fully establish either significance or potential development impact;
- Assess the significance of the complex and the effects of the proposals on this significance;
- Recommend appropriate design amendment, mitigation and/or enhancement which could be taken to prevent, reduce or remedy any adverse effects identified;
- Assess the degree of conflict and/or compliance with national and local planning policies relevant to the resource.

3.4 The assessment is based upon a review of available information provided by the organisations and individuals listed below together with the survey and recording of the buildings undertaken between 27 January and 21 February 2014:

- English Heritage, National Monuments Record;
- Roger Thomas, English Heritage Inspector of Ancient Monuments and specialist on 20th century defence sites;
- Newcastle City Council Historic Environment Section;
- Tyne and Wear Archives and Museums;

- North of England Institute of Mining and Mechanical Engineers (NEIMME);
- North Tyneside Council – Planning;
- Northumberland County Record Office;
- Hansard; and
- National Army Museum

Desk-Based Assessment

3.5 The following information sources were consulted:

- National Monument Record (archaeology & aerial photographic records);
- Tyne and Wear Historic Environment Record;
- <http://www.english-heritage.org.uk> – The National Heritage List for England;
- North Tyneside Conservation and Design information;
- vertical and oblique aerial photographs;
- published sources (documentary and archaeological studies, local histories);
- cartographic sources (early Ordnance Survey, enclosure and tithe maps);
- previously unpublished fieldwork undertaken in the area;
- Local Development Plan;
- <http://lewis.dur.ac.uk/pip/index.html> - Pictures in Print (Durham University);
- Google Earth; and
- www.old-maps.co.uk

Building Survey

3.6 An English Heritage Level 2 buildings survey was undertaken between 27th January and 21st February 2014 by Giles MacFarland, Project Officer (Survey) of NAA under the direction of Paul G Johnson, Project Manager and with the assistance of Philip Wood, Senior Project Officer.

3.7 The survey utilised as its base plan a previous survey of the existing complex supplied by Bellway Homes (**Fig. 2**). Every surviving building was examined externally, and where possible, internally and recorded descriptively on NAA's pro forma buildings recording and room recording sheets. The buildings were recorded photographically at a minimum format of 35mm, this being supplemented by digital photography where appropriate. Where possible, the external elevations of each building was recorded face-on, where this was not possible

because of space restrictions, oblique photographs were taken. The locations of the photographs reproduced in this report are shown on Figure 19.

- 3.8 The building plans and elevations were recorded by conventional metric survey using a Leica TC 705 REDM and by hand measurement to EH level 1 standards (EH 2006, 2009). Base mapping for the complex was provided by the client and was adapted as necessary to form the basis of this study.

Study limitations

- 3.9 With the exception of the bunkers, the buildings survey was restricted to the exteriors of the brick built structures and it is not possible to predict the likely survival of any original internal features. This omission would require some further, limited, work to enhance the quality and quantity of the information currently available. It is not safe to undertake further recording works at this stage as a result of asbestos contamination and structural instability. The bunkers were accessible and internal inspection was therefore possible.
- 3.10 With the exception of a series of 1940s aerial photographs, the desk-based assessment was restricted to review of secondary sources only and was therefore limited in terms of the ability to interpret the original and later functions of some buildings. Additional primary information may be held by the MoD or the local health authority that vacated the property in the recent past and would be an important resource with which to further chart the use and/or development of the complex from the 1940s onwards.
- 3.11 Supporting desk-based work has demonstrated that the surviving buildings only represent a partial survival of the original complex. Several more buildings, such as the accommodation block and some of the administration, welfare and maintenance buildings have been demolished.

Consultation

- 3.12 Informal consultation with Jennifer Morrison, Tyne and Wear Archaeology Officer, was undertaken during January 2014 as part of the assessment process (email 10 January 2014). She advised that the only heritage asset that would be affected by the proposals would be the former MoD depot facility and that since the assessment would mainly focus on the site itself, she welcomed the proposal to undertake the building recording as part of the assessment process (email 13 January). She advised that the following record would be required:
- Digital photographic record of all structures with two sets of proper prints from the digital images;
 - Site plan showing all structures of interest
 - Scale floor plans; and
 - Outline scaled elevations of individual structures showing main openings etc.

EIA Screening Opinion

- 3.13 In February 2014, GVA submitted a request for a formal Screening Opinion on the requirement for Environmental Impact Assessment (letter to North Tyneside Council dated 10 February). NAA stated as part of this screening request, that the development would result in the total demolition of the depot complex and that this would be mitigated through detailed documentary research, detailed buildings survey, selected monitoring to map previously unrecorded remains and publication of the project results.
- 3.14 The full consultee responses from the Tyne and Wear Archaeology Officer and English Heritage are set out in the document *Consultee Comments to preapp 14/00188/PREAPP* and are summarised below.
- 3.15 Roger Thomas of English Heritage has advised the Tyne and Wear Archaeology Officer, that his understanding of the site is that it is well preserved and survives almost as it was built in 1938 in anticipation of World War II. He states that good quality materials were used because it wasn't built in a hurry and that this is reflected in some of the architectural detailing and features of the site. These types of sites are considered rare but none have been designated at yet. Tyne and Wear is said to perhaps be in a unique position in that it has two such depots (Killingworth and East Boldon) which are both still standing.
- 3.16 The preliminary comments of both parties is that given the site is well preserved and survives almost as-built, the site should not be destroyed in its entirety and that consideration should be given to preserving one concrete bunker and one building. They recommend that the boiler/generator house (Building 10) with the arched window and chimney is quite domestic in design and scale and might lend itself to domestic conversion.
- 3.17 The parties acknowledged that keeping a bunker would mean it would need to be maintained, and that the doors and windows would need to be blocked up. However, they considered that this could work in a residential area and referred to Kenton Bunker in Newcastle. It was suggested that the top of the bunker could be grassed over and the extant trees around it retained for form a green area within the site. An interpretation board could be erected and the site could potentially be opened for Heritage Open Days.

4.0 POLICY CONTEXT

- 4.1 The historic environment legislation, policies and guidance against which the proposals will be considered are set out below.
- National Planning Policy Framework (NPPF) (2012) – Policy 12: *Conserving and enhancing the historic environment*
 - North Tyneside Unitary Development Plan (2002, saved policies 2007)
 - North Tyneside Council – Local Plan Consultation Draft (November 2013)

National Planning Policy Framework (NPPF) (March 2012)

- 4.2 The NPPF recognises that the purpose of the planning system is to contribute to the achievement of sustainable development. One of the Core Planning Principles within the NPPF which underpins this role is to “encourage the reuse of existing resources, including conversion of existing buildings” and to “conserve heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life for this and future generations.”
- 4.3 **Policy 7: Requiring good design** states that planning policies and decisions should aim to ensure that (amongst other considerations) developments:
- will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;
 - respond to local character and history, and reflect the identity of local surroundings and materials, while not preventing or discouraging appropriate innovation;
 - create safe and accessible environments where crime and disorder, and the fear of crime, do not undermine quality of life or community cohesion;and
 - are visually attractive as a result of good architecture and appropriate landscaping
- 4.4 **Paragraph 61** states that: Although visual appearance and the architecture of individual buildings are very important factors, securing high quality and inclusive design goes beyond aesthetic considerations. Therefore, planning policies and decisions should address the connections between people and places and the integration of new development into the natural, built and historic environment.
- 4.5 **Policy 12: Conserving and enhancing the historic environment** sets out the framework for local planning authorities to make informed decisions on developments which affect heritage assets. Paragraphs 128 – 141 sets out the information requirements and policy principles in relation to heritage assets. The policy requires that in determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected and the potential impact of the proposal on that significance. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, developers will be required to submit an appropriate desk-based assessment and, where necessary, a field evaluation (**Paragraph 128**).
- 4.6 **Paragraph 129:** Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset’s conservation and any aspect of the proposal.
- 4.7 **Paragraph 131:** In determining planning applications, local planning authorities should take account of:

- the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;
- the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and
- the desirability of new development making a positive contribution to local character and distinctiveness.

4.8 **Paragraph 135:** The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage.

4.9 **Paragraph 139:** Non-designated heritage assets of archaeological interest that are demonstrably of equivalent significance to scheduled monuments, should be considered subject to the policies for designated heritage assets.

4.10 **Paragraph 141:** Local planning authorities should make information about the significance of the historic environment gathered as part of plan-making or development management publicly accessible. They should also require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.

North Tyneside Council Unitary Development Plan (2002, saved policies 2007)

4.11 The North Tyneside Council UDP (2002) saved policies is the statutory development plan. Chapter 5 of the UDP sets out the main objectives and policies relating to the historic environment. Saved policies of potential relevance to this application are:

Historic Environment

4.12 **Policy E15:** The Local Planning Authority will preserve, protect and enhance the historic, architectural, and archaeological assets of the borough.

Sites of Archaeological Significance

4.13 **Policy E19:** The Local Planning Authority will protect the sites and settings of sites of archaeological importance from damaging development; and will seek to enhance the setting and interpretation of sites of archaeological importance.

4.14 **Policy E19/4:** Development which would adversely affect the site or setting of archaeological remains of regional or local importance will not be permitted unless the need for development and any other material considerations outweigh the relative importance of the site.

4.15 **Policy E19/5:** Where development is proposed which may adversely affect a site of archaeological interest or potential the applicant will be required to submit an appropriate

assessment of the potential impact of the proposals on the archaeology and where necessary undertake an archaeological field evaluation before the application is determined.

- 4.16 **Policy E19/6:** Where assessment and evaluation have established that proposed development will affect a site or area of archaeological interest the applicant will be required to preserve archaeological remains in situ unless this is clearly inappropriate or destruction of the remains is demonstrably unavoidable, in which case a programme of archaeological works will be required to be submitted and agreed with the Local Planning Authority before the start of development.

North Tyneside Council Local Plan Consultation Draft (November 2013)

- 4.17 Under planning legislation, all applications for planning permission must be determined in accordance with the development plan unless material considerations indicate otherwise. Emerging development plan policy can be one such material consideration, although its weight depends on its stage through the consultation process, outstanding objection to it and its conformity to the NPPF.
- 4.18 The Council is preparing the North Tyneside Council Local Plan and published a Consultation Draft in November 2013. Once adopted, the Local Plan will become the starting point to determine planning applications. Chapter 9 sets out the Council's draft strategy for protecting, enhancing and promoting North Tyneside's heritage assets and the archaeological heritage.

5.0 DEVELOPMENT DESCRIPTION

- 5.1 The site is approximately 4.9 hectares in size, with current development proposals for the provision of up to 130 dwellings.
- 5.2 The precise nature and layout of the proposed development has yet to be confirmed, but it is likely to include the demolition of all existing structures, ground remediation works including the removal of top- and subsoils, groundworks associated with the provision of a site infrastructure and the excavation of foundation trenches for services and houses.

6.0 HISTORIC BACKGROUND

History and Function of the Site

- 6.1 The former MoD complex at Killingworth was originally a facility for servicing anti-aircraft batteries defending the conurbations, industry and airfields located north of the River Tyne. It was built c.1938 in anticipation of hostilities with Germany, and as such, the materials used in its construction, and the standard of its construction, are superior to military and ancillary facilities constructed during the war years. Technically it was one a relatively small number of Emergency Equipment Ammunition Magazines (EEAM) constructed throughout the UK in this period, and its operation was administered through the Royal Army Ordnance Corps during the war years.

- 6.2 In the 1930s, the re-armament and the mechanisation of the Army led to a review of the manner in which arms, ammunition and vehicles were distributed. As a result, a Central Ordnance Depot (COD) and workshop for the repair and maintenance of support vehicles was built on the site of the First World War National Shell Filling Factory at Chilwell, near Nottingham and opened in 1937.
- 6.3 A further COD was built at Donnington in Shropshire in 1940 to hold non-vehicle technical stores, removing this function from Woolwich to a less vulnerable location and in 1942 another was opened at Bicester, Oxfordshire, principally to hold stores for the invasion of France. The CODs were supplied with arms and ammunition from factories administered by the Ministry of Supply (MoS).
- 6.4 The Ministry of Supply was a Government department formed in 1939 to co-ordinate the supply of equipment to all three British armed forces, not just the Army (Hornby 1958). Both the MoS and the Ministry of Aircraft Production (MAP) financed a huge expansion in Britain's capacity for armament production during the Second World War, the MoS through complex agency and capital assistance schemes (Edgerton 2006, 79). Amongst other duties, the Ministry of Supply was responsible for building and running the Royal Ordnance Factories (ROFs) which produced explosives and propellants; filled ammunition; and constructed guns and rifles.
- 6.5 Central Ammunition Depots (CAD) were also built during this period. These included the massive complex at Longtown, near Carlisle (which was probably the nearest source of ammunition for Killingworth), Monkton Farleigh, in Wiltshire and Nesscliffe in Shropshire.
- 6.6 The complex at Killingworth, recorded as Anti-aircraft Ordnance Depot (AAOD) No 75 (Royal Logistics Corps Digital Archives), was essentially a dual purpose facility; firstly it acted as a local distribution centre for anti-aircraft ammunition supplied by the CODs, and secondly it acted as a depot for the storage, repair and/or maintenance of those anti-aircraft guns in the area that did not comprise elements of fixed (immobile) batteries.

Ammunition Supply

- 6.7 At Killingworth, ammunition of every type required by any of the anti-aircraft batteries in the area would have been brought probably by road from one of a number of CODs. There is no obvious rail link to the site, although it is likely that ammunition was sent to a relatively local rail-head for transshipment. The nearest main-line station in this period would have been Killingworth Station, adjacent to West Moor Colliery and it would seem plausible that this station could have been used for transferring ammunition.
- 6.8 The ammunition required by the depot would have consisted of everything from the .303 rounds used by Lewis/Bren Guns, the 20mm and 40mm shells used in medium-weight Oerlikon/Polsten and Bofors Guns respectively, up to the 3.7", 25lb shells used by the QF anti-aircraft guns which were the primary, heavy defensive guns used during the conflict. It is unclear whether the Z-gun batteries, which were rocket batteries, were also supplied through this mechanism.
- 6.9 Each anti-aircraft gun in each battery would have been equipped with ammunition lockers, which were replenished from a small magazine within each battery as rounds from the lockers

were used up. The battery magazine, in turn, would have been replenished, on a daily basis if required, with ammunition collected from its servicing EEAM. During the war years, the consumption of ammunition, and flow of replacements through the EEAM could have been prodigious. Although indicative figures for this period are difficult to estimate, a Hansard Report, dated to 1947, and relating to the EEAM at East Boldon, records that around 23,000 rounds were received by, and about 15,400 rounds were dispatched from, this facility each week just during peacetime.

- 6.10 Emergency Equipment Ammunition Magazines varied in size and form throughout the country, the example at Killingworth having an essentially similar counterpart south of the Tyne at East Boldon, which serviced the anti-aircraft batteries of South Tyneside and Wearside. One common component of such complexes is the form of the magazine, or bunker. At both Killingworth and East Boldon these consist of substantial, above ground, concrete huts surrounded by concrete blast walls supported by earthen bunds for the majority of their perimeters. Not all EEAMs were equipped with such magazines; the EEAM at Bishopbriggs to the north of Glasgow, for example, seems to have largely consisted of magazines constructed as variants of the Quonset Hut (an arched corrugated iron building, also known, somewhat obscurely, as an Elephant Hut, but similar in shape to the First World War Nissen Hut), with only a single all-concrete 'bunker' being represented.

Storage, Maintenance and Repair Depot

- 6.11 The second role of the complex is represented by a series of substantial brick-built structures located to the north of the magazine complex. The most obvious of these comprises a large, well-constructed, brick shed with an asbestos cement roof situated amidst a series of smaller, but similarly well-constructed ancillary buildings.
- 6.12 This large building housed the facility for the storage and servicing of vehicles and weaponry. The smaller group of buildings vary in shape, size and purpose but were all related to the administration and operation of the complex and included offices, boiler/generator house, vehicle garages, accommodation and welfare facilities.
- 6.13 The repair and maintenance of all weaponry and vehicles at the depot was originally undertaken by the Royal Army Ordnance Corps (RAOC) but from 1942 onwards this became the responsibility of a detachment from No. 31 Command of the newly formed Royal Electrical and Mechanical Engineers (REME), who continued to maintain vehicles and weaponry on the site until 1956. Thereafter, the REME used the Killingworth depot as a centre for the maintenance of vehicles up until its closure in 1976.
- 6.14 The closure of the REME depot at Killingworth is discussed in the House of Commons (Hansard 1976) and at this date, Hansard records that 45 individuals attached to the 31 Command were employed at the depot. The stores and equipment held by this depot had in fact already been offered for auction by the Ministry of Defence in August 1975 (Flight International, July 1975).
- 6.15 Further reference to the REME depot occurs in a planning application of 1979 (70/00395/GOVDEP) in which the site was granted a change in use to a Local Area Health Authority central store, a function which appears to have continued until the mid 1990s when the complex was finally closed; it has remained vacant since.

Site description

- 6.16 Due to the military function of the site it does not appear on Ordnance Survey mapping prior to 1952 and then for security reasons none of the ammunition bunkers are shown (**Fig. 4**). However, the complex is recorded on a series of near-contemporary aerial photographs and appears in oblique photographs recorded by the RAF in 1945, prior to the cessation of hostilities in Europe; and later, on a series of vertical photographs dating to 1948 (**Plates 1 and 2**).
- 6.17 Figure 2 shows the buildings and features transcribed from the 1948 aerial photograph and the 1952 Ordnance Survey plan and should be referred to in conjunction with the aerial photographs when reading the following description of the complex. The building numbers refer to those shown on Figure 2.
- 6.18 The EEAM at Killingworth was not a single-function establishment and the aerial photographs show the complex was roughly divided into three identifiable 'zones' of activity;
- Zone 1:** ammunition storage and distribution – Buildings A – E
- Zone 2:** vehicle/arms storage and maintenance – Building 12
- Zone 3:** accommodation, welfare and administration – Buildings 1 and 2 and around the perimeter of Building 12.
- 6.19 The whole complex was serviced by a network of concrete roads and yards and the entire main complex would have originally been surrounded by a perimeter fence equipped with sentry posts.
- 6.20 The entrance to the complex was always from the B1317, through a wide visibility splay onto a concrete road which turned to the east almost immediately to run past the principle accommodation block (Building 1). The road then turned southwards and divided into two; one arm continuing south towards the bunkers, the other running east into the centre of the complex. A care-taker's house (Building 3) can be seen near to the entrance of the main facility.
- 6.21 The five ammunition bunkers or magazines were located within the southern part of the site (Buildings A to E) and consisted of substantial, above ground, concrete huts surrounded by concrete blast walls supported by earthen bunds around the majority of their perimeters. The road network serving these reflects the routes used in the supply and distribution of ammunition
- 6.22 Vehicle and armament storage, and the maintenance thereof, was undertaken in the large warehouse-like structure, Building 12. The structure was well-lit, and spacious and was equipped with doorways of sufficient dimensions to permit the movement of some of the largest pieces of equipment employed by the army in the Defence of Britain between the years of 1939 and 1945. It has been suggested that such buildings were also used for the storage of barrage balloons, although it seems unlikely that these were stored, and moved, whilst inflated.

- 6.23 The accommodation and welfare facilities appear to have been situated slightly to the west of the 'working core' of the site and comprised the spider block, (Building 1), a cluster of buildings likely to have been concerned with welfare, and probably administration (Buildings 2) with some ablutions facilities also being provided within the core of the site probably including Building 19.
- 6.24 Administration for the movement of ammunition may have been undertaken in some of the Building 2 cluster, as the road to the bunkers runs directly past these. Building 18, situated to the east of the road, and a small square building visible in the 1948 aerial photograph as being situated just to the south-west, may also have had a role in controlling vehicle movement to and from the bunker area.
- 6.25 The storage and maintenance of arms and vehicles was probably administered through offices within Building 12, and/or Building 16 and possibly Building 17.

Possible camp or storage area to north of complex

- 6.26 The earliest photograph selected for inclusion in this report is an oblique view dating to March 1945 (**Plate 1**). This image not only serves to provide evidence for the complex during the war years, but is perhaps the only evidence for some form of activity occurring in the field to the north and north-east of the complex at that time.
- 6.27 There is no cartographic evidence which pre- or post-dates this image which might elucidate the nature of this activity (the field simply appearing as a featureless tract of land), and it is entirely absent in the aerial photograph of 1948 (**Plate 2**). It is, however, clear from the earlier photograph that this activity was extensive and probably required the movement of vehicles since trackways are visible.
- 6.28 It is possible that the field in question was once the site of a temporary military facility, perhaps a camp or large storage area that was already in the process of being dismantled in the later years of the war when enemy aircraft activity over North Tyneside was minimal. At Boldon, there is also a complex of huts and/or other structures to the north of the large vehicle and armament storage warehouse and this is identified as a "camp" on the 1959 1:2500 OS map (not included). In the Hansard records for 1946 it is noted that there were at least 20 Army Huts at Site 309 at East Boldon, and that these comprised a Permanent Ordnance Camp, which was then shortly expected to become a Medical Depot.
- 6.29 The aerial photograph from 1948 provides a much clearer indication of the form of the complex compared to the 1945 photograph, but it also suggests that a reduction in the size of the facility had already occurred within the boundaries of the proposed development; all trace of the putative 'camp' has gone; a redundant roadway to the north of the easternmost bunkers is clearly visible, and various other areas of disturbed ground, perhaps indicating the sites of former buildings, are apparent.

7.0 THE BUILDINGS SURVEY

7.1 The following sections provide a building-by-building description of the former MoD complex. Although a significant number of the original buildings of the complex have been lost, as discussed above, their positions can be reconstructed from the near-contemporary aerial photographs, and rather less comprehensively, from the 1952 and later editions of the Ordnance Survey mapping. These demolished buildings are therefore also included in this report. The locations of the buildings discussed below are shown on Figure 2 and the locations of the supporting plates are shown on Figure 19..

Building 1: accommodation block (demolished)

7.2 Building 1 was located within the north-western corner of the site. From aerial photography and cartographic evidence the building appears to have originally been an accommodation block, often referred to as a 'spider block' as a result of its ground plan resembling that of a stylised insect. The building was probably constructed of timber, or alternatively of corrugated iron sections, and in common with many similar buildings of this period was probably of modular design, and partially prefabricated.

7.3 The 'legs' of the building would have consisted of a number of individual bays, normally six on each side of the 'body', each nominally 12'00" long and 18'00" wide and would have acted as dormitories. However the 'body' of the insect in this case is only partial, the northernmost half comprising a single narrow corridor offset from the centreline.

7.4 The roofs of all of these blocks were normally ridged and gabled, unless of corrugated iron construction when the whole building would have been of a continuous arch form, with the exception of connecting corridors (if present) which were generally flat roofed.

7.5 Archaeological recording works undertaken at Saughton Camp near Chester (NAA 2008) suggests that the sites of such buildings would have been cleared of all top and subsoils by mechanical means until the underlying clay surface was exposed. This surface appears to have been roughly levelled and foundation trenches, reflecting the plan form of the buildings, cut into the natural clay.

7.6 If it is assumed that around 30 men could be accommodated in dormitories in each 'leg' of the accommodation block, the blocks themselves could potentially house 180 men, a figure that equates with 25% of a battalion and this number of men probably would have been sufficient to operate the EEAM.

Condition

7.7 The building is no longer extant although some of its original footings and other subsurface infrastructure, such as drainage, may survive.

Buildings 2: welfare and administration (demolished)

7.8 There is limited cartographic and photographic evidence for the small group of seven buildings that once existed to the south-east of Building 1. These have now all been demolished and the

site was, until recently, occupied by a single building used by the Army Cadet Force built sometime in the early 1980s (Planning Reference 82/02466/FUL) but now demolished.

- 7.9 This cluster of buildings is likely to have been concerned with welfare and administration, including the administration for the movement of ammunition in and out of the bunker or magazine complex.
- 7.10 Satellite imagery suggests that at least one of these buildings was of an arch-form, roofed in corrugated iron, with at least one end wall constructed from brickwork containing a central small doorway. This is similar in appearance to the Nissen Hut, a type of rapidly-erected prefabricated building first used by British forces during the First World War. However, this example may have been one of a number a variants of the theme, such as a Romney Hut, or the American-built Quonset Hut. As noted above, in Britain, this type of hut was dubbed an 'elephant' or 'baby elephant' hut (depending upon size).
- 7.11 The form of the other buildings in the complex is derived from the 1948 aerial photograph. These appear to be conventional ridged and gabled timber huts which could have fulfilled a number of functions such as office accommodation, mess facilities and perhaps officers' accommodation.
- 7.12 On the basis of Ordnance Survey and satellite evidence Building group 2 was demolished between 1970 and 1979, the last survivor being the 'elephant' hut which appears on satellite imagery of about 2008.

Condition

- 7.13 The buildings are no longer extant although some of their original footings and other subsurface infrastructure, such as drainage, may survive. These may be partial given that the site was reused for the construction of an Army Cadet Force building in the 1980s.

Building 3: caretaker's house (extant)

- 7.14 Building 3 lies outside of the proposed development boundary, but was once part of the EEAM complex and still survives, albeit in modified and extended form. The building is a single storey L shaped bungalow, with a hipped roof and brick-built walls, and appears to have been extended towards the west. It would have originally sat at the entrance to the depot, and was the residence of the complex's care-taker.

Condition

- 7.15 The building is in good condition and occupied at the time of the site survey. As a result of this, and the fact that it lies outwith the development area, it was subjected to no more than a cursory examination.

Originality

- 7.16 Historic mapping suggests that the western half of the building was narrower than it is presently, and that the return of its L shape may have just been a porch or entrance lobby. The

building sat in a rectangular enclosure or garden and this has also been extended towards the west. Part of the enclosure is now occupied by a garage.

Building 4: storage? - Plate 3; Figure 6

- 7.17 Building 4 is located just to the south of the modern entrance to the site. It comprises a simple, square, brick-built structure with a ridged and gabled roof, the gables being at the western and eastern ends of the building. The walls and gables of the building are unfenestrated, and all of the brickwork is executed in stretcher bond.
- 7.18 The building is 8.18m by 8.18m (27' square) externally and is 6.22m (20' 6") high to the ridge. The entire structure appears to have been built upon a concrete slab foundation which mirrors the footprint of the building, but extends for 2 or 3 inches beyond the brickwork on all sides.
- 7.19 The bricks used on this and the majority of other standing buildings have a surface finish of small, closely-spaced vertical zig-zag combing. These bricks were (and still are) produced by the London Brick Company, and are known as 'rustic' bricks. Loose examples of these deeply-frogged bricks abound in demolition debris at the site, although examples of the undecorated and unfrogged products of the Hartley Main Colliery are also common; these representing a more local brick supplier.
- 7.20 The roof is covered with corrugated asbestos-cement sheets and each roof slope contains a continuous row of roof-lights, running for nearly the full length of the building, situated mid-way up the slopes. The ridge tiles, rainwater goods and fascias of the roof are similarly made of asbestos cement.
- 7.21 Externally, the building would appear to be divided into two bays and two aisles, these being defined by brick pillars at each corner of the building, with additional pillars halfway down each wall, and the centre of each gable. These pillars probably mark the positions of the ends of the roof trusses, and the ridge, and are constructed to bear the load of the roof at these points.
- 7.22 There are two opposed doorways in the east and west elevations, these being situated just to the east of the central pillars, both surmounted by substantial concrete lintels. A corrugated-iron lean-to shed has been built against the western gable.

Condition

- 7.23 Externally, the building would seem to be in reasonable condition although it has not been maintained for a number of years and is beginning to deteriorate. One of the rainwater downpipes is missing, and the guttering has become blocked but it was not possible to assess whether the roof structure was still watertight although the roof-lights are unbroken. The doorway on the northern wall still retains its planked door; that on the southern side has been boarded up.

Originality

- 7.24 The fabric of the walls and roof both seem to be original and unmodified, door on the northern side is likely to be a replacement given the age of the building. Similarly, the rainwater goods may have been replaced, but if so this was undertaken some time ago.

Building 5: function unknown (demolished)

- 7.25 Building 5 is now represented by a small rectangular concrete platform situated on the northern perimeter of the site. Its former position is marked on historic Ordnance Survey mapping but its former function is not, at present, known.

Condition

- 7.26 The building has been demolished in the relatively recent past and the demolition debris removed.

Originality

- 7.27 The building is no longer extant although part of its concrete plinth survives. Other original subsurface features commensurate with the original function of the building may survive.

Building 6: function unknown (demolished)

- 7.28 Building 6 was a small rectangular structure located on the northern perimeter of the site, east of Building 5. The building is recorded on historic Ordnance Survey mapping but there are now no visible remains; the site of the building having been covered with tarmac.

Condition

- 7.29 The building has been demolished and the demolition debris removed.

Originality

- 7.30 The building is no longer extant although some of the original subsurface features associated with the building may survive.

Building 7: function unknown (demolished)

- 7.31 Building 7 was a small rectangular structure noted in historic Ordnance Survey mapping to the east of Building 6. There are no visible remains, the site of the building having received a dressing of tarmacadam although there is an area to the north of the former building which contains part of the original concrete yard surface without this later dressing. The approximate site of the former building now contains a wire-mesh secure store, possible for storing compressed gas bottles during the Area Health Authority's occupancy of the site.

Condition

- 7.32 The building has been demolished and the demolition debris removed.

Originality

- 7.33 The building is no longer extant although some of the original subsurface features associated with the building may survive.

Structures 8 and 9: water tanks (demolished)

- 7.34 Neither of these buildings survive although both are identified as being 'tanks' on historic Ordnance Survey mapping. The tanks would almost certainly have been water-storage tanks, for use in the event of a fire. Tanks of this nature were common on military establishments; particularly those where mains water supplies were limited, or non-existent. The tanks in this case may have been brick-built or made of steel, and, if they were solely for use in an emergency, may not have been covered. On the basis of a ground inspection, and historic mapping, neither structure appears to have been bundled.

Condition

- 7.35 The structures have been demolished and the demolition debris removed. Satellite imagery suggests that this was undertaken sometime in the late 1990s or early 2000s.

Originality

- 7.36 Neither structure survives, although subsurface pipework may still exist. The site of the northernmost tank now being covered with fairly dense scrub vegetation; that to the south being an area of rough grass.

Building 10: boiler/generator house - Plates 4 and 5; Figures 7 and 8

- 7.37 Building 10 is situated near the eastern perimeter of the site. It comprises a rectangular structure, 9.27m by 6.39m (30'6" by 21') externally, excluding entrance and chimney, and is 6.93m (22'9") high. The whole of the structure was constructed on a concrete plinth or pad which dictated the footprint of the building.
- 7.38 It has a substantial square chimney-stack built against its eastern wall, and a single storey entrance portico along the whole length of the southern wall. The whole building is brick-built, and the roof (with the exception of the entrance portico) is ridged and gable, and covered with asbestos cement sheeting, but lacks the roof lights noted in other buildings. The bricks used have the same surface finish of small vertical zig-zag combing seen on most of the other standing buildings. The entranceway element is flat roofed, probably consisting of a concrete slab, which is sealed with a thick coat of bituminous sealant.
- 7.39 Externally, the structure would appear to be three bays long, and two aisles wide, the divisions being marked externally by brick pillars in a similar manner to those seen in many other buildings on the site. These again probably just represent the positions of roof trusses and the ridge of the building, and it would seem unlikely that the building was internally subdivided.
- 7.40 This building is unique within this complex in having a lower chamfered brick plinth at the base of each panel of brickwork formed by a double thickness wall for the first four courses, and two chamfered courses of brickwork to reduce its thickness. This may not just be a

decorative effect, but a structural necessity for this building, the reasons for which are unclear without an internal inspection.

West elevation

- 7.41 The bays along the of the west elevation are not uniform. The southernmost bay projects forward of the other two, being a double thickness wall for its whole height. It contains a large double doorway with a surmounting lintel made of buff-coloured, sandy, concrete. This type of lintel is almost ubiquitous throughout the brick-built structures of the site. Their composition and colour are no doubt intended to resemble sandstone, and their inclusion within this complex supports the notion that these buildings were architect designed, and were not built with any particular considerations towards austerity or economy. The doorway is sealed by a pair of substantial planked doors, suspended from equally substantial steel strap-hinges (**Plate 4**).
- 7.42 The central bay is the same width as the southern bay. It has a single window aperture set off centre towards the southern side of the bay. The window is surmounted by a concrete lintel, and has a cill made of the same material, but half the thickness of the lintel.
- 7.43 The northern bay is longer than the other two, and has a window of the same dimensions as that in the central bay, again located towards the southern side of the bay. To the north of the window is a small doorway, provided with both cill and lintel, and closed by a planked door suspended from strap hinges. This doorway is insufficiently large to have permitted access into the building and seems to be a cupboard door; the cupboard perhaps containing some sort of equipment to which regular access was required from outside of the building.

North elevation

- 7.44 The north gable of the building is blind, but preserves the remains of a cable conduit, a wall mounted box with two associated cables running into the ground, and a period light-fitting attached to the north-eastern corner of the building.

East elevation

- 7.45 The eastern elevation of the building is also divided into three bays. The northern and southern bays each contain a semicircular arch-headed window set centrally within each bay (**Plate 5**). Each window is provided with a concrete cill, and the arch-heads are formed by soldier-bricks. The windows contain iron or steel frames, the uppermost portion of which reflect the curve of the arch and can be described as mildly decorative. These windows are reminiscent of the arched windows frequently seen in engine-houses of earlier periods albeit of a smaller size.
- 7.46 The northern bay has a 2" diameter steel pipe protruding from it; this being equipped with a lever-operated valve. The pipe was probably associated with the fuel banded tanks situated to the east (see below).
- 7.47 A non-period 6" electric bell is affixed to the wall just to the north of the window in this bay. This is likely to have been an extension bell for a telephone, and may have been mains-operated through a relay. Both the northern and southern bays have cast-iron down-pipes affixed to the brick pillars, these being fed from gutters situated on the eaves.

- 7.48 The middle bay contains the chimney, which is not centrally disposed and may extend slightly into the northern bay. The chimney is square section and presently extends beyond ridge height. The chimney brickwork is stepped inwards in two places in order to effect a reduction in its dimensions, the steps being just below and just above the eaves. The chimney has been rebuilt and subsequently extended. A single course of the same brick type as the rest of the structure is visible at ground level, keyed into the building. Above this, the lower two-thirds of the chimney is constructed of undecorated brick, in English Bond. The upper 27 courses are of a different, but again undecorated brick, and built in English Bond. The top of the chimney is finished in bull-nosed bricks. The bay is otherwise blind.

South elevation

- 7.49 The upper part of the south gable is essentially similar to its northern counterpart; the lower section being obscured by a single storey portico extending for the full width of the gable (**Plate 4**).
- 7.50 This southern elevation comprises three 'bays', of unequal size, which roughly echoes the design of the western elevation of the building. The eastern and western bays echo the design of the main elevations and each comprises a single panel of brickwork terminating in a pillar at the southern end. The chamfer courses seen on the main elevations are repeated throughout the portico.
- 7.51 The brickwork of the easternmost bay of the portico projects forward of the other two and this panel contains a single doorway surmounted by a concrete lintel, but without a visible step or cill. The door is closed by a single-panel door which is likely to be a replacement. The central bay is blind and the westernmost is perforated by a window aperture below a concrete lintel, but with a cill made of bull-nosed header bricks. The central pillar of this elevation retains the lower portion of a rainwater down-pipe once fed from a gutter, mounted on a timber fascia, running the full width of the portico.
- 7.52 The brickwork of the portico is constructed in Stretcher Bond, and therefore differs from the remainder of the building which is constructed in English Bond. This might imply that the entranceway was a late, if near contemporary, addition to the structure and perhaps provided some small additional office space as well as a more sheltered entrance to the building.

Function

- 7.53 The building would seem to have once been a boiler-house, or perhaps more likely a generator house providing electricity for the complex, although without an internal inspection, this interpretation remains speculative. The National Grid did not exist in the pre-War years so some manner of self sufficiency in the provision of power would have been required by the complex.
- 7.54 If the building was used for producing electricity, the generator set would have been powered by a static diesel engine, and evidence for the storage of its fuel survives to the east of the building in the form of a pair of conjoined banded fuel tank mounts. Each comprises a rectangular brick-walled enclosure, ten courses high, each containing a pair of brick-built plinths formerly supporting a cylindrical fuel tank. In order to accommodate, and lend lateral support to the cylinder, the plinths have been built with an inverted semi circular arch in their

upper surface although the tanks have now been removed. The brickwork is undecorated and of English Bond, the top of the bund wall being finished in a single course of edge-laid headers.

Condition

- 7.55 Outwardly the building is in reasonable condition, with wall and roof fabric both intact. The rainwater goods are in poor condition through lack of maintenance and the brickwork of the fuel tank bunds is spalling quite significantly in places. In addition to the presence of asbestos, there is also likely to be ground contamination issues arising from the use of this building as a generator house, which will probably have affected the ground both beneath and around the building.

Originality

- 7.56 Most of this building appears to be original. The door to the portico is a replacement and, as noted above, much of the brickwork of the chimney has been replaced. There are various external fittings which are clearly not period fittings, although there are some which may be 1930s survivals.

Structure 11: function unknown - Plate 11; Figure 9

- 7.57 This structure is situated to the south of Building 10 and is a simple sub-square brick-built enclosure, measuring 13.43m by 12.25m (44' by 40') externally, and 3.23m (10'6") high.
- 7.58 All four walls comprise simple brick panels, standing 36 courses high, constructed of zig-zag decorated brick, in English Bond. The corners of the enclosure are defined by further brick-built pillars which only extend to three-quarters of the height of the wall. The wall heads and pillars are finished with concrete coping stones and caps and, with the exception of the western wall, the walls are blind.
- 7.59 The western wall has a large double gateway placed at its centre, defined by a pair of mildly decorative gate piers at either side. The gate piers each incorporate two sandstone blocks and the gate hinges attach to these blocks on their external (west) face. The internal faces of each block also feature blocked holes denoting the positions of an earlier set of hinges. The southern of the two gate piers, together with part of the adjacent wall, has been rebuilt using a different brick type which is decorated with horizontal lines.
- 7.60 Externally, the west end of the southern wall preserves a fuse box marked 'Sandamax' with an associated cable running into the ground, an electrical switch, and a gas or water pipe. A hole in the wall near these features has been infilled and the features all lie above a raised concrete slab perhaps suggesting that these features were originally enclosed by a wooden structure.
- 7.61 Internally, there is a scar in the brickwork of the southern wall, indicating a former internal division in the south-west corner. The function of this building is unclear.

Condition

- 7.62 The structure is in reasonable condition, although the upper brickwork in the south-west corner is unstable, and several of the concrete capping slabs are missing.

Originality

- 7.63 The scar on the internal wall indicates the outer wall of a small covered structure in the south-west corner, which is shown on historic Ordnance Survey mapping. It is likely that the fuse box and switch on the external wall were used to control lights or other electrical equipment for the small structure inside the south-west corner. The rebuilt southern gate pier incorporates the two original stone blocks. From the blocked holes visible in the gate piers, it is likely that the gates are replacements.

Building 12: vehicle/arms storage and maintenance warehouse-Plates 7 to 11; Figure 10

- 7.64 This is by far the largest building in the complex, situated in the north-east quarter of the site. It is surrounded by large areas of tarmac and concrete slab paving, while the majority of standing buildings on the site (4 to 18) are arranged around it. As the building is large, a basic constructional description is presented first, followed by variations to this in each elevation.
- 7.65 The building is similar in construction to many of the buildings surrounding it but on a much larger scale. The main structure is again constructed of zig-zag decorated brick, in stretcher bond.
- 7.66 Externally, the building measures 64.5m (211'6"), excluding the single-storey extension to the west east to west and 46.13m (151'4") north to south at its widest; the east end is narrower at 38.51m (126'4"). From the outside the building would appear to be two storeys high, with windows situated at an upper level. However, the structure is simply divided by an internal partition wall into two, unequally sized, open halls, with no internal floors.
- 7.67 Externally, the structure is divided into eighteen bays and six aisles defined by a series of brick pillars, and the valley-gutters between each roof section (**Plate 9**). The northernmost aisle is shorter than the remainder at twelve bays long, the eastern six bays being absent.
- 7.68 The north and south sides (the longer elevations) each incorporate three steel 'up and over' vehicle access doors painted blue (**Plate 9**). They also have a row of steel-framed windows, although some alteration to the arrangement of these windows has taken place. The short elevations of the building have windows only.
- 7.69 The six steel vehicle access doors in the building are near-identical, varying only in the position of a small access door in each. They are 7.62m by 4.57m high (25' by 15') wide and extend to the full height of the walls. The lintel and each of the stanchions are made of a single I-profile steel girder (RSJ), marked with 'DORMAN LONG & Co Ltd No 6', 'MIDDLESBROUGH' and 'BRITISH STEEL' on a number of examples. The fact that these latter bear a British Steel legend (not to be confused with the British Steel logo of post-1967 nationalisation date) indicates that these RSJs post-date 1931 (NAA 2009, 34). Each door is made up of eight vertical steel-framed subdivisions onto which galvanised sheets have been

riveted. The lockable pedestrian access door is located within the third or fourth vertical panel from the left.

- 7.70 The bays and aisles each incorporate a rectangular window, 2.51m by 0.94m (8'3" by 3') in size, seven courses of brick below the roof line. Some have been blocked with brick, while others currently have metal covers over them. A number of the windows are still visible, and appear to be all of the same construction. Each has a precast lintel, the majority in a buff-coloured sandy concrete, although some are of a grey pebbly concrete. All incorporate a brick cill. The windows themselves are divided into 3 sections. The central section, comprising half the window, has 16 small glass panes, and the upper half of the section can be opened. The smaller side sections each comprise eight panes and are fixed (**Plate 10**).
- 7.71 The roof is steel-framed, comprising fan-trusses supported on vertical steel beams set into the concrete of the floor of the building, with wall-plates set on the wall-heads of the north and south elevations. The roof is composed of six parallel sections each being ridged and hipped at both ends. Each section is covered with asbestos cement sheeting, and incorporates two rows of roof-lights along almost its entire length. Valley guttering runs between each ridge, leading to down-pipes at the east and west ends of the structure. There are four, later, ventilation cowls situated towards the eastern end of the roof, these being of a form that suggests they are not original features. The positions of these could not be accurately determined from the outside of the building and as a consequence they have been omitted from Figure 10. A precursory internal inspection suggests the presence of internal down-pipes integral with the vertical elements of the steel framework of the building.

West elevation

- 7.72 The top of the western elevation supports the framework for the roof structure. As noted above there are six elements, ridged and hipped, and the valleys between each individual section outwardly define a series of six aisles. Each roof section, individually 7.62m (25') wide, is supported at either end by vertical brick pillars, with a further central pillar being placed under the ridge-line; the wall panels between each pillar are composed of plain brickwork. Cast iron down-pipes are located at each valley gutter and fixed to the brick pillars (**Plate 8**). The heads of each down-pipe has a decorated rectangular trough and two of the pipes have been damaged by construction of a later building (see below).
- 7.73 An identification mark, comprising a black **A1** in a yellow circle, is painted on the building near its south-west corner. Each aisle incorporates two windows arranged symmetrically about the central pillars. Each is surmounted by a simple concrete lintel and equipped with edge-laid brick cills. However the details of the window frames were obscured because each window is presently covered by steel-mesh security grills. The second window from the south has been partly blocked and lowered. The blocking brickwork has horizontal line-decoration, and the replacement lintel is slightly thicker than the original, in precast grey concrete. The original brick cill appears to have been reused.
- 7.74 A later, single storey rectangular structure, 23.64m by 4.58m (77'6" by 15') and 3.18m (10'6") in height, has been built against the west wall, obscuring the lower portions of the three central aisles. This building is constructed of grey-cream undecorated brick, in stretcher bond and has a flat roof with concrete copings at the wall-heads. This later building had two doorways in its

western side and a third in its southern side, all presently sealed against intruders. A structure of identical dimensions but with a ridged roof is visible in this position in the aerial photograph of 1948.

North elevation

- 7.75 The north side of the building incorporates the reduced aisle and comprises two sub-elevations; the longer north-facing 18 bay element and the shorter 12 bay element. The largest of the two (the west and central portions of the building) comprises 12 bays, divided by brick pillars, along with two vehicle access doors. The eight brickwork bays contain windows originally set at high level. The western two windows have modern metal covers, the remaining examples are still visible. The eastern-most bay of this element has its original window blocked with plain brick in stretcher bond. A replacement window, of the same size (and possibly using the original frame and glass) is positioned below it at ground-floor level, with a lintel and cill both of cream concrete.
- 7.76 The two metal vehicle doors both have their pedestrian access doors in the fourth panel from the east. A cast-iron ventilation pipe, reaching to roof height, projects from one of the central bays. Two down-pipes (one now plastic) are also visible fixed to the pillars, one close to the ventilation pipe, the other at the eastern end of the aisle forming this part of the elevation. Two modern halogen spotlamps are fixed to the walls just above the window-line and are connected to metal-encased cables, which may be original.
- 7.77 The remaining north-facing element, comprising the narrower eastern end of the building, comprises eight bays, two of which are occupied by a further vehicle door. The easternmost original window has been blocked (again with undecorated brick) and this, and the bay to its west, have had two later windows installed at ground-floor level, both with grey concrete lintels and cills. The easternmost window is of the same dimensions as the original; the westernmost being nearly square, 1.44m by 1.22m (4'9" by 4') in size. It has been covered but projecting metal hinges are visible and the window appears to be metal-framed. It also has a wooden 'GOODS OUTWARD' sign fixed to the wall above it. The adjacent vehicle door has its pedestrian access door in the third panel from the east. A metal bracket for a telephone line is visible on the north-east corner pillar, as is a wall-mounted box.

East elevation

- 7.78 This comprises the five southernmost aisles of the building, and the set-back elevation of the sixth, northernmost aisle. Each aisle again containing a central brick pillar beneath the position of the ridge and pillars beneath the valley gutters. Six of the original upper windows have been bricked up; five towards the northern end of the building, the other at the southern end. The blocking brickwork is again of undecorated brick in stretcher bond; all of the original windows are uncovered. The three northern aisles also have a ground-floor window, all apparently later additions, three of which have again been blocked. All of the lower windows have grey pebbly concrete lintels, and the northernmost two, have a concrete cill. The blocking brickwork of the lower windows is in stretcher bond with horizontal line-decoration.
- 7.79 Several of the brick pillars defining the aisles have cracks extending their full height indicating subsidence at this end of the building. Four of the pillars have been wholly rebuilt, while part of the north-east corner pillar (of the fifth aisle from the south) has also been rebuilt. The brick

in these repaired pillars is the same decorated brick as used in the blocking of the lower windows, suggesting contemporary alterations. While a number of blocked windows are seen elsewhere in the building, most have lower-level replacements. Here, the blocking of both the original and replacement windows, cracking in the brickwork and rebuilding of the pillars suggests serious and persistent structural problems along the whole side of the structure.

- 7.80 In addition to the rebuilt pillars, a total of eight blocked-up holes of varying shapes and sizes, are visible in the aisles of this wall. Like the west elevation, cast iron down-pipes with a decorated rectangular hopper, are located at the ends of the valley gutters, fixed to the brick pillars. In addition to the down-pipes, two later cast-iron drains, and a gas or water pipe project from the wall. A fuse box is fixed to the south-east corner, while halogen spotlamps are attached to two of the brick pillars.

South elevation

- 7.81 This side of the structure comprises a total of eighteen bays, the twelve brick-built bays being divided into a 2-4-4-2 pattern by the three vehicle doors. The six windows of the western half are all unaltered, although the western-most two are covered. The six easternmost windows have all been blocked with plain brick and replacement windows of identical size have been installed at ground-floor, although these have again been altered.
- 7.82 Four of the lower windows have yellow pebbly lintels and precast grey cills; where these survive; the easternmost two have thicker lintels of grey precast concrete. The three eastern lower windows have themselves been blocked and the adjacent one narrowed using brick with horizontal decoration. The thicker materials and blocking presumably reflect structural instability at this end of the structure. The original upper window of the easternmost bay, including the lintel, has also been removed and a thicker lintel, of yellow precast concrete, has been installed and the whole panel of brickwork between the pillars and above the lower window lintel has been replaced using a different type of plain brick. This brickwork appears to be the latest alteration at this end of the building. It is unclear whether this represents the installation and later blocking of a replacement upper window, or whether the new lintel and brickwork were put in at the same point to repair and strengthen this part of the structure.
- 7.83 The west and central metal vehicle doors both have their pedestrian access doors in the fourth panel from the west, while the eastern one has its access door in the third panel from the west.
- 7.84 A black-painted **A1** building-identification mark, set in a yellow-painted circle, is located on the building near the south-west corner. Above it, is a wooden 'WAY OUT' sign fixed directly to the brickwork. Further wooden signs are fixed above two of the lower windows, one reading 'GOODS INWARD'; the writing on the other being too faded to decipher. Four regularly-spaced down-pipes are fixed to the brick pillars, while three halogen lights, a period bell and a later alarm box are all fixed to the wall at various points above the upper windows.

Function

- 7.85 The size of this building combined with its central location and large vehicle doors, means that it is likely to have housed most or all of the vehicle fleet for delivery of the ammunition to anti-aircraft batteries in the area. The doors are however substantially larger than necessary to allow the passage of most military vehicles of the time and may indicate the storing - or at least the

provision for storing - large anti-aircraft guns. As access to the interior was not possible, it is unclear how the interior spaces were originally subdivided, if at all. However, one brick partition wall was visible from a doorway, the wall being situated towards the eastern end of the building separating at least one large bay containing opposed vehicle doors from the remainder of the structure. It is unclear if the partition wall was an original feature or a later insertion.

Condition

- 7.86 Externally, the building is in reasonable to poor condition. The roof has several holes, and the south-west corner in particular is in very poor condition with large areas of perforated asbestos sheeting. With the exception of the building's east end, the walls are in good condition. The east end shows evidence of instability, possibly as a result of subsidence, with cracking apparent in the latest visible repairs. The metal doors are in reasonable condition, although localised rusting is visible. Windows which have not been covered all have several broken glass panes, although the frames appear in reasonable condition. Two of the rainwater down-pipes are partly missing, and the guttering has become blocked.

Originality

- 7.87 The fabric of most of the walls and roof seem to be original, although there have been many alterations to the layout and number of windows and the east end has been repaired. The different brick types used in blocking windows and repairing the east end suggest at least three phases of alteration, although due to the similarity of materials used, it is unclear when these took place. There are various external fittings which are clearly not of the original period, although there are some which may be 1930s survivals.

Building 13: function unknown (demolished)

- 7.88 This small structure appears on only the 1952 Ordnance Survey (**Fig. 4**) but not on the aerial photograph of 1948 (**Plate 2**). It comprised a rectangular structure, clearly built during the occupation of the site by the REME in the post-war years. The structure has since been demolished and its form and purpose remain unknown.

Condition

- 7.89 The building was demolished sometime after 1952 and the demolition debris removed.

Originality

- 7.90 The building is no longer extant although some of the original subsurface features associated with the building may survive.

Building 14: vehicle maintenance facility? - Plates 12 to 13; Figure 11

- 7.91 This structure is aligned east to west and lies to the south-east of Building 12 and is separated from it by an area of concrete slabs. It was originally constructed as a single-storey, rectangular building, approximately 23m by 8m (75' by 26') in size, and 6.1m high (20'), to the ridge. At

some stage after 1948, a flat-roofed L-shaped extension was added to its south-east corner, this being 11.01m (36') long by 3.35m (11') wide, and standing to 3.05m (10') high (**Plate 13**).

- 7.92 The original structure has been built on a concrete slab foundation which mirrors the footprint of the building. The top of this foundation is chamfered out 3 inches beyond the brickwork on all sides, except for the pillars where it is flush. The brickwork, in stretcher bond, is of the zig-zag decorated type used in most of the other buildings. There are a large number of doors in this building.
- 7.93 Externally, the original building is divided into six bays, again defined by brick pillars. The easternmost five bays were nominally 12' wide, each with a pair of opposed pedestrian doorways set into the long elevation. The slightly larger the western bay, was 15' wide and contained no doorways.
- 7.94 The roof of the original portion is ridged with gables at the east and west ends. The roof is covered with corrugated asbestos-cement sheets and each roof slope contains a continuous row of roof-lights, running for nearly the full length of the building and situated mid-way up the slopes. The ridge tiles and fascias of the roof are similarly made of asbestos cement. Four galvanised ventilation stacks are located near the ridge line of the roof, positioned in pairs. They are square-sectioned, with pyramid-shaped cowls. The roof of the L-shaped extension is flat.

West elevation

- 7.95 This is dominated by a pair of blue-painted wooden doors, 3.96m (13') high and 3.35m (11') wide, positioned centrally in the wall (**Plate 12**). The doors reach to the height of the wall-heads and were presumably large enough to allow vehicle access. The central brick pillar beneath the ridge terminates at the top of the door jamb, which consists of a precast lintel flush with the wall and two I-profile steel girders projecting forward of the wall-line, these being supported on brick pillars either side of the door aperture. The pillars, in plain brick, appear to be later additions, suggesting that the steel girders are also secondary, presumably to strengthen the doorway.
- 7.96 The doors are timber built sliding doors, fitted with rollers and designed to slide along the inner face of the gable wall on tracks fitted above and below the doors themselves. Each door has an external steel fitting screwed or riveted to the wood at the corners, the lower outer plates being the largest and marked 'HENDERSON' '102 PATENT'; these being the mounting plates for the roller-mechanism. The former position of a small pedestrian access door (now sealed with unpainted wooden planks) is visible in the southern door.

North elevation

- 7.97 With the exception of the westernmost example, each of the six bays of this elevation has an entranceway located against its west pillar. Each entrance is raised above ground level, with access via a set of three concrete steps. The lintels are of grey precast concrete with abundant gravel visible on the exposed surfaces.
- 7.98 The three western entrances have been blocked with brickwork, the bricks having a textured surface and laid in stretcher bond. The two eastern entrances remain in use as doorways. The

most easterly has a horizontal -sliding door, moving along an external metal track attached to the wall at lintel height, and another level with the top step of the entranceway.

- 7.99 The other doorway currently contains a reused metal door within a wooden frame, which in turn has been inserted into the original door-frame in order to reduce its size. Three bricks at the east side of the frame have been replaced and may indicate the positions of hinges for the earlier door.
- 7.100 Each bay also contains an airbrick, approximately 1m above ground level, although the position of the airbrick in the eastern-most bay is hidden by the sliding door and the adjacent one has been removed and patched with brick. Three other patches of later brickwork are visible at the same height as the airbricks, including one within the central entranceway (blocked). Immediately below this, a piece of the upper concrete step has been removed. The function of this, and the other patched holes in the walls is unclear, as no external pipes or other fittings are visible beside them.
- 7.101 The western four bays each have a pair of flat steel brackets fixed to the wall approximately at lintel height, two of which overlie the blocking brickwork, and are therefore secondary features. A number of small patches of cement on the wall may indicate the former positions of other brackets but these do not form a regular pattern. The brackets may indicate the positions of internal fixtures added when the original function of the building changed.
- 7.102 An electric cable projects from lintel height in the second bay from the east, running into the ground. Two down-pipes from the roof gutters are also attached to brick pillars close to either end of the building. The western example is original, the eastern has been replaced in plastic.

East elevation

- 7.103 The original structure comprises the gable wall of the building, with an external projecting chimney offset to the north of the central brick pillar. The upper part of the gable wall, including pillar and chimney is cement-rendered.
- 7.104 The flat-roofed extension covers almost all of the lower part of this elevation. It is built in English Bond of textured-surface brick, with two phases of construction being apparent. This wall incorporates two doors (both pedestrian doorways, the southernmost being a double doorway) and two windows (of unequal size), each with a precast grey concrete lintel. The windows have projecting cills of edge-laid header bricks and a sheet metal ventilation cowl is affixed the wall above the southern window. All openings have been covered with sheet metal or plywood.

South elevation

- 7.105 This side of the building mirrors the north elevation in most ways, although the later extension masks the eastern two bays of the structure and it is therefore unproven whether these bays have entranceways like those of the north side (although it seems likely). The same series of blocked entrances, airbricks, brick and cement patches, and metal brackets are visible. Minor variations comprise two, long, vertical steel brackets fixed to the wall of the western bay, above a lead water pipe which projects from near the base of the wall into the ground.

- 7.106 This side of the flat-roofed extension incorporates four identical and regularly-spaced square windows of the same construction as those on its east elevation, together with four pairs of airbricks.
- 7.107 A small bunded fuel tank mounting exists to the east of the building. It comprises a small square brickwork enclosure with two flat-topped brickwork pedestals within the interior although the tank is now missing. The brickwork comprises plain bricks, executed in English Bond, suggesting it is contemporary with the construction of the extension to Building 14.

Function

- 7.108 Building 14 is a curious structure, the large door in the west gable wall, although modified at some later stage in the building's history, indicates it was clearly built to facilitate vehicular access. If the series of side entrances are original, these would appear to be a series of opposed pedestrian doorways along its long walls suggesting a need to move a significant number of people into, or out of, the building with some haste. The presence of external steps up to doorways would suggest a raised floor, which is not apparent in the vehicle doorway, although a ramped or sloping internal floor is possible. Given the layout of this building and the context of the complex being an ammunition depot, it is thought that the building may have been used to house one or more emergency vehicles, such as a fire engine.
- 7.109 If the series of entranceways are later, a function as a vehicle maintenance facility is possible. The building seems to have been associated with a small bunded fuel tank, which may not have been exclusively for the supply of vehicles within 14.

Condition

- 7.110 The walls of the original structure and later extension are in mostly good condition, although some of the cement rendering is loose or missing. The remaining doors, where visible, are in moderate to poor condition, with the vehicle door in the best state of repair. The roof has some damaged or missing asbestos sheets.

Originality

- 7.111 The original building has been altered considerably. The later extension masks most of the east end and part of the side of the original structure. It is therefore unclear to what extent this extension has altered the original wall of the building at this end, or whether it has preserved the original entrances and other features. The series of entrances on the long sides have mostly been blocked, and indeed it is not entirely clear whether these entrances are original features or later additions. The long walls have also been patched a number of times. The vehicle door at the west end appears original, although its surround has been modified, as have the other remaining doors.

Building 15: function unknown (demolished)

- 7.112 Building 15 comprises a pair of small rectangular structures located south-west of Building 14 and to the south of Building 12. They were probably elephant huts. They are recorded on the 1945 aerial photograph (**Plate 1**) but have been demolished by 1948 although their outline of

the building footprint is visible (**Plate 2**). There are now no visible remains; the sites of the buildings having received a dressing of tarmacadam.

Condition

- 7.113 The buildings have been demolished and the demolition debris removed.

Originality

- 7.114 The buildings are no longer extant although some of the original subsurface features associated with the buildings may survive.

Building 16: Office - Plates 14 to 15; Figure 12

- 7.115 This is one of three buildings (16-19,) in a group at the edge of the concrete area south-west of Building 12. It comprises a north to south oriented, single-storey brick structure with a ridged and gabled roof. It is essentially rectangular in shape but has a small brick projection on the west wall and a wooden porch attached to the east wall. The walls do not have the external brick pillars seen on many of the other buildings, but are again built of the zig-zag decorated brick, in stretcher bond. There is a strip of cement rendering over the lowest course of exposed brick. All the windows have precast concrete lintels and cills of flat ceramic tiles.
- 7.116 The roof is covered with corrugated asbestos-cement sheets and the ridge tiles and fascias of the roof are made of the same material. A square brick-built chimney is located approximately half way along the western side of the roof. The roof has wooden weather-boards along its eaves and gables.

East elevation

- 7.117 This is the front of the building. It has two doorways, both of which are flanked by windows. The southern door and windows, which are of unequal size, share a single, common concrete lintel. The doorway has an external concrete threshold step the entrance is boarded up. The window to the south of this door is smaller than the one to its north and both are boarded up. The northern door and windows have separate concrete lintels and this doorway lies within a wooden entrance porch and is partially obscured.
- 7.118 Although the walls are built in stretcher bond, a line of header bricks is visible in alternate courses of brick, running up the wall approximately half way along the structure. This does not seem to mark the position of another door and may indicate that the building may have been extended. If so, the use of the same brick type in both ends suggests it they were near-contemporary constructions.
- 7.119 Elsewhere on the elevation, rainwater down-pipes are located at the corners of the building. There is a light just below the eaves near the building's north end and a metal light switch inside the porch. Five airbricks are also incorporated into the brickwork, three near ground level and two just below eaves height. An identification mark, comprising a black **A3** in a yellow circle, is painted on the building near its north-east corner while alternating yellow and black chevrons are painted on the brickwork at the bottom of this corner, presumably to deter vehicle collisions.

South elevation

- 7.120 The south gable of the building incorporates two windows of different size, surmounted by a common precast concrete lintel. The only other features on this elevation are a plastic overflow pipe below the ridge line, a metal pipe projecting from the cement rendered strip, emptying into a drain and two airbricks.

West elevation

- 7.121 The rear of the building contains a brick-built projection or rear porch, 2.65m by 1.75m (8'9" by 5'9") in size, and 2.1m (6'9") in height. It has a wooden external door and a flat concrete slab roof, covered with bituminous waterproof sheet. The brick door-surround projects slightly from the surrounding porch wall. There is a concrete slab c.3.5m (12' 6") by c.1.6m (5' 3") located south of the porch. This corresponds with a black wavy line at the height of the porch roof showing the position of the corrugated roof of a lean-to structure, this being visible in the 1948 aerial photograph. Elsewhere on the elevation there are three airbricks near ground level and four small repaired holes in the brickwork.

North elevation

- 7.122 The other gable of the building incorporates a single window. A painted black **A3** in a yellow circle is situated to the east of the window, and the wall has two ground-level airbricks.

Function

- 7.123 The building's size and position near the large vehicle storage building (12) suggests it functioned as an office, possibly to supervise vehicle movements into and out of this part of the site. The presence of a water tank (implied by the overflow pipe) and drain at the south end of the building suggests the presence of a bathroom or possibly a small kitchen.

Condition

- 7.124 Outwardly, the building, with the exception of the front (wooden) porch, is in reasonable condition, with walls and roof intact. Guttering and down-pipes are however largely missing and the most of the wooden panels of the front porch have been broken.

Originality

- 7.125 Most of the building appears to be original, although the line of header bricks noted in the front wall may indicate it was constructed in two phases. The wooden porch may be a later addition but this is unclear, and the lean-to at the rear, which appears on the earliest historic mapping of the site, has been removed.

Building 17: Administration? - Plate 16 (extant); Figure 13

- 7.126 This building is situated to the south of Building 16, the second of the group under consideration. It consists of a brick, single-storey ridged structure orientated north-west to south-east. The north-east portion of the building is longer and wider, 9.79m (32') than the south-west part, 7.57m (25') and as a consequence has asymmetrical gables, parts of which

are stepped back from the main parts of these elevations. The ridge, which is 4.0m (13') high, is positioned off-centre towards the south-west side and the north-eastern roof-slope is longer than its counterpart.

- 7.127 The walls are built in stretcher bond using the zig-zag decorated brick. A tall two pot chimney rises approximately halfway along the ridge line. The roof is covered with corrugated asbestos cement sheets and the ridge tiles are of the same material. The roof has wooden weatherboards under the eaves and gables, with the remains of guttering visible on the former.

North-east elevation

- 7.128 The central two-thirds of this elevation comprises a single opening, reaching the full height of the building (now boarded up). This opening has a concrete base, the central quarter of which projects out, forming a threshold. Part of a painted wooden frame is visible at the south-east side of the opening. The central opening is flanked by brick panels, each containing a single small window, both equipped with a small concrete lintel and a wooden cill.

South-east elevation

- 7.129 Although the walls are built in stretcher bond, a line of header bricks is visible in alternate courses of brick, running up the wall like the front (east) wall of Building 16. This side of the building is blind, the only features are two airbricks, the fixings for a down-pipe (now missing) and two small cement repairs.

South-west elevation

- 7.130 This elevation comprises the south-west part of the building, together with the two projecting ends of the longer north-east part. The south-west part of the building incorporates two windows of differing widths. Both have precast buff-yellow concrete lintels and wooden cills. Other visible features on this part are a partly-ducted electric cable with a metal connector, three airbricks near ground level (two now blocked) and the fixing for a down-pipe.

- 7.131 The south-east (right hand) projection of the longer side is blind. The north-west projection incorporates a 'walk-in' cupboard with a wooden door, containing three non-period shelves. The cupboard has a grey precast concrete lintel and a projecting concrete step.

North-west elevation

- 7.132 This mirrors the south-east elevation, with a few minor differences. The step for the built-in cupboard projects out beyond the doorway. There are five repairs in the wall's fabric. An identification mark, comprising a black **A4** in a yellow circle, is painted on the building near its north corner while alternating yellow and black chevrons are painted on the brickwork at the bottom of this corner, again presumably to deter vehicle collisions.

Function

- 7.133 Without access to the interior of this structure, its function is unclear. The size of the opening in the front of the building is much larger than is necessary for pedestrian access, but does not

seem to be large enough for vehicles. The building is likely to have been related to some form of administrative or security activity.

Condition

- 7.134 The structure is in moderate condition. Guttering and down-pipes are missing, while the door of the walk-in cupboard at the rear is damaged.

Originality

- 7.135 Most of the building appears to be original, although several of the original asbestos roof panels have clear plastic replacements. The shelves in the cupboard are later additions.

Building 18: function unknown (demolished)

- 7.136 This building is now represented by a rectangular concrete platform incorporating a concrete drain cover, situated to the west of Building 16. Its position is marked on historic Ordnance Survey mapping but its former function is not, at present, known.

Condition

- 7.137 The building has been demolished and the demolition debris removed.

Originality

- 7.138 The building is no longer extant although its concrete plinth survives. Other original subsurface features associated with the original building may survive.

Building 19: ablutions block? - Plate 19; Figure 14

- 7.139 This structure lies between Buildings 16 and 17 and consists of a flat-roofed, single-storey brick building, 7.07m by 3.54m (23' by 11'6") in size and 2.82m (9'3") high. There is an entrance portico into the building on the west side but no windows. The walls are constructed in English Bond, of the zig-zag decorated brick. Internal natural light is provided by a large plastic roof-light. The roof, which is presumably constructed of precast concrete slabs, is covered by bituminous waterproof sheet and wooden weather boards around its edges.
- 7.140 The entrance on the west side of the building comprises an unroofed brick portico on a raised concrete slab base. The doorway into the building has a grey precast concrete lintel. The wall of the portico is finished with a course of on-edge header bricks. There is also a non-period electricity supply into the building via a wooden pole.
- 7.141 The north elevation of the building has two drains projecting from the wall near ground level, a non-period external light and switch, and several minor repairs to the brickwork using cement. The south elevation has similar minor cement patches to its fabric. The only feature on the east elevation is a non-period plastic gutter.

Function

- 7.142 The lack of windows and presence of drains suggests this is an ablutions block.

Condition

- 7.143 The building is in a reasonable condition, but there is some surface damage to the brickwork of the entrance portico.

Originality

- 7.144 The roof fittings, including the roof light and gutter are later additions or replacements, but the rest of this simple building appears to be original.

Building 20: function unknown (demolished)

- 7.145 This building is now represented by a rectangular concrete platform situated to the south of Bunker B, near the southern perimeter of the site. Its position is marked on historic Ordnance Survey mapping, post-war aerial photographs and relatively recent satellite imagery. From the latter it would appear to have been of corrugated iron construction and may represent an 'elephant' hut but its former function is not, at present, known.

Condition

- 7.146 The building has been demolished in the relatively recent past and the demolition debris removed.

Originality

- 7.147 The building is no longer extant although its concrete plinth survives. Other subsurface features commensurate with the original function of the building may survive.

Building 21: function unknown (demolished)

- 7.148 Building 21 was a rectangular structure located to the east of Bunker D, on the eastern perimeter of the site. The form of the building appears to be similar to that of Building 20, and it is recorded on historic Ordnance Survey mapping and 1940s aerial photograph. It too would appear to be an 'elephant' hut but its former function is not known.

Condition

- 7.149 The building has been demolished in the relatively recent past and the demolition debris removed.

Originality

- 7.150 The building is no longer extant, although its concrete plinth survives. Other original subsurface features associated with the function of the building may survive.

Building 22: function unknown (demolished)

- 7.151 Building 22 was a rectangular structure located to the east of Bunker E, again on the eastern perimeter of the site. The building is recorded on historic Ordnance Survey mapping, and historic photography but like Buildings 20 and 21, its function is not known at present.

Condition

- 7.152 The building has been demolished in the relatively recent past and the demolition debris removed.

Originality

- 7.153 The building is no longer extant, although its concrete plinth survives. Other subsurface features related to the function of the building may survive.

The Ammunition Bunkers – Plates 18 to 26; Figures 15 - 18

- 7.154 The southern part of the complex contains the five bunkers which stored ammunition for distribution to the anti-aircraft batteries. They lie in an area of landscaped grassland and are connected to the rest of the site by a series of concrete roads. These roads are constructed of shuttered concrete slabs, cast in situ; the bunkers were serviced by a road to both ends. The bunkers are identified in the text using their original identification markings A to E, which are still visible on the structures.

- 7.155 Each of the bunkers was constructed to the same basic plan, with minor differences seen in Bunkers A and B (**Figs. 15 & 17**). Bunker A has a slightly different external plan, while Bunker B incorporated windows in a different position to the others.

- 7.156 With the exception of the internal and external fittings, the bunkers are constructed of shuttered, reinforced concrete. Each comprises what is essentially a large shed with a door in the corner of each gable wall. They measure 20.72m by 9.75m (68' by 32') externally, with vertical walls and a shallow-pitch roof which is approximately 4.10m (13'6") high. They are surrounded by shuttered concrete blast-walls, externally buttressed. The blast-walls are earth-bunded and the bunds have slumped through time and no longer extend to the tops of the blast-walls (**Plates 18, 19 and 26**).

- 7.157 The bunker roofs are composed of massive concrete shuttered slabs which overhang the wall heads of the building's long elevations, while at the gables, there is a slight lip. At the eaves there is a cast-iron gutter which vents through three cast-iron downpipes.

Internal description

- 7.158 The bunkers have four entrances, each positioned at the corner of the gable walls. Each bunker is divided longitudinally into two aisles by a shuttered concrete wall, approximately 3.04m (10') high and 1.52m (5') thick but not extending fully to the roof of the structure (**Plates 20 and 21**).

- 7.159 Each aisle is divided into a series of nine numbered bays. These are formed by narrow concrete walls extending to the same height as the central wall, and then outwards from the central wall to approximately two-thirds the width of the aisle. Each dividing wall supports vertical precast concrete posts which in turn support the roof beams. These extend from the wall heads across the tops of the posts to the centre-line of the roof. The innermost posts of each bay support further concrete beams running the length of the building. The roof slabs are cast in situ on this framework. The centreline of the roof is perforated by three ventilation apertures, between bays 2/17, 5/14 and 8/11. These are likely to have been capped externally, although the cowls are now missing.
- 7.160 Each bay has four rectangular post settings in its floor (**Figs. 15 – 17**). Most have an in situ wooden lining. The long walls of each bunker contain a series of six window apertures, 3.03m by 0.92m (10' by 3') containing steel-framed windows (**Plates 21 and 22**). Each window is divided into three identical subsections containing 16 small glass panes and each subsection has an opening upper half. The windows in Bunkers A, C, D and E are at mid-height 1.24m (4') above floor level (**Fig. 16**). Those in Bunker B are in the upper section of the wall 2m (6'6") above the floor (**Fig. 17**). There is a flaring in the casting on the external walls over the windows, and they have precast concrete cills.
- 7.161 A row of low concrete plinths are positioned against the exterior walls, opposite each bay division (**Plate 21**). They are 0.64m by 0.16m (2' by 6") and stand 0.77m (2'6") high. These plinths continue out through the doorways of the bunker and the entranceways, then on through the blast wall, to the loading platforms situated outside. A pair of steel brackets are fixed to the top of each plinth, originally supporting a conveyor or rollers (which have been removed).

External features

- 7.162 Each row of plinths ends with a rectangular concrete loading platform 3.36m by 1.68m (11' by 5'6") and the same height as the row of plinths (**Plates 23 and 24**). The platforms around Bunkers B, C, D and E are all the same size and are arranged asymmetrically, presumably allowing the loading of lorries from all four platforms simultaneously. The platforms at the southern side of Bunker A match the arrangement of the other bunkers. At the northern end of Bunker A are two square platforms 3.06m (10') in size, arranged symmetrically. Damage to one platform (on Bunker C) shows them to be hollow, with shuttered sides and a precast top. All of the loading platforms have an adjacent small, concrete pillar supporting a cast iron lamp post, some marked with 'REVO TIPTON'.

Entrances to bunkers through earthen bunds

- 7.163 These comprise simple concrete-lined tunnels (**Plate 25**). They have two sloping cheek walls supporting a precast slab running through the bund and blast wall. The cheek wall slabs also appear to be precast. The entranceways originally incorporated two doors or gates, one in each of the blast- and bunker walls. Non-period gates survive in several of the outer (bund) entranceways.

Earthen bunds

- 7.164 These do not survive to the full height of the blast wall, although it seems likely that they would have done originally. There is no evidence of an earth cover to the bunker roofs. Bunker B has opposed flights of steps midway along each side of the bund. They are made of precast concrete, with handrails composed of scaffolding-like tubes, and may not be original.

Fixtures and fittings

- 7.165 The remains of steel cable conduits can be seen on the entranceways through the earth bunds, on the interior long walls of the bunker, and on the exterior gable walls.
- 7.166 A light fitting, light switches, and associated wiring conduits are positioned in each of the entranceways through the bunds and on the interior of one cheek wall. The example at the north-west corner of Bunker A is the most complete example of a light fitting (**Plate 25**). It is circular, with a hinged, domed lid/lens, mounted vertically on the wall. A rubber seal is visible around the edge of the metal frame, making the light waterproof. The light contains a ceramic insulator fitting. Below this there is a double light switch, comprising waterproof push switches and the switch is connected to the lamp by a vertical metal electrical conduit.
- 7.167 The exterior gable walls have the remains of conduits linking the external lighting in the entranceways (and the lamp posts) with the interior lights. An external fuse box and a circuit breaker survive on the north gable of Bunker A. The fuse box is marked with the manufacturers brand-name; 'REVO'.
- 7.168 On the interior walls of the bunkers, reflector lights and conduits are fitted above the windows, although few lights survive. Originally there was one light for each bay of the structure, positioned over the conveyor, angled to illuminate the bay as well as the conveyor. There is no evidence for lighting within the bays themselves.

8.0 DISCUSSION

- 8.1 On the basis of currently available information, the majority of the surviving buildings at the Killingworth Emergency Equipment Ammunition Magazine would seem to pre-date 1945 and may possibly date back to c.1938 when the complex was first built in the anticipation of war in Europe.
- 8.2 Whaley, Morrison and Heslop, in their 2008 issue of the *Archaeology of the 20th Century Defence sites of Tyne and Wear* identify two former Anti-Aircraft Supply Depots within the Tyne and Wear area, both apparently functioning as such during the Second World War. One was located at Killingworth (*ibid* 62; HER 1828), which is considered to have supplied anti-aircraft batteries north of the Tyne, the second being at East Boldon (*ibid* 64; HER 1829) and serving a similar function for the Sunderland area and other batteries south of the Tyne. However, neither entry in this gazetteer has any supporting references and one of the benefits of the work undertaken to date in support of the application is that it has provided the first reasonably comprehensive assessment of this type of complex in the north of England.
- 8.3 Figure 2 provides a plan of the depot complex showing the totality of all the buildings recorded on aerial photographs dating to 1948 (**Plate 2**). It also shows which of these buildings have been demolished and which survive today. Whilst it is likely that the majority of these buildings were present by 1945, the oblique and distance view of the site on Plate 1 makes it difficult to view with certainty those buildings present within the Buildings 2 complex and around the perimeter of Building 12.
- 8.4 Some of the original buildings in the complex have been demolished as a result of redundancy or poor condition. The quality of construction of the surviving buildings, and their architecture, are not commensurate with the austerity of most wartime military installations; 'economy' concrete is virtually absent in the complex, and the design of the buildings themselves, whilst not being overtly decorative or ostentatious, is reflective of the modernist tradition that was to prevail in the post-war years.
- 8.5 Of the thirty four original buildings for which there is convincing evidence, twenty have already been removed, representing approximately 41% survival of the original buildings. Many of the buildings are in a semi-derelict state, some, particularly Building 12, have undergone several episodes of repair this being suggestive of continued structural instability. A significant proportion of the site road and pathway network still survives, although this is in poor condition in places and has had a dressing of tarmac added within the area around Building 12.
- 8.6 There are health and safety issues in relation to use of asbestos in most buildings and the deteriorating state of the buildings.
- 8.7 Further structures or buildings may also have been present immediately north of Bunker D since a grassed over access road is clearly visible in this area on the 1940s aerial photographs (**Plates 1 and 2**). There is also some suggestion that during the war years a camp, temporary or otherwise, may have existed in the field to the north and north-east of the surviving complex. The only evidence for this so far is that provided by the 1945 aerial photograph (**Plate 1**). The features visible in this location have no cartographic evidence from any period prior to, or subsequent to, the war, and they are absent in aerial photography dating to 1948.

Zone 1: Ammunition storage and distribution

8.8 Of the three identifiable 'zones' of activity, the area of ammunition storage in the southern half of the site is the most complete in terms of survival. All five bunkers survive, and the only buildings which have been demolished in this area are the three ancillary buildings 20 - 22, whose functions are unclear. Although partially grassed over, the road network appears to be reasonably well preserved in terms of layout but the condition of the concrete slabs is poor. A summary of the structures present in this area is provided in Table 1 below.

Table 1: Zone 1: Ammunition storage – extent of survival

Building	Survival	Condition
Bunkers A to E	<ul style="list-style-type: none"> • All 5 bunkers survive • Form – good • Internal layout – good • Blast doors – removed • Conveyors – removed • Original fixtures & features – very limited survival 	<ul style="list-style-type: none"> • Deteriorating • Water ingress resulting in the corrosion of concrete reinforcing bars creating spalling. • Windows – glass broken • Evidence of vandalism within interior of buildings
Concrete loading platforms	<ul style="list-style-type: none"> • All 20 survive 	<ul style="list-style-type: none"> • Reasonable condition • Visible damage to one platform at Bunker C
Lamposts	<ul style="list-style-type: none"> • Some survival 	<ul style="list-style-type: none"> • Variable
Buildings 20 - 21	All three buildings demolished but concrete bases may survive	<ul style="list-style-type: none"> • N/A
Road network	<ul style="list-style-type: none"> • Form and layout – probably good though overgrown by vegetation in places 	<ul style="list-style-type: none"> • Poor – surface of concrete eroding
<p>Survival – Good overall. About 80% of the main buildings and structures survive</p> <p>Condition – fair to reasonable but deteriorating</p>		

- 8.9 The bunkers are all essentially similar, with minor variations to the theme being noted in Bunkers A and B. They survive in reasonable condition, although some of the concrete is spalling in places where water ingress has resulted in the corrosion of the reinforcing bars. The glass in the windows is broken and there is 'art' vandalism to interiors, particularly in Bunker B. The conveyors are missing, as are the original blast doors along with many other original fittings. Some features survive, most notably some of the lamp posts outside of the bunkers. These are curious features in the context of an ammunition store operating in war-time, and could be later additions to the complex; they are certainly not of a form that reflects austerity.
- 8.10 Administration for the movement of ammunition was probably undertaken in some of the buildings in the Buildings 2 cluster, as the road to the bunkers runs directly past these. Alternatively, Building 18, situated to the east of the road, and a small square building visible in the 1948 aerial photograph as being situated just to the south-west, may have had a role in controlling vehicle movement to and from the bunkers. All these administration buildings are now gone, Building 18 being represented by a concrete plinth.
- 8.11 This area of bunkers is a mixture of grass vegetation and trees and is currently being managed with the grass being kept under control around the bunkers (**Plate 26**). The bunkers are not fenced off, they have lost their doors and the windows are broken. As a result, they are suffering continued decay and deterioration through natural processes and are the focus for anti-social behaviour resulting in low level vandalism particularly in the form of graffiti on internal walls. There are also safety concerns particularly in relation to the gap between the blast wall and main structure (**Plate 19**).

Zone 2: Vehicle/arms storage and maintenance

- 8.12 Vehicle and armament storage, and the maintenance thereof, was undertaken in the large warehouse-like structure, Building 12. Although the building is reasonably well-preserved in terms of external form, the building is beginning to deteriorate as a result of its age and the uses to which it has been put through time. It shows signs of modification and has undergone several episodes of repair this being suggestive of continued structural instability.

Table 2: Zone 2: Vehicle/arms storage and maintenance – extent of survival

Building	Survival	Condition
Building 12: vehicle/arms storage and maintenance warehouse	<ul style="list-style-type: none"> • External form – good but shows evidence of at least three phases of alteration (dates unknown) • Fabric of walls and roof mainly seem to be original • Numerous alterations to the layout and number of windows • East end shows signs of repair 	<ul style="list-style-type: none"> • Reasonable to poor • Several episodes of repair visible suggesting ongoing problems with structural instability • Roof asbestos sheeting, large areas of which are perforated • East end unstable, probably through subsidence

<ul style="list-style-type: none"> • Some survival of original external signage and fittings but many are clearly not original • Some survival of original cast-iron down pipes • Internal layout – unknown, subsequent reuse probably means potential for survival of original layout, fixtures and fittings probably low 	<ul style="list-style-type: none"> • Windows where not covered have broken panes, though frames appear in reasonable condition • Doors reasonable condition although localised rusting is visible
<p>Survival – Good to reasonable overall, although internal survival is unknown</p> <p>Condition – poor to reasonable and deteriorating</p>	

Zone 3: Accommodation, welfare and administration

- 8.13 The extent of survival of buildings providing the accommodation, welfare and administration facilities for depot is quite poor. Of the 25 recorded buildings and structures, 17 have been demolished, leaving only 32% survival and of these eight surviving buildings, the caretaker's house lies outwith the Site boundaries.
- 8.14 The losses in this 'zone' comprise:
- the 'spider block' (Building 1), which housed the accommodation and main welfare facilities and was situated slightly to the west of the 'working core' of the site;
 - the cluster of administration and probably welfare buildings to the west of the site access road (Buildings 2);
 - all buildings along the northern perimeter of the site (Buildings 5 - 8);
 - the two water tanks (structures 8 and 9);
 - three of the seven buildings to the south of the large Building 12 vehicle maintenance warehouse (Buildings 15 and 18)
- 8.15 The condition of the surviving buildings is variable and overall the external fabric of the buildings is deteriorating. The level of internal survival in terms of original layout, fixtures and fittings is unknown.
- 8.16 All buildings have asbestos cement roofing panels, and many also have asbestos cement ridge tiles and fascias. This presents a health and safety issue with respect to both entry for recording, retention and demolition, particularly since the roofs are in poor condition or damaged on some buildings. There are potentially additional contamination issues in relation to hydrocarbons, particularly in and around those buildings and structures related to fuel storage, power generation and vehicle maintenance.

8.17 Although the external form and fabric of many of the surviving buildings is original, many show signs of alterations, repair and modification. Some retain original features such as identification marks, airbricks, some guttering and down-pipes.

Table 3: Zone 3: Accommodation, welfare and administration – extent of survival

Building	Survival	Condition
Building 1: accommodation block	<ul style="list-style-type: none"> • Demolished • Evidence for footings, services and drainage may survive below ground 	N/A
Buildings 2: welfare and administration	<ul style="list-style-type: none"> • All seven buildings demolished • Evidence for footings, services and drainage may survive below ground 	N/A
Building 3: caretaker's house	<ul style="list-style-type: none"> • Extant but modified and extended 	<ul style="list-style-type: none"> • N/A - outside boundary
Building 4: Storage	<ul style="list-style-type: none"> • External form – good but shows evidence of at least three phases of alteration (dates unknown) • Fabric of walls and roof mainly seem to be original • Original rooflights • Original openings • Some original signage • Rainwater goods possibly replacements; one downpipe missing • Doorway on north wall retains planked door • Doorway on south side boarded up 	<ul style="list-style-type: none"> • Reasonable but not maintained and deteriorating • Asbestos-cement sheets on roof; • Asbestos-cement ridge tiles, rainwater goods and fascias • Guttering blocked
Building 5: Function unknown	<ul style="list-style-type: none"> • Demolished • Evidence for footings, services and drainage may survive below 	N/A

Building	Survival	Condition
	ground	
Building 6: Function unknown	<ul style="list-style-type: none"> • Demolished • Evidence for footings, services and drainage may survive below ground 	N/A
Building 7: Function unknown	<ul style="list-style-type: none"> • Demolished • Evidence for footings, services and drainage may survive below ground 	N/A
Building 8 Water tank	<ul style="list-style-type: none"> • Demolished • Evidence for footings and pipework may survive below ground 	N/A
Building 9 Water tank	<ul style="list-style-type: none"> • Demolished • Evidence for footings and pipework may survive below ground 	N/A

Building	Survival	Condition
Building 10 Boiler/generator house	<ul style="list-style-type: none"> • External form good and most of building appears to be original • Chimney brickwork has been replaced • Replacement portico door. Other is planked door suspended from steel strap-hinges • Attractive architectural detailing in terms of chamfered brickwork, arched window design in east elevation and use of bull-nosed bricks. Otherwise of similar utilitarian design to other buildings • Some external fixtures and fittings may be 1930s survival but others clearly not original • Requires internal inspection in order to properly assess issues related to suggested retention by EH 	<ul style="list-style-type: none"> • Reasonable with wall and roof fabric intact • Roof is asbestos cement sheeting • Iron or steel window frames • Potential for contamination issues inside building given potential use
Structure 11 Function unknown	<ul style="list-style-type: none"> • Four walls appear to be original • Southern gate pier rebuilt • Gates are probably replacements • Small covered structure in south-west corner has been demolished • Surviving fuse box marked Sandamax, cabling and switch on south wall 	<ul style="list-style-type: none"> • Reasonable • Upper brickwork in south-west corner unstable • Several concrete capping slabs missing
Building 13 Function unknown Post-war (1952 – 61)	<ul style="list-style-type: none"> • Demolished • Evidence for footings, services and drainage may survive below ground 	N/A

Building	Survival	Condition
Building 14 Vehicle maintenance?	<ul style="list-style-type: none"> • Original building seen considerable alteration • Entrances on long side mostly blocked and door surrounds modified • Walls on long sides have been patched a number of times • West gable door original, although surround has been modified • Some original down-pipes, airbricks • Post-1948 flat-roofed extension 	<ul style="list-style-type: none"> • Poor to reasonable • Walls of original structure & later extension mostly good condition, although some cement rendering loose or missing and patching has taken place • Roof panels, ridge tiles & fascias made of asbestos cement • Some damaged and missing roof sheets • Surviving doors where visible are in moderate to poor condition
Building 15 Function unknown	<ul style="list-style-type: none"> • Demolished • Evidence for footings, services and drainage may survive below ground 	N/A
Building 16 Office	<ul style="list-style-type: none"> • Most of building appears original although possibly constructed in two phases • Wooden porch possibly original • Rear lean-to removed • Guttering and down-pipes largely missing • Original airbricks and identification marks 	<ul style="list-style-type: none"> • Reasonable • Walls and roof of main structure in tact • Wooden panels of front porch broken • Roof panels, ridge tiles & fascias made of asbestos cement
Building 17 Administration	<ul style="list-style-type: none"> • Most of building appears original • Several roof panels replaced • Guttering and down-pipes missing 	<ul style="list-style-type: none"> • Reasonable • Walls and roof of main structure reasonably in tact, although walls and

Building	Survival	Condition
		roof repaired in places <ul style="list-style-type: none"> • Roof panels & ridge tiles made of asbestos cement
Building 18 Function unknown	<ul style="list-style-type: none"> • Demolished • Evidence for footings, services and drainage may survive below ground 	N/A
Building 19 ablutions block?	<ul style="list-style-type: none"> • Majority of building appears to be original • Roof fittings, roof light and gutter are later additions or replacements • 2 drains projecting from wall near ground level 	<ul style="list-style-type: none"> • Reasonable • Some surface damage to brickwork of entrance portico • Roof panels presumably asbestos cement but covered by bituminous waterproof sheet. Wooden weather boards around edges
Road network	<ul style="list-style-type: none"> • Layout – good • Form – reasonable, original concrete slabs appear to survive in situ below later top-dressing of tarmac 	<ul style="list-style-type: none"> • Probably poor

Survival – Poor – c.32% survival. Of the 25 original buildings 17 have been demolished. Level of internal survival unknown

Condition – poor to reasonable and deteriorating

9.0 STATEMENT OF SIGNIFICANCE

Conservation of military sites: management or recording?

- 9.1 Killingworth EEAM is not scheduled, none of the buildings are listed and the site is not included in North Tyneside Council's Register of Buildings and Parks of Local Architectural and Historic Interest (Supplementary Planning Document Local Development Document 9). The site is, however, recorded within the Tyne and Wear HER and is considered to be a Heritage Asset within the definition set out in Annex 2 of the NPPF and should therefore be treated as a material consideration within the planning process.

NPPF Paragraph 129

"Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal."

- 9.2 Twentieth-century military structures survive in very considerable numbers, especially from World War II. All bear witness to the greatest conflict of world history and many have an emotive power which connects local communities with world events. Protection of modern military remains is recognised as a challenging issue, particularly with respect to the Second World War which saw an emphasis on the rapid erection of a vast range of structures in response to immediate needs, and with little thought to long term survival. Although these buildings and structures were never intended to be permanent many still survive today. How to effectively conserve these sites and whether this should be done through management or recording has been the subject of ongoing debate by English Heritage as part of the National Heritage Protection Plan (NHPP).
- 9.3 More than in any other area, modern military remains have been the subject of complimentary approaches to protection and designation. For sites deserving of designation at a national level, listing has tended to be applied to buildings in use: scheduling to those monuments where re-use is inappropriate, or in ruinous condition (English Heritage 2011, 13).
- 9.4 The vast majority of sites, however, do not meet the criteria for national designation and it is recognised that for many military sites this is not always the most appropriate form of management and that other alternatives can and should be considered on a national and a local level. These alternatives can vary from conservation area designation for large complexes such as aerodromes or munitions factories; management agreements, including Heritage Partnership Agreements, whereby owners and other interested parties, including English Heritage, can collaboratively agree the approach to the site's future care, or concentration of conservation efforts on exemplary sites, such as the Harperley PoW camp, in Co. Durham, with recognition being given that other sites will simply not be sustainable in the long term.

- 9.5 Where conservation through management is not sustainable or feasible, then it is accepted that preservation through record can be a valid approach for conservation, particular for those sites which do not have longevity either because they were originally intended to have a short-life span, the site is under threat and/or where retention is just not feasible or possible.
- 9.6 English Heritage has set out the specific considerations which need to be taken into account when assessing the significance of military sites, in particular with respect to designation (English Heritage 2013a, 13). This guidance document states that sites should be assessed on their individual merits and that the overarching consideration should be to determine their significance, and in the light of this, their most appropriate future management (*ibid* 3).

Assessment of significance methodology

- 9.7 The following assessment of the significance of the Killingworth MoD depot has been undertaken in two stages. Firstly the site is assessed according to the following four high level themes as set out in *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment* (English Heritage, 2008b):
- Evidential Values - the potential capacity of the buildings to yield primary evidence about past human activity (building design, extent of survival, etc).
 - Historical Values - the potential of the buildings to offer a connection between the present and the past through association with people, events and aspects of life.
 - Aesthetic Values - the potential for people to derive sensory and intellectual stimulation from a place, through design, art, character and setting.
 - Community Values - the potential for the buildings to hold meaning for people to relate to it or whose collective experience or memory it holds (often closely related to Historical and Aesthetic values).
- 9.8 Secondly, on the basis of this initial assessment, an assessment of the local and national significance of the site is undertaken against the published criteria for both scheduling and listing.
- 9.9 This criteria is set out in Principles of Selection for Listing Buildings and Scheduled Monuments Policy Statement produced by the Department for Culture Media and Sport (DCMS 2013). However, the published designation selection guides relating specifically to the scheduling and listing of military sites and structures, sets out the specific considerations for assessing military sites for designation based on the above national criteria (English Heritage 2011, 13 - 14 (listing); English Heritage 2013a, 13 - 17 (scheduling).
- 9.10 The North-East Regional Research Framework does not contain any agenda or strategies relating specifically to former ammunition depots, but considers all Second World War military and non-military sites *en masse*. Full recording of all 20th century military and defence remains is required where they are affected by development work (Petts and Gerrard 2006, 195).

Assessment of significance limitations

- 9.11 English Heritage has divided the enormous variety of defence structures into six main categories (English Heritage 2003, 9). Supply depots like Killingworth fall into the *Infrastructure* category associated with the home front defence and the greatly increased threat posed to civilians as a result of aerial bombing.
- 9.12 Whilst military depots are a recognised site type, they do not appear to have been assessed by English Heritage as part of its review of military structures and buildings. It is apparent that Emergency Equipment Ammunition Magazine sites like Killingworth were relatively rare throughout the country and that they tended to be situated within the vicinity of major centres of industry or other conurbations where anti-aircraft artillery batteries were a major consideration; for example London had four such establishments and there were two within the vicinity of Tyneside; that at Killingworth serving the numerous anti-aircraft batteries to the north of the Tyne, and another at East Boldon, serving those south of the Tyne. That both Killingworth and East Boldon survive is perhaps fortuitous.
- 9.13 However, because this site type has not been reviewed, there is no readily accessible information about the total number of MoD depot sites which originally existed across the country, how many of these survive, their extent of survival and their condition. This problem is compounded by the fact that where sites have been recorded, as with Killingworth and East Boldon for example, there is an obvious lack of descriptive information and supporting documentation. Against this lack of comparative data, properly assessing the significance of the Killingworth site is therefore difficult.
- 9.14 Assessing the significance of a site also has to take into consideration the degree of survival and condition of both external and internal form, layout, fabric, fixtures and fittings. Whilst all external elevations of the buildings at Killingworth have been recorded, health and safety considerations prevented access to record the interiors of all buildings except the bunkers. If the local planning authority decides to support the recommendation of English Heritage and the Tyne & Wear Archaeology Officer that some of these buildings should be retained, then it is recommended that internal inspection and an assessment of the structural condition of these buildings is essential in order to make an informed judgement as to whether this recommendation is both economically viable, feasible and reasonable.

Heritage significance

- 9.15 The assessment of the heritage significance of the site against the four high level themes as set out in *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment* (English Heritage, 2008b) is summarised below in Table 4.

Table 4: Summary of overall heritage significance

Evidential value	<ul style="list-style-type: none"> • The extent of survival of the original army depot as a whole is poor, with approximately 59% of all original buildings and structures having been demolished and associated ancillary

<p>Moderate</p>	<p>areas such as the 'camp' and possible structures to the north of the bunkers, having also been removed.</p> <ul style="list-style-type: none"> • However, the extent of survival varies across the three main 'zones' of activity. There is good survival of the original buildings associated with the ammunition storage (c.80%); good survival of the vehicle/arms storage and maintenance building and poor survival of the accommodation, welfare and administration buildings (c.32%). • The buildings include a large number of original external features which are typical of the period and military context. These include elements of the original form, fabric, external architectural detailing, original openings and fenestration pattern (which has frequently been modified but is still discernible). • Later modification and extensions to the buildings provide some insight into the subsequent development of the building during the post-war years, particularly its use as a Local Health Authority Depot. • The condition of the buildings varies from poor to reasonable. The buildings have been unoccupied since at least the 1990s; as a result they have not been properly maintained and are now deteriorating. With the exception of the bunkers, all have concrete asbestos roofing materials, which presents a health and safety issue. Some buildings some signs of repair, others signs of instability and there is evidence of low level vandalism. • The remains of the site road network survives but has been subject to alteration over time. The original concrete slabs are still visible within the area of the bunkers, although overgrown and in poor condition. Within the area of Zone 2 and 3, these slabs are still present but have been covered with a dressing of tarmac. • There is the potential for below ground archaeological remains relating to the demolished buildings, service and drainage infrastructure and area of ancillary 'camp' to the north of the main complex. • The complex is one of just two such sites within this area, and these are considered to be rare throughout the country. As such, the buildings are significant as a moderately well-preserved example of this category of site and provide reasonable comparative evidence in terms of size, design and form, which will help improve understanding of this under represented type of defence site.

<p>Historic value</p> <p>Moderate</p>	<ul style="list-style-type: none"> • The complex played an important role in the operation of the home defence system for North Tyneside. It played an integral role of the supply and distribution of ammunition to all anti-aircraft batteries on the north side of the river and also in the maintenance of equipment and vehicles involved with home defence network and operation. • Prior to the current survey, there appears to be very little recorded about this military depot complex. The structural evidence is not matched by any substantial known documentary or cartographic evidence and very little appears to be understood about this site type at a national level. • Any archive material, particularly building and service plans, currently held by the MoD or the local health authority that vacated the property in the recent past would be an important resource with which to further chart the use and/or development of the complex from the 1940s onwards. • The context of the former facility is also unclear and further research into the supply and distribution chains that it was part of may help understand its operation and importance in the local context.
<p>Aesthetic value -</p> <p>Moderate for the bunker area</p> <p>Low for the remainder of the site</p>	<ul style="list-style-type: none"> • The architectural style employed throughout the complex is utilitarian, although lies broadly within the modernist tradition. • Many of the later 20th century extensions/alterations affect the aesthetic value of some of the buildings and detract from the overall significance of the site. • The bunker storage area has a slightly higher aesthetic value than the rest of the site. The distinct form and good survival of the bunkers and road layout, together with the vegetation and tree-cover gives this part of the site a distinctive sense of place.
<p>Community value</p> <p>Low</p>	<ul style="list-style-type: none"> • During the Second World War, the site played a significant role in the protection of the local community from enemy aircraft. • Today, the complex is peripheral to Killingworth and there is no evidence to suggest that it has any significant value to the local community nor does it appear to be of any interest to local heritage groups or other third parties; • There is no legitimate public access to the site and it is not used for any constructive amenity purposes, although it is apparent that the bunkers are being accessed through trespass and subject to low level vandalism.

Local and national significance

- 9.16 The following section considers the significance of the site against the specific considerations to be used when considering the local and national significance of military structures and their suitability for designation (English Heritage 2011 and 2013a).

Period

- 9.17 The former Killingworth MoD depot was constructed in the modern period and belongs to a poorly understood class of military installation. It was built in c.1938 and is representative of a phase of increased military activity leading up to the Second World War when Britain was anticipating hostilities with Germany. The complex played an integral role in the operation of the home front defence systems and contributes to an understanding of defence policy and technological developments during this period.

Rarity

- 9.18 The site is poorly documented and as a site type, army depots have not been assessed as part of the National Heritage Protection programme. The lack of comparative data makes it difficult to assess the rarity of the Killingworth site at a national level. At a local level, it is one of only two such sites serving the anti-aircraft batteries defending the industrial conurbations, and the airfields in the former counties of Northumberland and northern Durham.
- 9.19 The site is not considered to represent developments of national significance.

Documentation

- 9.20 Prior to the current survey, there appears to be very little recorded about this military depot complex. Whaley, Morrison and Heslop, in their 2008 issue of the *Archaeology of the 20th Century Defence sites of Tyne and Wear* identify the two former Anti-Aircraft Supply Depots within the Tyne and Wear area, but provide no site detail or supporting references in the gazetteer.
- 9.21 One of the benefits of the work undertaken to date in support of the application is that it has provided the first reasonably comprehensive survey and assessment of this type of complex in the north of England.
- 9.22 As discussed below, there is a lack of documentation and understanding of other elements which would have formed part of the chain of supply and demand for Killingworth.

Site significance and group value

- 9.23 The Killingworth depot was a dual purpose facility built to act as the primary local supply depot for ammunition used by anti-aircraft facilities in the area and also to act as a centre for the storage and maintenance of the vehicles and armaments required by these facilities.
- 9.24 The complex at Killingworth is one of a relatively small number of known Emergency Equipment Ammunition Magazines (EEAM) and is recorded as Anti-aircraft Ordnance Depot No. 75 (AAOD). The site is one of a pair of former EEAMs on Tyneside and existed as part of a chain of supply from point of production to point of use which involved a flow of supply from

munitions factory to Central Ammunition Depots (CAD) or Central Ordnance Depots (COD) to Equipment Ammunition Magazines to anti-aircraft battery.

- 9.25 The ammunition producers used in the chain of supply to Killingworth could have been any one of a number of Royal Ordnance Factories or agency factories, and the CAD(s) and COD(s) supplying the EEAM are, at present, unknown. These could also have been varied as a matter of expediency and may have included the large CAD at Longtown, near Gretna, which still survives and the COD near York.
- 9.26 The local group value of the site is enhanced by the survival of its counterpart at East Boldon and the survival of a small number of anti-aircraft batteries across Tyneside. The extent to which there is survival of other elements in this supply chain is unknown.
- 9.27 Subsequent to the war, the complex served as a depot for the maintenance of vehicles and weaponry by the Royal Electrical and Mechanical Engineers (REME) until 1956, and then thereafter just vehicles until 1976. From 1979 until the mid-1990s, the complex was used as a central store for the Area Health Authority. None of these post-war uses are considered to be of national significance.

Survival/condition

- 9.28 The original form of the complex is not, at present, fully understood, although the original layout can be largely reconstructed from aerial photographic information.
- 9.29 The site has been demonstrated by this study to be a partial survival; many of the buildings that are known to have existed have been demolished, and there is also the potential for the former existence of an apparently undocumented annex situated to the north of the site. In addition the level of survival of internal fixtures and fittings is presently unknown for the majority of the brick buildings although this is likely to be poor given the secondary usage of the site. The majority of the fittings once contained within the bunkers have been stripped out leaving only a few electrical conduits and light-switches and fittings.
- 9.30 The condition of the surviving buildings is variable, the brick-built structures have deteriorated since the site was vacated, and there is evidence for structural instability in some.
- 9.31 The bunkers are perhaps better preserved, but they too are deteriorating as corrosion attacks the reinforcing bars of the mass concrete from which they were built and lack of doors and windows means the structures are subject to ongoing damage and deterioration both as a result of natural forces and vandalism.
- 9.32 The site generally has an air of abandonment and has been the subject of piecemeal demolition, lack of maintenance and ongoing deterioration and vandalism.

Fragility/vulnerability/potential

- 9.33 The complex is not fragile. The buildings are, however, in generally poor condition and have outlived their potential for viable economic reuse. They are not protected and in the absence of the proposed development will be vulnerable to continued piecemeal demolition, ongoing deterioration, decay and vandalism.

- 9.34 The complex does, however, hold significant potential to provide more information relating to its construction, form, use and evolution over time through systematic programmes of archaeological research, survey and investigation.

Assessment of significance

- 9.35 The former Killingworth army depot is one of a relatively small number of known Emergency Equipment Ammunition Magazines (EEAM) and the complex played an integral role in the operation of the home front defence systems. Prior to this survey, there appears to have been very little recorded about this particular military depot complex and it is an example of a 20th century military site type for which there is little available historical documentation at a national, regional or local level and for which there is very little in the way of published conservation guidelines.
- 9.36 It is considered that the main heritage significance of the site is the extent to which it allows an understanding of the role it played in the operation of the anti-aircraft defence system for the area north of the Tyne, both in terms of the storage and distribution of ammunition and also in the maintenance and repair of vehicles and equipment involved with the servicing and delivery of this system. The importance of the surviving complex is the extent to which the understanding of this flow of operations is reflected in the surviving site layout, building type and form, fixtures and fittings.
- 9.37 The layout of the original army depot as built in 1938 is at present unknown. The earliest evidence so far identified for the site are the 1945 and 1948 aerial photographs, and it is impossible to know the extent to which the layout of the site at these dates is the same as that built seven years earlier.
- 9.38 Of the 34 buildings recorded on the 1948 aerial photographs, 20 have been demolished and none of the 14 surviving buildings are in particularly good condition. Many of the buildings have undergone external alteration, modification and repair as a result of various different phases of reuse since the war. None have been well maintained since the site was vacated in the 1990s, many are showing signs of damage through either neglect or vandalism and all are deteriorating. The bunkers are probably the least affected by these processes since they appear to have been of little use to either the REME and the Area Health Authority and therefore have largely escaped modification. Even these structures, however, have lost elements of their original fixtures and fittings and are showing signs of decay, deterioration and damage through natural processes and vandalism.
- 9.39 Proper understanding of the original operational layout of the site, the functions of the various buildings and the role of the site in terms of the complex operation of maintaining and supplying the anti-aircraft defence systems, can therefore only be achieved through a combination of documentary research and site survey. The site itself is preserving only a very partial part of the story and is not easy to interpret on the ground.
- 9.40 Although it is accepted that the lack of data about comparable sites makes it difficult to assess the significance of the site, particularly in terms of its rarity value, it is nonetheless considered, that its poor state of survival and deteriorating condition means that it is unlikely to meet the threshold for statutory designation as a scheduled monument.

- 9.41 It is also considered that none of the surviving buildings are likely to be of sufficient architectural or historic importance to warrant listing. The architectural style employed throughout the complex is utilitarian although the quality of construction and architectural detailing are not commensurate with the austerity of most wartime military installations. 'Economy' concrete is virtually absent in the complex, and the design of the buildings themselves, whilst not being overtly decorative or ostentatious, is reflective of the modernist tradition that was to prevail in the post-war period.
- 9.42 The buildings of greatest architectural and historic interest are the small boiler/generator house with its chamfered brickwork and round-arched windows (Building 10); the large vehicle/arms repair and maintenance warehouse (Building 12) and the reasonably well-preserved complex of ammunition storage bunkers (Buildings a - E). None of these buildings, however, are considered to be of sufficient special interest to meet the threshold for listing.
- 9.43 This study has, however, identified that the site has sufficient evidential, historical and aesthetic value to be regarded as a heritage asset of local and possibly regional archaeological and historic interest and should therefore be treated as a material consideration within the planning process. In the light of this, the issue is therefore, what is the most appropriate means of ensuring that the identified significance of the site is effectively protected and conserved for future generations; should this be through preservation of the complex as a whole; more detailed survey and documentary research of the site in advance of and during development or a combination of the two, as recommended by the Tyne & Wear Archaeology Officer and English Heritage.

National Planning Policy Framework: Paragraph: 135

The effect of an application on the significance of a non-designated heritage asset should be taken into account in determining the application. In weighing applications that affect directly or indirectly non-designated heritage assets, a balanced judgement will be required having regard to the scale of any harm or loss and the significance of the heritage asset"

North Tyneside Council Unitary Development Plan (saved policies)

Policy E19/4: *Development which would adversely affect the site or setting of archaeological remains of regional or local importance will not be permitted unless the need for development and any other material considerations outweigh the relative importance of the site.*

Policy E19/6: *Where assessment and evaluation have established that proposed development would affect a site or area of archaeological interest the applicant will be required to preserve archaeological remains in situ unless this is clearly inappropriate or destruction of the remains is demonstrably unavoidable, in which case a programme of archaeological works will be required to be submitted and agreed with the Local Planning Authority before the start of development.*

10.0 ASSESSMENT OF IMPACT

- 10.1 The current proposal is for the demolition of all standing buildings and structures and the change of use to residential housing. It will result in the total loss of the surviving army depot buildings and structures.
- 10.2 Any below ground archaeological remains associated with former demolished buildings, site infrastructure, services and drainage will also be damaged or destroyed as a result of ground remediation works, site re-profiling, landscaping and excavation works associated with the construction phase of development.
- 10.3 In response to the formal EIA Screening Opinion both the Tyne and Wear Archaeology Officer and English Heritage have recommended that the site should not be destroyed in its entirety and that consideration should be given to preserving one concrete bunker and the boiler/generator house (Building 10) which they considered is quite domestic in design and scale and might lend itself to domestic conversion.
- 10.4 The parties acknowledged that keeping a bunker would mean it would need to be maintained, and that the doors and windows would need to be blocked up. However, they considered that this could work in a residential area and referred to Kenton Bunker in Newcastle. It was suggested that the top of the bunker could be grassed over and the extant trees around it retained to form a green area within the site. An interpretation board could be erected and the site could potentially be opened for Heritage Open Days.
- 10.5 Prior to receipt of these recommendations, there was no intention by the developer to retain any of the buildings and structures and there is concern that given the state and condition of these buildings, a requirement to do so would be onerous and unreasonable.
- 10.6 Whilst the boiler/generator house appears to be in reasonably condition in terms of the external fabric, there are significant health and safety constraints with respect to the presence of asbestos and the inevitable ground contamination associated with its use as a boiler/generator house. The building would also present challenges with respect to meeting modern energy requirements and current building regulations if it were to be retained and converted for domestic accommodation. It is considered that the extent of remediation, modification, possible demolition and rebuilding required in order to address these issues make the requirement to reuse this building as domestic accommodation economically unviable, particularly when considered against the local significance of this building.
- 10.7 There are similar concerns with respect to the proposal to retain one of the bunkers. It is considered that the cost required to both stabilise, secure and make-safe one of these bunkers and then manage it in the long term outweigh the relative importance of the structure. There are justified concerns that it will become the focus for anti-social behaviour and that there are safety issues, particularly with respect to trying to control access onto the structure.
- 10.8 The recommendation for retention of the two buildings was made prior to the completion of this building survey and assessment of significance. They were justified on the basis that it was assumed the site was well preserved and survived almost as it was built in 1938 in anticipation of World War II. More detailed survey of the site has since demonstrated that neither of these assumptions is correct.

- 10.9 This assessment of significance has also concluded that it is the complex as a whole which is of interest, not particular individual buildings, and that because the survival of the total site is poor, this interest can only be properly realised through combining further survey of the buildings with additional documentary research of more primary sources of information. Preserving two buildings would not secure preservation of the significance of the site. Once the remainder of the complex has been removed, it is considered that the significance value of the remaining buildings would not justify the significant costs involved with their restoration, preservation and long-term management.
- 10.10 It is recognised (English Heritage et al 2013b) that critical to the success of sustainable regeneration of historic buildings is finding a viable economic use that can support initial refurbishment, provide the owner with a reasonable return on their investment and which generates sufficient income to ensure the long-term maintenance of the building fabric and associated grounds. This would not be possible in the case of the present development proposals and it is requested that the economic viability of retention should be treated as a material consideration and taken into account in determining the application.

11.0 MITIGATION

- 11.1 In accordance with NPPF Paragraph 141 and UDP saved Policy E19/6, it is proposed that the loss of the remaining standing buildings and structures could be effectively mitigated through a combined programme of detailed documentary research, internal recording of the buildings and selected areas of monitoring to map the subsurface remains of previously demolished buildings and structures. It is considered that this will result in a more informed understanding of the site itself and its role and function within the chain of supply of ammunition from point of production to point of use.
- 11.2 A Written Scheme of Investigation for these works should be prepared and agreed with the Tyne & Wear Archaeology Officer and English Heritage. It is recommended that this scheme should include provision for the following:
- Review of primary archive material held by the MoD, the local health authority and national archives, to determine if there is further information held by these bodies relating to building and service plans, history of the development of the site and further information about the supply and distribution of ammunition;
 - A limited programme of additional research be undertaken to better place the complex within its context as a Second World War EEAM;
 - Completion of the building survey record to include an internal, bay by bay, photographic and descriptive record of all buildings and structures in order to compensate for the shortcomings in the existing archive for this element of the complex;
 - A measured record of each of the roof frame types of the original building to be made in order to further enhance the existing record. This could be undertaken using a reflectorless EDM or similar device;
 - A programme of field evaluation in the area suspected of being a former camp to the north of the existing depot site, if this is to be affected by the development proposals;
 - A watching brief be undertaken during demolition and ground remediation works in order to record any surviving subsurface features relating to the complex; and.
 - The publication of the results of the buildings survey in an appropriate regional or thematic journal and the deposition of the full site archive with the Tyne & Wear Historic Environment Record
- 11.3 One benefit of this enhanced level of recording, is that it will provide an improved understanding of a 20th century military site type, which at the moment, is completely under represented in the archaeological record at both national and local level. Once completed, the results of this work would contribute towards the future formulation of heritage conservation guidance.

12.0 CONCLUSIONS

- 12.1 This study demonstrates that the application for development is in compliance with NPPF policy (paragraphs 128 and 129) and North Tyneside UDP policy E19/5. It describes the significance of the former MoD depot, assesses the extent of harm or loss of significance as a result of the impact of development and proposes a scheme of works which will effectively mitigate this impact.
- 12.2 It is considered that the site is not of sufficient significance to warrant statutory protection and that the extent of survival of the original army depot complex and the poor condition of the surviving depot buildings and structures do not warrant the preservation of the complex in situ (NPPF Paragraph 135; UDP Policy E19/4 and E19/6).
- 12.3 In the absence of statutory protection and the proposed development, it is considered that the site will be vulnerable to continued decay, and/or the ad hoc demolition of buildings for which there is no viable modern use.
- 12.4 It is considered that the nature and condition of the buildings on this site means that they do not readily lend themselves to preservation in situ and that a requirement to preserve the boiler/generator house and a bunker would be unreasonable when considered against the relative importance of these buildings and that long term management of the bunker would be an onerous requirement (UDP Policy E19/4; NPPF Policy 7).
- 12.5 It is considered more important to view the proposed development as an opportunity to better understand the form, function and manner of operation of the site as an entity than consolidate individual elements of the complex in isolation. This could be achieved by a programme of further documentary research, survey and recording, the results of which would be made publicly accessible. This would be in accordance with NPPF Paragraph 141 and UDP Policy E19/6. It would also be in accordance with the North East Regional Research Framework (Petts and Gerard 2006) which recommends full recording of all twentieth century military remains where they are affected by development.
- 12.6 Taking into account the results of the buildings survey, assessment of significance and proposed mitigation, it is concluded that the proposal fully accords with national and local development plan policy with respect to heritage protection and that there is no reason in terms of heritage impacts why permission for the application should not be granted.

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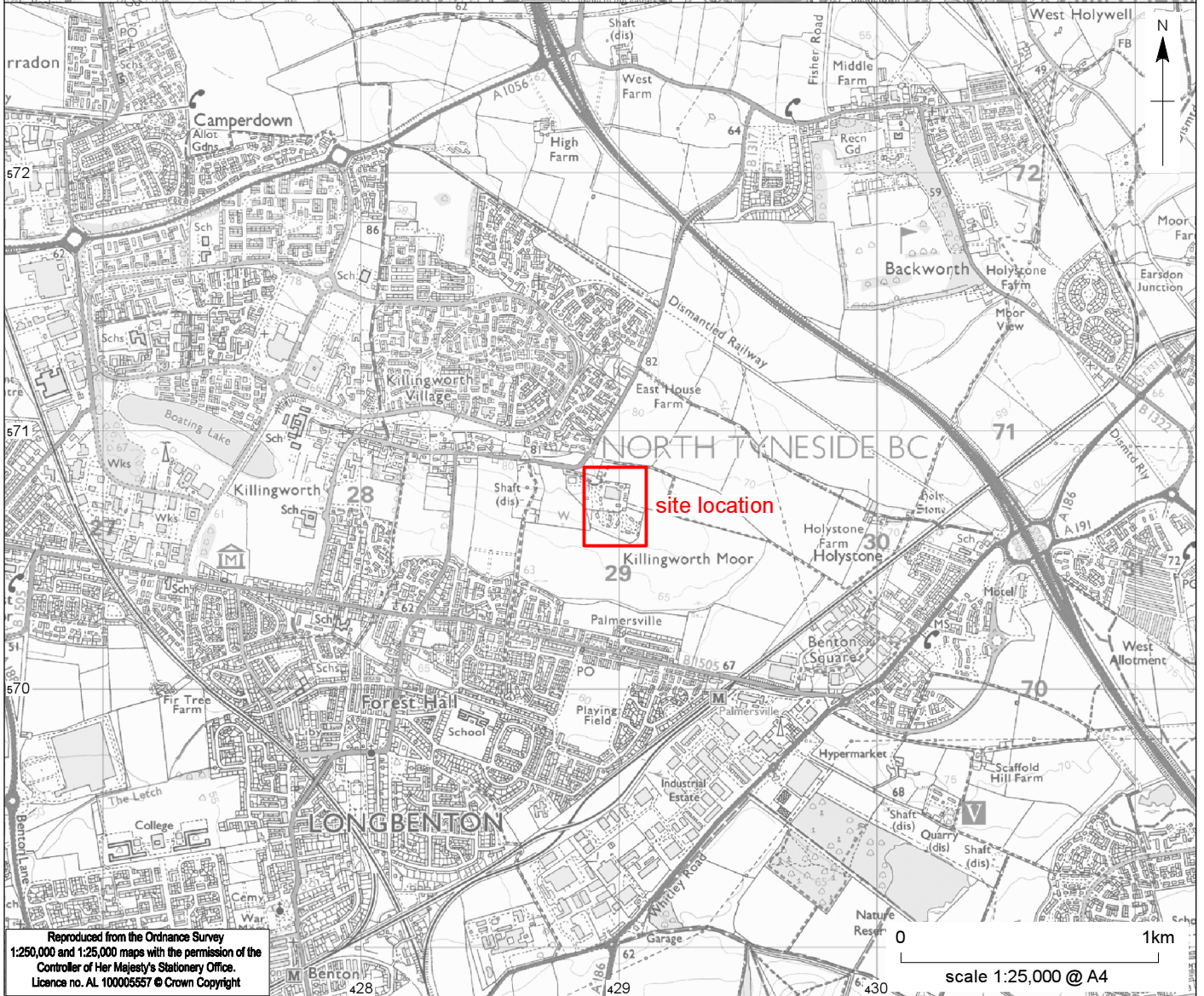
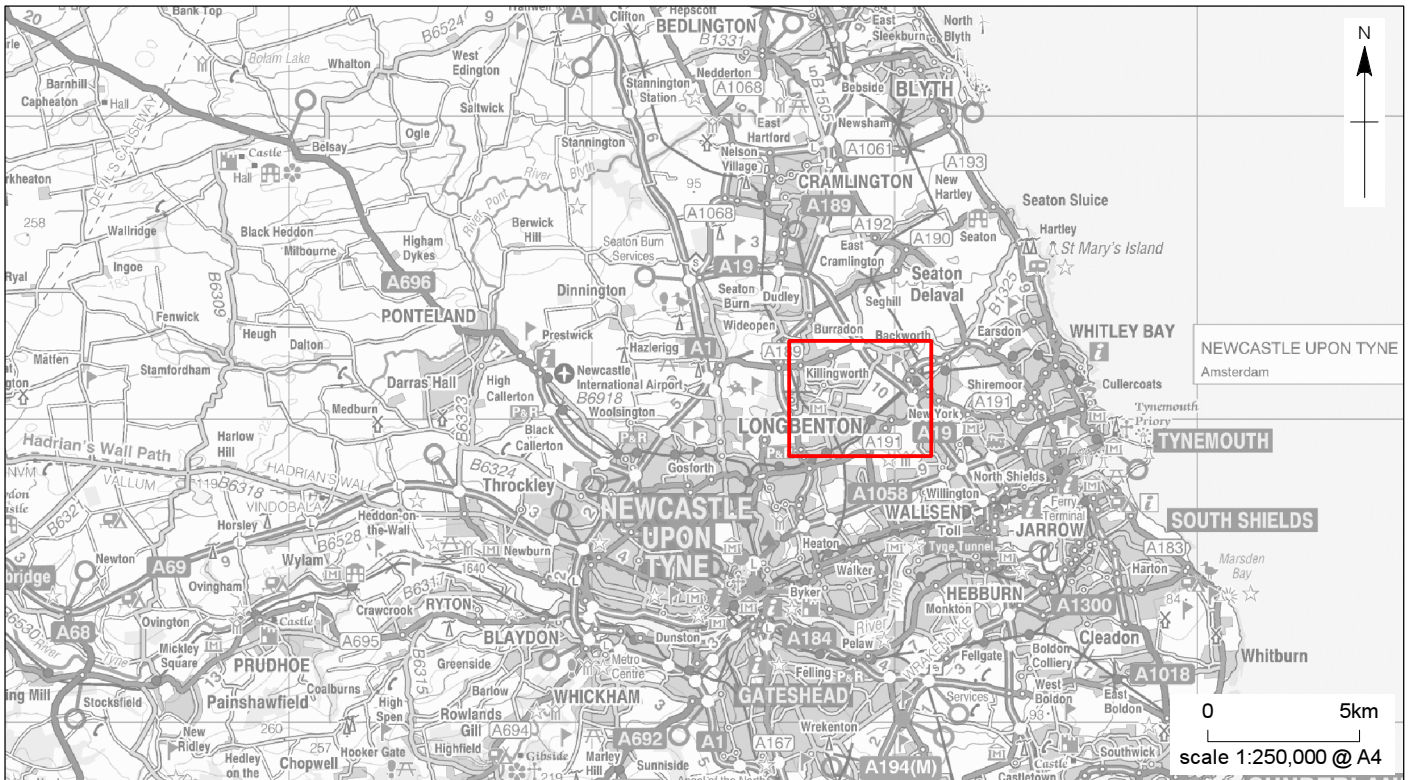
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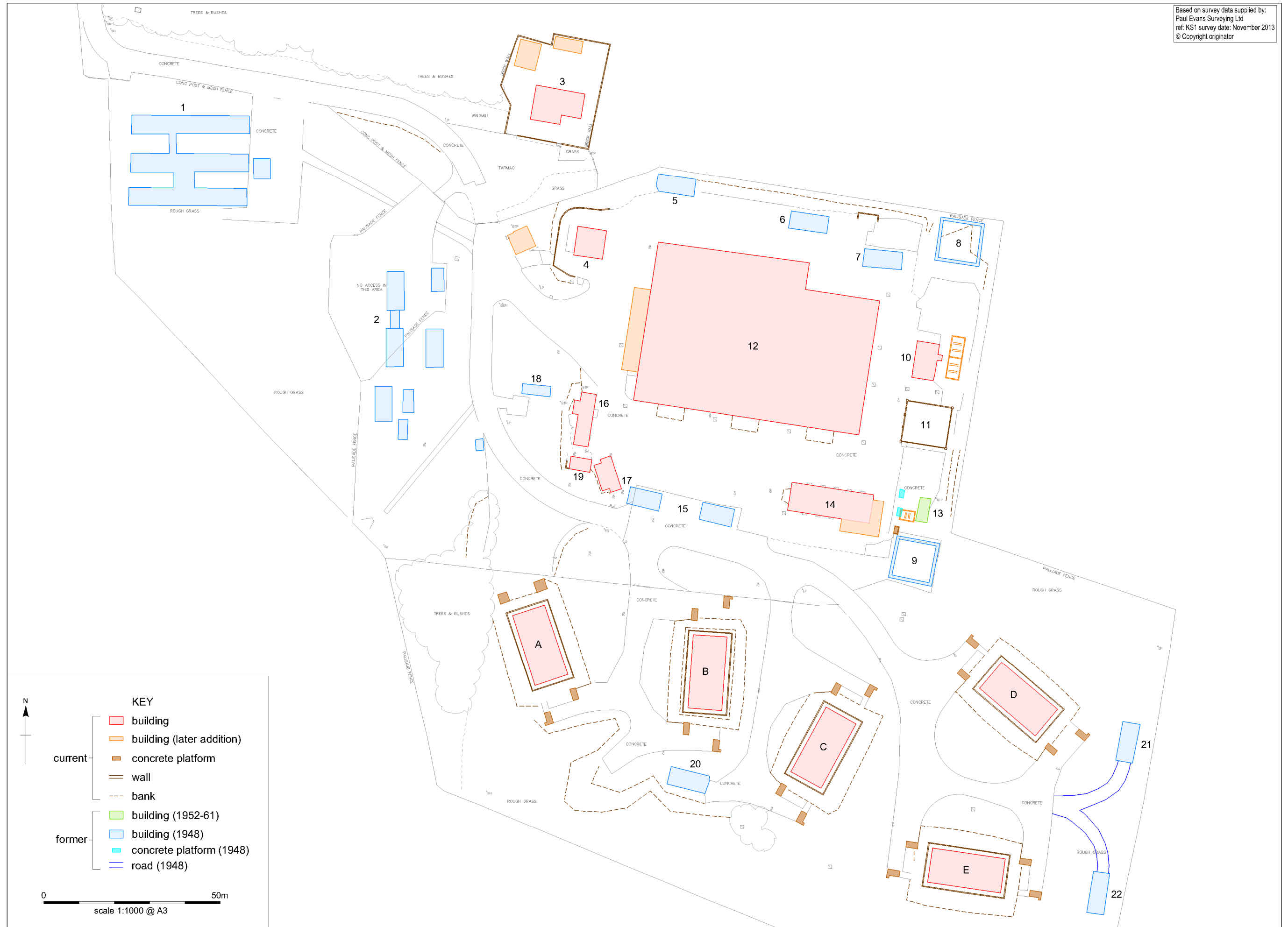


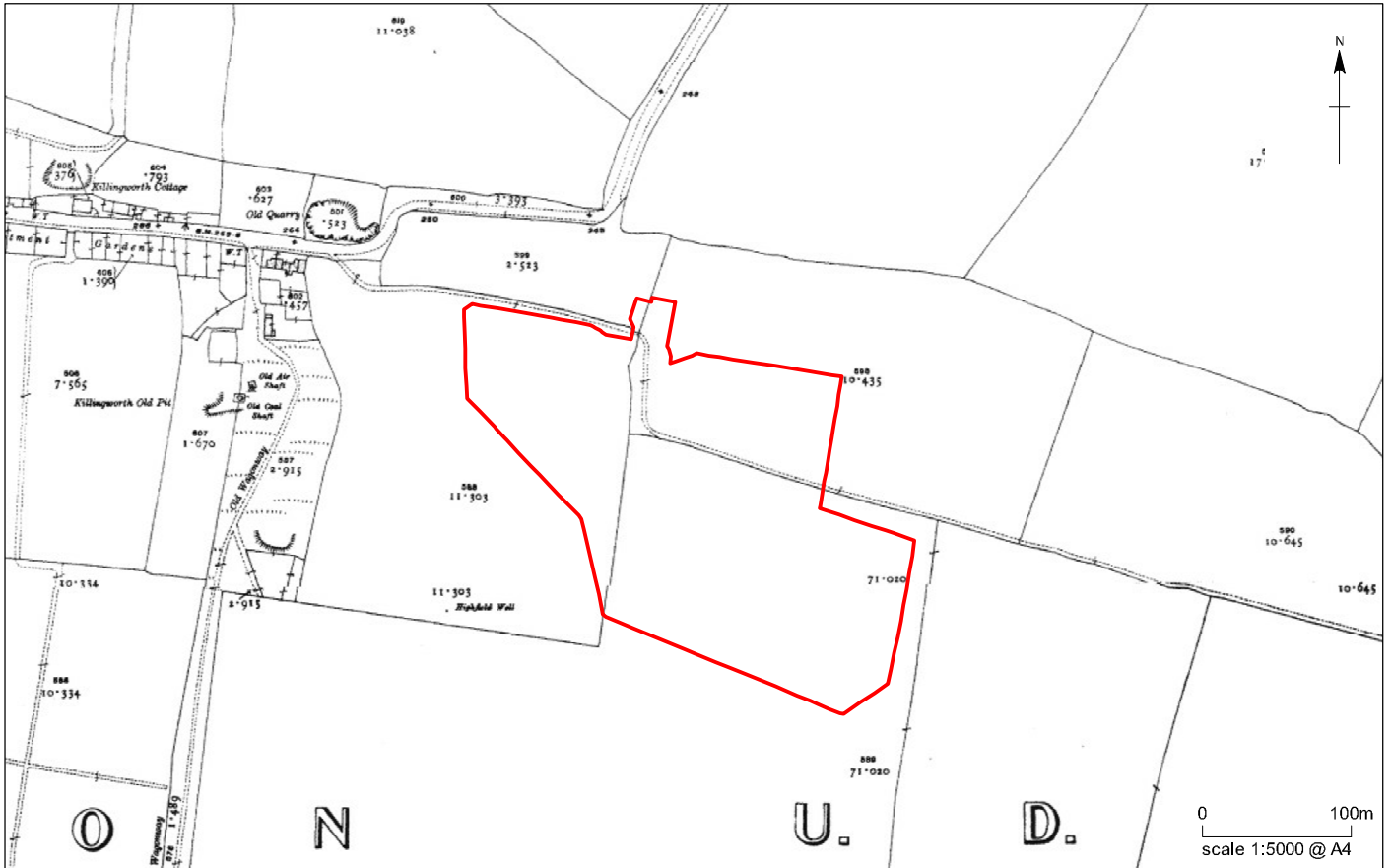
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Former Killingworth Stores: site location

Figure 1





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Former Killingworth Stores: 1919 Ordnance Survey map

Figure 3



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Former Killingworth Stores: 1952 Ordnance Survey map

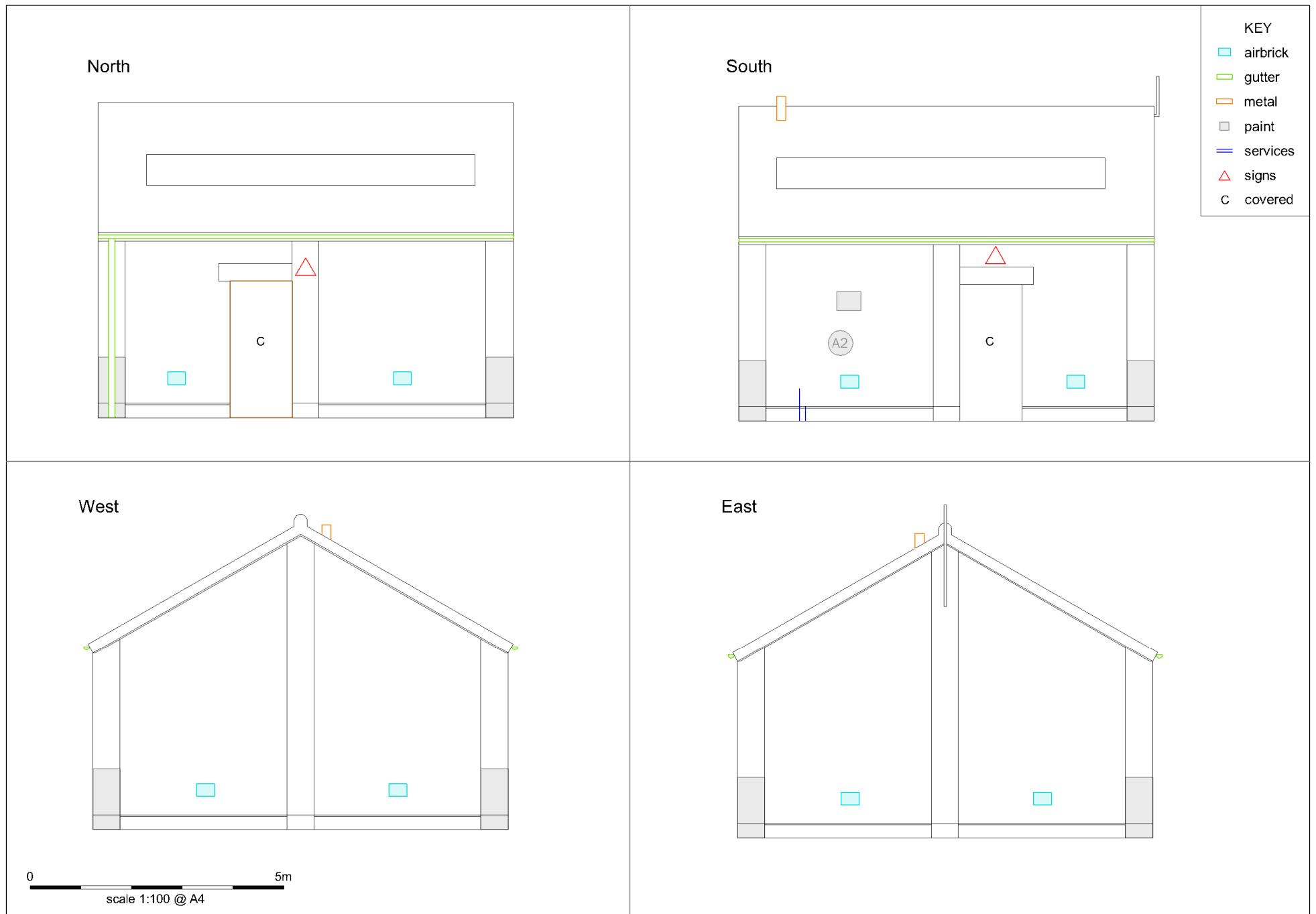
Figure 4

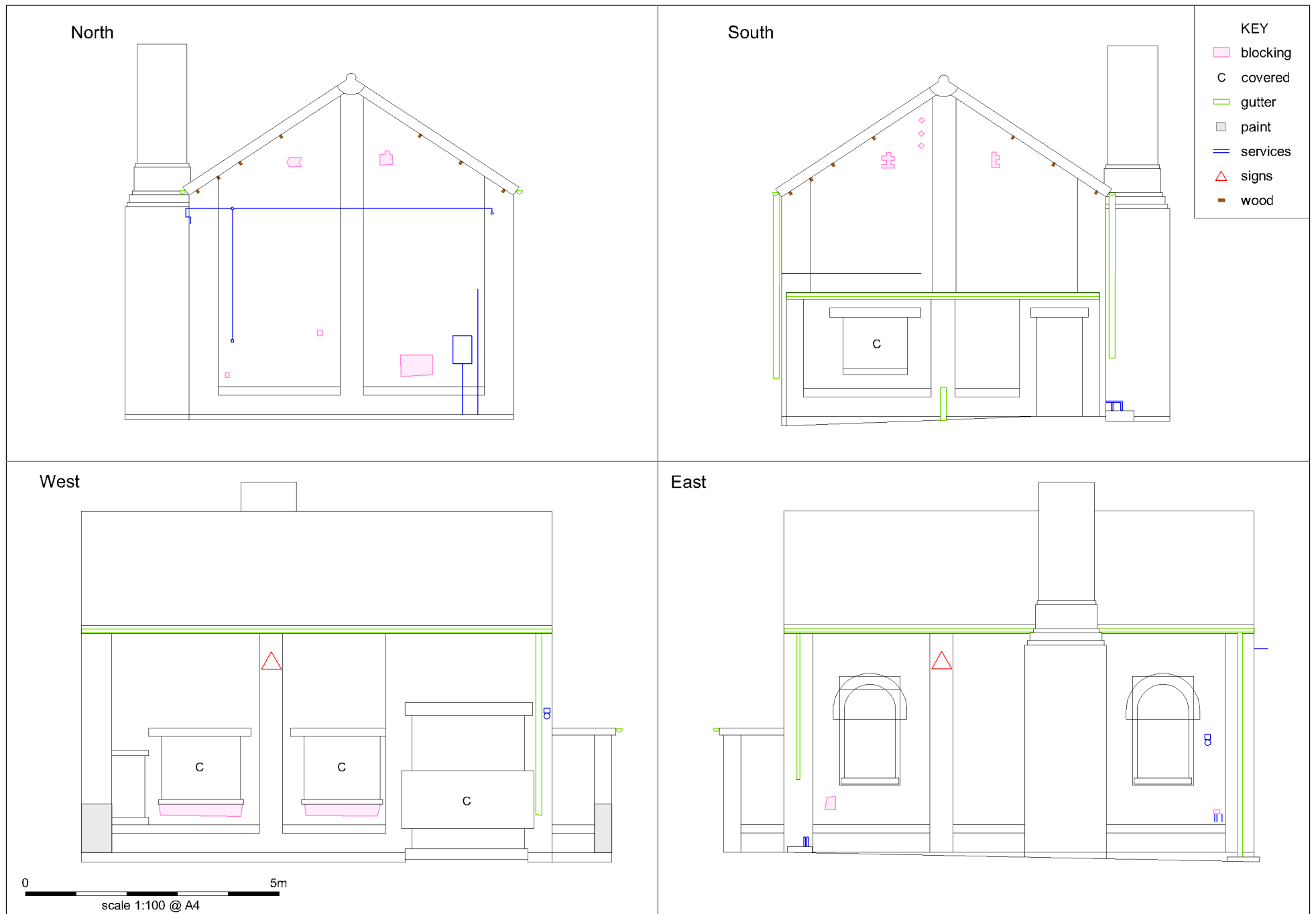


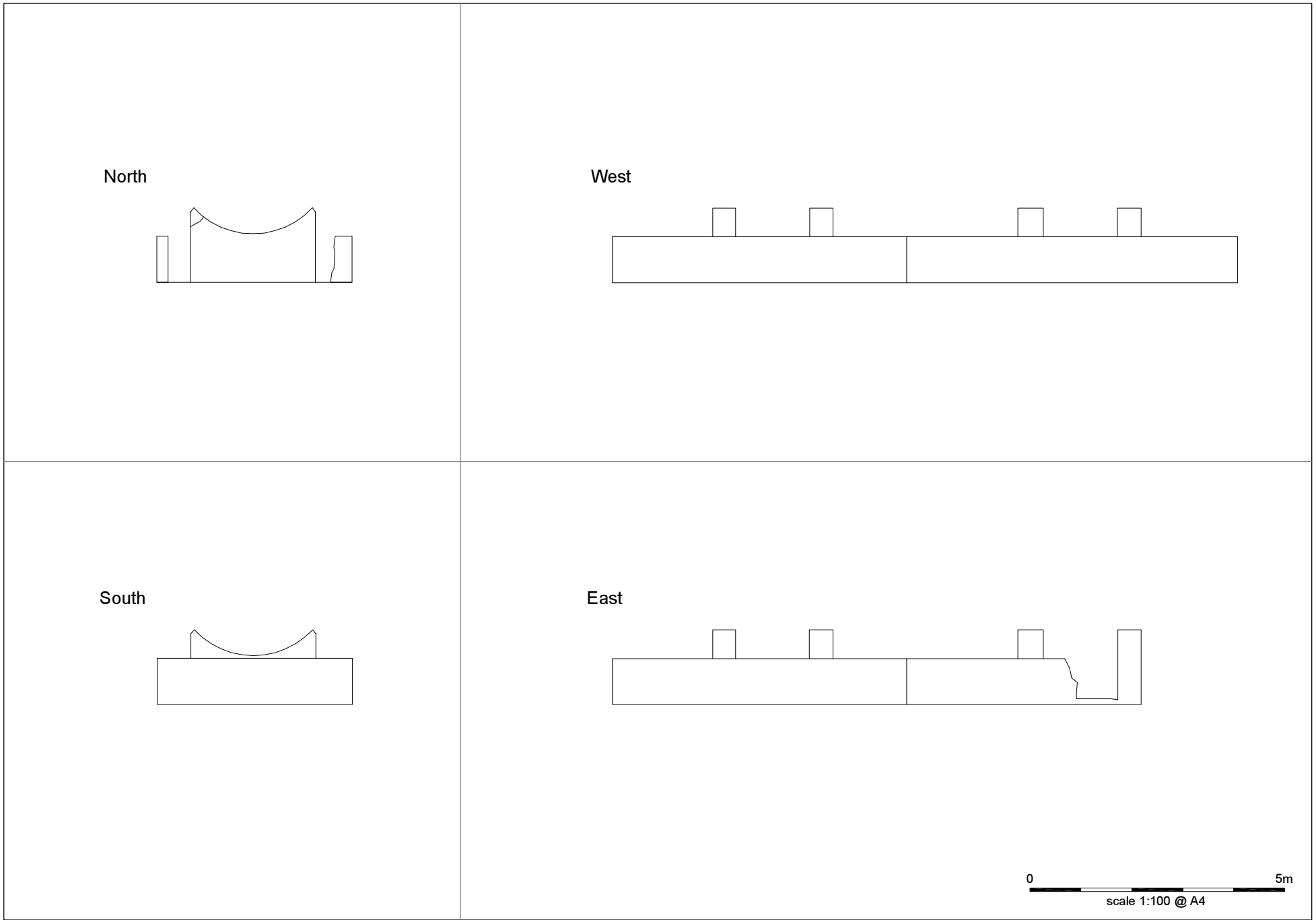
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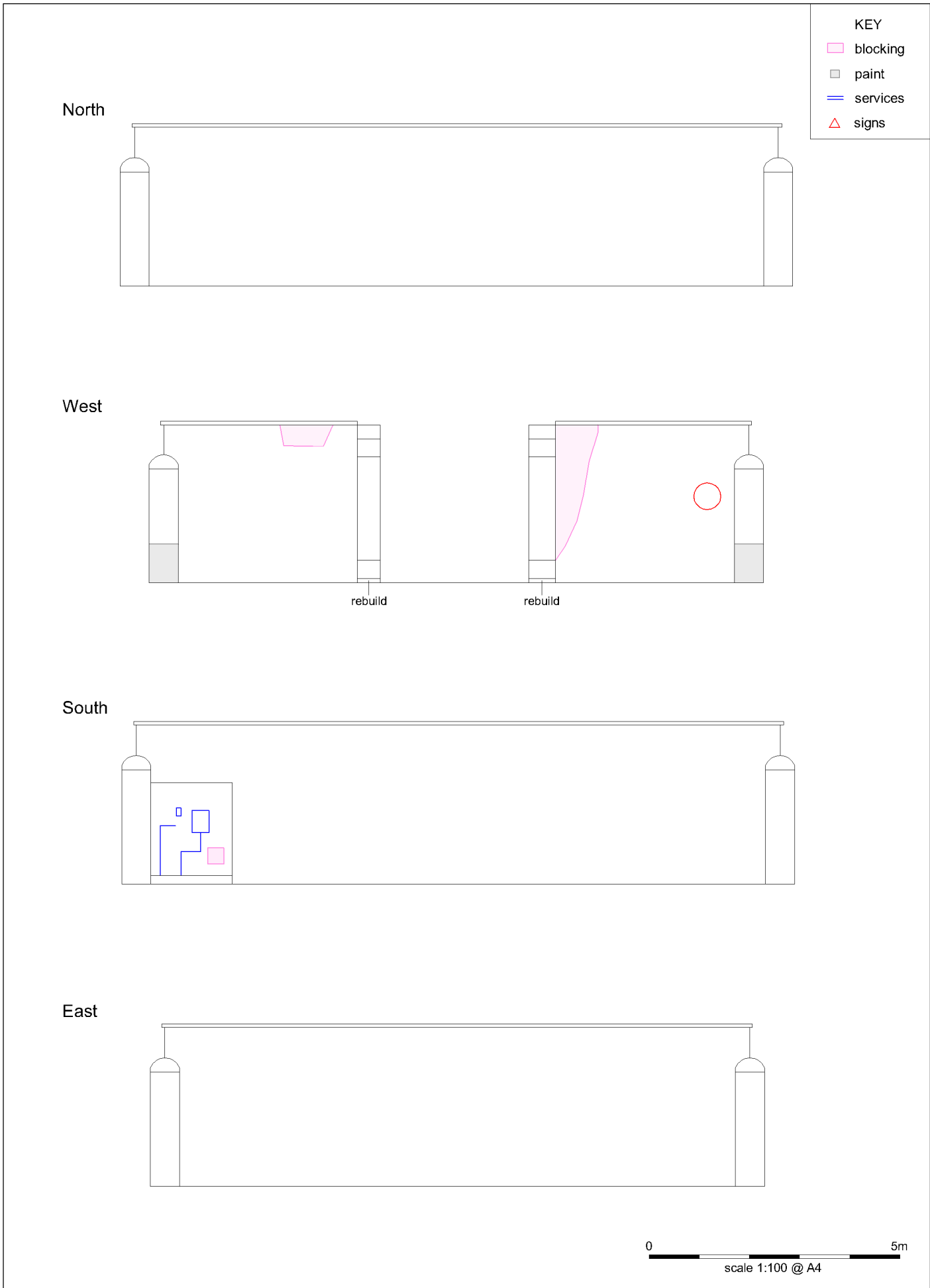
Former Killingworth Stores: 1972 Ordnance Survey map

Figure 5



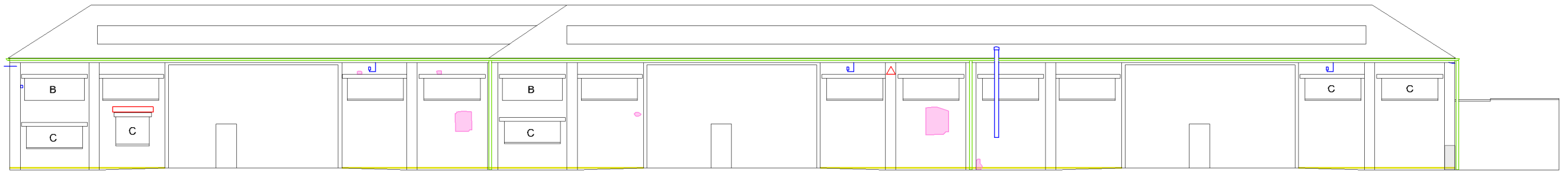




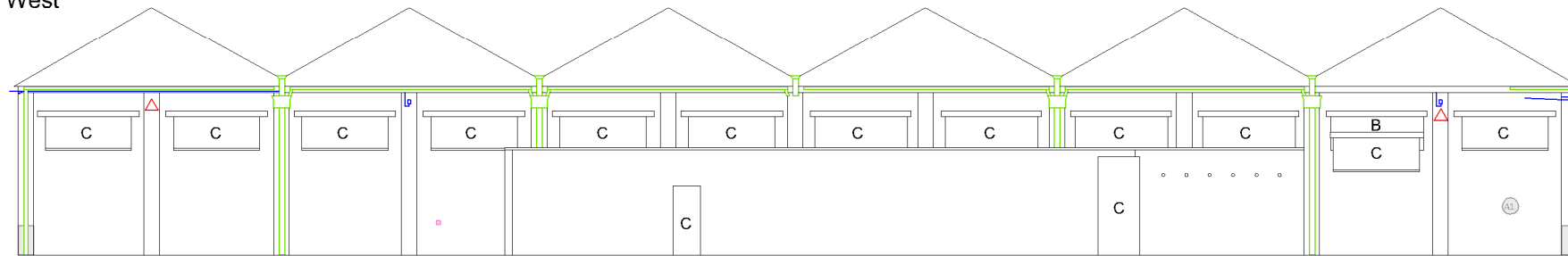


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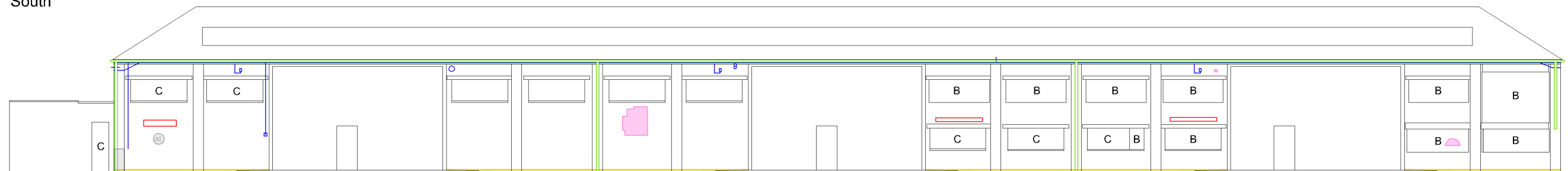
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West

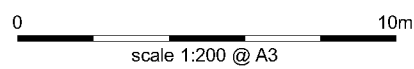
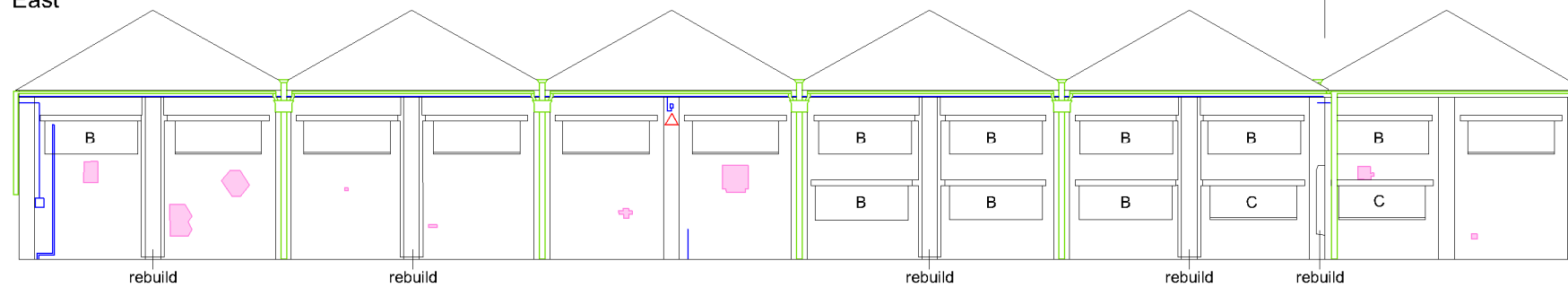


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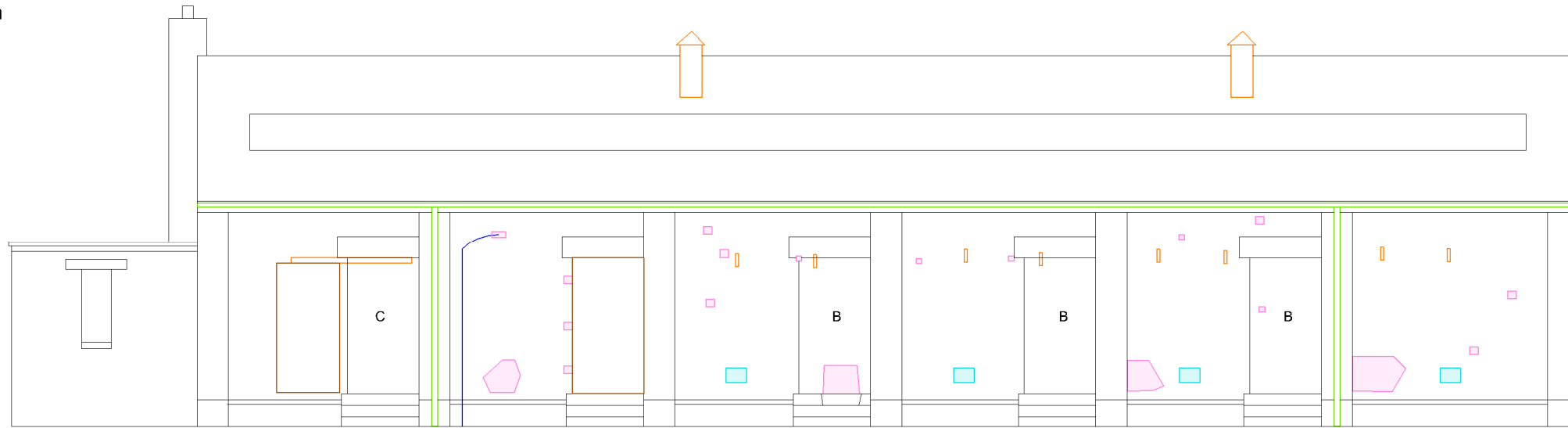
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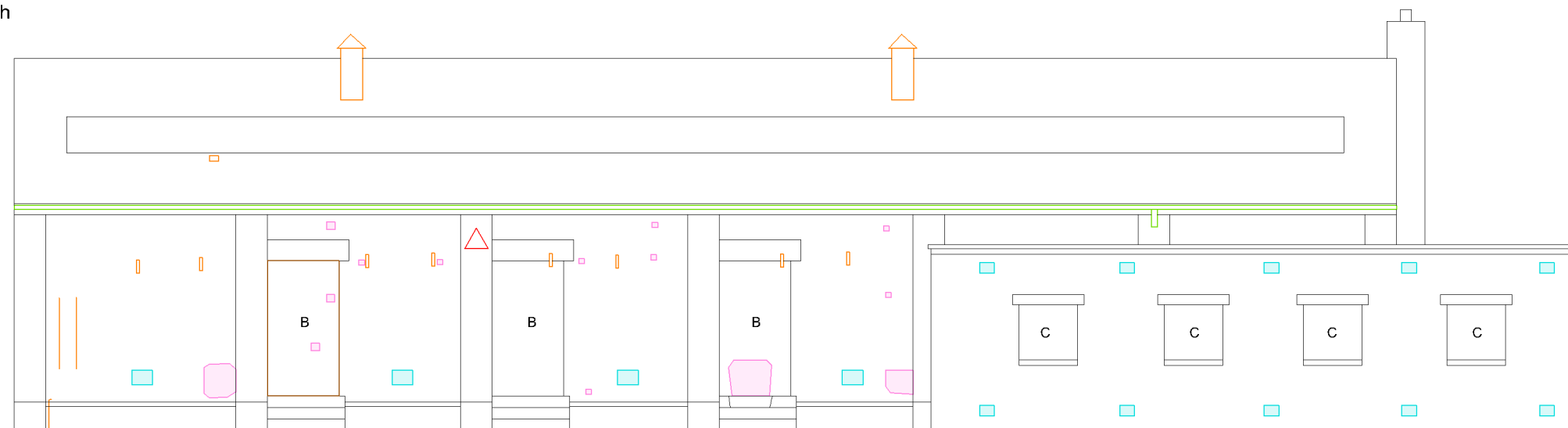
KEY	
B	blocked window
■	other blocking
C	covered
—	damp course
—	gutter
■	paint
—	services
△	signs

North

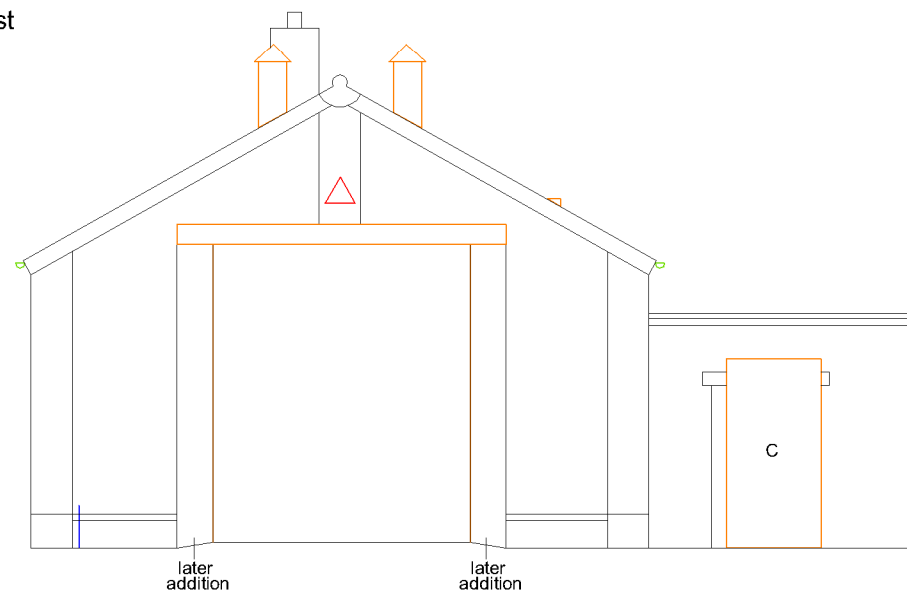


- KEY
- airbrick
 - B** blocked door
 - blocking
 - gutter
 - metal
 - services
 - △ signs
 - wood
 - C** covered

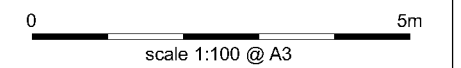
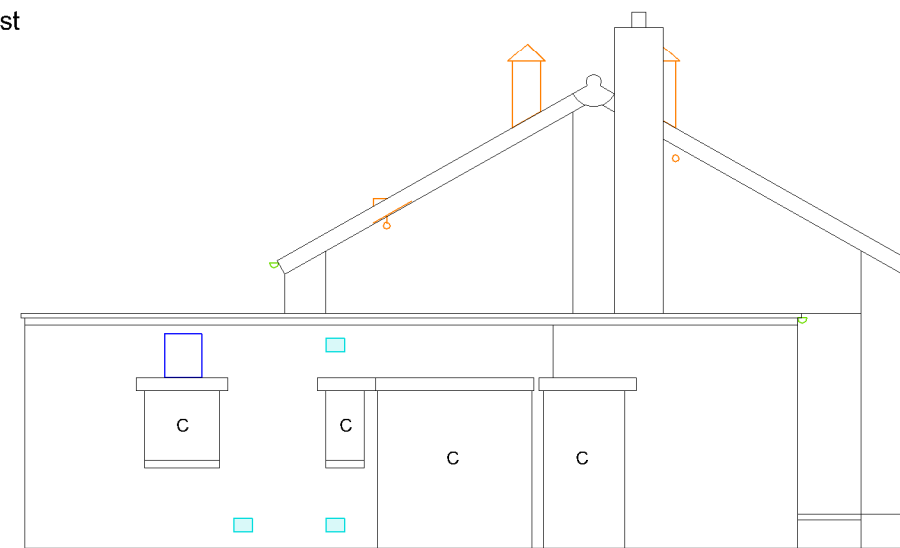
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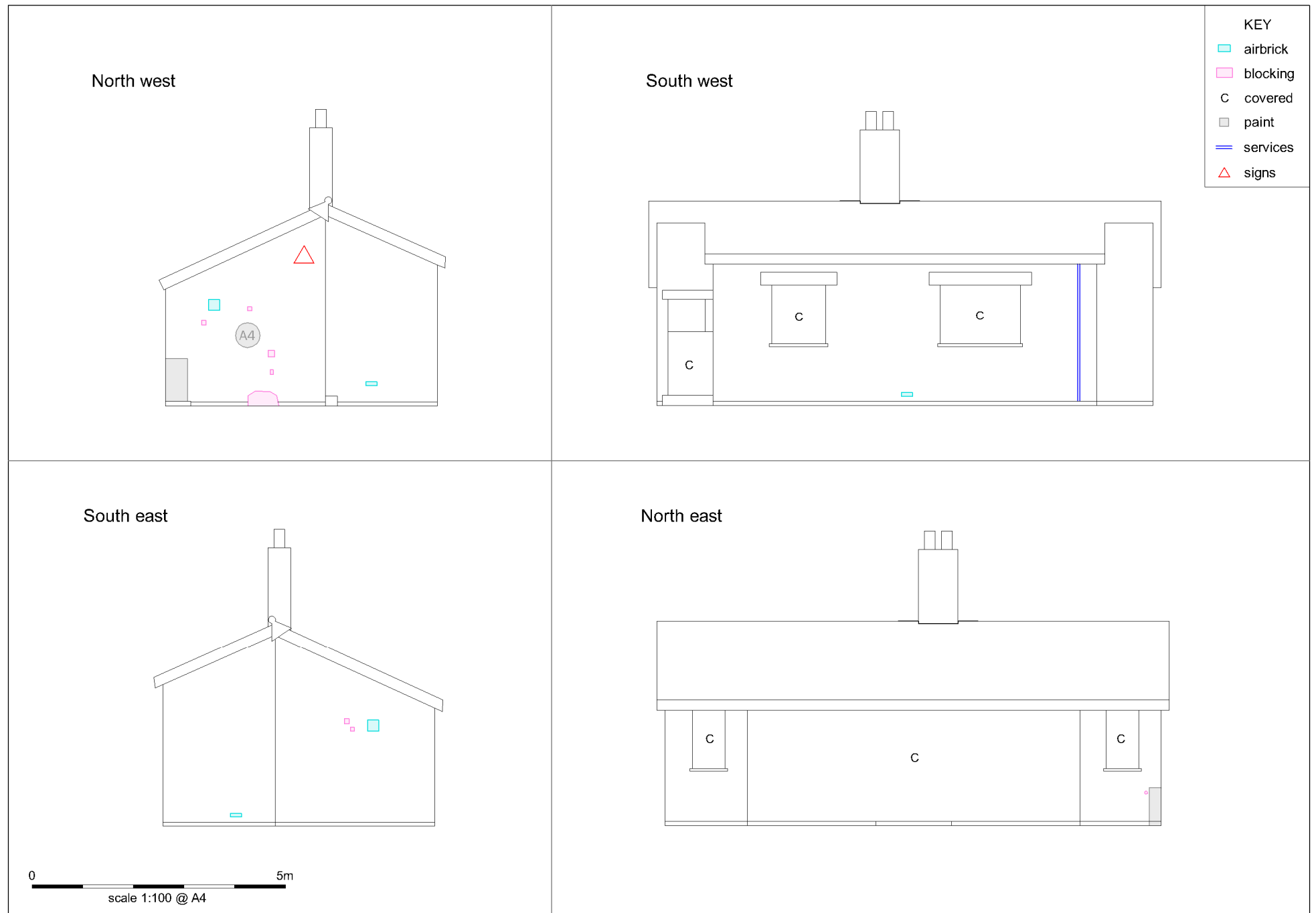
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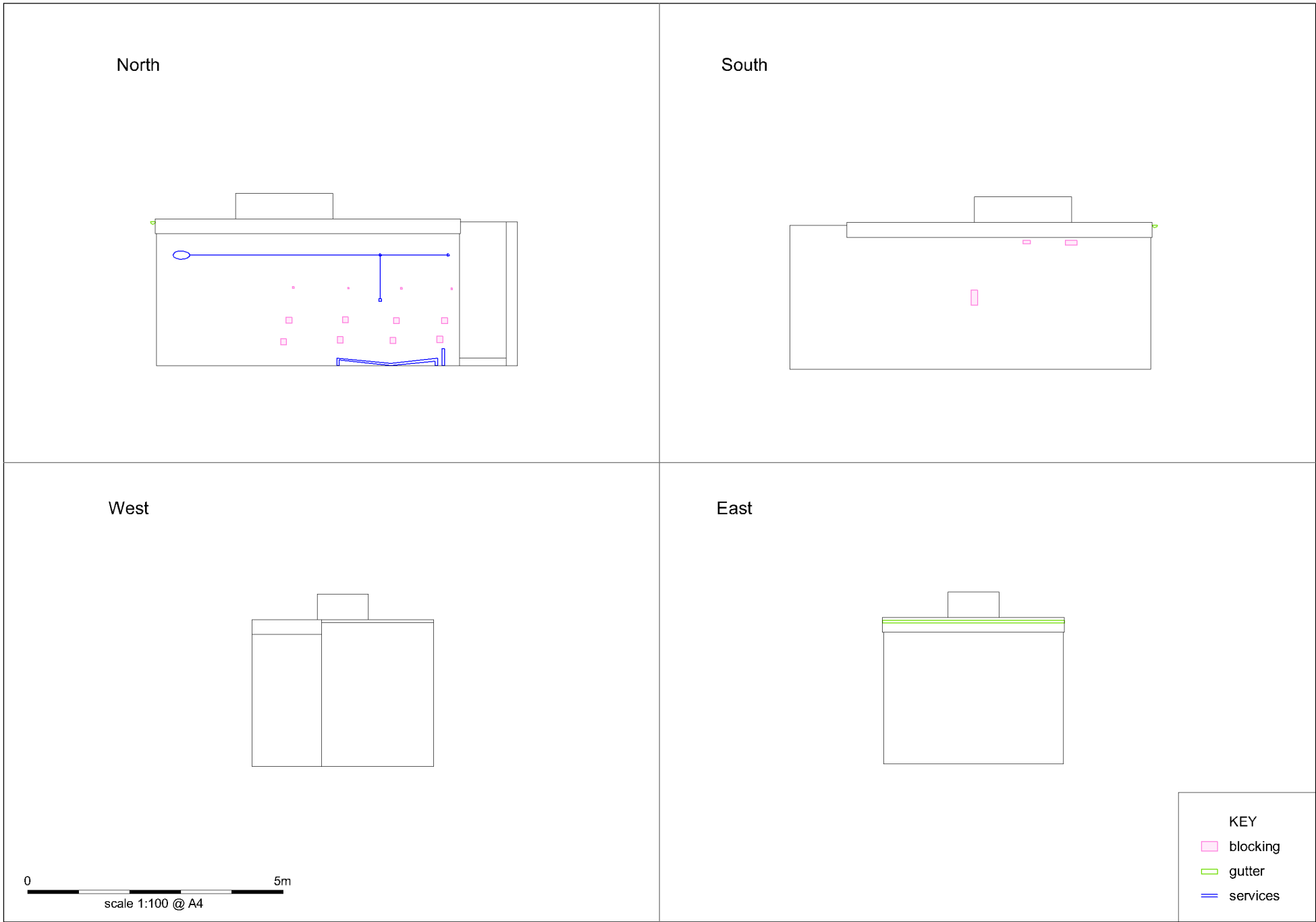


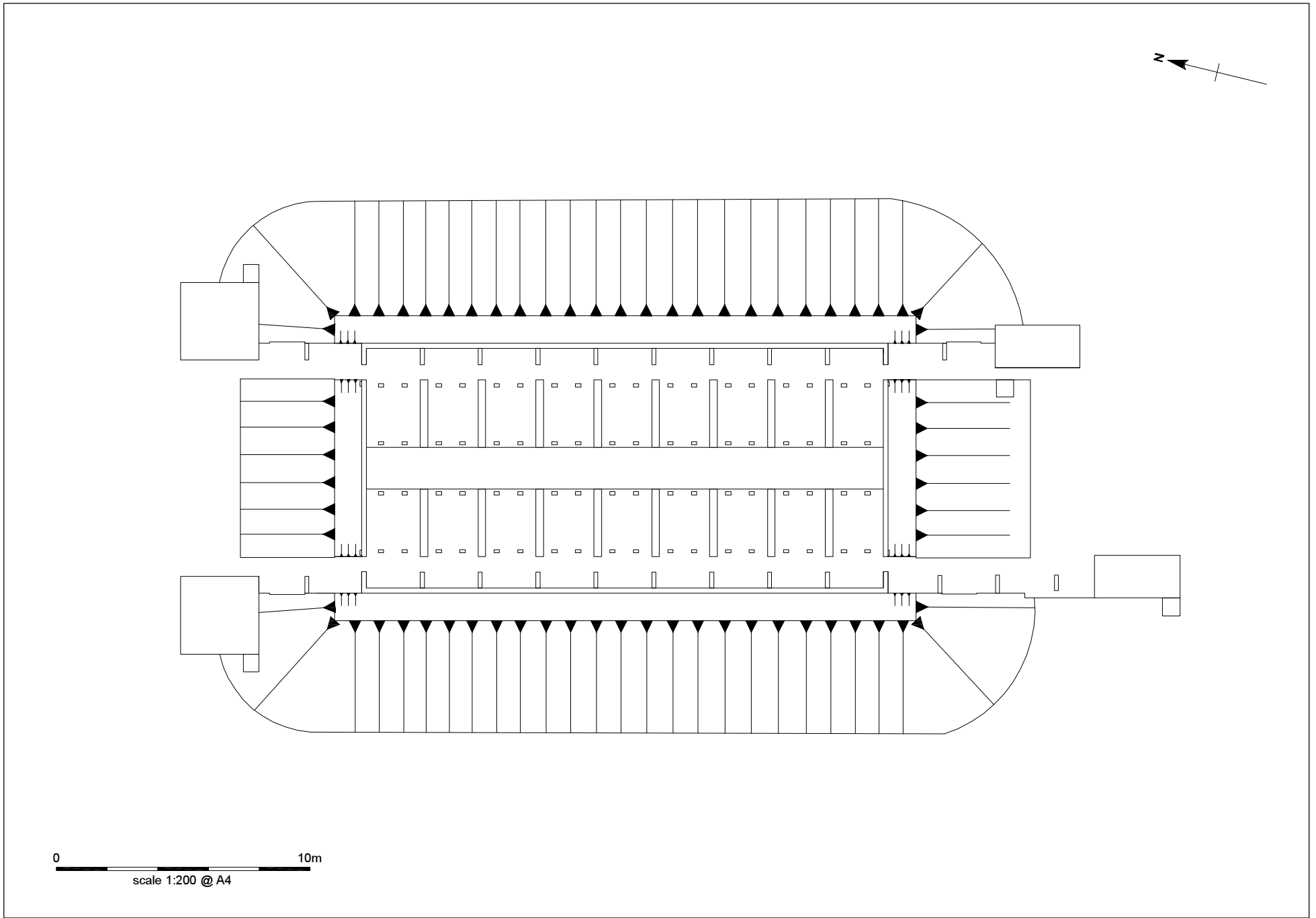
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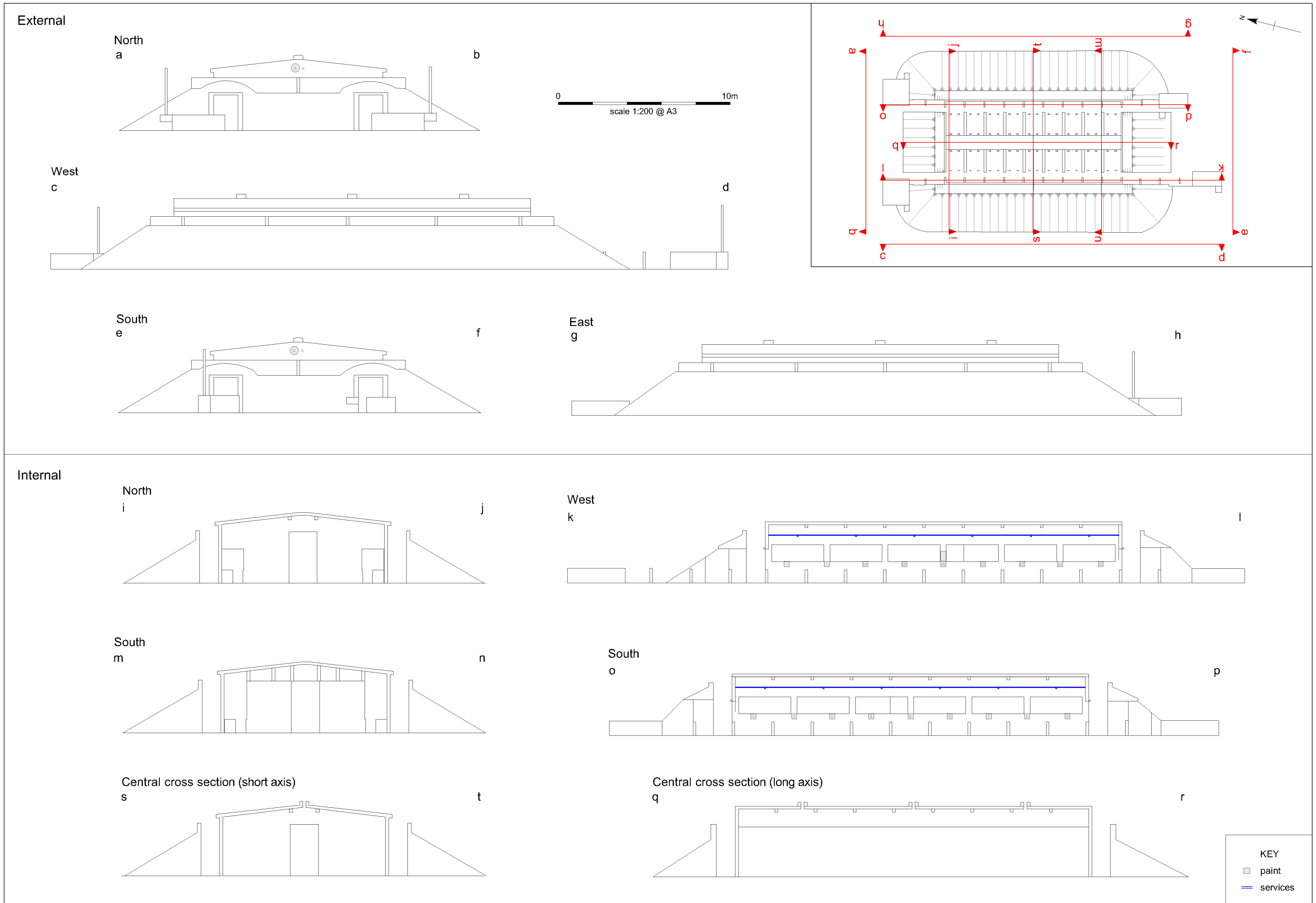


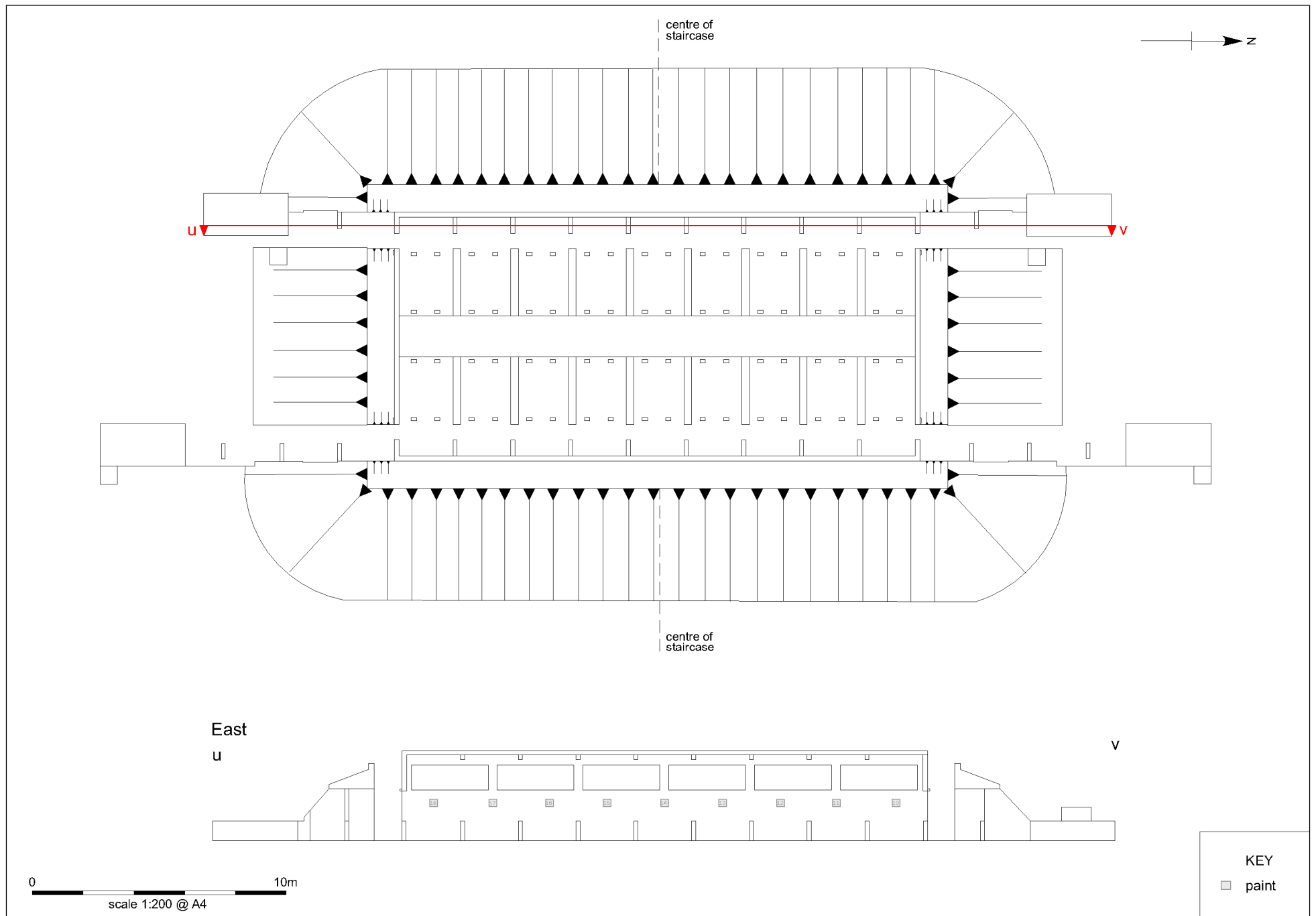


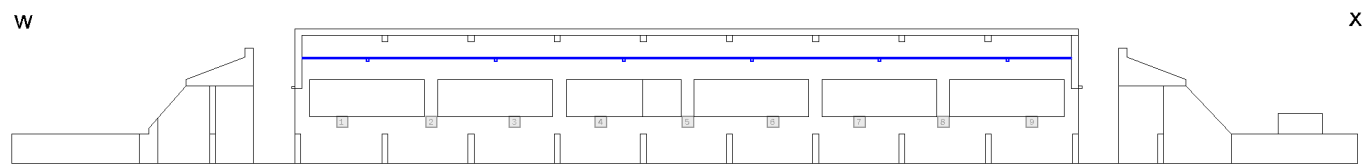
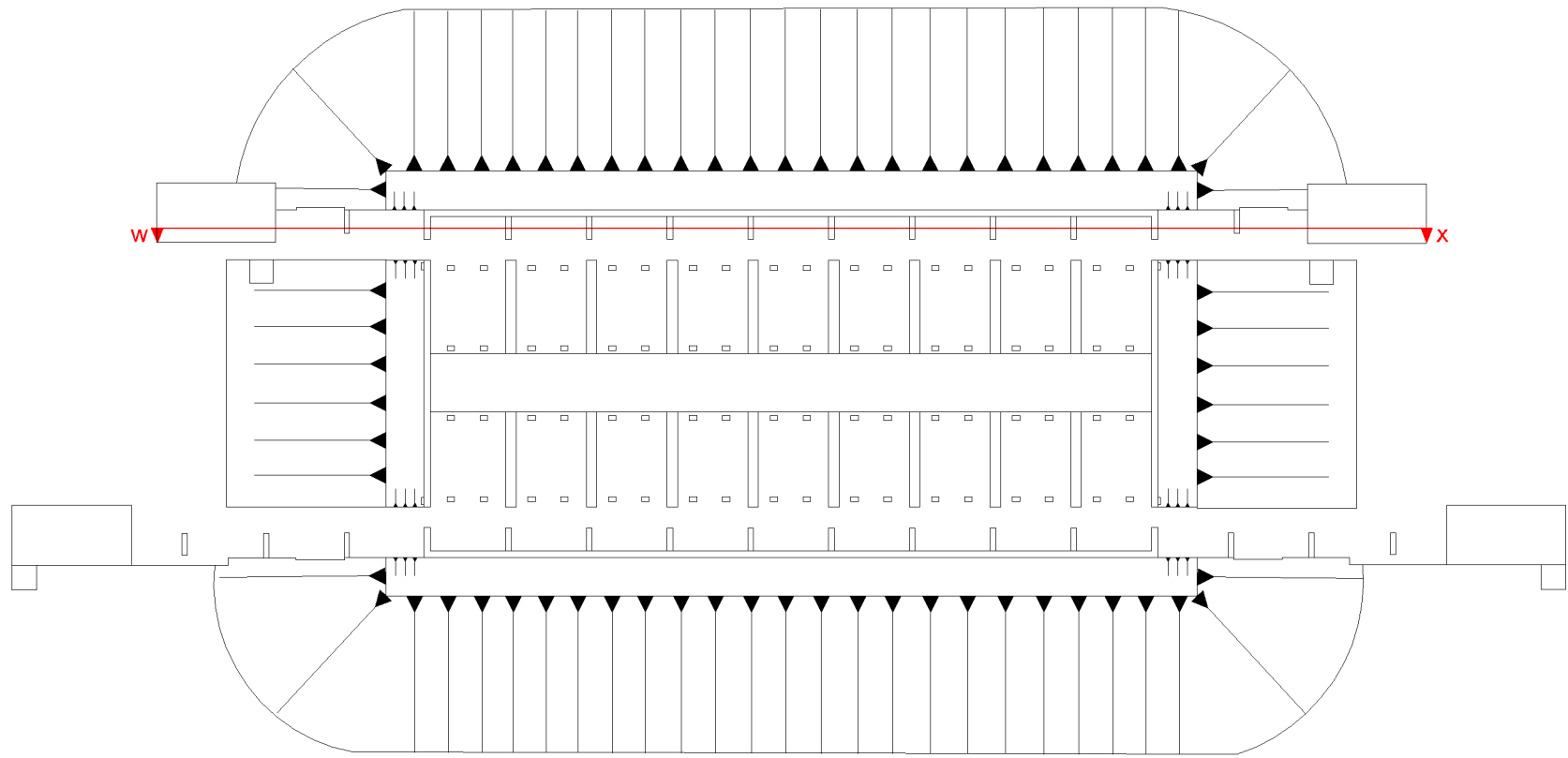








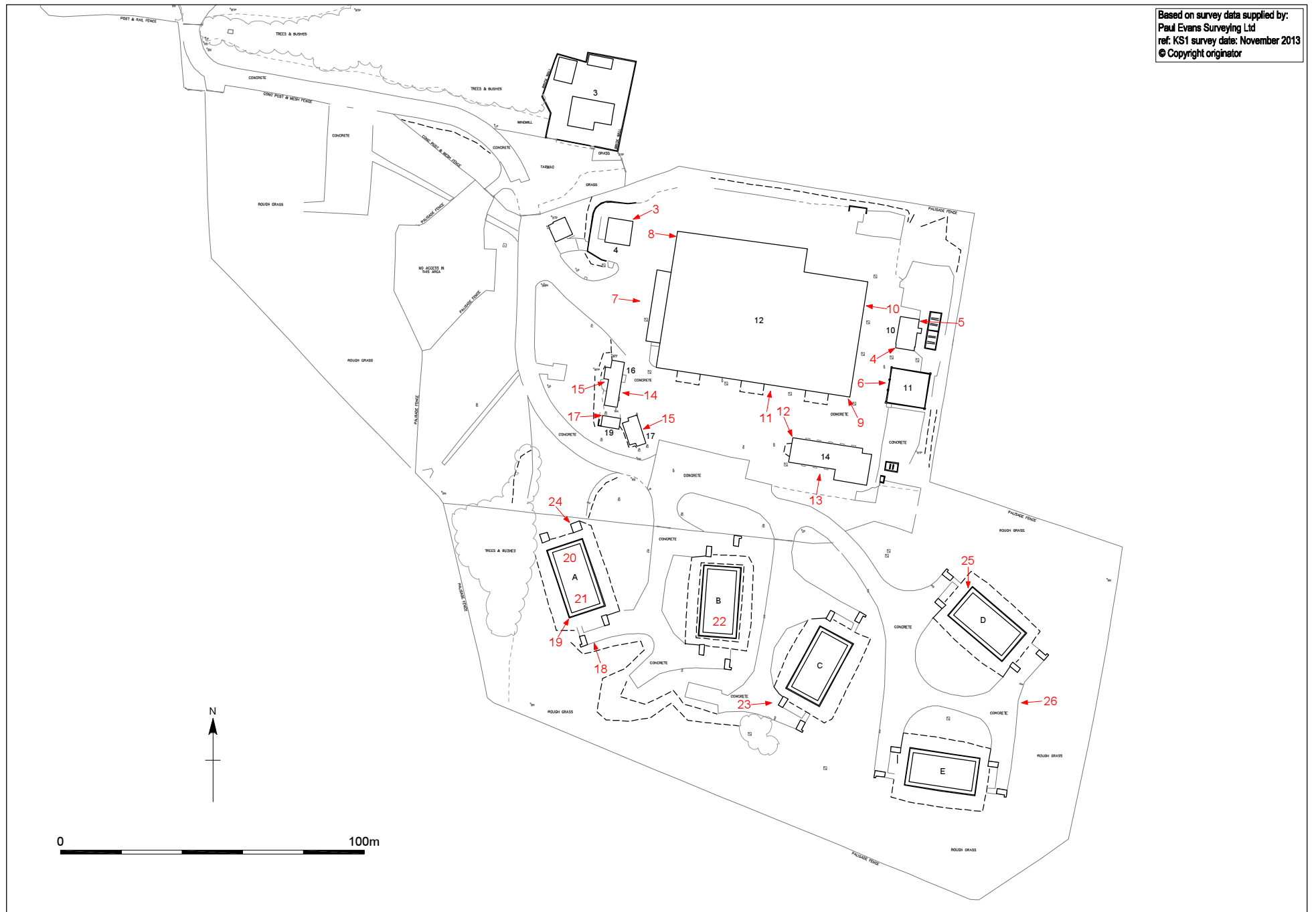


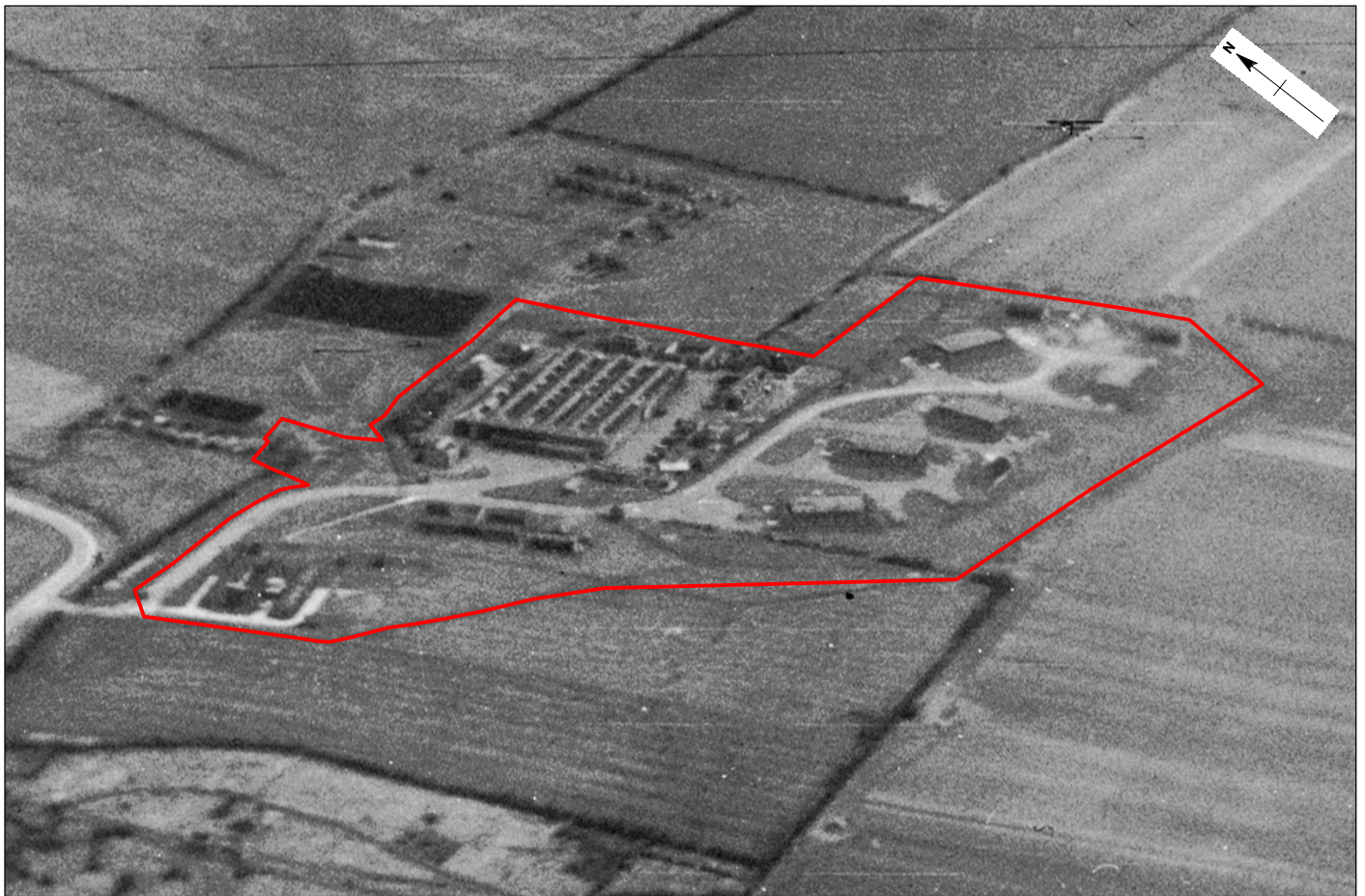


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*Former Killingworth Stores: oblique aerial photograph of the complex,
3rd March 1945 (RAF_106g_1a_160_psfo_0012)*

Plate 1



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*Former Killingworth Stores: vertical aerial photograph of the complex,
16th May 1948 (RAF_58_b_32_v_5696)*

Plate 2



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Former Killingworth Stores: Building 4, showing eastern and northern elevations

Plate 3



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Former Killingworth Stores: Building 10, showing western elevation and flat-roofed entrance portico on the southern gable

Plate 4



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Former Killingworth Stores: Building 10, north bay of the eastern elevation, with arch-headed window and chimney to left

Plate 5



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Former Killingworth Stores: Building 11, showing entrance in western elevation and corner pillars

Plate 6



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Former Killingworth Stores: Building 12, western elevation

Plate 7



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Former Killingworth Stores: Building 12, north corner of western elevation, showing rain gutter and down-pipes and position of windows

Plate 8



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Former Killingworth Stores: Building 12, eastern and southern elevations

Plate 9



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Former Killingworth Stores: Building 12, original window

Plate 10



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Former Killingworth Stores: Building 12, centre of southern elevation, showing vehicle access door and altered window arrangement

Plate 11



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Former Killingworth Stores: Building 14, showing vehicle door in west gable and series of entranceways along north side

Plate 12



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Former Killingworth Stores: Building 14, blocked entranceways and later extension on southern elevation Plate 13



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Former Killingworth Stores: Building 16, eastern elevation Plate 14



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*Former Killingworth Stores: Building 16, Plate 15
showing porch and chimney
on western elevation*



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Former Killingworth Stores: Building 17, north-eastern elevation Plate 16



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Former Killingworth Stores: Building 19, west end, showing entrance porch

Plate 17



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Former Killingworth Stores: Bunker A, southern end

Plate 18



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*Former Killingworth Stores: Bunker A, south-west corner, showing Plate 19
blast wall around entranceway into the structure*



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*Former Killingworth Stores: Bunker A, interior showing numbered Plate 20
bays, roof supports and ventilation*



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*Former Killingworth Stores: Plate 21
Bunker A, showing concrete plinths for
conveyor, and position of windows*



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*Former Killingworth Stores: Plate 22
Bunker B, showing position of windows*



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Former Killingworth Stores: Bunker C, south end, showing asymmetrical positioning of external loading platforms

Plate 23



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Former Killingworth Stores: Bunker A, showing unique loading platform at north end and lamppost

Plate 24



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Former Killingworth Stores: Bunker D, tunnel through earth bund, showing period light and switches. Entrance into bunker in background

Plate 25



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Killingworth E.E.A.M.: Bunkers E, C and D (from left to right)

Plate 26

APPENDIX A: METHOD STATEMENT

NORTHERN ARCHAEOLOGICAL ASSOCIATES LTD

**WW2 MUNITIONS DEPOT, KILLINGWORTH STORES, KILLINGWORTH,
TYNE AND WEAR**

**TENDER SUBMISSION FOR ARCHAEOLOGICAL
DESK-BASED ASSESSMENT AND BUILDING RECORDING**

Prepared for GVA

January 2014

1.0 INTRODUCTION

This document has been prepared by Northern Archaeological Associates Ltd (NAA), in response to a request by GVA (Graham *pers comm.*), for a desk-based assessment and building survey of WW2 Munitions Depot, Killingworth Stores, Killingworth, Tyne and Wear. NAA have proven experience and expertise in this type of work, undertaking desk-based assessments and building surveys across the UK, as well as the preparation of reports relating to the cultural heritage aspects of landscape assessment.

Our staff includes specialists in built heritage, landscape survey, metric survey, architectural history and conservation management; enabling us to draw on a wide range of skills to ensure the land is suitably assessed and that heritage significance is properly understood on both a site specific and broader based context. Our primary aim at all times will be to provide a practical and usable survey which will clearly identify all historic elements of the land, and their particular significance, in order to inform future planning requirements.

2.0 SCOPE OF THE PROJECT

The scope of the project is to provide a desk-based assessment of archaeological information relating to the proposed development area and a suitable buffer, and a building recording project on the munitions depot.

The desk-based assessment will assess the potential impact of the proposed development on archaeological resource and will make recommendations for more detailed evaluation, preservation and mitigation as appropriate.

The desk-based assessment would:

- *identify all recorded archaeological sites, finds and buildings/structures within the study area;*
- *assess the potential for previously unrecorded sites of archaeological interest;*
- *identify those features that should be retained and/or enhanced because of their intrinsic importance;*
- *identify those features or areas which require further evaluation in order to fully establish either importance or likely development impact;*
- *assess the potential effects of the proposals in terms of the construction and operational impacts on the archaeological resource;*
- *recommend appropriate design amendment, mitigation and/or enhancement which could be taken to prevent, reduce or remedy any adverse effects identified;*
- *assess the degree of conflict and/or compliance with regional and local planning policies relevant to the archaeological resource;*

The information derived from the archaeological desk-based assessment will inform a building recording project to record the former munitions depot. The principal aim of the project is to provide an outline survey (EH Level 2) of the standing structures and assessment of significance in order to allow the subsequent development of the site. This will entail:

- *the production of measured floor plans and external elevations, depicting the form and location of any structural features;*
- *a written and photographic record of the depot and its structural features, providing details of their form, function, date and significance where known;*
- *a short illustrated report summarising the history of the depot in order to facilitate a statement of significance;*
- *a statement of significance including a consideration of the site within the wider historic environment; and*
- *an archive of additional photographs*

Access

This submission assumes full access will be provided to the survey team without restrictions, apart from those necessary in terms of Health & Safety. A full risk assessment will be conducted prior to the site survey and all safety guidelines will be followed, including any specifically stipulated by the client. It is unclear at this stage whether certain areas of the site may be classed as Confined Spaces under the Confined Spaces Act 1997. NAA staff are trained to enter confined spaces safely, but any entry would require Escape Sets and Gas Detectors, and contingency costs are provided.

3.0 PROPOSED METHODOLOGY

3.1 Standards and Guidelines

The following methodology is based on the team's previous experience of undertaking similar work and on the following published standards and guidelines of practice:

- *National Planning Policy Framework* (Department of Communities and Local Government 2012);
- *PPS5 Planning for the historic environment: Historic Environment Practice Guide* (English Heritage 2010);
- *Conservation principles, policies and guidance for the sustainable management of the historic environment* (English Heritage 2008);
- *Standard and Guidance for Historic Environment Desk-Based Assessments* (Institute for Archaeologists 2012);
- *Understanding Historic Buildings – A Guide to Good Practice* (English Heritage 2006); and
- *Understanding the Archaeology of the Landscape – A guide to good recording practices.* (English Heritage 2007).

3.2 Desk-Based Assessment

A review of primary and secondary documentary material will be undertaken in order to inform an assessment of the historic and cultural significance of the overall site and contributory elements. In order to obtain the relevant information relating to the site, the following repositories would be consulted:

- English Heritage, National Monuments Record
- Tyne and Wear Historic Environment Record
- Tyne and Wear Archives Service
- Killingworth Library
- The North East Regional Research Framework (NERRF)
- Any other relevant online sources.

The information sources consulted would include:

- Archaeological Records
- vertical and oblique aerial photographs
- published sources (documentary and archaeological studies, local histories);

- cartographic sources (early Ordnance Survey, enclosure and tithe maps),
- previously unpublished fieldwork undertaken in the area
- The National Heritage List for England <http://list.english-heritage.org.uk/>
- www.old-maps.co.uk

3.3 Building survey

A Level 2 buildings record of the depot will be conducted; there are up to 22 structures which may require recording. This will be a descriptive record comprising a written, photographic and drawn element, detailed enough to mitigate against the permanent loss of the historic fabric.

Written Record

A basic summary written description will be made of the structures, noting the form and location of significant features, such as blocked doors, windows, internal arrangements and any evidence for fixtures or fittings of any significance.

Photographic Record

A basic photographic record will be made of the structures. All photographs will be taken using a digital SLR camera at a resolution of 10 megapixels. Each photograph will contain a graduated photographic scale of appropriate dimensions. A catalogue of all unedited and edited images will be submitted with this report as part of the archive.

Drawn Record

A basic floor plan for the buildings types will be drawn at an appropriate scale, based on Ordnance Survey mapping for the site (seven plans estimated). Outline elevations of the exterior walls of the different building types will also be drawn at the same scale (thirty elevations estimated).

4.0 STATEMENT OF SIGNIFICANCE

The information collected during the desk-based assessment and building survey will be used to inform a clear understanding of the cultural significance of the land - both site specific and as part of the wider historic landscape. The assessment will be undertaken in accordance with guidance set out in *Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment* (English Heritage 2008).

The main aim of the Statement of Significance will be to inform the subsequent development of the land, by identifying any features or elements of particular significance and sensitivity which could be impacted upon by the proposed future land use. Where areas of possible conflict are identified, then a series of recommendations will be put forward to mitigate against any potential loss of, or harm to, significance.

5.0 REPORT AND ARCHIVE

A report on the results of the assessment would present the results of the work under the following principal sections:

- Introduction
- Policy Context
- Location, Geology and Topography
- Methodology and Information Sources
- Archaeological and Historical Background
- Description and Function of Structures
- Potential Impacts, including Significance and Setting of Designated Assets
- Conclusions and Recommendations
- Bibliography

Accompanying map(s) would be at an appropriate scale (1:10,000, 1:2,500 or 1:1,250) and would indicate the location, extent and significance of archaeology and cultural heritage sites.

Following completion of the project, in accordance with professional standards and guidance, a properly ordered and indexed project archive will be prepared for deposition.

OASIS

Time has also been allocated to complete the OASIS process and NAA will commit to complete all necessary online information within 3 months of the completion of work.

6.0 ESTIMATED COSTS

7.0 TIMETABLE

The desk-based assessment and building survey will be submitted to follow the timetable as set out by GVA. Data collection and fieldwork is estimated at two weeks duration.

8.0 CAPABILITY

8.1 Company Profile

Established in 1990, NAA have over 20 years experience in heritage consultancy, providing services and advice across a wide range of sectors. The company's two directors, Richard and Mary Fraser, are supported by a core staff of twenty five which includes specialists in planning, heritage conservation, buildings recording, landscape interpretation, survey, graphics, and community and outreach.

As a company, we have a holistic approach to heritage consultancy, ensuring that we integrate a high standard of site recording with a broad understanding of an asset's wider historic and cultural significance. This is all complimented by a thorough understanding of local planning issues, as well as statutory legislation and planning policy guidance related to the historic environment.

The company has an impressive safety record and holds Public Liability Insurance of £5,000,000 and Professional Indemnity of £2,000,000. We have also developed an Integrated Management System which is certified to ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007.

NAA has undertaken numerous desk-based assessments and building surveys across the UK. The following military sites have been subject to recent desk-based assessments and building recording by NAA.

- Harperley POW camp building recording – Durham County Council
- Saighton Camp building recording – Bovis/Redrow
- Former Munitions and Tractor Factory, Doncaster - CEG
- Scorton RAF base, Yorkshire - Tarmac

8.2 Staff Profiles

Richard Fraser would be the Director with overall responsibility for the project. He graduated from the University of Newcastle in 1980 with a BA (Hons) in Archaeology and Ancient History. Between 1982 and 1990 he worked as a local authority archaeologist firstly for Tyne and Wear County Council and then with Newcastle City Council. He has been responsible for the project management of a considerable number, and wide variety, of archaeological schemes including excavation, building survey, topographic survey, estate survey and landscape survey.

Matthew Town is a Senior Project Officer for NAA, and would undertake the desk-based assessment and building survey. He has worked as a field archaeologist and historic environment consultant for seventeen years, and is a Member of the Institute for Archaeology (MIfA). He has a BA (Hons) Archaeology and Prehistory, and an MA in Landscape Archaeology, both from the University of Sheffield. Matt joined NAA in 2012 having previously worked for Wardell Armstrong Archaeology (formerly North Pennines Archaeology (NPA) Ltd) as a Project Manager for seven years, gaining a particular expertise in managing major archaeological fieldwork projects throughout the United Kingdom. He has responsibility for undertaking archaeological surveys and desk-based assessments, and for assisting with historic environment inputs into Environmental Statements and scoping reports. Matt is highly experienced at analysing archaeological data and producing detailed client reports on the results of various archaeological investigations. He has experience of all types of British archaeology, ranging from prehistoric settlements to 20th century industrial sites.

TERMS AND CONDITIONS OF CONTRACTS

Contracts entered into with Northern Archaeological Associates are subject to the following conditions:

1 General Conditions

- 1.1 Northern Archaeological Associates will not commence work until a written order or signed agreement is received from the client.
- 1.2 Unless Northern Archaeological Associates agrees otherwise in writing, the client will be responsible for arranging access to land and for checking the position of all services (water, sewage, electricity, gas, oil, telecommunications etc) prior to a project commencing.
- 1.3 Northern Archaeological Associates shall not be held responsible for any delay or failure in performing a contract resulting from circumstances beyond their control. Such circumstances would include without limitation, adverse weather conditions, restrictions on access, alterations to the programme by the client or main site contractor, fire, civil disturbance, terrorist activity, war etc.
- 1.4 All Northern Archaeological Associates reports are prepared and submitted on the basis that whilst they are founded on thorough survey and research, no responsibility is accepted for unavoidable errors or omissions.
- 1.5 Northern Archaeological Associates cannot be held responsible for any alteration, modification or interpretation of its fieldwork results or reports made by the client or any third party.
- 1.6 If any provision of these Terms and Conditions is held by any court or other competent authority to be void or unenforceable in whole or part, the other provisions of these Terms and Conditions and the remainder of the effected provisions shall continue to be valid.
- 1.7 The contract shall be governed by and construed in accordance with the laws of England and Wales

2 Payment Terms

- 2.1 Invoices will be submitted at the end of each calendar month and/or at the end of each phase of work in respect of costs to that date. Invoices will be due for settlement within 28 days.

3 Storage of Materials and Archives

- 3.1 No charge will be made for the temporary storage of finds or archives during the period when Northern Archaeological Associates are undertaking analysis or report preparation.
- 3.2 However, if, after completion and submission of the report, finds and archives cannot be deposited with the relevant museum due to circumstances beyond Northern Archaeological Associates' control, a charge will be made for storage.
- 3.3 A charge for storage may also be made where a delay is caused by a lack of confirmation of post-fieldwork analyses and report preparation, if the delay exceeds three months.

4 Copyright

- 4.1 Northern Archaeological Associates shall retain full copyright of any commissioned reports, tender documents or other project documents, under the Copyright, Designs and Patents Act 1988 with all rights reserved; excepting that it will provide an exclusive licence to the client for the use of such documents by the client in all matters directly relating to the project as described in the Project Specification or Design subject to due acknowledgement.
- 4.2 Northern Archaeological Associates will assign copyright to the client upon written request but retains the right to be identified as the author of all project documentation and reports as defined in the Copyright, Designs and Patents Act 1988 (Chapter IV, s.79).
- 4.3 Northern Archaeological Associates will also grant licence to the relevant museum for the use of its archives.

5 Quality Standards

- 5.1 Northern Archaeological Associates fully endorses The Code of Conduct and The Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology of The Institute of Field Archaeologists.
- 5.2 All staff directly employed or sub-contracted by Northern Archaeological Associates will be of a standard approved by Northern Archaeological Associates, and archaeological staff will be employed in line with The Institute of Field Archaeologists Codes of Practice.
- 5.3 Provision will be made for monitoring of Northern Archaeological Associates work by the relevant local authority or their archaeological advisors, unless otherwise instructed in writing by the client.

6 Health and Safety

- 6.1 Northern Archaeological Associates will ensure that all work is carried out in accordance with its Health and Safety Policy, to standards defined in The Health and Safety at Work etc Act 1974, and The Management of Health and Safety Regulations 1992, and in accordance with the SCAUM (Standing Conference of Archaeological Unit Managers) health and safety manual Health and Safety in Field Archaeology (2007).
- 6.2 A copy of Northern Archaeological Associates' Health and Safety Policy is available on request. Northern Archaeological Associates will require access to the health and safety policy of all other contractors and operators present at the work place in compliance with The Management of Health and Safety Regulations 1992.

7 Insurance

- 7.1 Northern Archaeological Associates has both public liability and professional indemnity insurance. Full details of Northern Archaeological Associates insurance cover will be supplied on request.
- 7.2 Northern Archaeological Associates will not be liable to indemnify the client against any compensation or damages for or with respect to:

- damage to crops, structures etc being on the site which is the unavoidable result of the site operations being carried out in accordance with the agreed scope of works.
- the use or occupation of land (which has been provided by the client) for the purpose of carrying out site operations (including consequent losses of crops), or interference whether temporary or permanent with any right of way, light, air or water or other easement or quasi-easement which are the unavoidable result of the site operations being carried out in accordance with the agreed scope of works.
- damage to the site which is the unavoidable result of the site operations in accordance with the agreed scope of works.
- injuries or damage to persons or property resulting from any act of neglect or breach of statutory duty done or committed by the client or his agents, servants or their contractors or for or in respect of any claims, demands, proceedings, damages, costs, charges and expenses in respect thereof or in relation thereto.

8 Termination

8.1 Any agreement will be automatically terminated on the occurrence of the following:

- where the Client makes any voluntary arrangement with its creditors or becomes subject to an administration order or (being an individual or a firm) becomes bankrupt or being a Company goes into liquidation; or
- an Encumbrancer takes possession of, or a receiver is appointed to any property or assets of the Client; or
- the Client ceases, or threatens to cease to carry on business.

9 Arbitration

9.1 Any dispute or difference arising out of a contract or agreement in relation to these conditions shall be governed by and construed and interpreted in accordance with English law, and the parties submit to the non-exclusive jurisdiction of the English courts.