Northfield
Filton Airfield
Bristol

Historic Buildings Recording

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Northfield, Filton Airfield, Bristol

Historic Building Investigation and Recording

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Northfield, Filton Airfield, Bristol

Summary

Filton in Bristol is an area of considerable significance in the history and development of aviation in England. This significance particularly stems from Sir George White's pioneering British and Colonial Aircraft Company (later renamed the Bristol Aeroplane Company or BAC) which was established in Filton in 1910 and the associated airfield which was laid out in the following year. The BAC expanded greatly during the First World War and in the 1920s a new RAF station was established as part of the existing aerodrome at Filton. In the later 1930s the RAF underwent a period of great expansion in response to the threat posed by Nazi Germany and the continuing national importance of Filton at this time is underlined by the fact that by 1936 nearly a third of the world's aero engines were made at the BAC factories.

The relationship between Filton and the aircraft industry continued in the post-war era, perhaps the most high-profile expression of which was through Concorde which was tested in Filton and also prototypes manufactured here.

Although the airfield as a whole continued to thrive into the 21st century as Filton Airport the 1920s RAF station had closed in the late 1950s and this area, together with a large adjacent area to the north which had been used by the Americans in the Second World War, saw only limited use in the last decades of the 20th century. By the 1990s this large area, collectively now known as Northfield, was largely disused and it was rapidly becoming heavily overgrown. At this time many of the buildings from the former RAF Station were demolished and options for the redevelopment of this redundant part of the airfield began to be considered.

Permission for a large redevelopment of the Northfield site were finally passed in March 2008 with the condition that a programme of building recording be undertaken prior to the demolition of the existing structures at the site. The buildings recorded included structures from the 1920s RAF base such as the Operations Block, the Main Stores and the substation which had escaped demolition in the 1990s. Date stones showed that each of these buildings had been constructed in 1927 and they conformed closely to the standardised architectural form of airfield buildings of this period. The recording also included a number of buildings added in the later 1930s or during the Second World War, particularly shelters and structures such as pillboxes relating to airfield defence. The existence of several of these was less well known prior to the current work than the 1920s buildings. The current study has also covered a number of buildings or features from the later 20th century which related to the testing and development of missile systems.

1 INTRODUCTION

1.1 Background

1.1.1 Oxford Archaeology (OA) have been commissioned by Bovis Homes to undertake a programme of historic building recording and investigation at Filton Airfield on the northern edge of Bristol. The work relates to a major, mixed-use redevelopment of a redundant part of the airfield and is part of a wider series of works undertaken at the site by OA. The development area is immediately to the north of the current, operational airfield and it contains the historic core of the 1920s airfield.

1.2 Planning background and related works

1.2.1 The proposed development to which the current document relates has had a long and complex planning history. An outline is included below to explain the background to the current project.

1.2.2 In 2001 OA were commissioned by Terence O'Rourke (on behalf of Bovis Homes) to undertake an archaeological desk-based assessment of the proposed development area to assess the impact of a proposed development on the cultural heritage of the site. In 2003 this document was updated and although it contained an outline gazetteer of the surviving buildings on the site it was neither a formal archive record of the structures nor a comprehensive assessment of every feature at the site. The 2003 document was submitted as part of an outline planning application made for the Northfield site by Bovis Homes.

1.2.3 In 2006 a revised masterplan application for the same site was submitted and as part of this OA were commissioned to undertake an assessment of the impact of the proposed development on the settings of two buildings which had been listed at Grade II by English Heritage in 2005 and which were immediately to the south of the development. These buildings are a Triple Bay Hangar (also known as a General Service Shed) and a side opening hangar and the planning authority (South Gloucestershire Council) had a obligation to consider the impact of the development on their setting. In addition OA also updated their previous impact assessment as part of the submission.

1.2.4 In April 2006 the masterplan application was refused by South Gloucestershire Council and among the points of refusal was the impact of the development on the cultural heritage of the site. In response to this OA were commissioned in June 2006 to undertake an assessment of the historical significance of a turntable at the site which had not previously been considered.

1.2.5 Bovis Homes then lodged an appeal against the planning refusal but continued to discuss the application with South Gloucestershire Council in the hope of reaching agreement on the reasons for refusal.

1.2.6 At the suggestion of South Gloucestershire Council OA were also subsequently commissioned in 2006 to undertake a programme of building (and structural) recording of visible features at the site in order to ensure that there were no previously unrecognised significant features on the site and also to provide a pre-development record of the structures on the site. OA produced a Written Scheme of Investigation for the recording and this was approved by South Gloucestershire Council. The current document provides the results of this recording programme.

1.2.7 A Planning Inquiry was held in December 2006 into the appeal against the refusal of planning permission and in March 2007 this Inquiry dismissed the appeal (although not on heritage grounds). The Inquiry did however consider that there was a good chance of

the application being granted after amendments. Further discussions continued between South Gloucestershire and the planning team and agreement was reached in the March 2008 for the approval of the development.

1.3 Significance of Filton Airfield

1.3.1 The overall significance of Filton Airfield, as well as that of the individual surviving buildings was assessed by English Heritage as part of their Monuments Protection Programme and the related thematic listing programme. The volume on military aviation sites was published in April 2000. This was a national survey intended to identify the most complete, historically important and representative airfield buildings for protection. None of the buildings inside the proposed development area were recommended for listing but two hangars immediately to the south of it were (Buildings 52 and 61 in the gazetteer at the rear of this document).

1.3.2 In addition following the submission of the original OAU report in 2001 the Flak Tower (OA2 in current gazetteer) which is of some historical interest as an unusual survivor of a type of once quite common war-time airfield structure was considered for scheduling, at the request of David Evans the HER Officer for South Gloucestershire. The structure was examined by English Heritage and a report produced. The basic conclusions of the English Heritage assessment was that *`although the flak tower is a comparatively rare survival of this once common type of war time airfield defence the example at Filton has been altered and significantly compromised. …There has been extensive repair to the main structure and few of the expected associated structures are present. The site was therefore considered to be `of local importance rather than National Importance'.*

2 Methodology

2.1 Aims and objectives

2.1.1 The main aim of the project was to record for posterity the historic structures prior to their removal in the redevelopment of the site. The work particularly concentrated on the structures' construction, development, alteration and use.

2.2 Methodology

2.2.1 The building recording was undertaken at Level 2 as defined by English Heritage in *Understanding Historic Buildings: a Guide to Good Recording Practice* (2006) and it covered all surviving buildings or structures at the site. This document states that Level 2 is: *'a descriptive record, made in circumstances similar to those of Level 1 but when more information is needed. It may be made of a building which is judged not to require any fuller record or it may serve to gather data for a wider project. Both the exterior and interior will be viewed, described and photographed. A plan and sometimes other drawings may be made but the drawn record will normally not be comprehensive'.*

2.2.2 The recording comprised three principal elements: a photographic record, a drawn record and a written record.

2.2.3 The drawn record utilised an existing outline metric survey of the site which showed the footprint of the main buildings but this was considerably enhanced to show the missing structures as well as the internal layout of the principal buildings.

2.2.4 The Northfield area had been disused for many years prior to the current project and areas were heavily overgrown at the start of the recording programme. The work therefore included significant elements of investigation within this thick undergrowth

looking for potential structures or the sites of structures which are marked on war-time plans. This vegetation also resulted in the recording being undertaken in a phased programme with some elements such as Hayes Farm being recorded long after the completion of the main site works. It was also necessary to undertake the recording in a phased programme due to significant access issues which initially prevented access into the main buildings until the development was underway.

2.2.5 The initial recording on the main airfield buildings (Stores, Operations Block etc) was undertaken in September 2006. This was followed by recording of other structures in April and May 2008 and the structures around Hayes Farm in March and August 2010.

2.2.6 Attempts were made to contact former employees who could provide valuable information on the site and although there was some success in this there is likely to remain further potential for a wider oral history project, possibly organised through a local history group. The site was visited with Patrick Hassell from the Rolls Royce Heritage Trust (Bristol Branch) and Cliff Richards who used to work at Filton to discuss their memories of the buildings. The site was also visited separately with Terry Oxenham who has also worked at the site for several decades and provided much useful 'oral-history' information.

2.2.7 Attempts were particularly made to find people with memories and experiences of the Sea Wolf Facility. Most of these proved fruitless but eventually OA were put in contact with John Frankham who managed the Sea Wolf Facility for several years. Unfortunately by then the facility had been demolished but it was possible to get useful information from Mr Frankham through showing him photographs and a plan of the site. He could then discuss what each area was used for and what the photographs specifically showed.

2.2.8 A programme of historical research was undertaken to complement the site recording and to enhance the overall understanding of the site. This included studying cartographic and documentary material at the Bristol Record Office, the RAF Library at Hendon and the Bodleian Library, Oxford. A full list of sources consulted is included in the bibliography at the rear of this report.

2.2.9 Two airfield plans dating from the 1940s were particularly useful, especially a plan from 1945 which included a schedule of the airfield buildings showing the construction of each structure (eg brick, concrete, hut etc) and the reference number of the standardised building type in the RAF's numbering system. From this numbering system it is possible to determine in which year the designs were produced.

2.2.10 A number of aerial photographs were also seen at English Heritage's National Monument Record Centre in Swindon. These photographs range from 1944 to 1989 and have provided very valuable information relating to the development of the airfield.

2.2.11 All the material produced in the current project (photographs, slides, site drawings and notes) will be collected into a site archive and deposited with the Bristol City Museum and Art Gallery.

2.2.12 The current document divides into two main sections: the main report contains a historical background to the site as well as an outline description of the overall site while at the rear is an appendix which provides a gazetteer of the individual buildings or structures recorded in the project. Where possible the numbering in the gazetteer has been taken from the system shown on the 1945 plan but new numbers (eg OA1, OA2) have been provided for structures such as Hayes Farm which were not numbered on the historic plan or structures such as the Sea Wolf Facility which post-dates the plan.

3 HISTORICAL BACKGROUND

3.1 Introduction

3.1.1 As referred to above OA have previously undertaken programmes of research into Filton Airfield and the historical background included below is based partly on that research.

3.2 Pre-20th century

3.2.1 The area of the current Northfield development falls within the ancient parish of Almondsbury (now Patchway and Almondsbury parishes). The south-western corner lies within the ancient parish of Henbury (now Almondsbury).

3.2.2 The earliest map which shows the area is the Ordnance Survey (OS) 1st edition map of 1830. The map, while not detailed, does show buildings and areas of woodland. The map shows two large homesteads, Hayes Farm (the site of which has been included in the current investigation) and Patchway House. It also marks a small building within the corner of the Northfield area at the junction between a track leading to Callicroft Farm) and the main road from Bristol which now forms the A38 road. The Tithe Map of 1838 marks the building as 'lodge'. However, apart from Filton House, which appears to be a new build of the late 18th century, 'it is unlikely that the general settlement in the parish had changed much since the medieval period' (Trobe-Bateman & Evans 2001, 2).

3.2.3 The Almondsbury Tithe Map (1838) shows the area in more detail, with individual buildings and field boundaries. Hayes Farm (on this map spelt 'Haise') is shown comprising four large buildings surrounded by small paddocks/yards. The map shows Patchworth House (to the east of the development area) comprising of two large rectangular buildings. The Tithe apportionment marks this property as 'Patchworth House and Sparrowfield Farm' suggesting two separate properties, both with the same owner and tenant. The Tithe apportionment indicates that most of the land within the development site was in use at this time as pasture, with occasional arable fields.

3.2.4 The Ordnance Survey 1st edition 6" map (1880) shows little change within the area of the current development. The map marks the appearance of a 'Limekiln' to the north-west of Patchworth farm, within the Northfield area with a small footpath linking the two.

3.2.5 Subsequent to this map the nature of the landscape slowly changed from the agricultural to an urbanised industrial complex dominated by transport as the railways encouraged growth of ribbon developments including some terraces and large villas. By the end of the century small industrial buildings started to appear in Filton itself including those of the Bristol Tramway Company and these heralded the dramatic landscape changes of the next century.

3.3 The Early Airfield (1909-1914)

3.3.1 The hugely important part that aviation played in the 20th-century history of Filton originates from the formation of Sir George White's British and Colonial Aircraft Company in 1910 and the establishment of their works in the old sheds of the Bristol Tramway Company (also owned by White) near Filton village to the south of the current site. The aeroplane factory appears to have been an instant success and within a few years they were producing several types of aircraft including Bristol Boxkites and the less successful Zodiacs (a licence built versions of the La Rhône engined French Farman and Vosion). In addition Filton House was added to the factory to provide offices for the works.

3.3.2 It soon became apparent that a field was needed in the vicinity for testing and flying aircraft and for use as a flying school and storage area. In March 1911 the War Office ordered the acquisition of land c.1.5 km to the north of the aircraft factory for the establishment of an airfield (which includes part of the current development site).

3.3.3 Although Filton House and parts of the aircraft factory remain no airfield buildings survive on the current development site from the pre-Great War period. One hangar (Side Opening Hangar - see Gazetteer) survives immediately to the south of the development site and although this was of a pre-war design (from 1913) it is thought to have actually been constructed in 1917.

3.4 The Great War Airfield (1914-1919)

3.4.1 During the Great War production at the factory expanded enormously to meet the vastly increased demand for aeroplanes from the Royal Flying Corps (RFC) and the Royal Naval Air Service (RNAS) and by 1918 there were over 3000 employees.

3.4.2 During the war the RFC used the airfield to train new squadrons and also at this time the South West Aircraft Acceptance Park (AAP) was established at the airfield. The AAP received delivery of aircraft from factories and undertook their final assembly as well as their flight testing and storage prior to delivery to RFC and RNAS squadrons. Eighteen hangars were established at the AAP and at its height over 80 aircraft were being delivered each month from the site to squadrons in France, Russia or the Middle East. It is believed the 18 hangars include three Great War structures that survive today. These are each immediately to the south of the current development site (see Gazetteer) and two have been listed (Triple Span Hangar and Side Opening Hangar).

3.4.3 Amongst the famous aircraft made and flown here were the Gnome engined Be 2 pusher and the Bristol Fighter or “Brisfit”.

3.4.4 The Bristol factory was now the major local employer and workers were delivered to special stations at Filton in great numbers. During the First World War the area changed from an agricultural to an industrial economy and this paved the way for the massive inter war housing development round the airfield and factory.

3.4.5 Apart from the hangars little remains of the First World War aerodrome and there are no buildings of this period within the current development area. The exact scale and nature of First World War structures within the development area is unknown and the earliest identifiable surviving structures are 1920’s in date.

3.4.6 Towards the end of the war the RFC and the RNAS were amalgamated to form the Royal Air Force (RAF).

3.5 The Inter-War Airfield (1919-1939)

3.5.1 After the war Filton was used as a demobilisation centre for squadrons returning from France and manufacturing activity at the factories was scaled down. The likelihood of a further war in the foreseeable future was considered very remote, partly because by the terms of the Treaty of Versailles Germany was not allowed to construct new aeroplanes or submarines, and in the aftermath of the war military spending was curtailed. The Bristol and Colonial Aeroplane Company continued to manufacture aircraft but it also diversified into bus and coach bodies and motorcars. In 1920 it changed its name to the Bristol Aeroplane Company (BAC).

3.5.2 In the early 1920s there was a increasing realisation of the importance that aeroplanes would play in any future war and of the RAF generally. This was largely based on the

assumption that France, who had a vastly better equipped air force, would be the most likely adversary. Despite continued financial restrictions a series of steps were taken in 1923-4 to expand the RAF and its infrastructure and Filton was one of a number of stations that was identified for remodelling as a fighter station. The development of the aerodrome at Filton appears to have been largely undertaken in 1927 and date stones survive on four buildings at the airfield from that date: the Main Stores, the Lubricants Store, the Transformer House and the Operations Block).

3.5.3 This 1920's airfield typifies the RAF of the time, the surviving buildings are well constructed and traditional rather than modernist in style, avenues of trees and gardens were to be found all over the site and tennis courts were provided for the officers and men. The presence of gun butts and a mortuary however show the more serious nature of the site.

3.5.4 In 1923 a new RAF Reserve School was opened at Filton principally to train aircrew on various Bristol types (notably from 1927 the Bristol Bulldog biplane fighter) and in 1929 No.501 (County of Gloucester) Special Reserve Squadron was founded and permanently stationed at Filton.

3.5.5 The airfield continued in its role in the later 1920s and early 1930s as a reserve training school but the aircraft used for training were standardised across the RAF in 1933 so that the variety of Bristol-built aircraft which had been used was replaced by the Tiger Moth.

3.5.6 In the early 1930s the RAF remained in a very weak position due to continued under investment and the threat that this could pose to the country in the future was finally realised and acted upon by a series of initiatives from c.1933. This was the 'Expansion Period' when great investment was made into the RAF to develop its infrastructure. As stated above the French airforce was already much larger than the RAF and it was becoming clear that Hitler (who became Chancellor in 1933) was rapidly rearming Germany. In 1935 the government formally approved a plan 'in order to counteract the rearmament programs proceeding in Germany and the collapse of the Geneva peace conference initiated in 1932' (Trobe-Bateman & Evans 2001, 3).

3.5.7 The BAC aircraft factories at Filton benefited greatly from the expansion in the RAF and by 1936 nearly a third of the world's aero engines were made here. The factories were enlarged and new Art Deco offices at New Filton (Pegasus) House were constructed. There was rebuilding at the West Works but the main effort took place with the construction of the Rodney Works and the shadow factory on Gypsy Patch Lane. Among the most important aircraft deigned and produced in large numbers at Filton during this period was The Bristol Blenhiem (originally named "Britain First")

3.5.8 In contrast, although many new aerodromes were established in this period and existing ones modernised Filton Airfield does not appear to have been extensively upgraded or greatly altered until the outbreak of World War Two.

3.5.9 One change that occurred sometime during the 1930s was that the airstrip was extended to the north. When the airfield was first established Hayes Lane, which formed the northern boundary of the technical area continued east and the land north of this retained its field layout. A photograph in *Filton and the Flying Machine* (p 101) shows that this arrangement remained intact in 1930 and thus the landing ground was the relatively small area south of Hayes Lane and north of the railway. This would presumably have been adequate for the relatively small and slow aircraft from the 1920s but it not for the larger aeroplanes such as the Blenheim being produced in the 1930s.

3.5.10 Another photograph in *Filton and the Flying Machine* from February 1939 shows that by this date Hayes Lane had been truncated and the airstrip is shown extending much further

to the north. The original layout of the aerodrome was based around the assumption that the site would have been approached from the east from the Gloucester Road via Hayes Lane so the truncation of Hayes Lane gave the site an awkward plan as the only access was then from the west.

3.5.11 In 1938 501 Squadron was re-equipped with fighters (Hawker Hurricanes) but these were withdrawn in 1939. At this time the airfield was still run by the BAC but in the summer of 1939, due to the near certainty of war, it was one of a number of airfields officially taken over by the RAF. It became RAF Filton and was under the command of Wing Commander HD O'Neil.

3.5.12 Prior to the outbreak of the Second World War the airfields of Fighter Command had been divided into a series of Groups throughout the country and each group was divided into sectors. RAF Filton formed the principal airfield in Sector W, one of two Sector Stations in Group 10 Fighter Command (the other station being Middle Wallop) which defended the South-West of England. Filton was specifically tasked with defending the Bristol Aircraft and Engineering Companies

3.6 The Second World War Airfield (1939-1945)

3.6.1 The early stages of the Second World war have become known as the 'phoney war' with little significant action either for the squadrons based at RAF Filton or the other airfields. In contrast the aircraft factories at Filton were working at full capacity trying to produce as many aircraft and engines as possible. Various squadrons were temporarily moved to Filton to defend the Bristol area before transferring elsewhere and there was little action other than routine patrols and false alarms. In November 1939 501 squadron was transferred to Tangmere (although it later returned to Filton) and the defence of the airfield was left with 263 squadron, another fighter squadron equipped with Gloster Gladiators that had recently moved to Filton.

3.6.2 Early in 1940 the airfield was equipped with a new hard runway (E-W) and in June No 935 (Balloon Barrage) Squadron arrived at Filton to operate a system of balloons which were flown nightly and following air raid warnings.

3.6.3 The 'phoney war' came to a sudden end in the summer of 1940 with the Battle of Britain when the Luftwaffe attacked airfields, principally in the south-east of England in an attempt to destroy the RAF and gain control of the sky. During this period the aerodromes such as RAF Hornchurch and Biggin Hill from Group 11 saw the brunt of the attacks and Filton's role was to allow squadron rotation and through providing additional pilots. Hitler's failure to knock out the RAF led to a change of tactics and in the autumn of 1940 the Germans focused on industrial targets such as docks, ports and factories. Due to the importance of the BAC aircraft manufactories Filton was a likely target for Luftwaffe bombing raids and on 25 September over 100 bombs fell on the area during a devastating raid and the number of casualties was very high due to two shelters receiving direct hits.

3.6.4 This raid highlighted the vulnerability of the Filton area which at the time had no fighters stationed at the airfield due to them all having been transferred closer to the forefront of the Battle of Britain over the south-east corner of England. However the following day 17 Hurricanes of 504 Squadron were transferred to Filton to defend the area (Action Stations) and these aircraft were in position to partially repel an attempted repeat raid on Filton in the following days. During the late summer and autumn of 1940 504 squadron was scrambled numerous times in response to reports of enemy aircraft in the sky over Bristol and the surrounding area.

3.6.5 Towards the end of 1941 a secondary hard runway was laid at Filton to increase flexibility in the use of the airfield. The airfield continued to be used for a variety of functions through the war and among the most important of these, starting at the very end of 1941, was as a base for the preparation of aircraft for overseas use. The work involved adapting aircraft with amendments such as fitting auxiliary fuel tanks into the fuselage.

3.6.6 The last large attack was on 11th April 1942 when the wind tunnel and an office were destroyed. Wartime aerial photographs taken some two years later still show a number of bomb craters near the airfield, indeed at least two bomb sites were left as open spaces until the early 1960s (Trobe-Bateman & Evans 2001, 3).

3.6.7 During the summer of 1942 a number of ground defence exercises were held to test Filton's airfield defences. These included Exercise Thunder, in May 1942 when the airfield was 'attacked' by New Zealand Army Units and the Somerset Light Infantry as well as Operation Bogey when a large collection of troops were involved in both defending and attacking the site.

3.6.8 Another important function which the current development site was used for during the war was as a camp for the US Army Air Force (USAAF) where American aircraft such as the Mustang and Lockheed Lightning could be assembled after arriving in crates at Bristol Docks (Berryman, 2005). After assembly the aircraft would have flown out of Filton to one of the 9th Air Force's tactical depots.

3.6.9 The USAAF camp at Filton (American Air Force Station 803) was gradually established following an American visit led by Brigadier HH Knerr in November 1943 as the IX Base Aircraft Assembly Depot (BAAD, codenamed 'Glassware' for telecommunications purposes) and it was one of a huge number of similar bases used by the Americans for a wide variety of functions during the preparations for D-Day (Operation Bolero). The camp at Filton was immediately to the north of the RAF airfield (but within the current development site) on farmland which had previously retained its layout of hedgerows. When the Americans first arrived at Filton to start establishing the depot the site was described as *'a barren field, except for a row of tents'* (Wakefield, 1994). Wakefield reports that the site, which initially had no electricity, running water or roads in the camp area was transformed into a sea of mud following heavy rain.

3.6.10 In January 1944 roads were laid in the camp with crushed rock, gravel and cinders; running water was laid on and electricity was supplied to some tents. Four huge Butler Combat Hangars were also erected at the base. Further improvements such as wooden walkways and more electric lights were made in February 1944 and the camp grew so that it could accommodate 1000 personnel from various groups including the 21st and 22nd Mobile Reclamation and Repair Squadrons. The number of aircraft assembled at Filton steadily increased through the spring of 1944.

3.6.11 The camp is identified on an airfield plan from 1948 as 'Disused USAAF Camp' and it is very clearly shown on several aerial photographs from April 1944, just two months before D-Day. These photographs dramatically show the logistical preparations with the large area to the north of the RAF station covered by hardstanding and crowded with huts, aircraft and hangars. It is interesting to note that the same aerial photograph also shows a distinctive feature in the southern part of the US base, just to the north of Hayes Farm, which strongly appears to be the markings of a baseball pitch.

3.6.12 The BAAD was closed shortly after D-Day, in June 1944 barely six months after it had been established.

3.7 The Post War Airfield (1945-Present)

3.7.1 1946 was a period of great activity at Filton works and airfield. During the war far-sighted planners at Bristol had seen the need for a post-war heavy airliner capable of carrying 100 passengers on inter-continental journeys. The Bristol Brabazon was the product of this venture, a very advanced and futuristic aircraft, which led to the enlargement of the runway at Filton (resulting in the demolition of part of the hamlet of Charlton at its west end) and the construction of an assembly hall, then the world's largest, and still used by BAE. Unfortunately, the project was superseded by the American Liberated Constellation and was cancelled in 1953. The South Gloucestershire Extensive Urban Survey states that *'although the company had diversified the late 1950s was a period of decline'* (La Trobe-Bateman & Evans 2001, 3).

3.7.2 Also in 1946 the airfield was passed over to the Ministry of Supply and the RAF operated a reserve squadron from the site in much the same way as they had before the war.

3.7.3 In 1957 501 (County of Gloucester) squadron was dispanded and the hangars then reverted to use by BAC. For 30 years after the disbandment of 501 squadron there remained a technical RAF presence at Filton with the University Air Squadron and No 3 Air Experience Flight (*Filton and the Flying Machine*).

3.7.4 During the late 1950s and early 1960s during the height of the Cold War Filton was designated as one of the RAF's V-bomber dispersal bases, presumably largely due to the extension of the runway a few years previously. The V-Force was the UK's strategic nuclear strike force and at times of international tension it was dispersed in groups of either two or four aircraft to a number of bases across the country in an attempt to counter the impact of a pre-emptive attack. During the Cuban Missile Crisis of 1962 Vulcan bombers were kept in a state of readiness at Filton. The V-bomber dispersal area at Filton was almost certainly immediately to the north-east of the 1920s RAF base (see Gazetteer entry OA19 for more detail on location).

3.7.5 In 1959 the Bristol Aeroplane Company merged with several other manufacturers to form the British Aircraft Corporation which later became part of British Aerospace (which then became BAE Systems in 1999). The company operated both the former RAF airfield as well as the large area which had formed the USAAF base. Post-war aerial photographs show that the site of the American camp was little used, although in the later 1970s through to at least 2001 part of it was used for missile development.

3.7.6 Among the missiles believed to have been developed on the Northfield site were the rapier missile (in the 1980s) and the Sea Wolf (from 1985). A more significant earlier missile developed at Filton was the Bloodhound surface to air missile which was developed by the BAC although it is not known whether the Northfield site was used during its development. The Bloodhound was first deployed in 1958 and was the UK's main air defence weapon and was in large-scale service for much of the second half of the 20th century.

3.7.7 Some of the buildings on the former RAF site found new uses by a variety of companies under the umbrella of British Aerospace but by the late 1990's due to increased vandalism and lack of use, a large number of airfield buildings were unfortunately demolished.

3.7.8 As well as the RAF flights the successful Bristol Britannia was tested and manufactured at Filton, as later was Concorde. It was the existence of the extended runway and the assembly hall which were crucial in the awarding of the Concorde project to Filton in 1962 (Trobe-Bateman & Evans 2001, 3).

4 General description of Site

4.1 Introduction

4.1.1 Understanding the Northfield site and its development is perhaps best understood if its description is divided into a number of distinct areas or themes which are partly historical, partly geographical and partly functional. These are:

- Surviving fragments from the pre-airfield, pre-20th-century landscape
- the original airfield, largely constructed in the 1920s
- structures added during (or immediately before) the Second World War including shelters, and various elements of the airfield defences.
- The site of the temporary USAAF base
- post Second World War developments

4.1.2 As referred to above the main description of each surviving structure is included in the gazetteer at the rear of this report while the section below provides a short summary of the overall landscape of the site.

4.2 Pre-airfield structures

4.2.1 When the current recording was undertaken the only structures at the site which even partially survived from before the establishment of the airfield in the first quarter of the 20th century relate to Hayes Farm which was located on the north side of Hayes Lane, immediately adjacent to the area which was developed as the airfield. The main buildings of the farmstead appear to have survived substantially intact until the late 1960s although they were presumably disused as by then the farm would have been marooned within the airfield. Aerial photographs show that by 1980 the area had become heavily overgrown and the buildings largely demolished.

4.2.2 The only surviving fragments from Hayes Farm were two walls from what was probably an open-fronted animal shed, several sections of yard wall and gate piers (see Gazetteer entry OA1). The surviving fragments suggest that the farm was probably of 18th century date.

4.3 1920s airfield

4.3.1 As detailed elsewhere the development of Filton as a centre of aviation started before the First World War and three buildings survive at the airfield from the latter stages of the 1914-18 war. However, these are each immediately outside the boundary of the Northfield development whereas the earliest airfield buildings within the site survive from the establishment of the the RAF base in the 1920s. Date stones on four buildings suggests that this station was largely constructed in 1927.

4.3.2 The buildings and structures of the 1920s airfield are grouped in a well defined area to the south of Hayes Lane, the main east to west route which pre-dated the airfield and which remained as a public thoroughfare from Charlton to Patchway when the aerodrome opened. The main entrance to the RAF station was from the east and a new SW to NE road was added within the airfield adjoining Hayes Lane close to the entrance gate. The new track divided the main hangars adjacent to the airstrip to the south from the rest of the aerodrome's technical area and it now forms the main southern boundary of the Northfield development site. The base was then significantly altered in the 1930s by the northward extension of the runway thus truncating Hayes Lane and necessitating the re-orientation of the base so that the main approach would have been from the west. As referred to above a useful photograph from 1930 in *Filton and the Flying Machine* shows

Hayes Lane continuing east towards Gloucester Road across the area where the new runway was later located.

4.3.3 The main 1920s RAF base was therefore located in a broadly arrow shaped area with the point towards the east and with several east to west pathways providing access to the buildings. The main technical buildings were generally towards the eastern end of the station, the officers quarters and mess were towards the western end, the communal and barracks buildings were towards the centre and the hangars were towards the south facing the air strip.

4.3.4 This area would have acted as the administrative and logistical core of the inter-war and World War II airfield and until the 1990's this section of the site would appear likely to have formed an almost complete example of a 1920's airfield complex. Unfortunately the large scale demolitions of the 1990s removed many of the administrative and residential buildings of the site, although a number of subsidiary buildings survived, largely due to them remaining in use.

4.3.5 The main buildings within this area from the 1920s airfield which survived to be recorded in the current project are the Operations Block (Gaz No. 44), the Main Stores (30) and the substation/pumphouse (20). The lubricants store (49) also survives from 1927 but this is immediately outside the development area, close to the hangars. Typically for an airfield from this period the buildings are carefully designed and are well built with something of a neo-Georgian character. They are brick built with iron windows and have hipped roofs covered with asbestos cement tiles laid in a diamond pattern.

4.3.6 A number of photographs have either been included in books or are available on the internet which show some of the former buildings including the parachute store (28), the guardhouse (25), the Officers Mess (OA14) and Barrack blocks. Although the area of the 1920s airfield had lost much of its original character by the end of the 20th century due to the widespread demolitions and heavy vegetation growth we can gain some sense of the former character from aerial photographs which show the area with planted and managed avenues of trees lining the paths and roads. Fragments of this landscape can still be seen together with various small features such as petrol pumps, fences, gates and tanks.

4.3.7 Various concrete ground floor bases survive from former buildings which also provide fragmentary evidence relating to the historic form of some of the buildings. Among these is the institute which was an important administrative block close to the centre of the technical area. This was a large building with a complicated footprint and a combination of floor coverings remain visible including lino, wooden blocks, and floor tiles (square shaped, diagonally set).

4.3.8 Other buildings from which ground floor bases survive include the WAAF Quarters and garages, The Officer Quarters (OA14). Building Nos 5 and 6 on 1945 plan, the WAAF Officers Quarters and garages (OA14) (traces of red tile and wooden block floor surfaces were visible together with a wooden fence and and gate post survive).

4.4 Second World War structures

4.4.1 In contrast to the 1920s airfield, where the buildings were located in a relatively compact area, the surviving structures from the Second World War (and the preparations for the war in the late 1930s) are generally more dispersed and are located across the Northfield site. The buildings added in this period were largely related to functions or concerns which had only arisen in the decade since the construction of the airfield such as the defence of the airfield from a land or air based attack and the provision of shelters for airfield personnel in the event of an attack.

4.4.2 A range of pillboxes, defence blocks and other structures such as Pickett-Hamilton forts were added to defend the main access routes into the airfield, field boundaries and open areas from where a ground-based attack on the airfield might be launched. These were positioned to form interlocking fields of fire with each other. Presumably partly due to their robust nature these structures survive relatively well. Another interesting feature related to this aspect of the site is a small gun embrasure which was added to the one partially surviving building at Hayes Farm. It was common in the war for existing buildings such as this to be adapted to form defensive structures. In addition structures such as flak towers were added to defend against aerial attack.

4.4.3 There survives two sleeping shelters within the Northfield site, each of which is dispersed towards the edge of the airfield: one towards the western entrance (82) and one towards the north (115). Each of these shelters would probably have provided shelter for c.33 people, probably principally airfield defence staff. There are also several more conventional sunken (or partially sunken) air raid shelters for emergency shelter during raids and these divide into three types. Along the eastern boundary of the site there survive three concrete-arch shelters (OA10) which were probably principally intended for workers at the adjacent BAC aeroplane factory. The former YMCA building (79) incorporates a small shelter adjacent to its entrance which had a flat concrete slab roof while the third type of shelter is labelled 'Summers type' on the 1945 plan. These were presumably named after the shelter's manufacturer and they comprised a corrugated iron/steel arch covered in earth. The best preserved of these is located behind the hangars and would have been for the main airfield personnel (122) while several more (112) were located to the north of Hayes Lane in an area which formerly housed a series of wartime barrack huts.

4.4.4 In addition to the shelters and defence structures other buildings added in this period include the Gas Defence Centre (40), the Inflammables Store (29), the 2-pounder ammo Store (119) and the Gun Cotton Room (78).

4.4.5 Unlike the 1920s buildings the structures added in the later 1930s or during the Second World War were more hastily erected with a utilitarian nature and less concern for asthetics or architectural design. These buildings tend to have flat concrete roofs and brick walls (or reinforced concrete for defensive pillboxes).

4.4.6 The current study has involved considerable investigation looking for defence structures marked on the 1945 airfield and although many have been found and recorded there are many features which the investigation has confirmed no longer survive. Among these are the dispersal huts (No 80 & 81 on airfield plan) which had clearly been demolished and left little trace other than a pile of rubble on east side of the hedge line. Other former features include two defence posts on the corner of an old field boundary, which had been cut by the north runway circuit and the defence post at the site of the gateway onto the old Filton bypass.

4.5 USAAF base

4.5.1 To the north of the former RAF base there is a very large area which was largely fields prior to the Second World War but which was used during the latter stages of the war as a temporary base for the US Army Air Force during the military build-up prior to D-Day. Aerial photographs suggest that this filled the entire area between Hayes Lane to the south, the bypass to the west and the field boundary to the east. The triangular shaped area at the northern end of the USAAF base housed a huge number of tents, shown on aerial photographs from April 1944, while the main hangars and store buildings were to the south-west of this, adjacent to the bypass. The area further to the south towards Hayes

Farm also appears to have been used by the Americans but probably without substantial buildings.

4.5.2 Today the general character of most of the area of the former base is of a disused wasteland. The triangular shaped area at the north-west end of the base is now a grassed area and there is little clear evidence of the tent encampment which was located here. No buildings survive from the USAAF base but large areas of hardstanding and dumped rubble remain in the area adjacent to the bypass where the main hangars were located and here there also survives various large pieces of rusting ex-situ plant and parts from old vehicles. This plant has probably been dumped here and probably does not relate to the American base.

4.5.3 Part of the area to the north-west of the main airfield, particularly between the American camp and Hayes Farm, has been made up by about 1.5 m to 2 m using building rubble, possibly from the demolition of some of the camp buildings in the 1990s. This appears to respect the field boundaries to the north and north-west of the wooden Airman huts and Ration stores. It also covers the site of semi-detached houses and gardens shown across the road north of the Officers Quarters.

4.5.4 Aerial photographs suggest that the parcel of land at the western end of the Northfield site, to the west of Hayes Lane and the RAF camp, was either not used or little used by the Americans although a track is shown through this area. This area is now heavily overgrown scrubland and there is little evidence of former use. The only feature is a double sided concrete ramp adjacent to the track which was presumably for loading and unloading items from a tall vehicle.

4.6 Post-war defence research and development

4.6.1 Although much of the Northfield site fell into disuse during the decades after the end of the Second World War there were a small number of buildings at the RAF base which found new uses (eg the Main Stores) while parts of the area of the former USAAF base were used by defence companies, particularly in the last quarter of the 20th century and partly for the research and development of missiles. The largest element of this is the Sea Wolf facility (OA3) which was constructed in the mid 1980s and which forms a secure, self-contained compound towards the northern end of the former US base (but to the south-west of the area of the former tent encampment.

4.6.2 Other elements of the post-war development in the former American base include an antenna testing facility (OA11), two turntables and a circular road (OA5) on which checks would be made to ensure vehicles could receive electronic signals whatever their orientation. Each of these are also believed to have been constructed in the 1980s.

5 Conclusion

5.1.1 The site known as Northfield is a large redundant area at Filton Airport which been disused since the end of the 20th century and which is currently undergoing a major mixed-use redevelopment. Prior to the development a programme of built-heritage recording was undertaken as a condition of planning approval on the surviving buildings and structures at the site, almost all of which related to the 20th-century aviation history of the area. The structures divide into a series of distinct groups, the main ones of which are the 1920s aerodrome, shelters and airfield defence structures from the Second World War, and various post-war developments.

5.1.2 Filton has a special place in the history of aviation in this country and the current project has provided a valuable record of an element of this heritage before it was lost. None of

the buildings were listed and they were largely of standard RAF types (either from 1920s or WWII) which do survive elsewhere but the investigation has considerably enhanced our understanding of the development and evolution of Filton Airfield during the 20th century.

January 2012

APPENDIX A. BIBLIOGRAPHY

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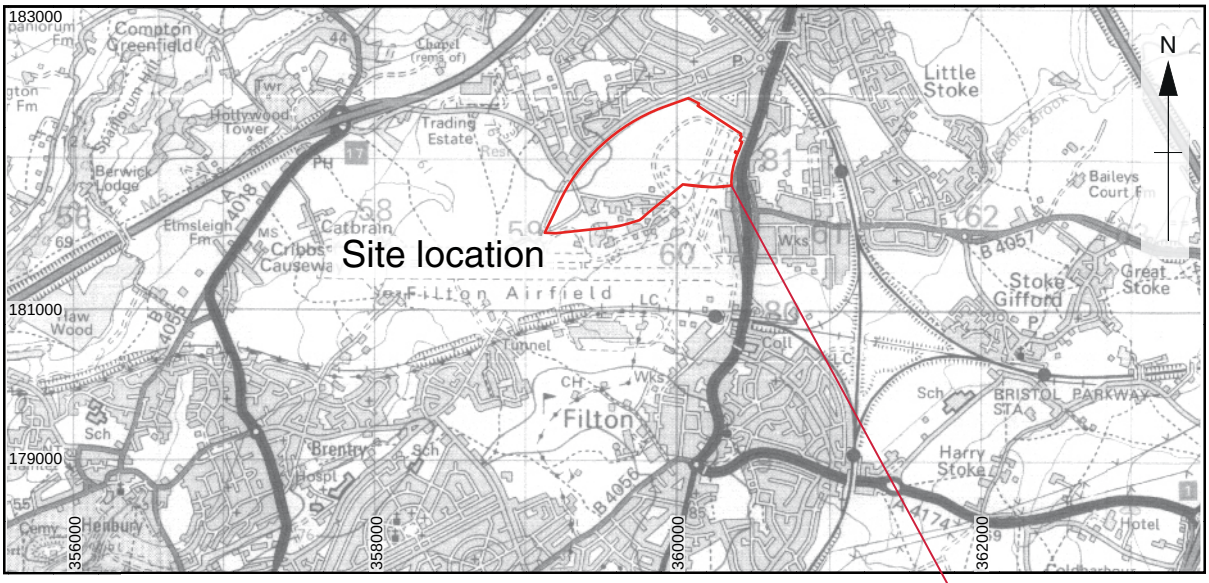

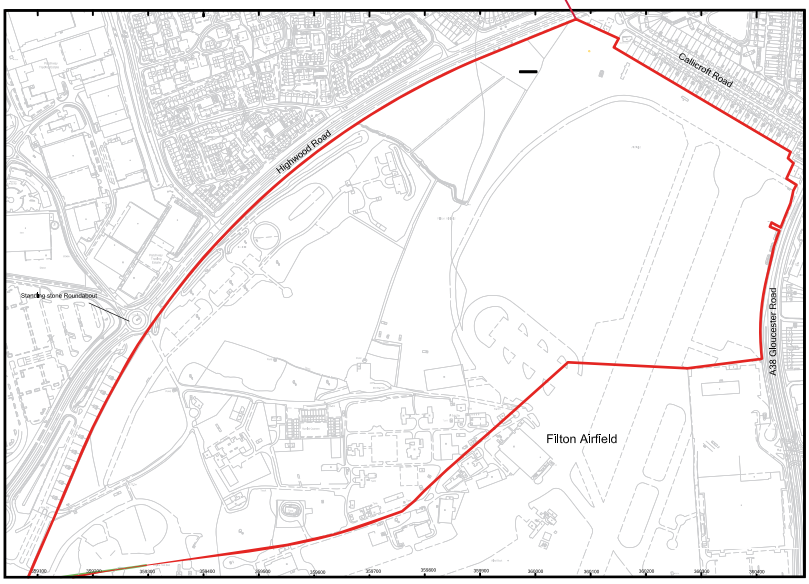

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Figure 1: Site location

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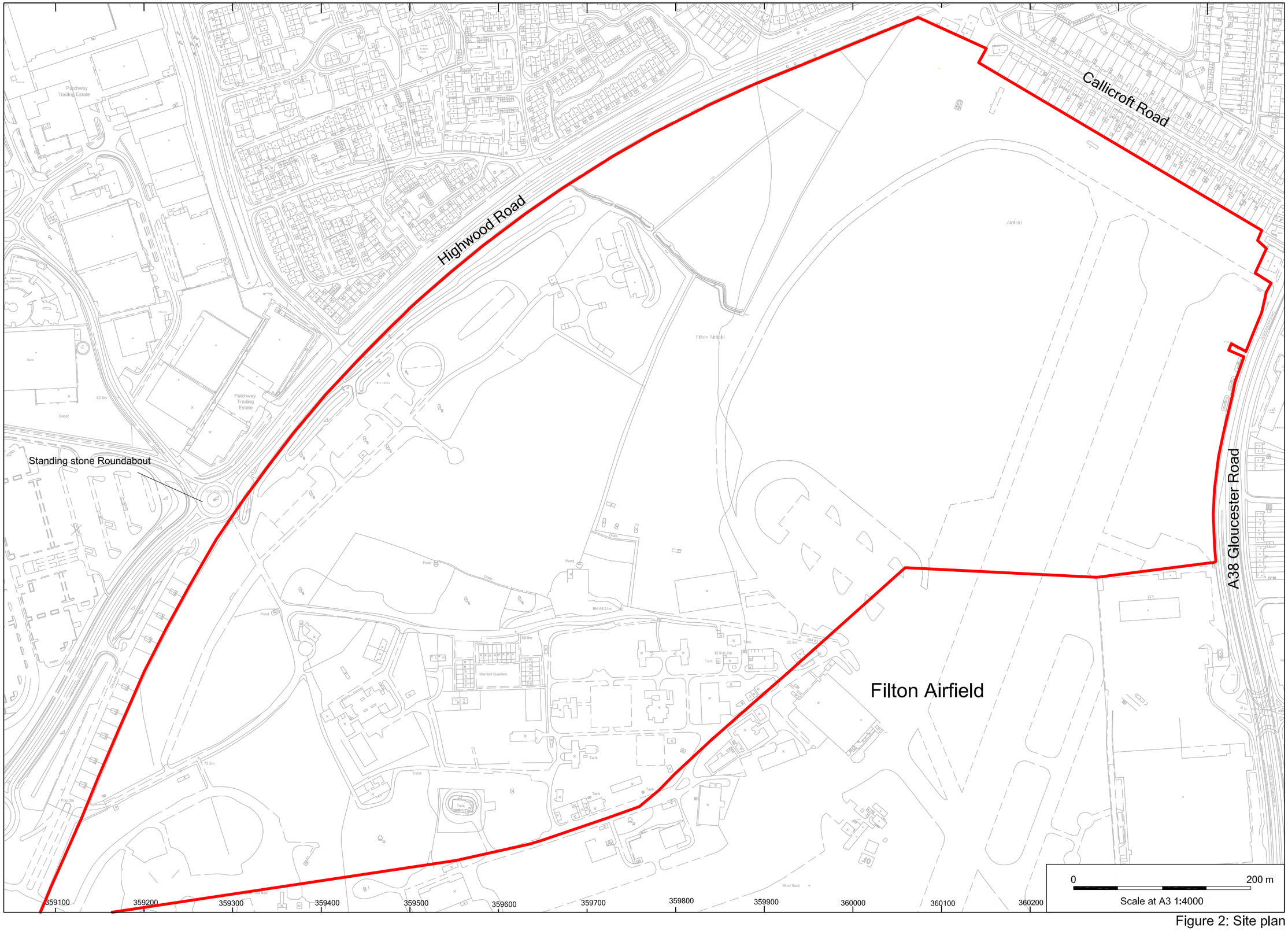

Figure 2: Site plan

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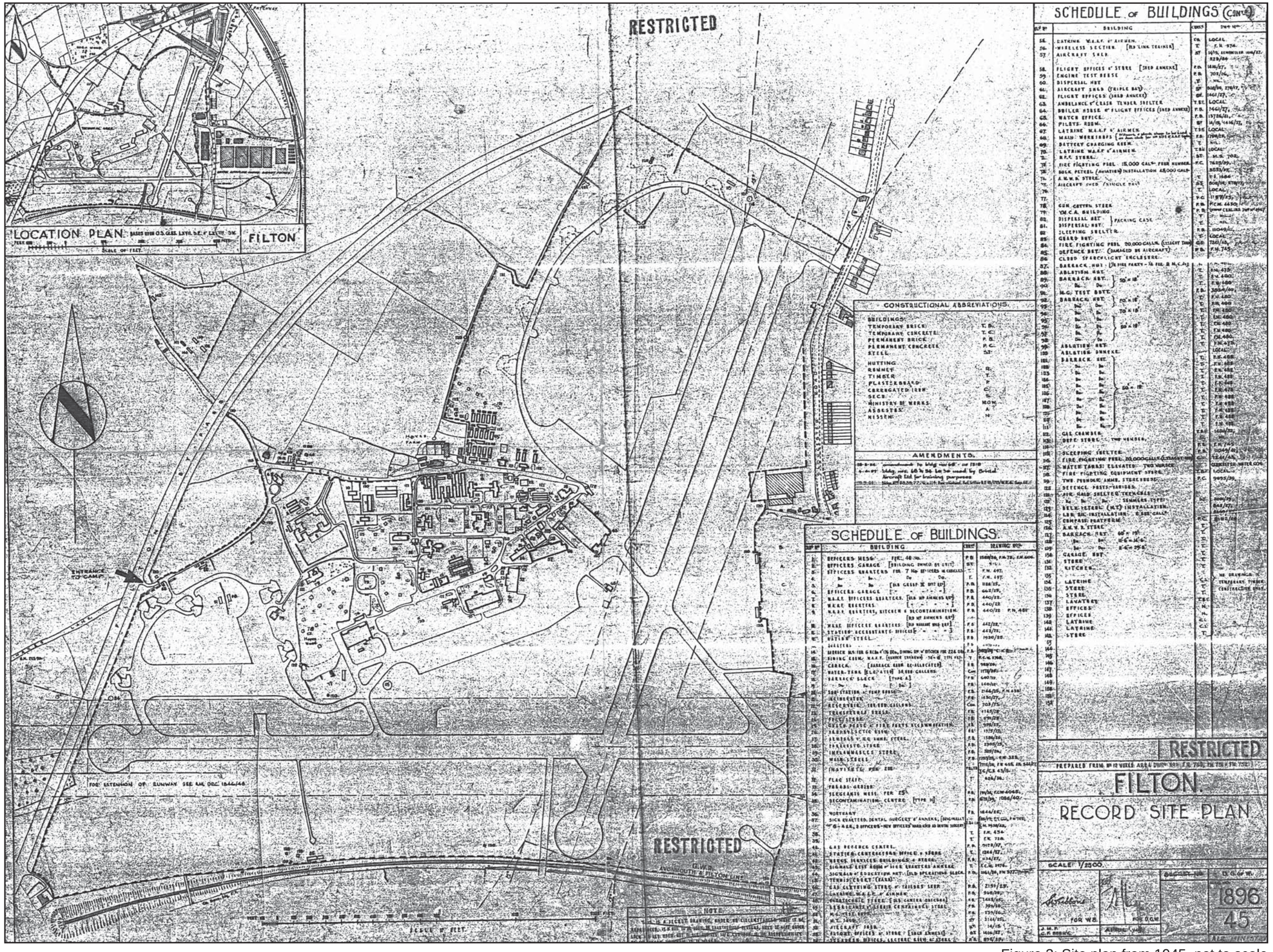

Figure 3: Site plan from 1945, not to scale

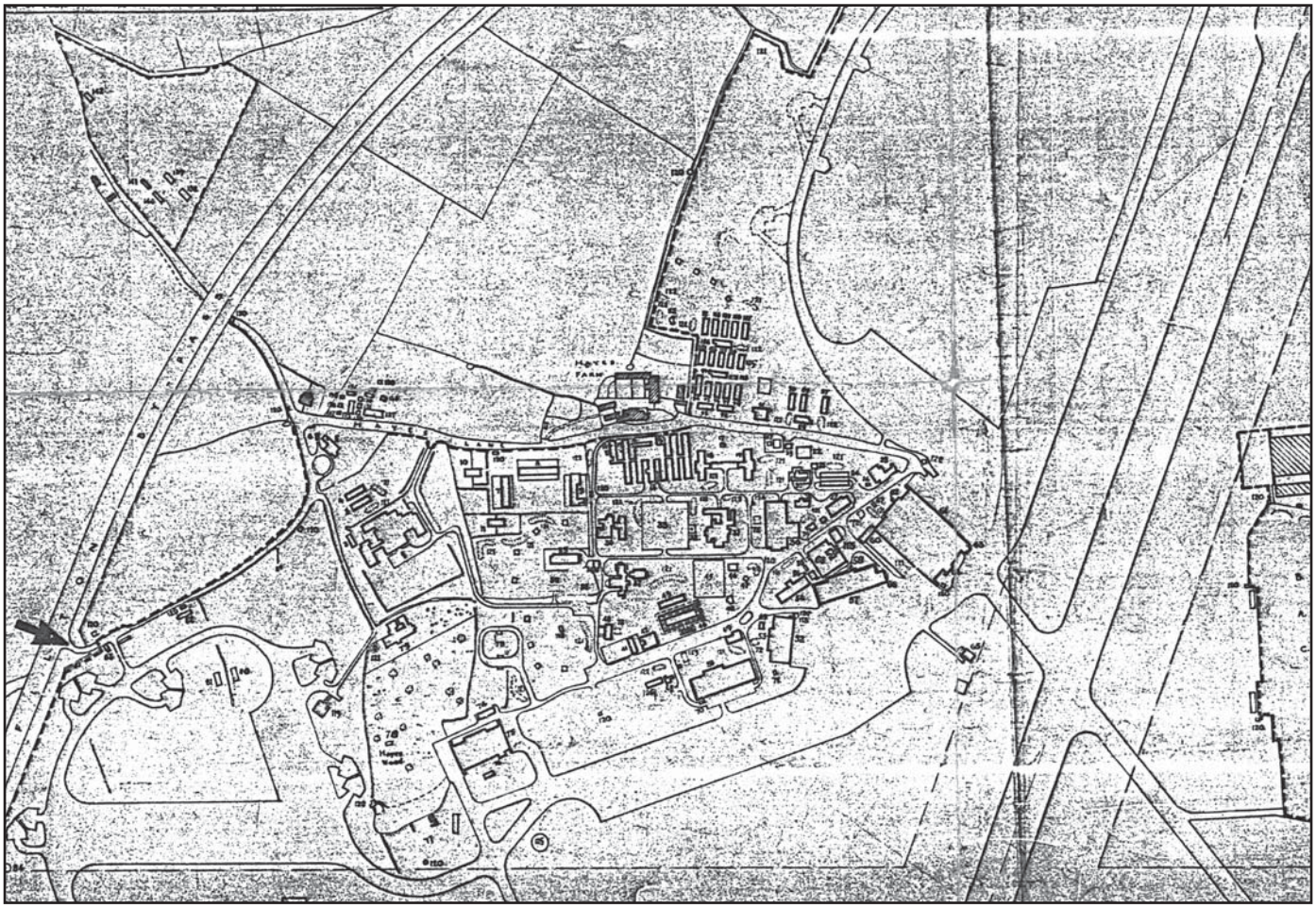

Figure 4: Close up on area of buildings, from 1945 site plan, not to scale

Figure 5: Aerial photo from April 1944

Figure 6: Aerial photo from April 1944

Figure 7: Aerial photo from March 1946

Figure 8: Aerial photo from October 1980

Appendix B

Northfield,
Filton Airfield:
Gazetteer of buildings and structures

Introduction
This gazetteer covers all the buildings and main structures which survived at the Northfield site when the current programme of recording was undertaken. It also contains entries for the sites of some demolished buildings where nothing more than concrete bases survive, particularly if these were key airfield buildings the form of which is known from old published photographs. However the gazetteer has not attempted to list the sites of all former buildings at the site.

There are also a small number of buildings which have been included in the gazetteer which are outside the current development site due to their significance and proximity immediately adjacent to the Northfield area. These are all airfield buildings which clearly historically formed part of the same complex as the buildings in Northfield and therefore although they have not been fully recorded it makes sense to include them in the gazetteer to allow a fuller understanding of the overall site.

As far as possible the number system in the gazetteer uses the numbering shown on the 1945 airfield plan although new numbers (eg OA1, OA2) have been added for structures which are either not numbered on the plan or which post-date 1945.

Each gazetteer entry includes:
- a grid reference;
- a summary of the phase of which it forms a part;
- an outline description of the location;
- the site type (condition/survival);
- Summary of historical evidence
- Description;
- Maplet showing location of feature within Northfield site. This is sometimes based on the 1945 plan and sometimes on a modern survey;
- Photograph/s;
- Figure/s (where appropriate).

The table overleaf contains a summary of the buildings

No	Building	Phase	Site type/survival
20	Substation and pumphouse	1920s aerodrome	Roofed building
22	Reservoir 100,000 gallons	1920s aerodrome	Intact structure
23	Transformer House	1920s aerodrome	Roofed building
24	Fuel Store	1920s aerodrome	Partially intact structure
25	Guard House and fire party accomm	1920s aerodrome	Site of former building
27	Armoury and Ammo store	1920s aerodrome	Site of former building
28	Parachute store	1920s aerodrome	Site of former building
29	Inflammables store	1920s aerodrome	Roofed building
30	Main stores	1920s aerodrome	Roofed building
40	Gas defence centre	Late 1930s/WWII	Roofed building
44	Operations Block	1920s aerodrome	Roofed building
49	Lubricants Store	1920s aerodrome	Roofed building
52	Side opening hangar	First World War	Roofed building
61	Triple bay hangar	First World War	Roofed building
73	Aviation fuel tank	Late 1930s/WWII	Intact structure
75	Single bay hangar	First World War	Intact building
78	Gun Cotton Store	Late 1930s/WWII	Roofed building
79	YMCA building	1930s expansion	Site of former building
82	Western sleeping shelter	WWII	Roofed building
83	Pillbox by western guard hut	WWII	Intact structure
112	Gas chamber	Late 1930s/WWII	Roofed building
115	Northern sleeping shelter	WWII	Roofed building
119	Two pounder Ammo store	WWII	Roofed building
120a	Pillbox to North of Hayes Farm	WWII	Intact structure
120b	Defence posts to west side of camp	WWII	Partially intact structure
122	Air raid shelter ('Summers' type)	WWII	Intact structure
OA1	Hayes Farm	Pre-20th century	Partially intact structure
OA2	Flak Tower	WWII	Intact structure
OA3	Sea Wolf facility	Post-war	Complex of intact buildings
OA4	Concorde Hangar	Post-war	Roofed building
OA5	Turntables and driving circle	Post war	Partially surviving structure
OA6	Pillbox to west of Hayes Farm	WWII	Intact structure
OA7	Radio aerial mast bases	WWII	Partially intact structure
OA8	Hayes Lane defence post	WWII	Partially intact structure
OA9	V-bomber dispersal base	Post-war	Area of airfield
OA10	Air raid shelter (East boundary)	WWII	Intact structure
OA11	Antenna testing facility	Post-war	Various
OA12	USAAF temporary camp	WWII	Site of former camp
OA13	Northern guard house	Post war	Roofed building
OA14	Officers quarters	1920s airfield	Site of former building
OA15	Site of barrage balloon	WWII	Partially intact structure
OA16	Pickett-Hamilton Fort	WWII	Ex-situ structure
OA17	Ammo stores by Hayes Farm	WWII	Partially intact structure
OA18	Barrage balloon buildings	WWII	Partially intact buildings

Site 20: Sub Station and Pumphouse

NGR: ST 59862 80697 **Phase**: 1920s aerodrome.
Site type: roofed building

Location
This building is located within the main complex of technical buildings a short distance to the north of the Main Stores.

History/background:
The 1945 plan shows that the building was constructed to a standard design from 1925 (No.2146/25) although it was actually built in 1927 (shown by a date stone).

The building provided power for the buildings at Filton The interior has been inspected and discussed with Terry Oxenham who has worked at Filton for several decades.

Description
The substation and the pumphouse form two distinct parts of a single phase building. The building is single storied and it has a rectagular plan (16 m x 6.5 m) with the pumphouse forming the eastern section. The pumphouse was partly for use by the adjacent substation but its main use was to pump the water from the large water tanks to the north in the event of fire. The pumphouse is linked to these tanks by various underground pipes.

The *exterior* of the building is constructed with English bond brown bricks (7 x 21 cm) and with concrete lintels over openings. The two sections of the building each have gabled roofs but that above the pumphouse is lower than that above the substation. The pumphouse retains its primary, diagonally-set asbestos cement tile cladding (typical for interwar airfield buildings) but the substation's roof has been re-clad with a corrugated panel cover.

The *south elevation* of the substation incorporates a tall, wide doorway which appears to have been a secondary (although relatively early) insertion (possibly to get transformer in). Immediately to the west of this is an area of reformed brickwork and a redundant concrete lintel from a former doorway. To the east of the doorway is a primary metal framed window with 20 lights. The south elevation of the pumphouse has an 8-light window and a double doorway with a date-stone above showing that the building was constructed in 1927. There are two low vents. At each corner of the building is a simple brick detail comprising three bricks stepped out to support the eaves. In front of the substation are two electrical boxes which were cast by Lucy's Foundry in Oxford.

The *west elevation* of the substation has a large opening with roller shutters (c.1.6 m tall x 1.2 m wide) and a grille over the front surface. This opening, which is beneath a concrete lintel, is a secondary insertion and is within a section of reformed brickwork from a previous opening. The concrete lintel from this previous opening remains in-situ c.2.5 m above ground level. The opening is adjacent to a fan within the building and presumably while the generator was operating the roller shutters would have been raised to allow the fan to work. To the north of this opening is a primary 16-light, metal-framed window. Two pipes project from this elevation connecting the substation with a diesel tank a short distance to the west.

The *north elevation* has two projections from the substation: at the western end is a primary projection with lean-to roof and three small, high windows while to the east of this is a smaller (but taller) secondary projection. The primary projection has a pair of double doors in its east side and the secondary extension has a single door and large slatted vents. Between the two projections is a fire exit which was a secondary insertion but which pre-dates the extension. The north elevation of the pumphouse has two primary metal-framed, 8-light windows with horizontal-pivot casements.

The *interior* of the main substation comprises a single rectangular-plan room and with a small extension at the eastern end of the north elevation which would almost certainly have been a fuel store. The walls are painted (not plastered) and the floor is covered with ceramic tiles. The roof comprises a simple metal truss and there is a small two-ton overhead crane/hoist which is set on an steel joist running the length of the room.

The dominant feature of the interior of the substation is the Blackstone Generator which is believed to date to c.1936 (therefore c.9 years after the construction of the building). Terry Oxenham believes that the generator could probably still operate now but it hasn't done so for some time. This is c.3 m long by 1.8 m tall x c.1.4 m wide and is set on a concrete base. At the north-western corner of the room are two large air tanks with pressure gauges on the side. To the south of these against the west wall are two concrete bases and on one of these is a secondary compressed air tank used to start the generator. At the south-west corner, immediately west of the main entrance into the building, are a set of large fans which operate while the generator is running to keep it cool. These fans are not within a protective cage (a secondary insertion) with a structural frame to support a diesel tank above which is accessed by a ladder. At the south-east corner of the building and along the east wall are a series of instruments, gauges and machines that relate to the generator. These include a stand-by generator and the main incoming transformer point for essential and non-essential power.

The interior of the pumphouse has glazed bricks to the lower section of the walls and unplastered, painted brick above. The roof is again supported by a simple metal truss roof (raking struts). Three pumps remain within the building set on concrete bases and above the two main pumps are simple, manually operated 2-ton hoists on overhead steel joists with chains and winch wheels. The floor is principally covered with tiles but there are sunken ducts from each pump with iron covers laid over.

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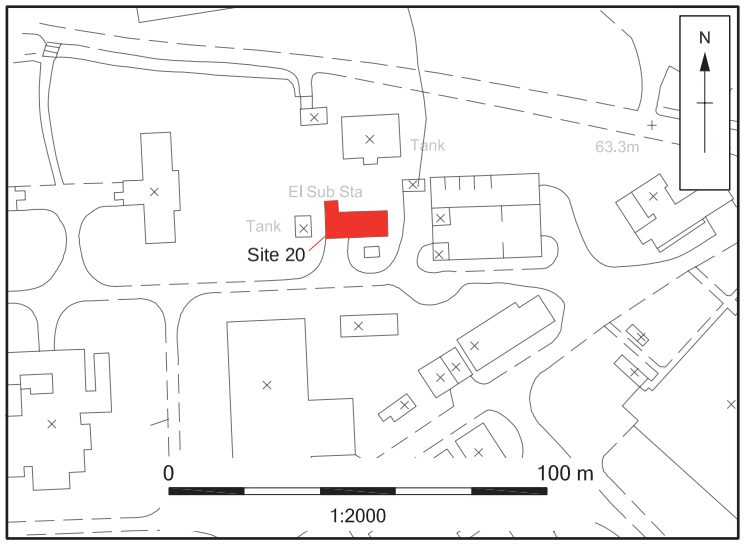

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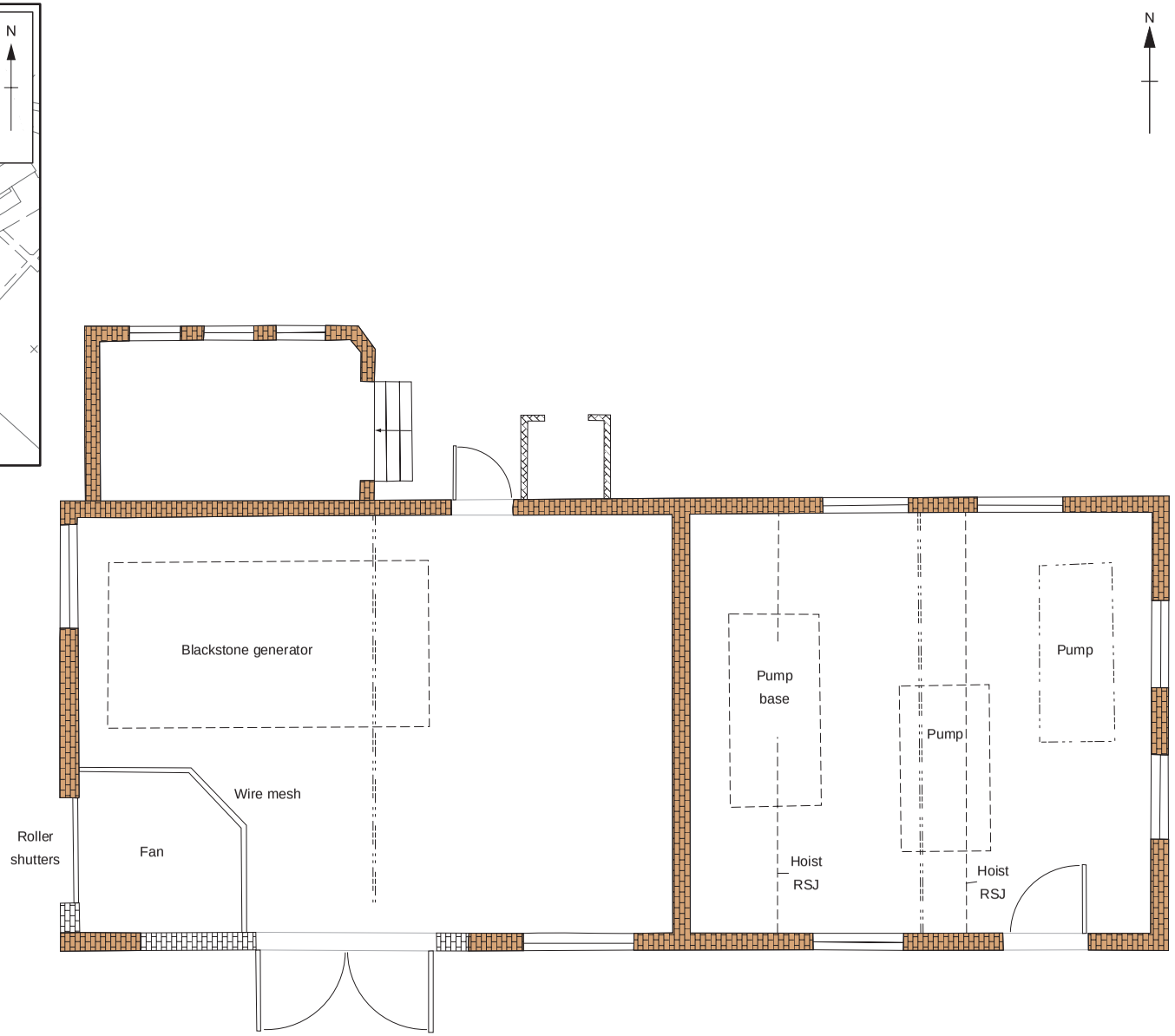

Key
- Primary brick
- Early secondary brick
- Later brick
- Steel truss

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Figure 1: Site 20, pumphouse and subtation plant

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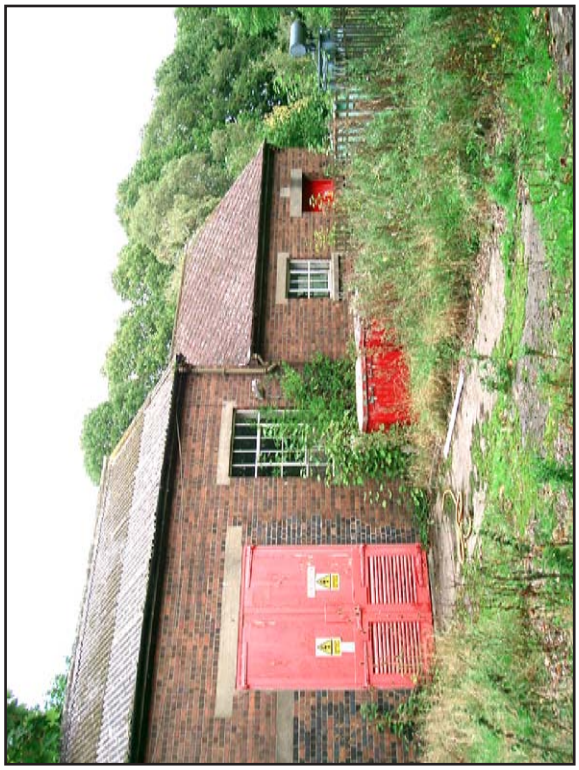
Site 20: Substation and pumphouse

Site 20 Plate 2

Site 20 Plate 4



Site 20 Plate 1

Site 20 Plate 3

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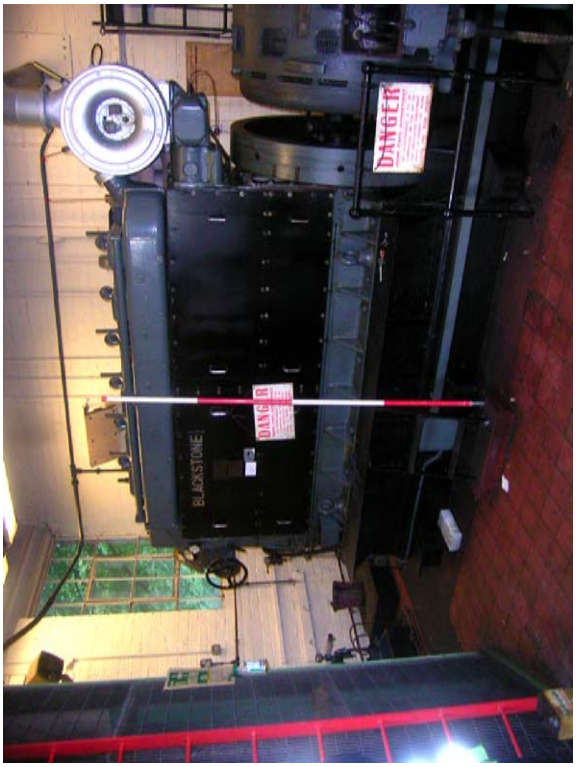
Site 20 Plate 6

Site 20 Plate 8

Site 20 Plate 5



Site 20 Plate 7

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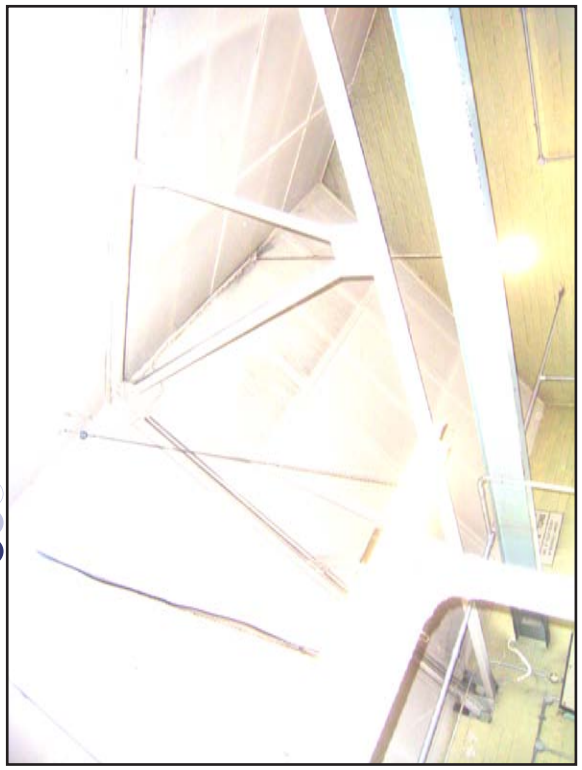
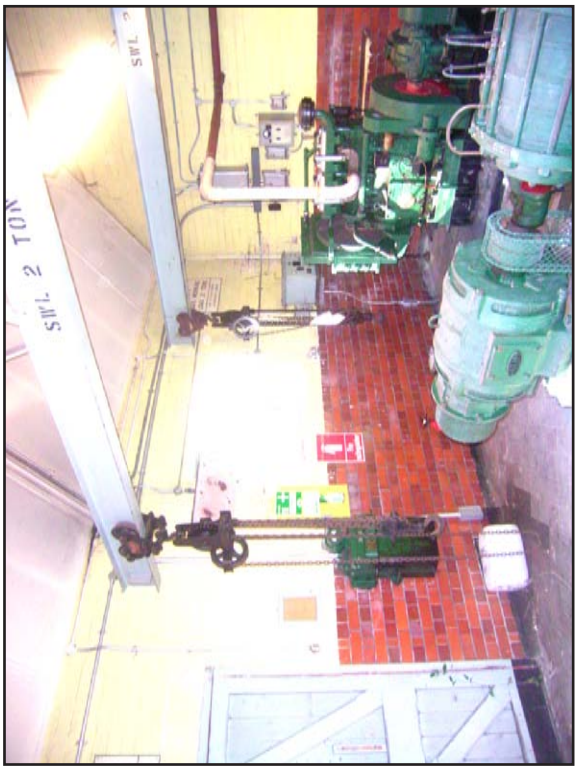


Site 20 Plate 10



Site 20 Plate 12

Site 20 Plate 9

Site 20 Plate 11

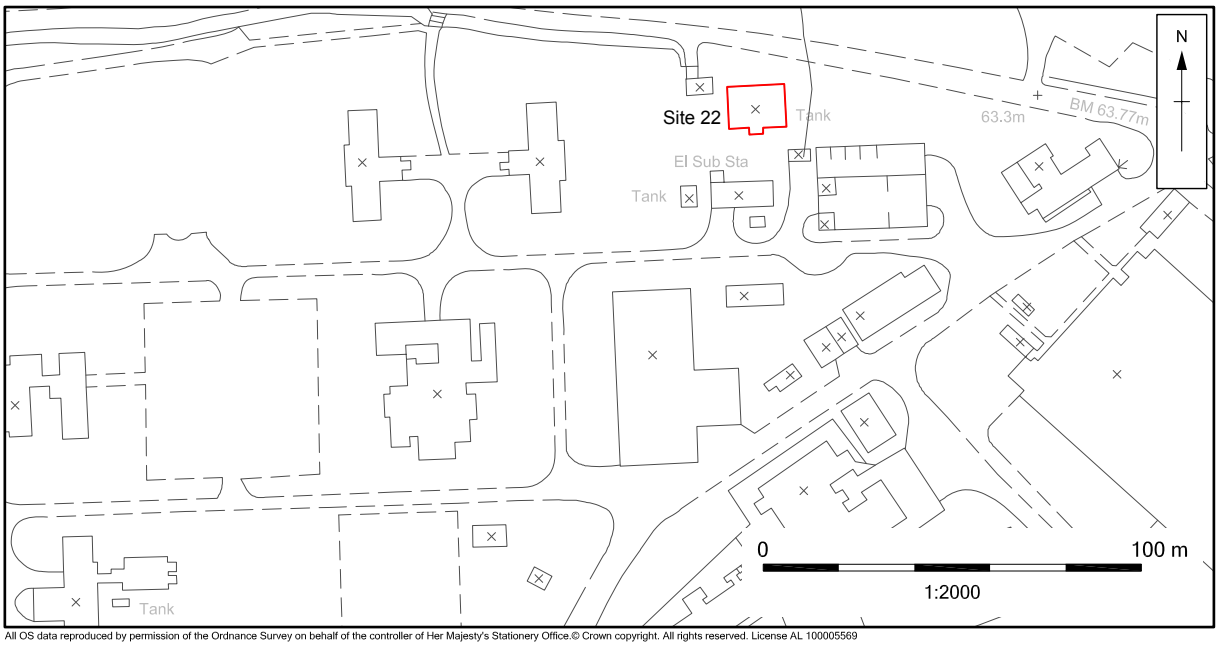
Site 22: Reservoir 100,000 gallons

NGR: ST 59865 80721 **Phase**: 1920s aerodrome.
Site type: intact structure

Location: The reservoir is located towards the eastern end of the airfield's technical area between the fuel store and the transformer house.

History: The 1945 airfield plan shows that it was constructed to a standard design from 1923 (No.703/23) although it was almost certainly not constructed until c.1927. It is clearly also shown on the 1940s aerial photographs. When the main phase of recording was undertaken it was almost entirely obscured by thick vegetation but further photographic recording was undertaken during the development after the clearance of this overgrowth (Oct 08)

Description:
The reservoir is a large reinforced concrete water tank which is c.15.5 m by 11.5 m in plan and is c. 1.25 tall. It is constructed with a simple reinforced concrete frame with horizontals at the top and base of each side and verticals dividing each side into a series of bays (four bays to north and south; three bays to east and west). Between the posts are further concrete panels. On the south side there is a short, central southwards projection.



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Maplet of site 22

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Site 22: Reservoir 100,000 gallons

Site 22 Plate 2

Site 22 Plate 3

Site 22 Plate 1

Site 23: Transformer House

NGR: ST 59842 80733 **Phase**: Probably 1920s aerodrome
Site type: intact building

Location
The Transformer House is located within the main group of airfield buildings immediately to the south of Hayes Lane and linked to it via a short link (now heavily overgrown).

History: The building is labelled Transformer House on the 1945 plan of the airfield and is shown on each of the aerial photographs (the earliest dated April 1945). The construction of the building is broadly similar to several others at Filton known to have been constructed in 1927 and the building probably forms part of the primary 1920s aerodrome.

External description
The Transformer House is a single storey building constructed in brown brick in stretcher bond. It has a rectangular plan (c.7.5 m x 4.5 m) and a flat concrete roof. The entrance to the building is from the north where there is a short ladder up the bank from the lower level of Hayes Lane. The fact that Hayes Lane, which pre-dates the airfield, is significantly lower (c.1 m) than the Transformer House clearly shows that the northern part of the area on which the main airfield buildings stand was built up, almost certainly to allow a larger, relatively flat area for the airfield structures. The ladder leads to a platform on the north side of the transformer house with a primary iron security fence around it and a set of double doors into the building. These doors are beneath a concrete lintel and are typical for a building such as this with ventilation slats to the lower half and signs warning of the high voltage equipment inside.

There is a single window to the building (9-light crittal type), at the west end behind iron security bars, and in the south wall there are three rectangular metal plates bolted to the wall three brick courses below the roof coping. In each wall there are several small, conventional ceramic vents.

Internal description

The interior of the building comprises a single main room with relatively featureless painted brick walls, a concrete floor and exposed concrete ceiling. There is a low plain skirting along each wall and at the centre of each of the long walls there is a shallow pier.

In the east wall there are the in-situ remains of a window which has been bricked up externally. Although it only partially survives the window was of the same type as that which survives at the east end but with frosted glass. The window has a concrete sill and lintel. In the north wall there is a shallow full height pier and immediately adjacent to this

Within the room what appears to be a substantial transformer survives together with various other related plant included a frame with truncated cables and a series of dials on a board at the top.

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Site 23: Transformer house

Site 23 Plate 2

Site 23 Plate 4

Site 23 Plate 1

Site 23 Plate 3

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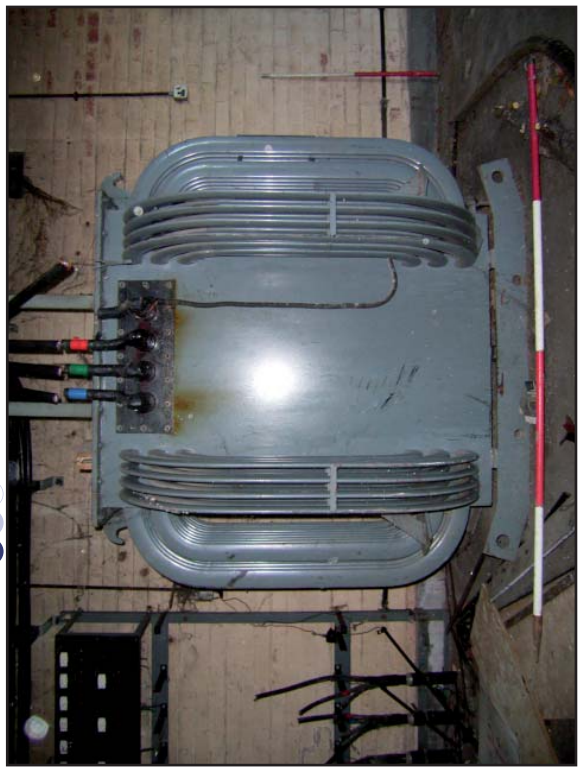
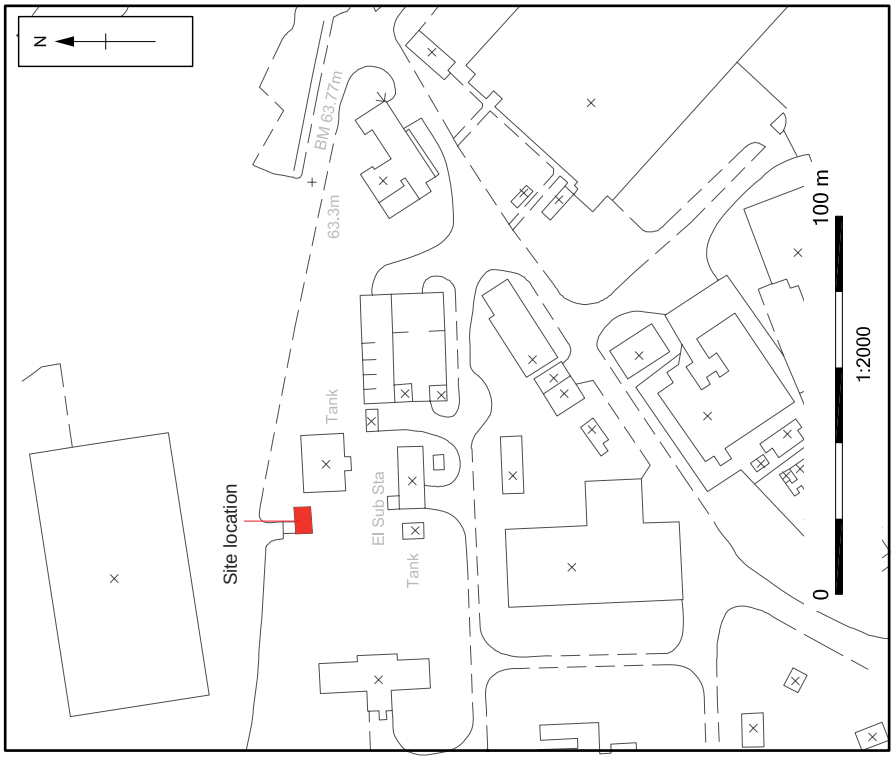


Site 23 Plate 5

Site 23 Plate 6



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Site 24: Fuel Store

NGR: ST59891 80701 **Phase**: 1920s aerodrome
Site type: Partially surviving structure

Location
The fuel store is within the main complex of technical buildings to the north-east of the Main Stores.

History: The 1945 plan shows that the fuel store was constructed to a standard design from 1925 (No.591/25) although it was almost certainly actually constructed later than this. The 1945 plan shows the main fuel store with two rows of unroofed, east-west bays and a central route through but it does not show a structure immediately to the north (as now partially survives). Instead the plan shows an air raid trench in this area immediately to the north. The aerial photographs appear to confirm the evidence of the plan and they also appear to show some embankments around the store, especially on the south side.

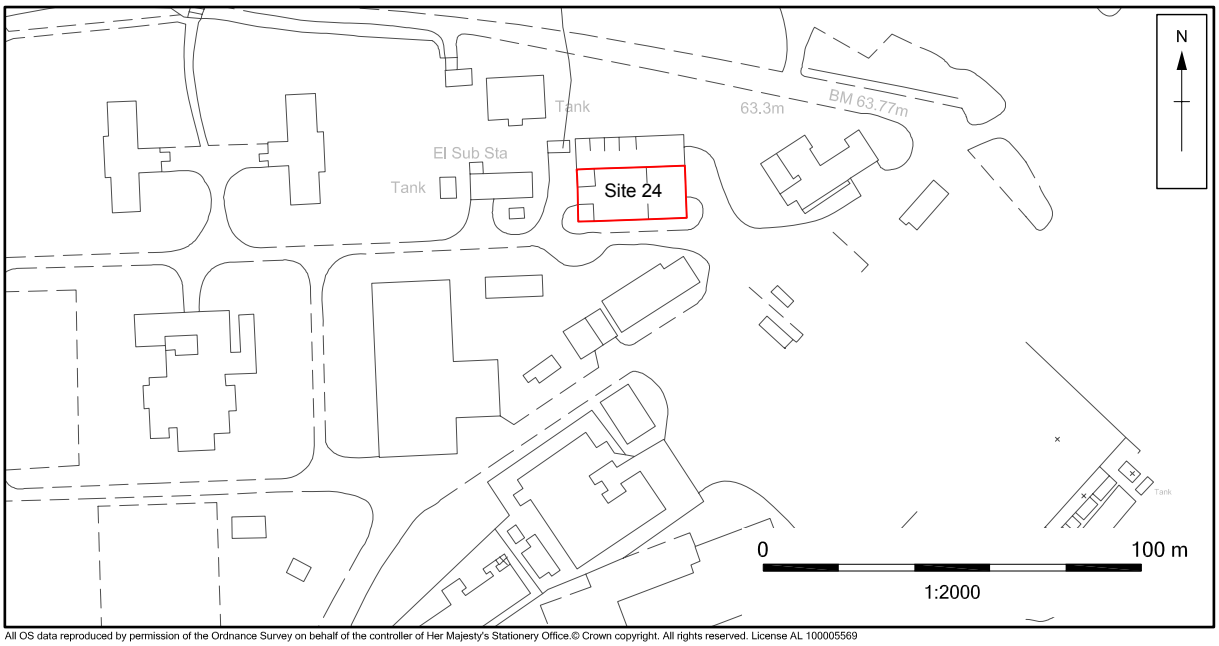
Description
The fuel store was a reinforced concrete structure from which only a series of footings and foundations remain. The surviving features divide into two main elements: to the north is a slightly raised concrete platform (c.14 x 8 m) onto which trucks would have driven and to the south are the footings from a series of bays in which fuel tanks would have been stored.

The concrete platform is raised c.75 cm above the surrounding ground level and it comprises two ramps c.3 m wide to allow truck access: one ramp adjoins to the east while the other is at right angles to the main platform on the western side. The platform is heavily overgrown but some limited clearance has shown that the northern side and the northern half of the east side were faced in red brick and were clearly formerly part of a building above the platform. The footings show that the walls of this building would have been thick (50 cm) and they would have been in English bond. Immediately inside the 50 cm deep brickwork is a layer of bitumen which divides the former wall from the floor slab.

There may have been an enclosed (or open fronted) building on the northern side of the platform and possibly a roof over the southern half where the trucks would pass. Immediately to the east of the platform is a similarly sized area of concrete hard standing which is c.40 cm lower than the main platform and which was probably an external yard.

The main area that the fuel would have been stored in adjoins the platform to the south. It is difficult to trace the full outline of this feature but it appears to have been c.30 m x 13 m and comprised a series of bays either side of a central east to west passage along the structure's spine. There appears to have been c.8 bays to each side with each bay de-marked by a reinforced concrete wall (c.20 cm thick). All of these walls only partially survive and many reinforcing bars protrude from the walls. The plain, utilitarian nature of the structure is clearly visible and shuttering marks are visible in the bare concrete faces of the walls.

A short distance to the east of the fuel store is an area of dumped concrete (probably from the former fuel store) and general detritus including a series of iron props which may have been used to support the tanks inside the former fuel store.



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Maplet of site 24

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Site 24 Plate 2

Site 24 Plate 4

Site 24 Plate 1

Site 24 Plate 3

Site 25: Guard house

NGR: ST 59930 80702 **Phase**: 1920s aerodrome
Site type: site of former building

Location
This structure was located at the eastern corner of the airfield's triangular shaped technical area, at the junction between Hayes Lane and the main road through the heart of the technical area.

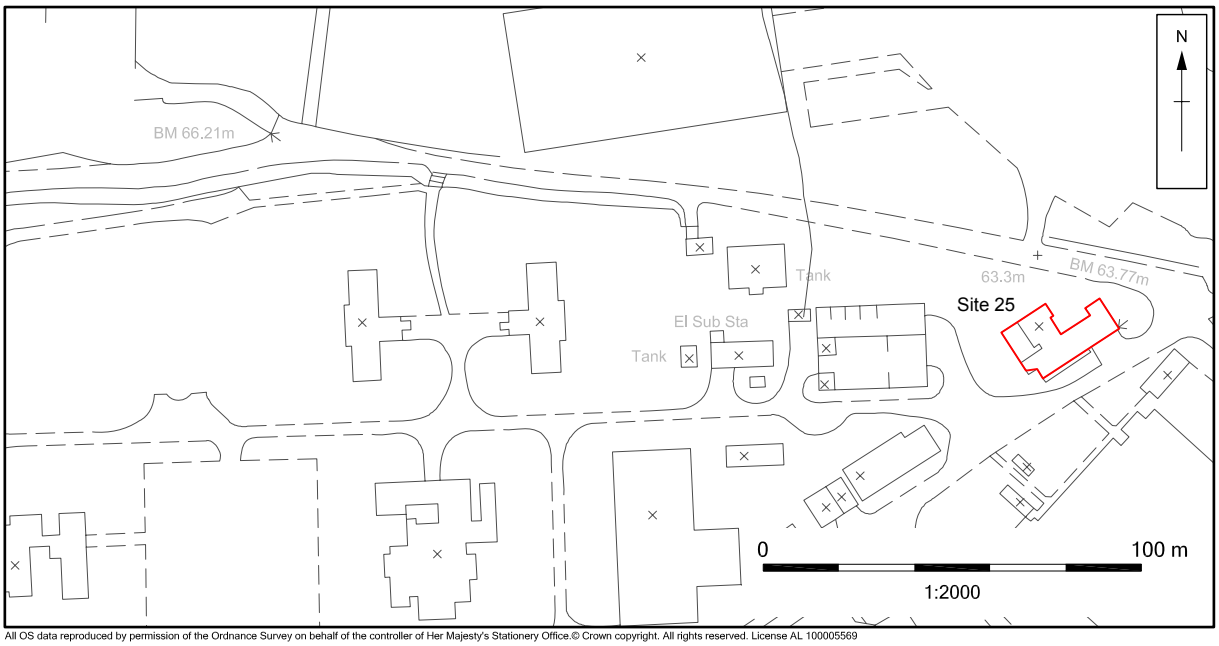
History: The 1945 plan shows this structure as the Guard House and Fire Party Accommodation. Iit was constructed to a standard design from 1925 (No. 959/25) although it was almost certainly actually constructed later than this. The plan also describes the builing as being of 'permanent brickwork'.

Description
The building was demolished, probably in the 1990s, and no above ground walls survive. The concrete ground floor platform of the building does survive although parts are now hidden beneath vegetation.

Although it has been demolished the structure has been included in this gazetteer partly because its form is known from a photograph (discussed below) but also because the guardhouse was an important part of any airfield. It would have been at the main entrance to the aerodrome and it would usually have been the first building that anyone entering the airfield would have seen. Visitors would have reported here to have their identification papers checked and airmen stationed at the airfield would have been issued with leave passes from this building. Understanding that the guardhouse formed the main entrance at the eastern end of the aerodrome shows how the layout of Filton originally developed.

Fortunately some recording was undertaken on the building in 1993 (although the exact scope of this is unclear) and photographs of it taken at this time are included in both *British Military Airfield Architecture and Filton* and *the Flying Machine*. The building had been demolished before Oxford Archaeology undertook an initial assessment of the buildings at Filton in 2001.

The photograph in *British Military Airfield Architecture* shows that the guardhouse at Filton was a single storey, rectangular plan range with a gablet roof covered in asbestos-cement tiles in a diamond pattern. There were sash windows, a projecting bell tower on the roof ridge and an overhanging catslide roof which would have provided cover while visitors were processed. The walls were of brick and adjoining to the north-east side of the building was a further building which provided accommodation for the fire party.



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Maplet of site 25

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Site 25 Plate - Guardhouse (after Hall, 1995)

Site 27: Armoury and Ammo Store

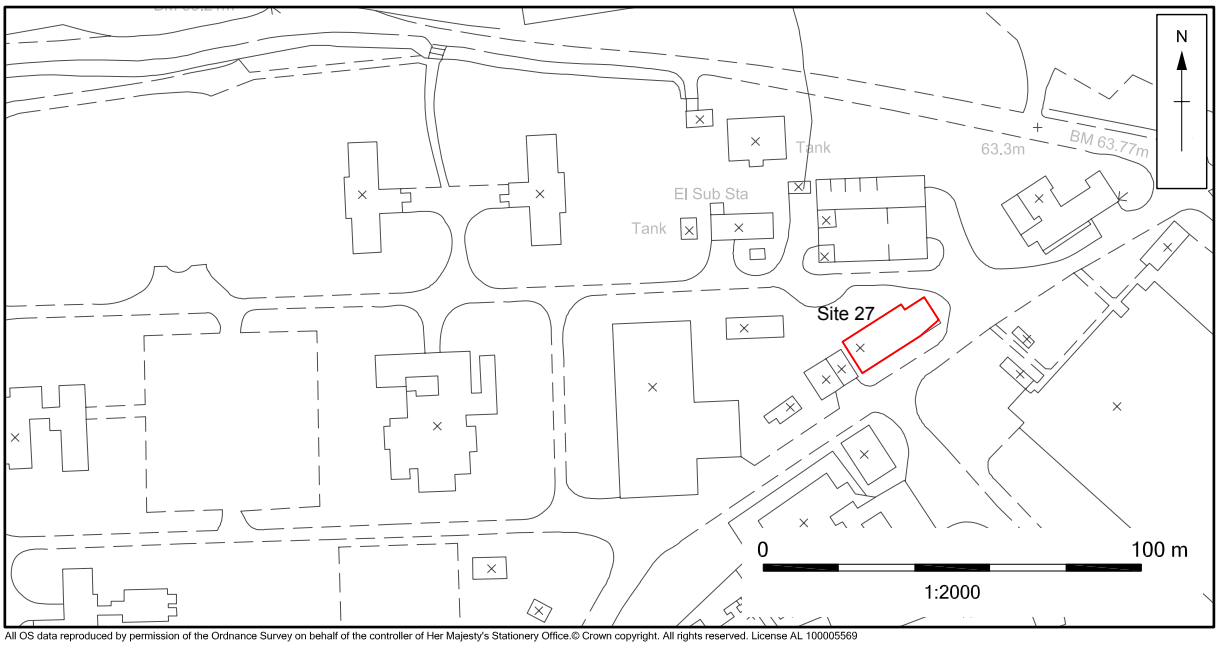
NGR: ST 59893 80669 **Phase**: 1920s aerodrome
Site type: site of former building

Location: The Armoury and Ammo Store were to the east of the main stores and faced the main north-east to south-west road.

History: The 1945 plan shows that the Armoury and Ammo Store was constructed to a standard design from 1924 (No. 1386/24) although it was almost certainly actually constructed later than this. The plan also describes the builing as being of 'permanent brickwork'.

Description
The building has been demolished to ground level but the floor slab survives together with areas of footings which confirm that the building was faced in brick and which provide some indication of the internal layout of the building. The main building was c.24 m long by c.9 m wide (at its widest point) and it comprised a projection (entrance hall?) at the north-east end. This 'entrance hall' had a parquet block floor which partially survives and was divided into two small elements. The main building was divided by a main transverse wall towards the centre as well as several axial walls. In the north-eastern half was a corridor (with parquet flooring) together with another linear room to the north of it and a larger room to the south. The western half of the structure was divided into five rooms each with utilitarian concrete floors.

The building is clearly shown on the 1940s aerial photographs and it appears to have had a flat roof.



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Maplet of site 27

Site 28: Parachute Store

NGR: ST 59852 80672 **Phase**: 1920s aerodrome
Site type: site of former building

Location: The Parachute Store was located close to the centre of the airfield's technical area, in a prominent location between the Main Stores, the Guardhouse and the substation.

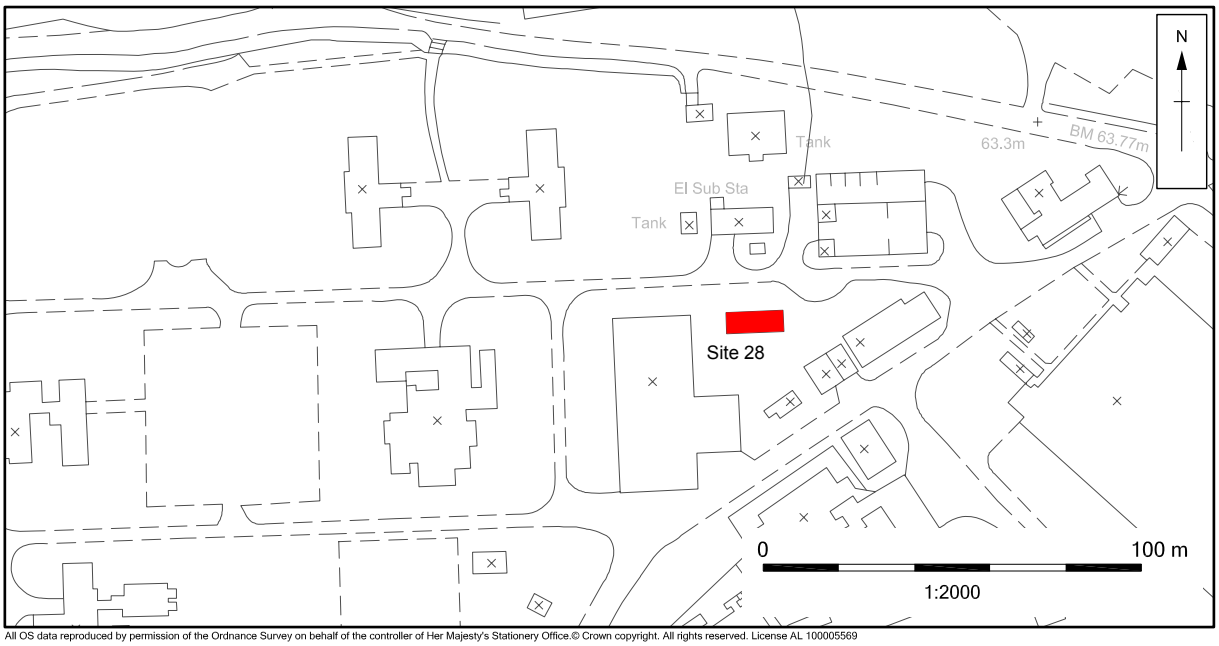
History: The 1945 plan shows that the Parachute Store was constructed to a standard design from 1925 (No. 2355/25) although it was almost certainly actually constructed later than this. The plan also describes the building as being of 'permanent brickwork'.

In the inter-war period (and particularly from 1927) parachutes became of increasing importance to the RAF and airfields therefore required specialised buildings to not only store the parachutes but also to allow them to be periodically inspected and to be hung daily to allow the evaporation of moisture. Parachute stores were therefore moderately large buildings which incorporated pulleys and hanging rails, storage racks and packing tables.

Description
The parachute store at Filton no longer survives but some recording of it was undertaken in 1993 prior to its demolition and a photograph of it from this time is included on page 32 of *British Military Airfield Architecture*. The building no longer survived in 2001 when Oxford Archaeology undertook an assessment of the buildings at Filton.

The photograph shows that the parachute store was a rectangular shaped, single storey brick building with a gabled roof clad in asbestos 'diamond pattern' tiles. There is a long dormer light along the roof ridge which accommodated the pulley and supporting structure from which the parachutes would have been hung.

The concrete floor slab survives (with some brick footings facing it) and there is no evidence of internal partitions.



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Maplet of site 28

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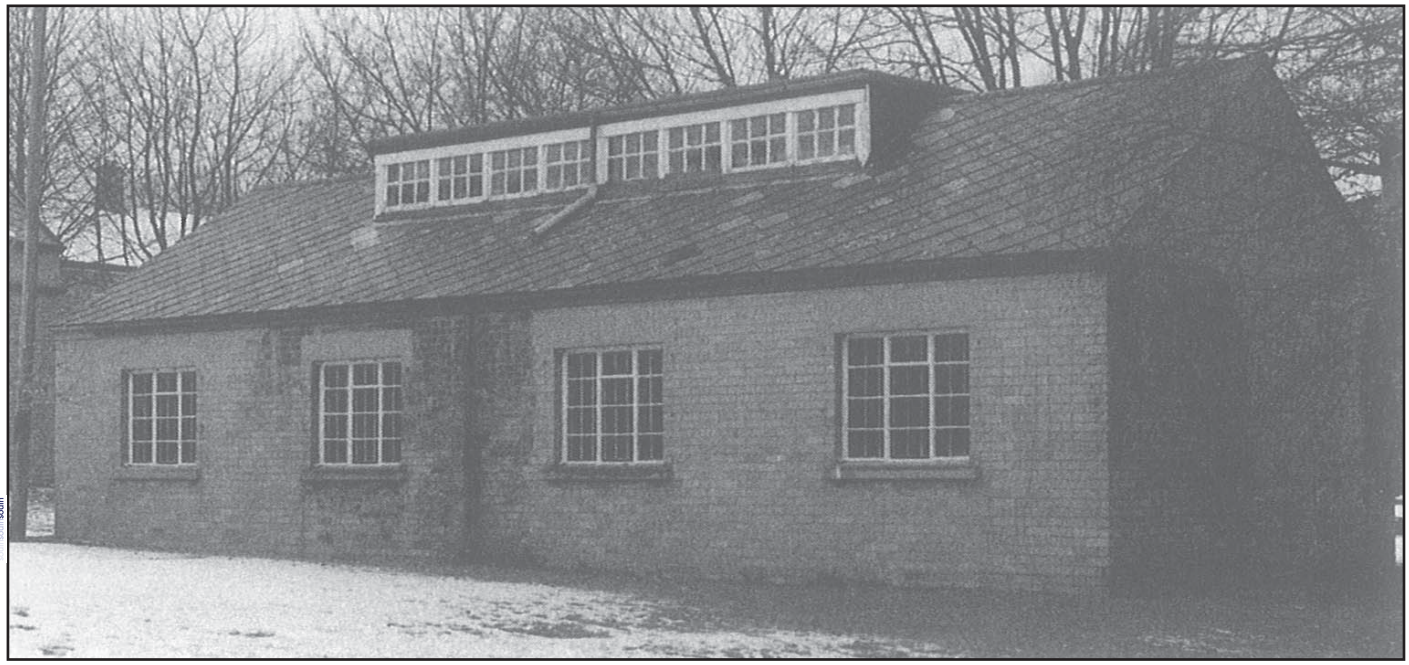

Site 28 Plate - Parachute store (after Francis, 1996)

Site 29: Inflammables Store

NGR: ST59863 80648 **Phase**: 1920s aerodrome
Site type: roofed building

Location: The Inflammables Store was immediately to the east of the Main Stores

History:
The 1945 plan shows that the Inflammables Store was constructed to a standard design from 1926 (No. 329/26) although it was almost certainly actually constructed later than this. The plan also describes the building as being of 'permanent brickwork'.

In OA's previous assessment report on the buildings at Filton (2003) this building was said to have been the armoury for the now vanished guardhouse and that the steel doored projection on the south-west side may have acted as a gun locker. However, after further analysis it appears that this was a misreading of the numbers on the plan and that the armoury (Building 27) was slightly to the north-east. The current building has a number 29 painted on its main elevation.

Description
The former Inflammables Store is a single storey, red brick building with a flat concrete roof. The structure is orientated south-west to north-east, so that it aligns with the road through this part of the site, and it has a broadly rectangular plan with the southern corner inset. The interior is divided into four rooms: a large one (c.5.5 x 5 m) at the centre, a pair of small rooms at the east end and a single small room at the west end.

It is c.5 m wide by c.9.5 m long (its longest edge) and its bonding is somewhat unusual apparently being a combination of Flemish and English bond. Standard courses of headers alternate with courses of 'Flemish bond' (alternating headers and stretchers). All the openings are beneath concrete lintels and there are a series of slat louvres in the elevations which provide an indication of the importance of ventilation in the building. The *north-east* elevation has two riveted steel doors which lead into two separate small (c.2 m²) rooms. Above each door is a fixed-slat louvre to allow ventilation into the rooms. The *south-east* elevation includes a central doorway into the main room and above this is a simple fixed-slat timber vent . The door itself is timber but this is clearly secondary and presumably the original door was of steel to match those which survive in the north-east wall. The south-east elevation has a crittal-type window which illuminates the small room at the east corner of the structure and two further slat vents to the south-west of the door as well as a further steel door (with slat vent above) providing access into the south-western room. The north-west elevation has two further large slat vents towards the centre and outside these two crittal-type windows which illuminate the rooms at either end.

The sign on the door to the main room labels the building as the 'Ambient Store' although the sign is secondary.

The two small rooms at the east end appear to have been used as a dumping area (now filled with tyres, bricks, boxes etc) but on the walls of the south-eastern room is written 'Ammonia' and 'Sulphuric Acid' confirming what inflammable materials were stored here.

The larger central room has a suspended softwood floor raised above a concrete floor slab. The floorbooards are set slightly apart (to allow more air movement?) but there appears to be a skirting below the level of the boards (down to the slab) and the boards are therefore almost certainly a secondary insertion. Against the north-west wall is a bench of the same date as the floor and several boxes and pieces of equipment possibly dating from the 1980s. The walls of all the rooms are of white painted (unplastered) brick.

The ground around the Inflammables Store is heavily overgrown but there strongly appears to have been a set of protective earth banks around three sides of the structure (other than the south-east face). Presumably this would have the dual function of protecting the building itself (and the flammable items inside) from an external fire or incident and it would at least partially contain any explosion inside the building. The external ground level rises noticeably towards the north and this bank may be partially just that the building was built into this bank.

In addition the 1945 plan shows a trench air raid shelter immediately to the north of the Inflammables Store.

Immediately to the north-east of the Inflammables Store is a concrete platform from a small former brick building. A building at this location is shown on the 1945 plan but its function is not labelled. The building would have been c.10 m x 8 m.

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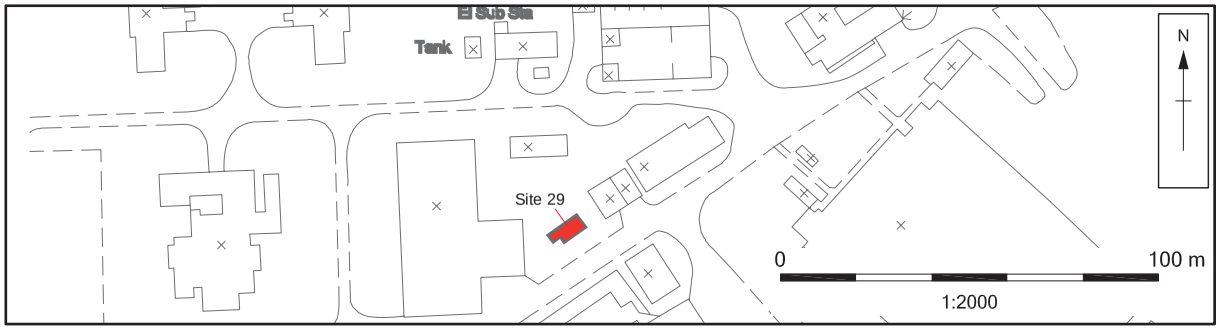

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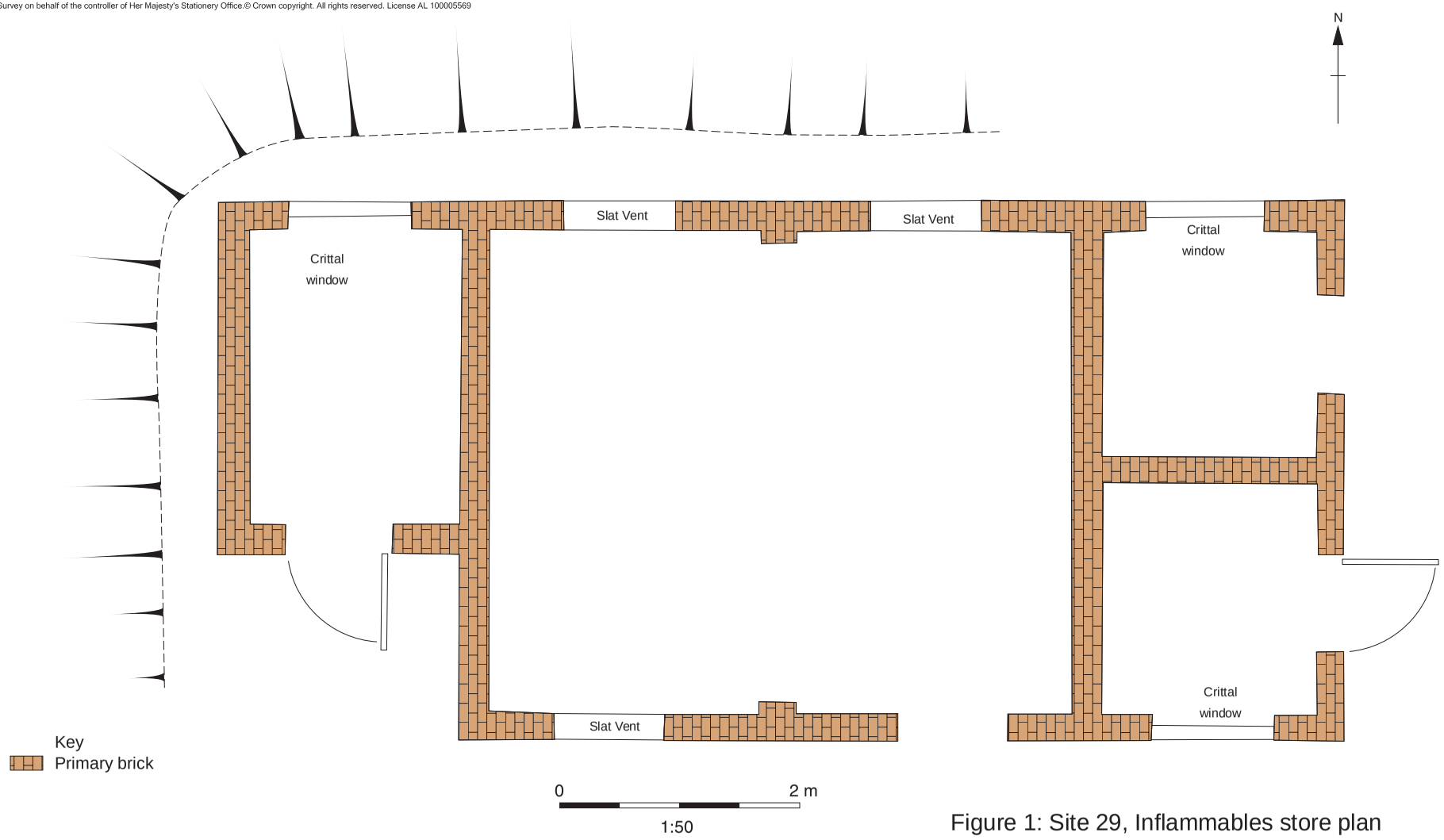

Figure 1: Site 29, Inflammables store plan

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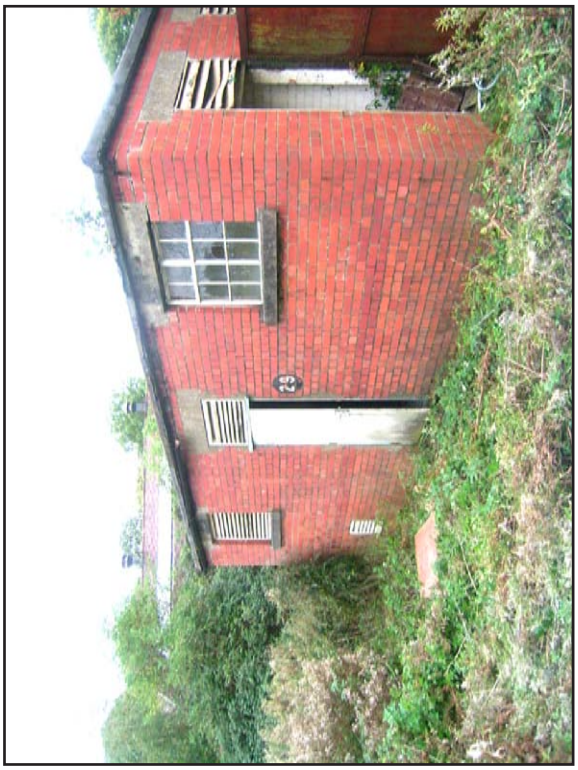
Site 29 Plate 2

Site 29 Plate 4

Site 29 Plate 1



Site 29 Plate 3

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Site 29 Plate 6

Site 29 Plate 7

Site 29 Plate 5

Site 30: Main Stores

NGR: ST 59836 80652 **Phase**: 1920s aerodrome
Site type: roofed building

Location: The Main Stores is located close to the centre of the technical area of airfield buildings.

History
The Main Stores was constructed in 1927 (shown by a date stone) and is shown on the 1940s airfield plans as well as aerial photos from the same period with camouflage-painted roof. The 1945 airfield plan shows that the main stores were built to the designs of drawing number 1255/25. However two other drawing numbers are also shown (1718/24 544/27). It may be that the first number is for the main building and one of the other two relates to the projection. The last two numbers from each drawing number relate to the date that these standardised building types were first designed (ie 1925, 1924 and 1927).

The building would have held both technical items (small aircraft components) and non technical (clothing etc). Equipment from the various military depots elsewhere would have been unloaded at the rear of the Main Stores to allow them to be sorted, labelled and stored.

The building found a new use (or uses) in the post-war period and this is presumably why it escaped demolition in the 1990s when most of the rest of the RAF structures were lost. One of these uses (perhaps the only use or main use) was for the Sowerby Research Centre.

External Description

The Main Stores is the largest surviving airfield building within the current development area and it divides into two principal blocks: a larger range to the west side (47.5 m x 20.5 m) and a smaller (12.3 x 14.7 m) projection to the east side which appears to be an early, secondary addition. Both buildings are constructed from red brick and they are single storied, albeit with high, largely open-plan rooms.

The ***larger range*** has an M-profile roof with double gables at the north end and a hipped return at the south end thus forming a U-plan roof ridge. Between the gables is a flat roof which extends along the spine of the building.

The roof is covered with large, primary diagonally set 'diamond' asbestos cement roof tiles which are typical for inter-war airfield buildings such as this. As stated above aerial photographs show that the roof was formerly covered in camouflage paint but there is no clear evidence of this visible from the ground. The roof has long glazed lights on each of the main north to south slopes and there is a row of six upstanding vents on the ridge of the eastern part of the roof, as well as a chimney at the southern end, but there are no vents to the west side).

The red brick walls have regular but unusual coursing where although it is generally of stretcher bond this incorporates regular 'piers' where every other course has three consecutive headers. This reflects the internal construction of the building and the headers indicate the presence of projecting structural piers on the inner face. These piers support the ends of the roof trusses but there are also similar piers in the double gabled north wall where there are no truss ends. Although the walls are largely stretcher bond they are more than a single skin thick. The main areas of wall are three bricks deep (c.33 cm thick) so presumably the inner two bricks are bonded across the wall to add strength thus leaving the (largely) stretcher bond face.

The *north elevation* of the larger block has two doorways each of which has a concrete lintel and blue bullnose bricks to the jambs. There is a double, vertical-board doorway in the eastern gable at the north end (numbered 16 F-2) and a single doorway between the gables (16 F-1). The door in this

opening is secondary and may be contemporary with the sign above the door 'Sowerby Research Centre Terrain Model Facility' which relates to a relatively recent use for the building (detailed more below in the internal description).

The *west elevation* has three door openings, each one now boarded over, towards the centre of the elevation beneath concrete lintels. The northernmost doorway has reformed jambs and is a secondary insertion. Towards the southern end of the elevation are three large primary vents with fixed horizontal slats and a large duct from an extract fan. Immediately to the west of the south end of the west elevation is an open top concrete fuel oil tank. A distinct green and black line from former wartime camouflage paint is visible on the west elevation.

The *south elevation* is dominated by three large sets of top-hung sliding doors which would have allowed the loading and unloading of items at this end of the building from vehicles which would have pulled up alongside a loading platform on which the doors sit. This raised platform (c.1m above ground) is created by the fact that the natural ground level slopes down towards the south of the building.

Each of the three doorways is flanked by piers with blue bullnose brick edges, and the central doors are set slightly forward from the side ones. The doors have simple sheet metal cladding and they are fixed to small wheels on guide rails secured to the concrete lintel. Beyond these are doors set at the lower ground level to separate rooms. The doorway to the western end of the elevation are double doors, with vertical board cladding, with a concrete lintel and the door number (16F-9) above this. To the eastern side of the elevation is a single door (again primary vertical plank door) numbered 16F-7.

The *east elevation* has two crittall type windows towards the southern end and what appears to be a lintel from a former window but with no straight joints beneath. The northern part of the east elevation is largely featureless and with no windows.

The **smaller range** to the east is slightly lower than the main building and its walls abut it, strongly suggesting that it is a secondary addition, although it must have been a relatively early extension. Similarly to the main block it also has a double-gable M-profile roof, clad in asbestos-cement diamond tiles, and incorporating long roof lights on all four slopes. Both ridges also incorporate two upstanding cowl vents. The walls are of red, English bond brickwork. The east elevation is featureless but both the northern and southern elevations include two double doorways, each one at the centre of a bay and with primary top-hung sliding doors. The doors are constructed from conventional vertical boards while each doorway is beneath a concrete lintel and with blue bullnose bricks to the sides.

Internal Description

The interior of the main range comprises a central spine corridor which leads from the door in the north elevation to a loading/unloading room at the southern end of the building, and large former store areas to either side of the corridor. The walls of the corridor are of brick, painted a turquoise colour and there are a series of openings which allowed access to the side storerooms through sliding doors with wheels fixed to their tops and set on steel runner-bars fixed to the walls. Some of the primary doors remain in-situ (particularly to the southern half of the corridor) and comprise vertical boards to the lower half and glazed lights to the upper half (two rows of six lights divided by a mullion).

The area to the western side of the corridor is a single open plan room (36 m x 8.5 m) and this houses an astonishing model which extends up to the brick walls and covers the entire floor. This model is believed to have been constructed in the 1970 or 80s and was part of the Sowerby Research Centre Terrain Model Simulator. Patrick Hassell and Cliff Richard discussed on site their understanding of what the model was for and this broadly aligned with information gained from an aviation heritage website forum (http://www.airfieldinformationexchange.org/community/archive/index.php/t-143.html)

It appears that the model was built to test the observation of pilots in low flying fast jets and was prompted by NATO fears that the Warsaw Pact might be able to move large numbers of tanks and

armoured vehicles well into Western Germany before they were detected. The landscape was apparently an accurate model of the countryside in Lower Saxony around Hamlin and above the landscape was a rail on which a motorized camera was mounted. It could traverse the landscape in three dimensions at suitable scale speeds, looking for the metal model tanks which were moved by cotton threads. At the northern end of the area was a small control room.

The steel framed structure which supported the cameras and track is also partially insitu and comprises a series of pairs of posts against the outer walls supporting long steel beams spanning the room. These support further axial joists with regularly spaced fixings beneath.

Unfortunately by the time the current recording was undertaken the model had been disused for many years and many parts were heavily discoloured by mould or by people walking over it.

There are nine steel roof trusses within this area, each of which are formed from L-section steel members with rivetted connecting plates.

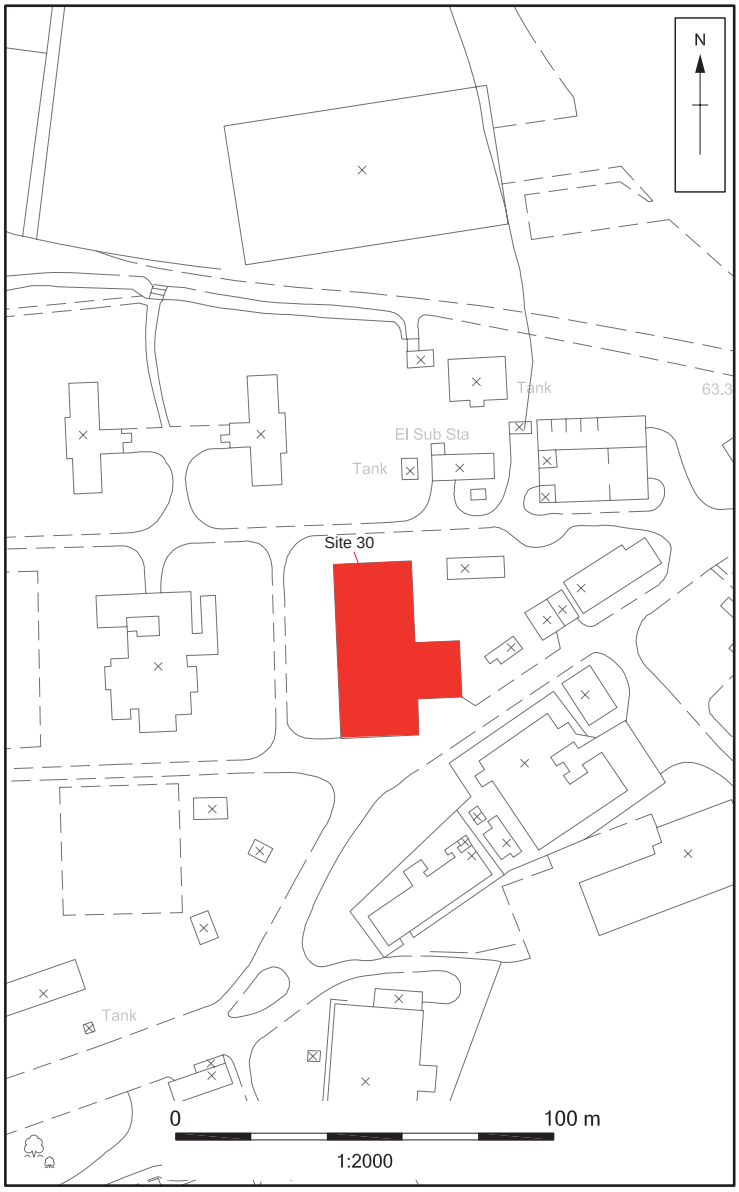
The similarly sized area to the east of the corridor is divided into five rooms which appear to be largely primary although the two rooms at the southern end were formerly a single larger space but have been divided by the construction of a breeze block wall. These rooms are all relatively featureless with turquoise painted walls (non plastered) and presumably they would have been filled with storage racks. In the room at the northern end there is the outline of a former later 20th century partition within the room.

The southernmost part of the building, to which the long corridor leads, contains a large central room (11.5 m x 9 m), three small rooms off this area to the east and a separate room to the west which is at a lower level and is only accessible from the outside. The three smaller rooms to the east were probably simple offices and a rest area whereas the central area would have been a holding area where items would have been unloaded, sorted and labelled before being transferred to the main storage areas.

At the south-western corner of the building is a room (c.9.2 m x 3.7 m) accessed via the double doors in the south elevation immediately inside of which are 'concertina' style horizontally sliding security doors. The room has unplastered brick walls (painted yellow) and a tongue and groove boarded ceiling fixed directly to the rafters above the roof structure. The roof comprises two timber half trusses which appear to be structurally entirely separate from the adjacent room, divided from it by a full height brick wall. The half trusses form a simple triangle comprising principal rafter, tie-beam, raking strut and post immediately to the west of the brick wall. This wall has a ledge or shoulder which supports the eastern side of each tie-beam while the western end rests on a concrete pad in the west wall which is supported by slightly projecting piers. The truss members are braced with iron straps while primary light fittings survive beneath tie beam. Two purlins rest directly on the backs of the principal rafters (without notches) and these are supported by triangular blocks. Immediately above the eaves is a further purlin which acts as a wall plate. The timber is all softwood. Against the west wall is bolted the frame from four large former shelves.

Patrick Hassell and Cliff Richard, who were based at the site for many years and visited as part of the current recording programme said that they remembered wood workers for a time being based in this room.

The interior of the **smaller range** comprises a single open-plan room with a line of three I-section posts along the spine dividing the two bays and supporting the ends of trusses. The walls are all of painted brickwork and the outer ends of the trusses are supported on shallow piers within the walls. There are three pairs of metal trusses and each of these is formed from simple L-profile steel members with rivetted connecting plates at the intersections. The roof has two main purlins (plus ridge piece and wall plate) and while the inner face of the roof is clad in tongue and groove boards with a long central light to each slope.



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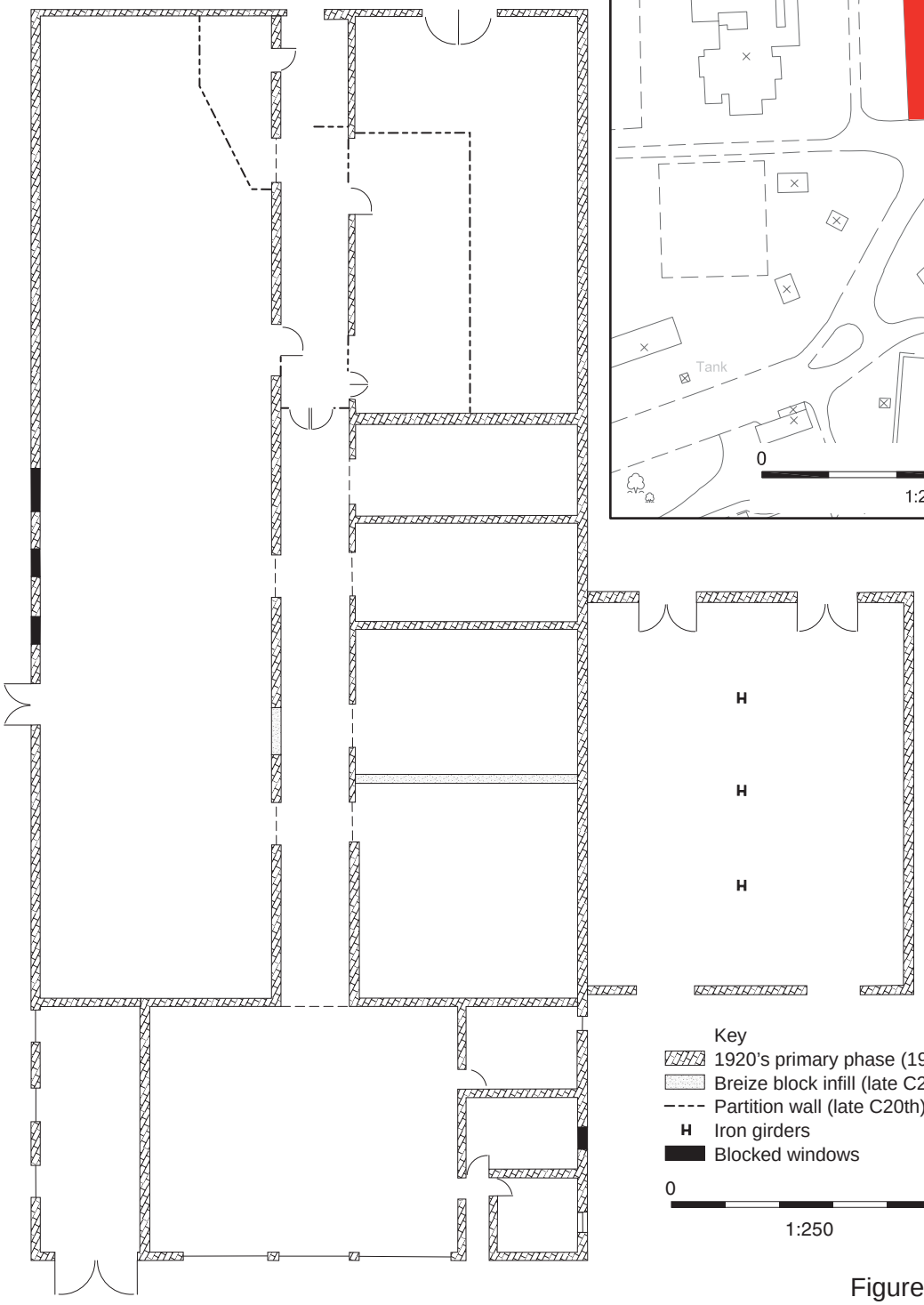

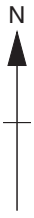

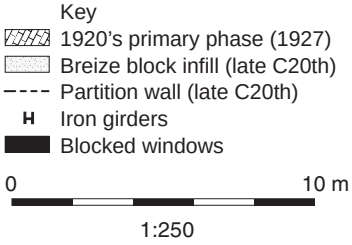

Figure 1: Site 30, main stores plan

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Site 30 Plate 2

Site 30 Plate 4

Site 30 Plate 1

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Site 30 Plate 14

Site 30 Plate 16

Site 30 Plate 13

Site 30 Plate 15

Site 40: Gas Defence Centre

NGR: ST59672 80555 **Phase**: late 1930s or WWII expansion
Site type: roofed building

Location
The Gas Defence Centre is located towards the south-western corner of the main aerodrome a short distance to the west of the Operations Block.

History
The 1945 airfield plan shows that this building was constructed to drawing number 9132/37 and thus is of a standard type of airfield building whose design was established in 1937. The building at Filton may have actually been built after this but it is clear that it relates to the expansion of the airfield immediately before and during the Second World War.

In Oxford Archaeology's previous assessment of the buildings at Filton (2001 and re-issued in 2003) this building was misidentified as the *Pyrotechnics Store and Old Camera Obscura*. This misidentification was a result of the building number written on the 1945 plan appearing to be 48 when it is actually 40. There is a separate building labelled 48 on the plan to the east of the Operations Block and this one is identified by Paul Francis is *British Military Airfield Architecture* as the Camera Obscura.

It is not known for certain what the function of the Gas Defence Centre was but it may well have been to distribute respirators and other protective equipment to be used in the event of a gas attack. It is well known that the threat of aerial attack on airfields (and other targets) using poisonous gas was taken very seriously in the preparations for war and in the early stages of the war. Gas Decontamination Centres were built at many airfields (including Filton) to treat the victims of an attack and it is likely be that Building 40 formed part of the defensive precautions to lessen the impact of any attack. The gas decontamination centre at Filton, together with the associated sick quarters were located a relatively short distance to the north of Building 40 but they no longer survive.

Description
The gas defence centre is a single storey, brick built structure with a rectangular plan (13.6 m x 6.7 m) and flat roof behind a tall, 10-brick parapet. The brickwork is in stretcher bond and it is a simple, utilitarian structure with a series of windows around the external walls which use the flat concrete roof as a lintel (visible as a band around the whole building) and which have small concrete sills. The windows or hatches have all now been blocked but there would have been three such openings in the east wall, the south wall and the west wall. There is a single window in the north wall. The main access to the building was in the west wall where there are now two doorways but each of these has been inserted or significantly altered. In the northern half of the elevation is a large doorway for vehicles with roller shutters and beneath a secondary steel lintel. In its current form this doorway is secondary but this almost certainly replaced a previous doorway in a similar location. This is suggested by the fact that there is a concrete track leading to this location from the west, which is also shown on the 1945 airfield plan, and it appears that there may have been an enclosed lobby or tunnel leading to this opening. This is shown by the imprint of such a former adjoining feature on the current jambs of the opening.

In the southern half of the west elevation is a second doorway. This is a conventional entrance for pedestrians but it is set within a larger area of secondary brickwork and clearly there was formerly a larger doorway at this location. This doorway again has the imprint from a former projecting lobby and it may be that one of these doorways was an entrance and the other an exit.

The interior of the building divides into three main areas: the northern and central areas are larger and occupy approximately four fifths of the overall floor plan while at the southern end there is a narrower

bay with separate room to east and lobby to west. The two larger areas are now partially united by the secondary insertion of a large RSJ lintel into the primary dividing wall to create a 3m wide opening. Towards the western end of this wall is a primary doorway which has been rendered obsolete by the larger opening adjacent to it.

The two rooms have a concrete floor, flourescent lights and a minimal utilitarian character but one distinction between the spaces is that whereas the walls of the northern room are rendered those in the central room are generally of painted brickwork. The one exception to this is the wall to the south which is of secondary concrete block which appears to have been added to create a new room (3.8 x 2.5 m) in the south-east part of the building. This replaced a former smaller room (2.5 x 2.25m) in the corner from which evidence survives in the ceiling and in a rendered mid-height band to the walls. Two safes remain in this area.

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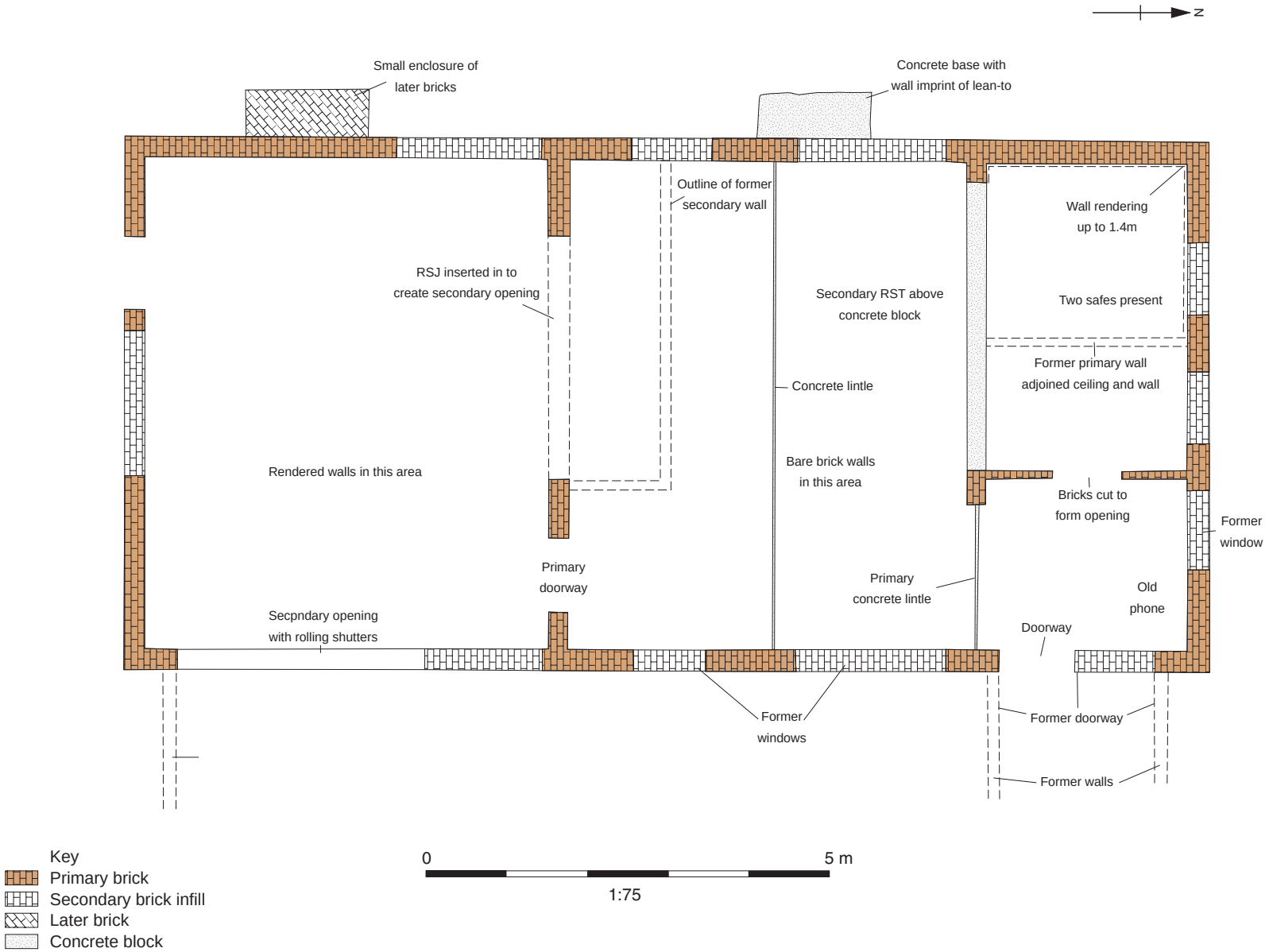

Figure 1: Site 40, Gas defence centre

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Site 40 Plate 2

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Site 40 Plate 3

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Site 40 Plate 6

Site 40 Plate 8

Site 40 Plate 5

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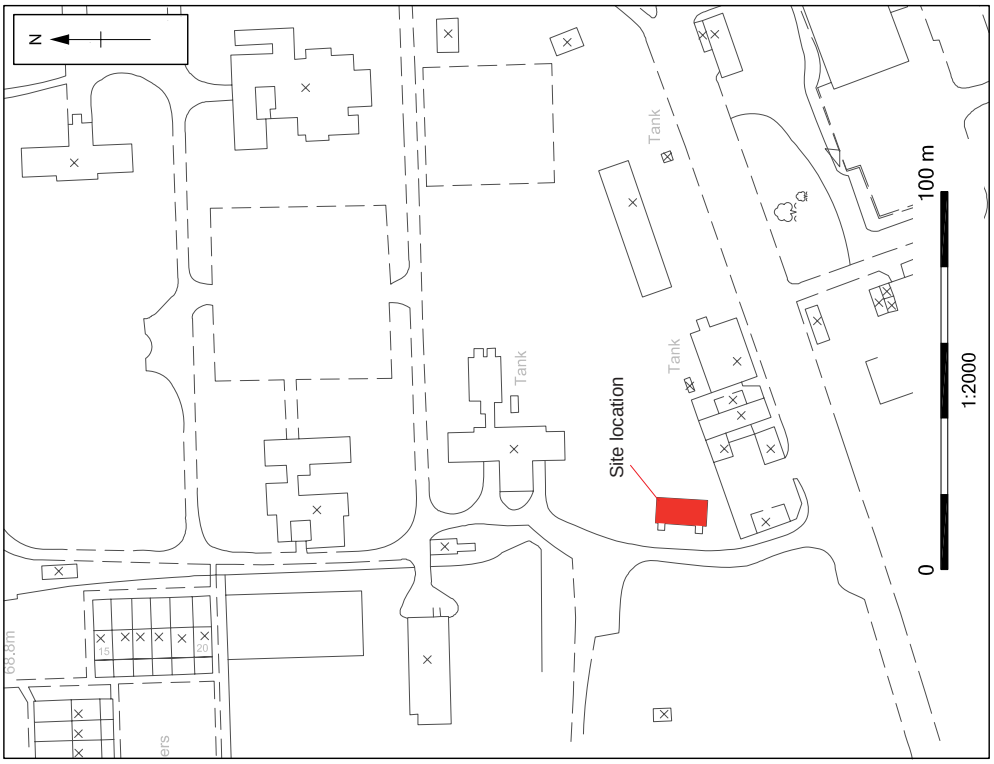
Site 40 Plate 9

Site 40 Plate 10



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Site 44: Operations Block

NGR: ST 59750 80546 **Phase**: 1920s RAF Airfield
Site type: roofed building

Location
Similarly to other airfields of this period the Operations Block is located close to the main technical buildings, behind the main hangars which face onto the airfield.

History
The Operations Block at RAF Filton is of a broadly standard design (1161/24), similar to many constructed at other airfields in the mid 1920s, intended to be used for up to three squadrons.

This general type of building is outlined in *British Military Airfield Architecture* by Paul Francis (see fig) although the building at Filton shows some differences with the standard type illustrated in the book. Although it is a relatively plain structure this building would have been the 'nerve centre' of the airfield and it is among the most significant structures covered by the current study. A date stone on the south elevation shows that it was constructed in 1927.

As detailed in the main historical background Filton was a sector station airfield for Group 10 Fighter Command and as such the operations block would have been a part of the RAF's chain of command during battles by allowing the commanders to plot, monitor and strategically plan operations. They would have been in contact via telephone and teleprinter with radar stations, other Operations Blocks, Observer Corps stations, Fighter Command Filter Rooms, balloon depots and many other authorities so that positions of incoming enemy fighters could be tracked and squadrons based at Filton scrambled. This complex network of information formed part of the famous Dowding System of Defence, named after Air Chief Marshall Sir Hugh Dowding.

All the processed information such as the locations of the airfield's squadrons, as well as that of enemy planes, would be plotted on large maps in the Ops Room and updated as further information was received.

It appears from the 1945 plan that by the end of the Second World War the Operations Block was no longer in its original use because this plan labels Building 44 as '*Signals Education Hut (Old Operations Room)*'. Indeed, it may well be that the functioning of the Operations Block had been relocated to a more heavily protected building elsewhere even before the start of the war

By the end of the 1930s it was becoming realised that although the 1920s type of Ops Block was protected against sideways impacts they were highly vulnerable to a direct hit due to their light weight roof and that this was exacerbated by their location adjacent to the main technical buildings which enemy bombers were likely to target. In contrast the Operations Rooms constructed at airfields in the mid and later 1930s were much more heavily protected with concrete roof and blast walls and they were dispersed away from the technical site. Due to this some 1920s Operations Blocks were relocated away from the airfield and it is possible that this was the case at Filton.

Description

Exterior
The Operations Block is a long, narrow, single-storied rectangular plan building and its relatively low horizontal nature is emphasised by the substantial earthen banks which surround it to provide it with blast protection from sideways impacts. The current banks are c.1.5 m tall and they survive remarkably well. The banks wrap around the four sides of the building allowing a narrow walkway between it and each wall, and on the southern side there is a baffle entry where an additional bank provides protection adjacent to the point where there is a break in the main bank for an entrance.

The walls are constructed from red brick (English bond) and the hipped roof is clad in primary asbestos tiles laid in a distinctive diamond pattern typical for inter-war airfield buildings. The eaves are open with the rafter feet visible and there is a low rendered plinth. Towards the eastern end of the building is a chimney which would have related to the basement boiler house in this area. The primary crittall-type iron windows largely survive in-situ with concrete lintels and sills.

The building is c.35 m long by 8.3 m wide and it is interesting to note that it is a bay longer than the standard type 1920s Operations Block which Paul Francis states is 97 ft 9 in long (29.5 m). It is similarly longer than known comparable Ops Blocks at RAF Northolt, RAF Duxford and RAF Bicester.

The *north elevation* is eleven bays wide (one more than the standard ops block) and retains 10 primary windows nine of which have 24 lights (with mullion, transom and three casements) while towards the centre are two larger 36-light windows which would have illuminated the former wireless room. Towards the western end of the building is a blocked former window. To the east of the centre of the elevation are two distinctive holes, one above the other which would have allowed cables into the central wireless room. These openings are c.20 cm by 20 cm and they are lined with a c.10 cm thick concrete lining which would have extended through the depth of the wall.

The *west elevation* comprises one primary 36-light window and a door while the east elevation has two primary 24-light windows

The *south elevation* comprises a broadly central door with three windows to the east of this and four to the west. There is also a further door towards the west. All the windows to this elevation are secondary replacements (12 lights) probably dating from the 1960s.

Internal description

The *basement* houses a boiler house and is beneath the easternmost bay of the building. It is accessed via a straight flight of stairs against the south wall at the base of which there survives a primary green-painted timber door with vertical boards to the lower half and horizontal slats allowing ventilation in the upper half. Access into the basement was not possible due to knee-deep standing water but the door was open and it was possible to take a number of photographs. The walls are of unpainted brick and the floor above is a concrete slab. Against the south-east corner of the room is a brick lined open-topped tank but apart from this there is little surviving plant or features of historic interest.

The main interior of the *ground floor* divides into a series of rooms along the northern side of the building as well as rooms at either end, linked by a corridor against the southern wall. The layout appears to be a mirror image of that of the standard type detailed in *British Military Airfield Architecture* (as well as being a longer version) and from this it is possible to see how the functions shown in the 'standard' plan would have translated into the adapted building at Filton.

After the closure of the main RAF base the building saw some reuse and even in recent years it retained a minor function related to a radio transmitter but the building has not been comprehensively modernised and it retains historic features. The walls are very largely plastered, there are suspended flouorescent lights and there are generally plain low skirtings. There are no cornices and only very plain architraves. The primary doors have four plain panels and the window sills are of timber. The floors generally have lino tiles and there are a number of radiators which are probably primary.

At the east end of the corridor are two rooms above the basement boiler house and these would almost certainly have formed a store (to north) and wireless telegraphy (W/T) room to south, separated from each other by a wall that is likely to be primary. On the west wall of the W/T room is a chimney breast which served the boiler house in the basement and which is also shown in this location in the standard Operations Block illustrated in *British Military Airfield Architecture*. The primary parquet block floor survives in this area although is has been covered by later lino.

A sign on the door to the W/T room shows that this was reused in the post-war period as an 'electronic workshop' and inside the room there is a secondary workbench and an 'airfield operating' warning light on the wall.

To the west of the W/T Room and Store would have been the PBX (Private Branch Exchange) Room which would have housed a telephone switchboard but at Filton this room has now been subdivided into three smaller rooms: two in the southern half and one to the northern half. The primary room has also been further altered by the removal of the northern half of the west wall to connect this part of this area with the adjacent room (Battery Room). The PBX room would almost certainly have been an open-plan space and the partitions which now divide it must therefore be secondary additions although they are likely to have been relatively early additions, potentially even during the Second World War. The upper half of the partition between the large room to the north and the eastern of the two southern rooms is a large glazed panel with two rows of five ridged-glass lights. The glazing has now been painted. The wall between the two rooms in the southern half of the PBX room is a plainer stud partition but at the northern end of this is a panelled door (now blocked) with large lights above. This glazing does not match the panelling in the north wall and it has the appearance of being reused from elsewhere. There is a further blocked door in the north wall between the small room at the SW corner of the former PBX area and the larger room to the north.

To the west of the PBX was a relatively narrow room which would have been the Battery Room although as mentioned above the northern half of the east wall between this and the PBX has been removed. This room is relatively featureless although there are pairs of rails/bearers along the west, south and east walls at c.1.25 and c.2.25 m above ground possibly to hold plans.

The primary four panel door survives at the south end of the room, connecting to the corridor and a sign on this shows that the secondary use of the room was as a Store. The floor of the Battery Room is of conventional floorboards.

To the west of the Battery Room is a large square plan room which would have been the Wireless Room in the original Operations Block although it has now been divided into two rooms by a secondary, central, north to south partition. This partition appears to have been a relatively early alteration and the door at the centre of it has a sign saying 'Crew Room'.

The western room has a sign on the main door from the corridor showing that this was a 'Heavy Workshop and Screened Room' and inside the room is a large cupboard against the partition as well as a workbench and further cupboard beneath. There are two distinct circular holes (10 cm diameter) in the ceiling (for cables?) as well as several smaller holes.

The eastern room has four small boards on the ceiling which infill former cable holes and various subtle marks on the east wall, probably from former boards. As referred to in the external description there are two square cable holes in the north wall which would have allowed cables into the Wireless Room from the outside. Also mentioned above is the fact that the Wireless Room was illuminated by two 36-light windows in the north wall, larger than the other widows in the building.

To the west of the Wireless Room would have been the Signals Office and although this area essentially retains its primary footprint (albeit with a secondary wall at the south end) the form of the room has been significantly altered by the insertion of a set of wire-mesh screens which form a 3 m tall 'cage' inside the room. This mesh, which is clearly secondary, is fixed to a simple stud frame and presumably it either housed a part of the transmitter which is known to have remained in use in this area into the 21st century or it prevented activities within the cage from interfering with a transmitter elsewhere.

The floor of the Signals Office in a standard 1920s Operations Room would have been c.1 m above the building's main ground floor height to match the level of the observation gallery in the adjacent Operations Room. At Filton this raised structure has been removed to allow a continuous ground floor but there are some features which appear to provide fragmentary evidence of the former raised floor.

These include subtle imprints on the side walls of the room (especially the west wall) at c.1m above ground level and also the fact that the radiators in this room have been replaced, unlike in almost all the other rooms. There would have been a short staircase in the corridor immediately south of the Signals Office and again there are subtle traces on the wall which may relate to this.

The west wall of the Signals Office would have been a largely glazed screen between this room and the immediately adjacent gallery in the Operations Room. This would have created a visual link between the two areas while creating something of a sound barrier to limit disturbance to the operators in the Signals Office.

This screen remains in-situ at Filton, although it has been painted over, and it comprises two rows of 10 lights/panels divided by three posts. The 10 lights in the upper row are entirely of ridged glass but at least four of the lower row are panels and presumably these could have been slid up to allow messages to be passed rapidly from the Signals Office to the Operations Room. The screen is 5.5 m wide by 1.6 m tall and at the northern end of the wall, beyond the screen is a further hatch between the rooms.

The Operations Room itself, to the west of the Signals Office, would have been the largest room in the building although it has now been divided in two by an east to west partition.

The Operations Room would have been where the sector commander (and a team of staff) would have been located during key periods and from where Filton-based squadrons would have been scrambled and then commanded prior to them actually entering battle. There would have been a large map table on the floor presumably showing the south of England and the channel and (as seen in numerous films) with counters or markers on the table indicating the locations of squadrons. These would have been moved as updated information on the movements of RAF Squadrons and the Luftwaffe was received.

As referred to above there would have been a gallery or raised ‘dais’ along the east side of this room, overlooking the plan tables but this no longer survives at Filton and there is little evidence of its former location. The roof structure is entirely obscured in the building but assuming it followed the form of other 1920s Operations Blocks it would have had a series of king-post trusses

A sign on the door shows that the former Operations Room was reused as a ‘Transmitter Hall’.

In the standard 1920s Operations Blocks the Ops Room would have formed the end of the building but at Filton there is a further bay to the west which appears to be primary. As this is not shown on the standard type building it is not known for certain what the function of this room was and it may be that it was nothing more than a store or utility room. OA has recently investigated an Operations Block at RAF Northolt which is of the same basic type as that at Filton and this structure had had a further bay added onto the Ops Room. However, unlike at Filton this was clearly a secondary addition and evidence suggests that it was added as a Filter Room (to ‘filter’ information before the key elements were passed to the Ops Room). The addition of Filter Rooms appears to have been a development in Operations Blocks in the late 1930s during the development of the Dowding Defensive System, over a decade after the construction of the Filton building, so it is unlikely that this was the function of this room.

Conclusion

Together with the Flak Tower the Operations Block at Filton is the most significant surviving building covered by current study. The building would have been the nerve centre of the airfield, from where it was intended that military engagements or operations would be monitored, and it is unusually well preserved with primary windows, blast banks, roof covering and various historic internal features intact. The building is of considerable interest even though it may be that the actual Operations Block functions were relocated elsewhere before the Second World War and that therefore the building was never used for its primary purpose in time of war. A plan from 1945 labelling the building as the ‘Old Operations Block’ appears to confirm that by the end of the war the operations had been relocated

elsewhere and due to the known vulnerability of 1920s Operations Blocks it may be that this happened before the war.

Its layout and overall form follows closely the standard layout of a 1920s Operations Block and it is similar to a number of other surviving blocks. Among these are ones at RAF Duxford (Imperial War Museum) and one at RAF Northolt which Oxford Archaeology has recently recorded. The restored building at Duxford is open to the public and gives a particularly good idea of the historic form and use of the building although in general the block at Filton appears to corresponds more closely to the standard 1161/24 design than Northolt or Duxford. It is also significantly better preserved than the block at Northolt which has lost its blast banks, almost all its primary metal windows and original roof covering.

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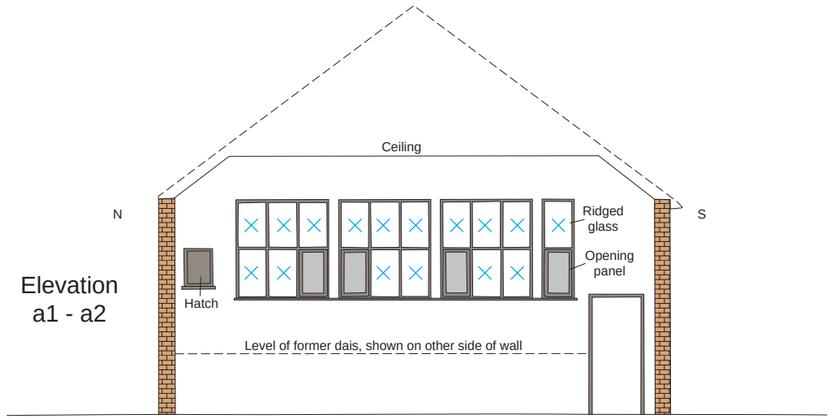

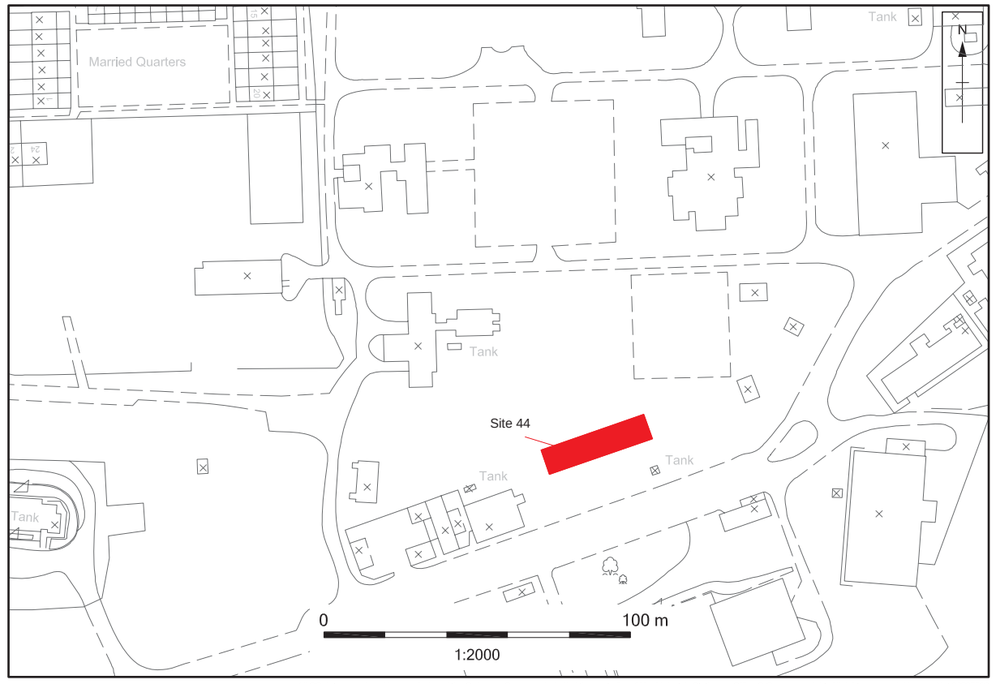

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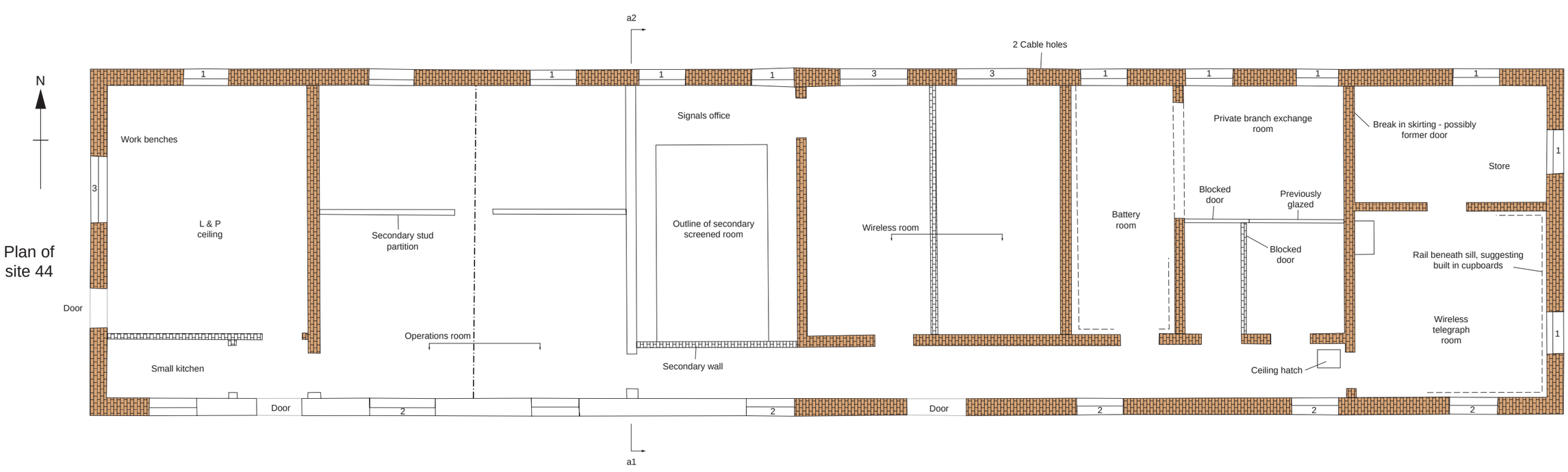

Key
- Brick
- Secondary Wall
- 1 Windows - primary crittal type, 24 light
- 2 Windows - secondary 12 light (1960's?)
- 3 Windows - primary 36 light

Figure 1: Site 44, operations room elevation and plan

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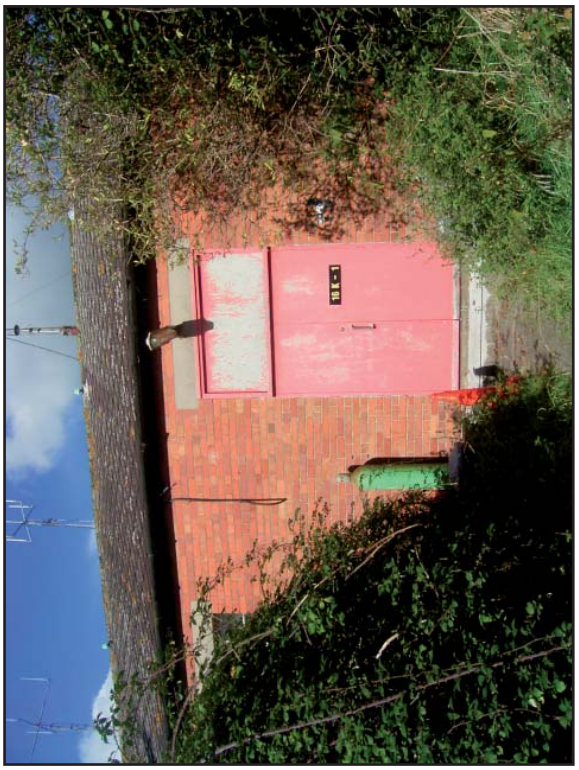
Site 44 Plate 1



Site 44 Plate 3

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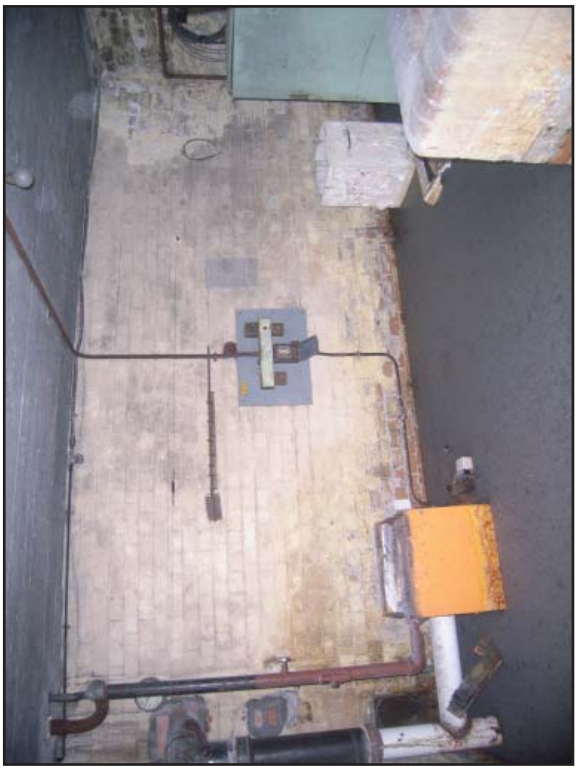
Site 44 Plate 12



Site 44 Plate 9

Site 44 Plate 11

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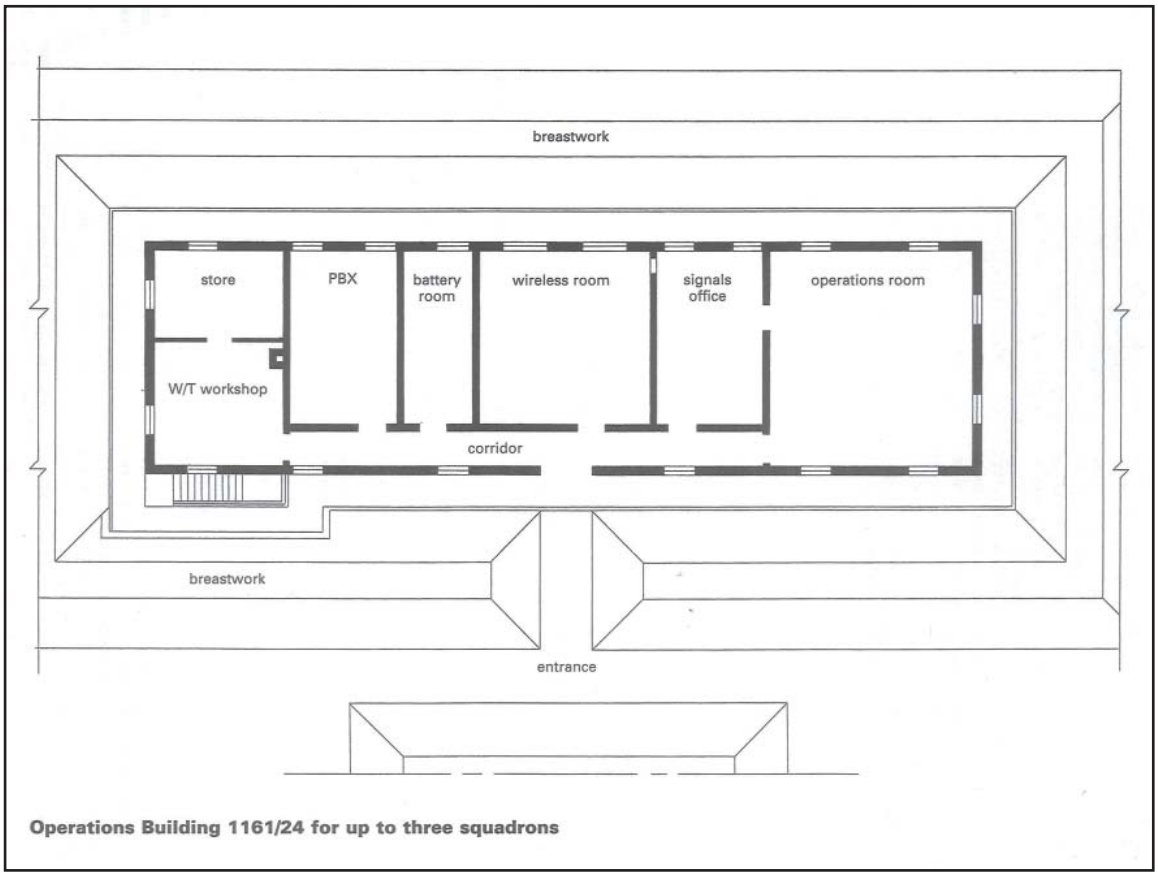


Plate 44 Plate 17 - Operations block (after Francis, 1996)

Site 49: Lubricants store

NGR: ST 59792 80536 **Phase**: Part of 1920s RAF Airfield.
Site type: roofed building

Location: The Lubricants and Liquid Containers Store is located immediately to the south of (and outside) the current development site. Similarly to other contemporary airfields it was located behind the main hangars.

History
The 1945 plan shows that the lubricants and liquid containers store was built to a standard design from 1926 (No.329/26) although from a datestone it is known to have been constructed in 1927.

The building is on the south side of the road which forms one of the main routes through the former RAF base and which forms the edge of the current Northfield development Therefore the building is outside the scope of the current proposals although it has been included in the current gazetteer due to its strong historical relationship with the Northfield area. The building is reported to have remained in its primary use until relatively recently.

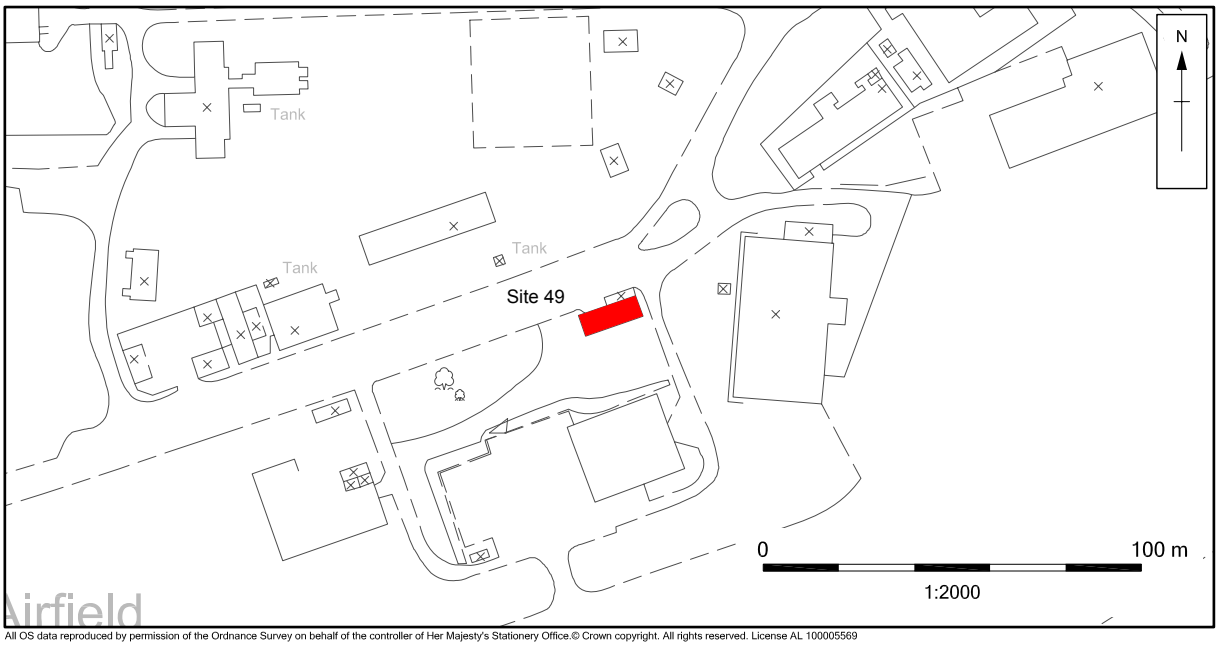
Examples of contemporary and comparable lubricant stores are believed to survive at RAF Bicester, RAF Northolt, RAF Duxford and RAF Upper Heyford.

Description
Building 49 is a rectangular plan structure (c.8.5 m x c.3.5 m) which divides into two elements: the eastern two-thirds formed the Lubricants Store while the western third formed the liquid containers store. It is a single storied red brick building with gabled roof although that over the western third (liquid containers) is c.50 cm lower than that over the main range (lubricants). The roof is clad in asbestos cement 'diamond' roof tiles and there are six large upstanding vents along the ridge (four over the Lubricant's Store and two over the liquid containers store). There are long skylights on the northern slope of both parts of the building.

To the front (north) side of the lubricants store is a ramp and raised platform (c.0.75 m above ground) which would have allowed trucks to park alongside and for barrels of oil to be rolled off and directly into the store inside. Adjacent to this platform is a large door opening in the main elevation with roller shutters and there is a small, partially surviving pentice roof providing a covered area for loading and unloading. However, the current pentice roof appears to be a secondary alteration (together with a guard rail alongside the ramp) and this has replaced a previous, longer roof structure. The previous overhanging pentice roof would have been more than twice the length of the current structure extending as far as the eastern corner of the building and also extending further to the west. It would probably have been the same length as the raised platform (excluding the ramp). This is suggested by slightly different weathering to the elevation and more conclusively by a number of aerial photographs, particularly those from 1944. The aerial photographs also show that the roof had camouflage paint.

The liquid containers store was accessed from a large doorway (now blocked) in the north elevation with concrete lintel and blue, bullnose-brick jambs as well as by a smaller single doorway in the west elevation. To the west of the door in the north elevation is a datestone showing that the building was constructed in 1927.

The rear (south) elevation is now largely obscured by vegetation while the east elevation is totally plain. The interior of the building has not been seen in the current project but as referred to above the structure is outside the current development site and is not being directly affected by it.



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Maplet of site 49

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Site 49 Plate 2

Site 49 Plate 3

Site 49 Plate 1

Site 52: Side Opening Hangar

NGR: ST 59838 80434 **Phase**: First World War
Site type: roofed building

Location
The Side Opening Hangar is immediately to the south of (and outside) the current development site

History
To the south and east of the aerodrome's technical area would have been a number of hangars facing directly onto the open airfield and the runways themselves. Three of these hangars survive and remain in use today for the storage of light aircraft although each is immediately outside the current development area (inside the 'live' airfield). One of these is the Side Opening Hangar which forms part of a cluster of buildings to the south of the road at the eastern corner of the technical area.

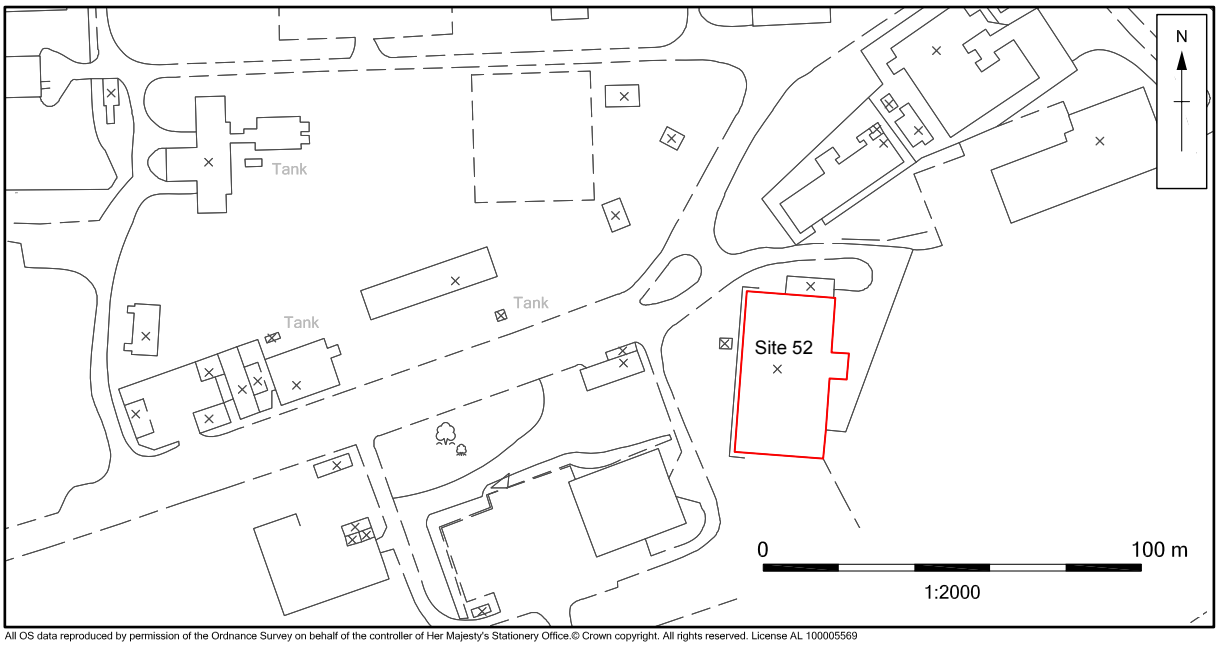
The Side Opening Hangar is of considerable interest as it represents the earliest phase of Filton's aviation history. It appears to have been constructed during the First World War (c.1917-8) but is to a standard pre-Great War design dated 1913. This would have formed part of the Aircraft Acceptance Park which was established at Filton during the latter stages of the Great War and then after the war been retained for use by the Bristol Aeroplane Company.

Due to its significance it was listed by English Heritage at Grade II in November 2005 (DCMS list no: 319/0/10011). In January 2006 Oxford Archaeology undertook an assessment of the impact of the development on the setting of this listed structure.

As it is outside the development area this building has not been recorded in detail in the current project but due to its proximity immediately adjacent to the development and the clear historical relationship between the northfield and this building, it has been included in the gazetteer. The recording has also been limited due to logistical/security difficulties with gaining access into the 'live' part of the airfield in which this hangar is located.

Description
The Side Opening Hangar is a single storied building with a linear (north-south) plan and gabled roof. It is clad in corrugated sheeting (partially secondary replacement) but it retains some original windows and cladding. The structure is a timber framework but this has not been inspected or recorded in the current works. At the centre of the east elevation is a set of full height, sliding (side-opening) doors to allow planes to be transferred in and out of the hangar and above this is a gabled pediment. To the rear (west) is a lean-to range for offices, workshop and stores with metal casement windows and a chimney. Small modern extensions have been added at the north end of the building and at the south end of the lean-to projection on the west side.

Aerial photographs taken during the Second World War show clear camouflage on the roof but more recent photographs suggest no trace of this survives. The roof appears to have had ridge lights along both slopes but these have now been covered. Aerial photographs suggest they were covered between 1980 and 1989.



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Maplet of site 52

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Site 52 Plate 2

Site 52 Plate 4

Site 52 Plate 1

Site 52 Plate 3

Site 61: Triple Bay Hangar

NGR: ST 59981 80635 **Phase**: First World War
Site type: roofed building

Location
The Triple Bay Hangar is located immediately to the south of (and outside) the current development site.

History
To the south and east of the aerodrome's technical area would have been a number of hangars facing directly onto the open airfield and the runways themselves. Three of these hangars survive and remain in use today for the storage of light aircraft although each is immediately outside the current development area (inside the 'live' airfield). One of these is the Triple Hangar (called General Service Shed 2 in previous OA 2003 assessment) which forms part of a cluster of buildings to the south of the road at the eastern corner of the technical area.

The General Service Shed (or Triple Hangar) is of considerable interest as it represents the early phase of Filton's aviation history. It was constructed in the latter stages of the First World War (1918) forming part of the Aircraft Acceptance Park which was used for the reception, final assembly, testing, storage and distribution of aircraft from various factories. After the war these buildings were retained for use by the Bristol Aeroplane Company and then in 1929 they became part of RAF Filton.

Due to this significance it was listed by English Heritage at Grade II in November 2005 (DCMS list no: 319/0/10010). The English Heritage Thematic survey of airfields which initially recommended its listing also described this hangar as being a 'uniquely well-preserved example' of this type of hangar and states that hangars of this triple span form were only constructed for Aircraft Acceptance Parks.

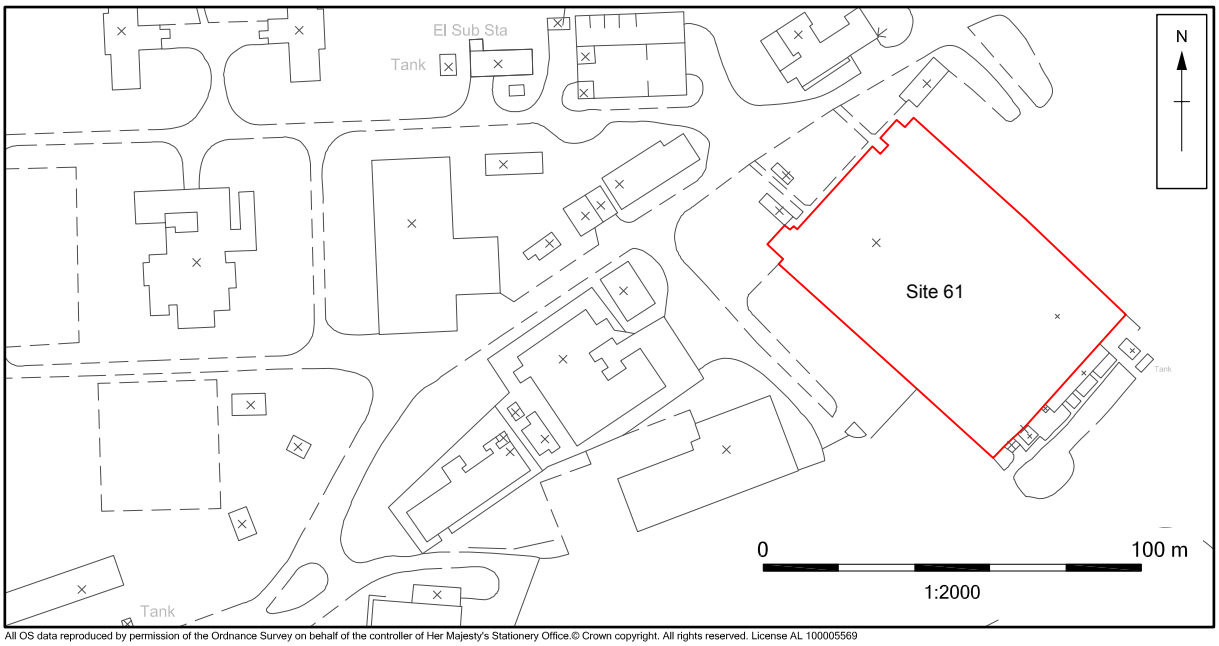
In January 2006 Oxford Archaeology undertook an assessment of the impact of the development on the setting of this listed structure.

As it is outside the development area this building has not been recorded in detail in the current project but due to its proximity immediately adjacent to the development and the clear historical relationship between the northfield and this building, it has been included in the gazetteer. The recording has also been limited due to logistical/security difficulties with gaining access into the 'live' part of the airfield in which this hangar is located.

Description
The hangar has a large rectangular plan and it comprises three full-length east to west bays created by 80 ft 'Belfast' roof trusses. The external north and south walls are formed by brick buttresses which support the trusses as well as curtain wall panels which incorporate multi-light windows. The ends of the building comprise large sliding doors beneath steel box-frame girders. Early aerial photographs show extensive camouflage on the roof but later photos show that the roof was completely re-covered between 1980 and 1989.

Internally the ends of the trusses are supported by brick piers and on the longer sides of the building are low sets of offices or stores illuminated by the small-pane windows.

Further detail on the construction of the building is available in the list description.



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Maplet of site 61

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Site 61: Triple bay hangar

Site 61 Plate 2

Site 61 Plate 4

Site 61 Plate 1

Site 61 Plate 3

Site 73: Aviation fuel tank

NGR: ST 59559 80538 **Phase**: late 1930s/WWII expansion
Site type: Intact structure

Location
The aviation fuel tank is located to the south-western of the airfield's technical area within easy access to the aircraft hangars.

History
The structure, which was probably constructed during or immediately before the 2nd World War is shown on the 1945 airfield plan and labelled *Bulk Petrol (aviation) installation (48,000 gallons)*. The plan shows that it had a standard RAF design from 1937 (No.3553/37)

Description

The aviation fuel tank is a large structure but it is now very heavily overgrown with brambles and despite attempts at some vegetation clearance only a very limited visual inspection was possible. The tanks are of concrete construction and only their top, together with a number of pipes, are visible. Two fuel pumps were exposed on the southern side of the tanks after clearing some vegetation. There are a number of (possible wartime) lampposts towering above the site.

Aerial photographs show that the tank was a broadly rectangular structure, with small projections at the eastern end, and that it appears to have remained relatively clear of vegetation up to (and including) an image from 1989. Indeed, its roof appears to be a much lighter colour on an image from 1980 than on previous photographs and it may be that the structure was partially (or totally) reconstructed shortly before this.

An oval track encircles the fuel tanks and the only access to the structure is via a short track from the south.

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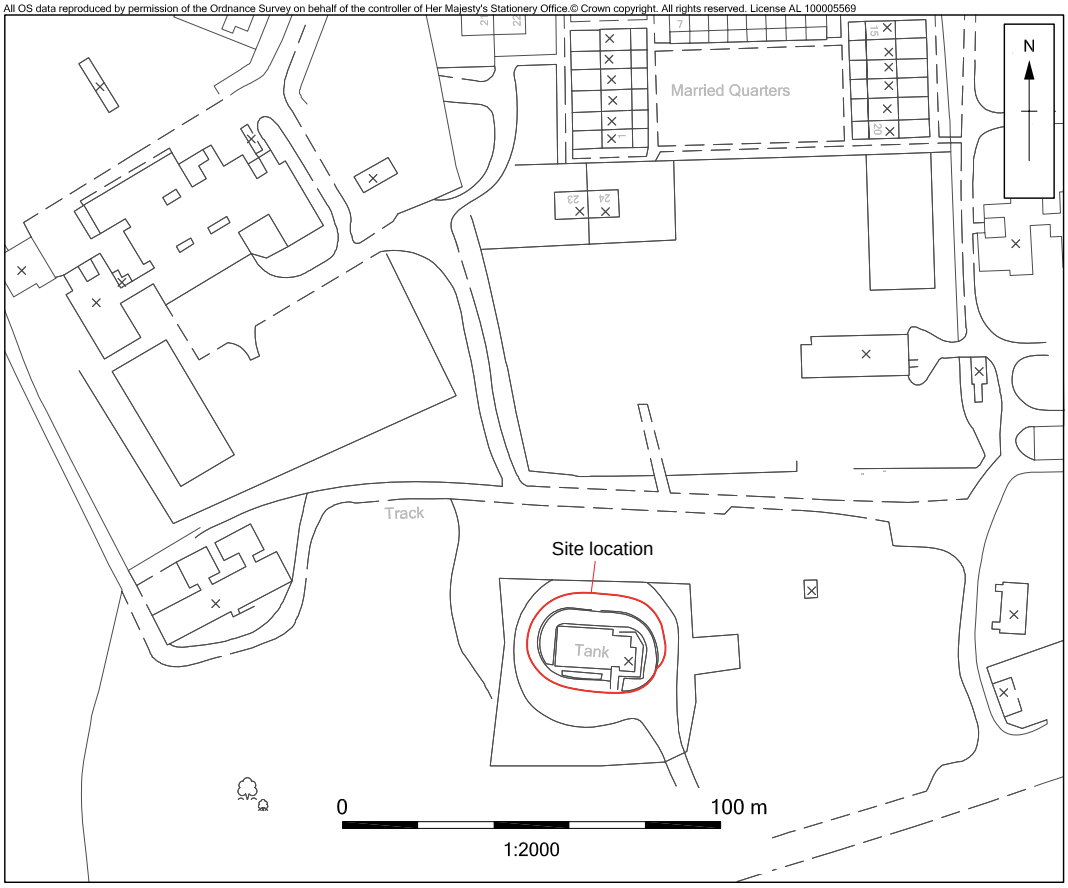
Site 73: Aviation fuel tank

Site 73 Plate 1



Site 75: Single-bay Hangar

NGR: ST 59541 80434 **Phase**: First World War.
Site type: intact building

Location: The Single-Bay Hangar is located immediately to the south of (and outside) the current development site

History
The 1945 airfield plan shows that this was to a standard design type from 1917 (No.278/17) although it is likely to have been constructed in the following year.

To the south and east of the aerodrome's technical area would have been a number of hangars facing directly onto the open airfield and the runways themselves. Three of these hangars survive and remain in use today for the storage of light aircraft although each is immediately outside the current development area (inside the 'live' airfield). One of these is the Single Bay Hangar (called General Service Shed 1 in previous OA 2003 assessment) which forms part of a cluster of buildings to the south of the road at the eastern corner of the technical area.

The hangar is of considerable interest as it represents the early phase of Filton's aviation history. It was constructed in the latter stages of the First World War (1918) forming part of the Aircraft Acceptance Park which was used for the reception, final assembly, testing, storage and distribution of aircraft from various factories. After the war these buildings were retained for use by the Bristol Aeroplane Company and then in 1929 they became part of RAF Filton.

Unlike the other two Great War hangars this building has not been listed.

As it is outside the development area this building has not been recorded in detail in the current project but due to its proximity immediately adjacent to the development and the clear historical relationship between the northfield and this building, it has been included in the gazetteer. The recording has also been limited due to logistical/security difficulties with gaining access into the 'live' part of the airfield in which this hangar is located.

Description
This large hangar is c.52 m x c.26 m in plan and is a single bay wide. It opened at the eastern end and had buttressed brick sides supporting a shallow arched roof. The shed is lit by rows of windows along the side. Timber "Belfast Truss" girders, with the distinctive criss-cross latticed effect support the roof. Along the northern side of the building is a row of adjoining subsidiary rooms (probably offices, workshops etc) and along the south side is a further shorter lean-to.

The east end of the building has been significantly altered so that the six original doors no longer open. The doors appear to have been fixed shut and their lower thirds truncated. A much smaller doorway has then been created towards the centre of the wall which could have accommodated vehicles but not aircraft. The partially surviving doors (probably primary) comprise diagonal board cladding (although a close inspection has not been possible). A further cladding (canvas? Tarpaulin?) over these boards survives in patches.

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Site 75: Single bay hangar

Site 75 Plate 1

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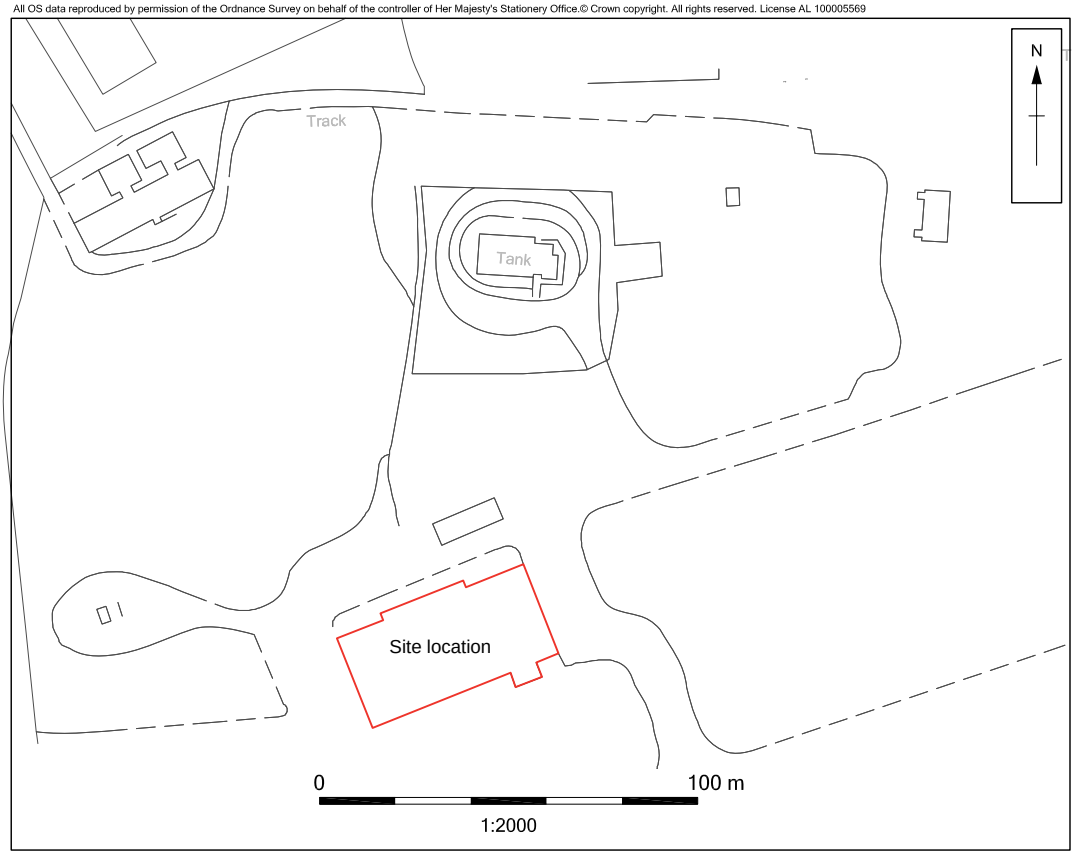


Site 78: Gun Cotton Store

NGR: ST 59450 80443 **Phase**: late 1930s or WWII expansion
Site type: Roofed building

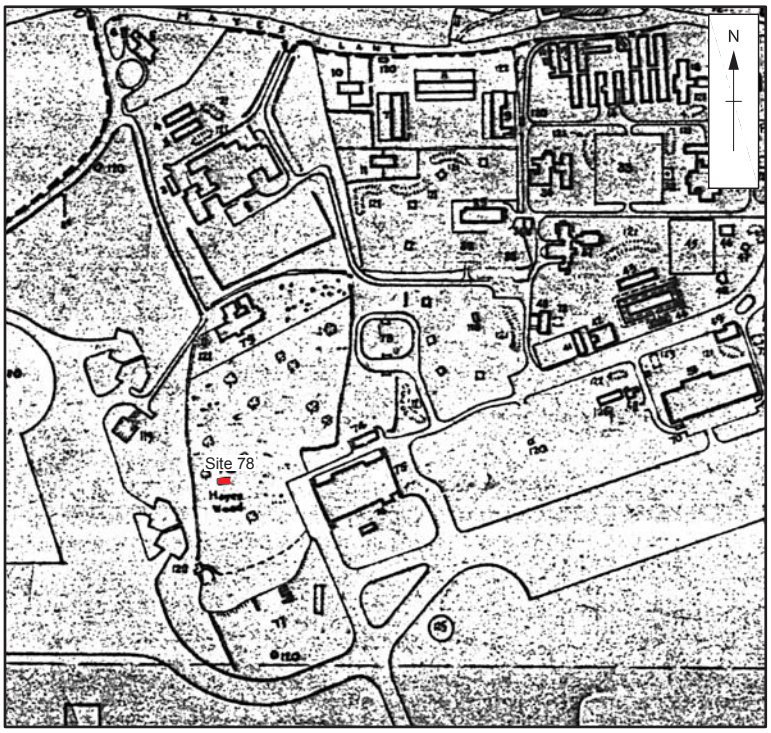
Location
The Gun Cotton Store is located towards the south-western corner of the current development area, close to the single-bay hangar.

History
The 1945 airfield plan shows this structure with a ref No FCW 4430 and suggests that at this date it was surrounded by a wooded area called Hayes Wood. It would have been relatively isolated from the main airfield buildings due to the fire hazard and the volatile nature of the stored materials.

Description
The Gun Cotton Room survives in good condition and is intact, although it is totally overgrown with ivy and surrounded by small hawthorn and bramble bushes.

The structure comprises a single brick lined room (unplastered and unpainted internally) which is now filled with old dumped tyres and pipes. The room is 4.25 m deep by 3.5 m wide by 2.9 m tall and it is set on a concrete plinth. There is a single metal door into the room and this is protected by a brick blast wall facing directly onto the door and creating a baffle passage (1.95 m deep).

Inside the room there is a short brick partition extending half way across the building and adjacent to the door there are two square vents (c.1 ft^2).



Map taken from Filton record site plan (1945)

Maplet of site 78

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Site 78: Gun cotton store

Site 78 Plate 2

Site 78 Plate 3

Site 78 Plate 1

Site 79: Air Raid Shelter at YMCA Building

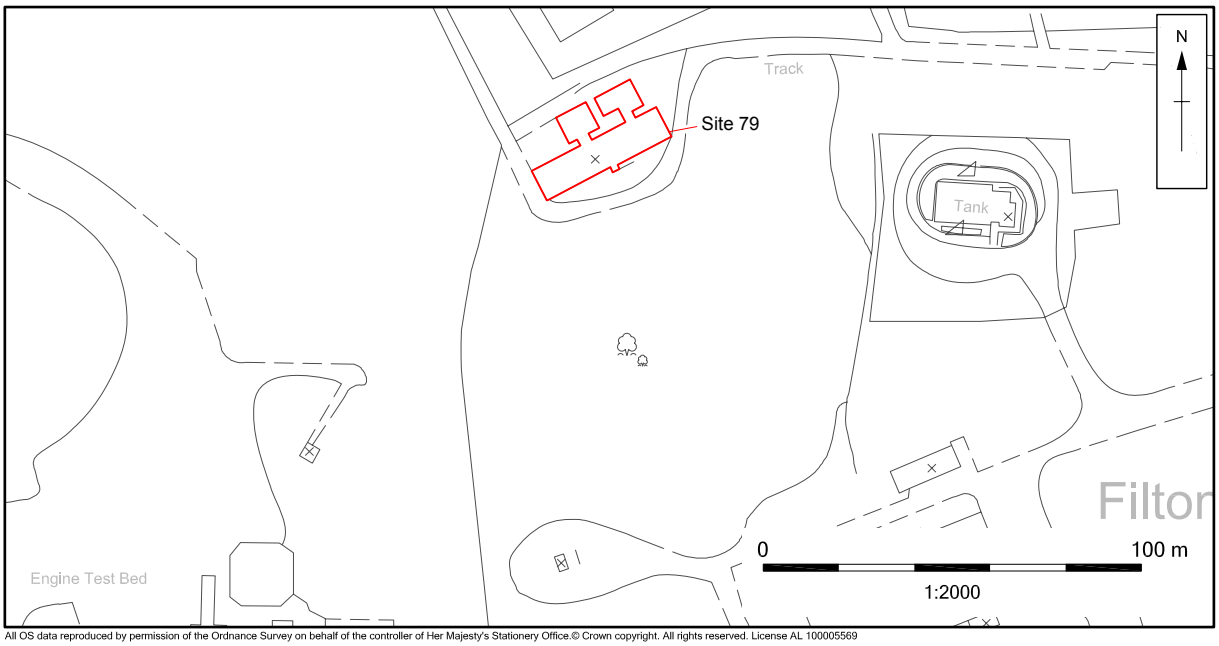
NGR: ST 59464 80549 **Phase**: 1930s expansion
Site type: site of former building

Location
The YMCA Building was located within the south-western part of the main RAF base to the south of the Officers Quarters.

History
The YMCA Building is shown on the 1945 plan as being of 'permanent brickwork' and with a drawing reference 4967. The building is still shown on an aerial photograph from 1989.

Description
The YMCA building had been demolished prior to the current recording (probably 1990s) only the concrete floor slab remained. However in the corner on the south of the entrance a small air raid shelter survived. It had partly collapsed at its north end and consisted of a partly sunken brick lined trench with a concrete slab roof and lined steps leading into it.

The shelter is 2 m in height of which 1.2 m is above ground and it is covered in soil and rubble. The main chamber of the shelter is 4 m long x 1.4 m wide and at the end of this is a smaller collapsed section. The steps down to the shelter are adjacent to the collapsed section and the interior of the shelter is substantially infilled with rubbish.



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Maplet of site 79

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Site 79 Plate 2

Site 79 Plate 3

Site 79 Plate 1

Site 82: western sleeping shelter

NGR: ST 59239 80571 **Phase**: Second World War
Site type: roofed building

Location: Building 82 is located to the west of the aerodrome, away from the main technical area and adjacent to one of the aeroplane dispersal areas.

History
The 1945 airfield plan shows that it was constructed to the designs of drawing number 11049/41. From the last two numbers of this reference we know that the design was produced in 1941 and it is likely that the building was constructed in this year.

It would have been easily accessible for workers at the base (probably principally airfield defence personnel) being immediately adjacent to the road leading into the site from the main western entrance.

Description

Exterior: Two above-ground sleeping shelters survive at Filton which are virtually identical to each other in design. The western sleeping shelter has a standard, plain war-time construction with English bond red brick. It is single storied with a rectangular plan (c.14 m x 3.5 m) and a flat concrete roof. The main structural walls are 35 cm thick and at the west end is a 1.25 m deep projection lower than the main roof which houses a lobby entrance (protective blast walls). There is also a further entrance at the east end through a lobby within the main plan of the building. Adjacent to this timber panelled door (which is recessed beneath a concrete lintel) is the faint trace of roughly painted letters which appear to read 'LADIES'. The lettering has been applied twice: initially in large black letters and then in small white letters on top. Presumably therefore the shelter was divided into a section for men (the western half) and a section for women to the east.

The east elevation also incorporates a high, timber-lined hole for ventilation and the north and east elevations also each have a series of small vent holes at the base. There are no windows in the building.

Interior: Good evidence survives inside for the historic layout of the building. It would have comprised a central walkway the length of the building and with five sleeping bays to either side of this. Additionally at the east end would have been a further sleeping bay on the north side with the Ladies entrance lobby on the south side. Each of the sleeping bays is divided from each other by a 70 cm projecting brick pier. The sleeping bays form a single space with the corridor and the only partition inside the building is a brick partition which would have divided two full bays in the west half (presumably the Men's area) from the three and a half bays in the east section (the Ladies area). The partition would have included a central door but only the frame survives from this.

Each of the sleeping bays was 2 m long and would have had space for three 95 cm deep bunk beds fixed to the wall. Thus the building could have accommodated 33 people. Simple iron brackets which project 8 cm survive in each pier wall showing the former location of the beds and as there are no bolt holes in the brackets it appears that the beds would have simply rested on top. Within the inner face of each pier (facing the central walkway), is a notch three bricks above each set of brackets which presumably would have accommodated a rail the length of the building to stop people rolling out of bed. Evidence in the identical northern shelter suggests that these notches would have held blocks of wood through which a long, small metal rod would have passed. Another interesting feature providing evidence of the former use of the building is a simple system to provide ventilation to the sleeping bays. As referred to above there are a series of small, evenly spaced ventilation holes at low levels visible on the exterior of the building. Inside the building it is apparent that these openings are

immediately either side of the bed piers (but not the partition dividing the mens and ladies areas) and they connect to the base of a vertical timber lined duct which rises up to the ceiling. Within the face of each duct are three metal grilles to provide ventilation to each bed. The grilles are each immediately below the height of the bed above. Each duct is 7 cm deep by 23 cm wide and most of the grilles are at least partially in-situ.

Many areas of the interior show charring and evidence of fires (probably relatively recent vandalism).

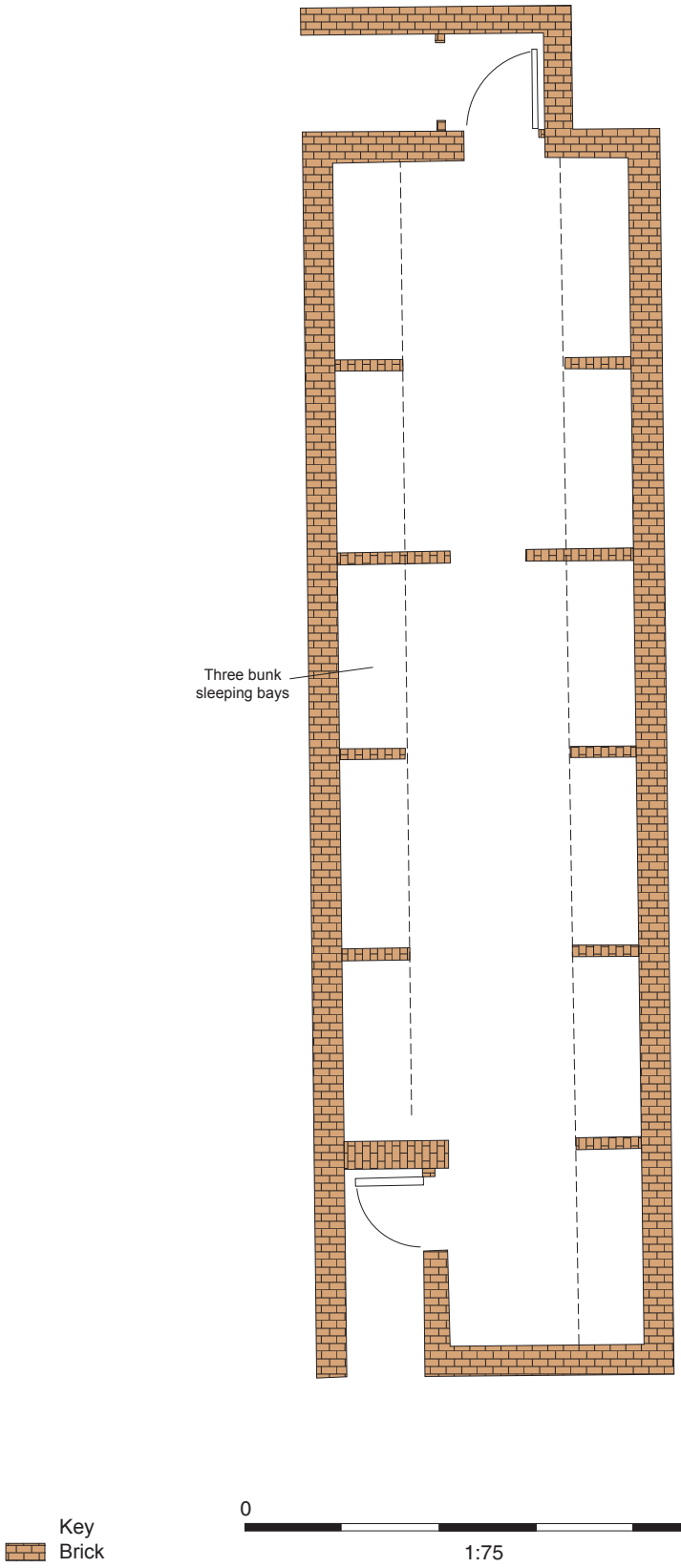

Figure 1: Site 82, western sleeping shelter plan

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Site 82 Plate 2

Site 82 Plate 4

Site 82 Plate 1

Site 82 Plate 3

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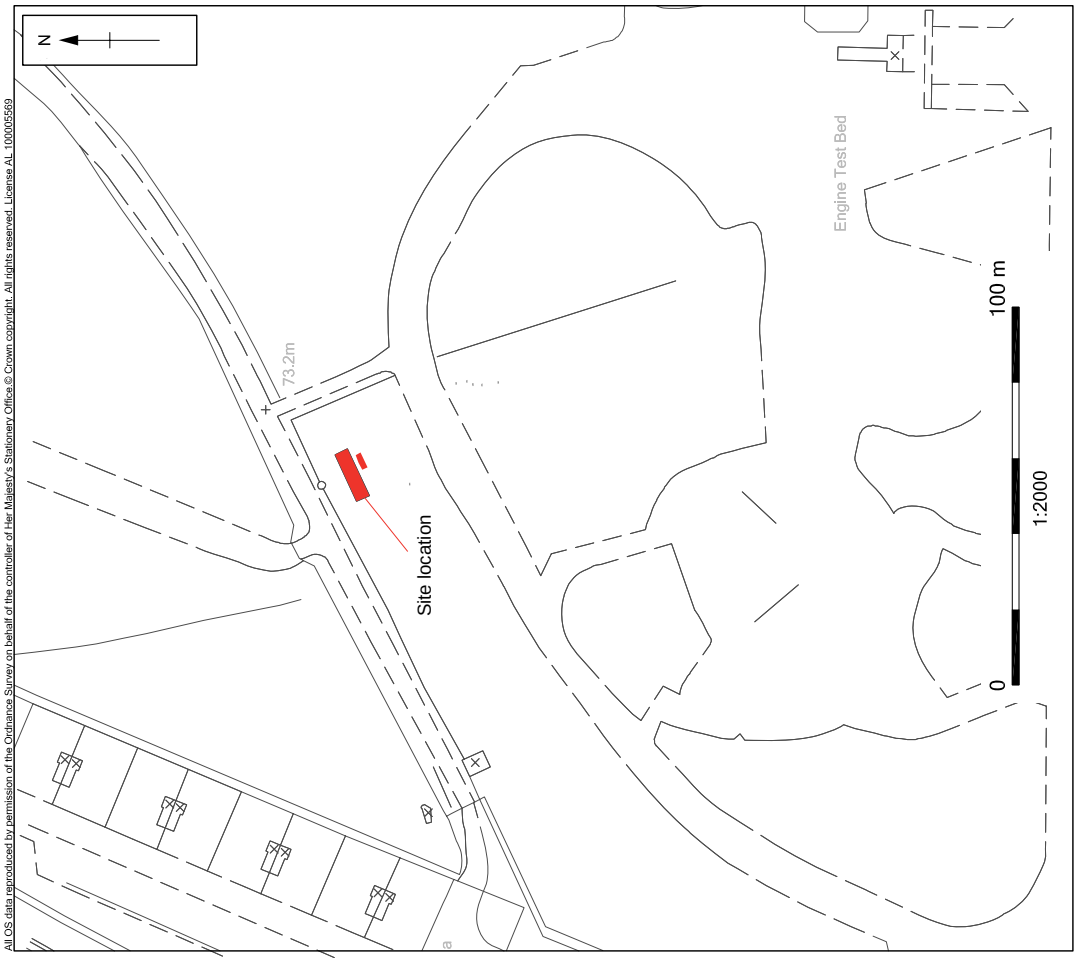


Site 82 Plate 5

Site 82 Plate 6

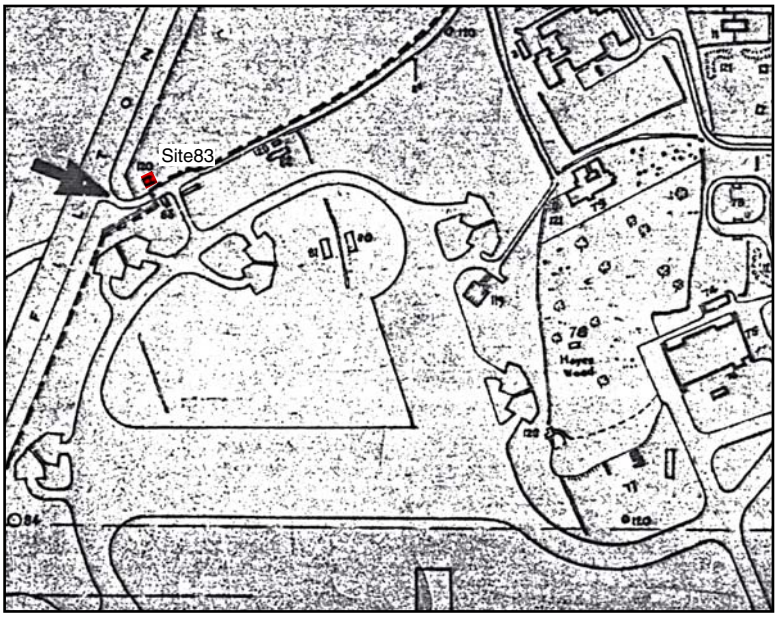
Site 83: Pillbox by western guard hut

NGR: ST 59149 80541 **Phase**: Late 1930s/WWII
Site type: roofed building

Location
At the western end of the site, at the junction between the main access track into the airbase from the south-west and the main Highwood Road (Filton Bypass).

History
This is shown on the wartime map and although the guardhouse had been demolished prior to the current project an adjacent pillbox to the north of the road did survive in good condition. Prior to the construction of the airfield this track formed the main road north-east out of the hamlet of Charlton and connecting with Hayes Lane.

Description
The pillbox appears to be a variant type 24, but has an unusual lozenge shaped plan with nine small 6 inch square loop holes in it. The pillbox was built of red brick (0.24 m x 0.11 m x 0.08 m) with a flush sandy cement mortar. It stood 2.1 m high on a concrete base and was 4 m long and 2.2 m wide with a door to the south from the side of the pillbox. Remains of an earthen bank against it survives which met a concrete cladding that reached 0.9 m down from the roof. It would have been for a squad of rifle men possibly with LMG (Bren or Lewis) to cover the gate entrance and interlocking fire with other posts along west side of airfield.



Inlay map taken from Filton record site plan (1945)

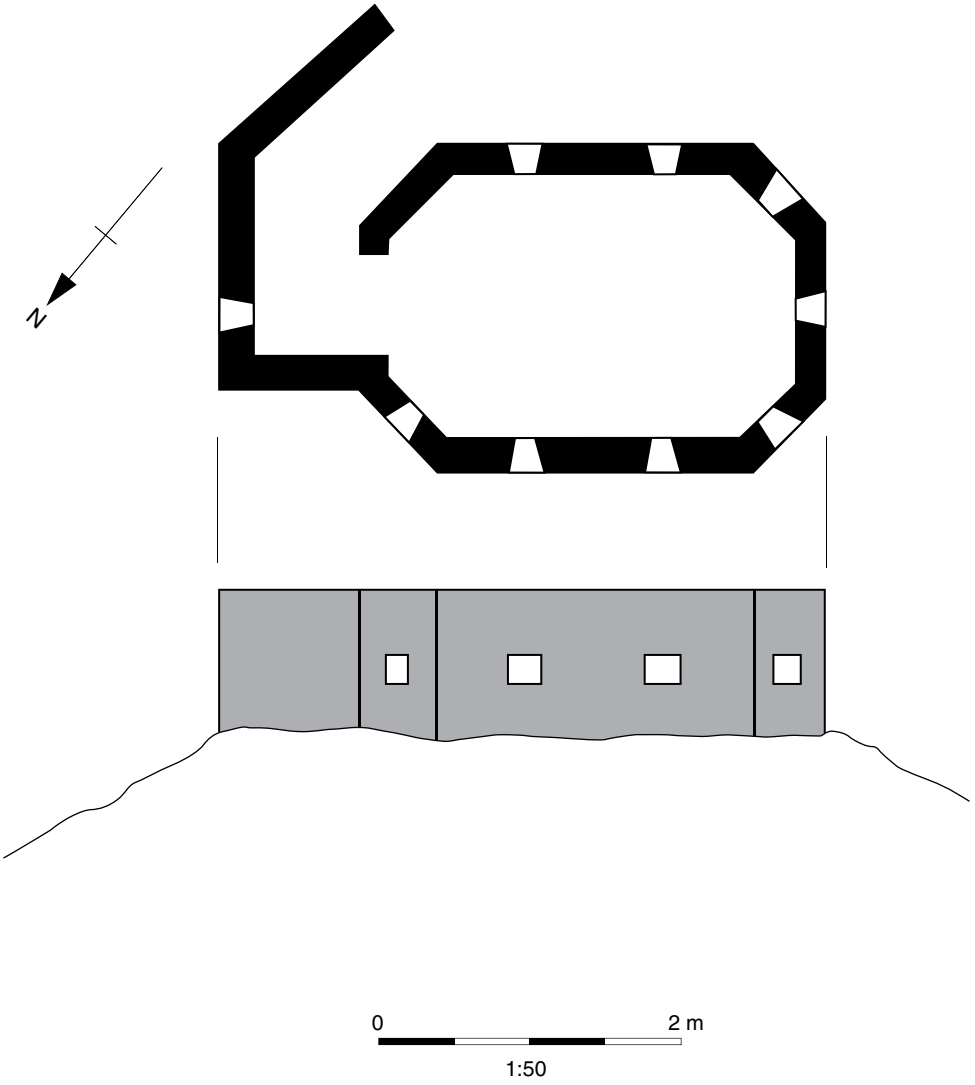


Figure 1: Site 83, pillbox

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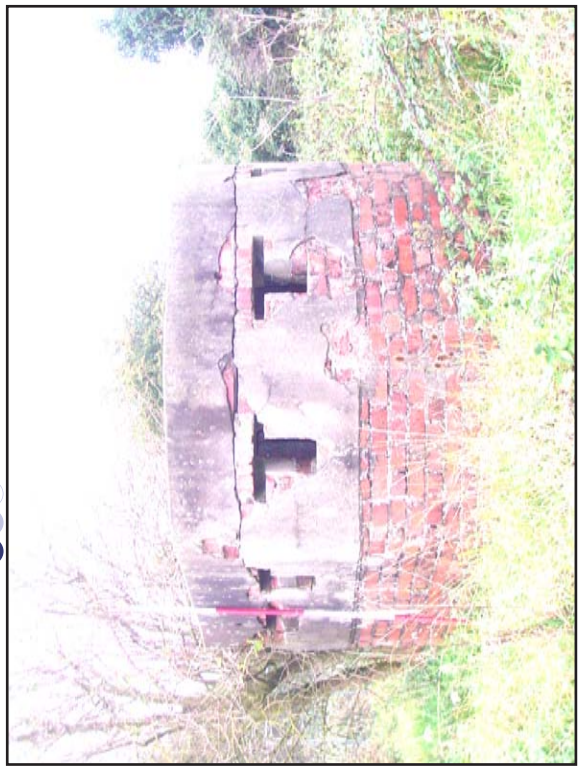
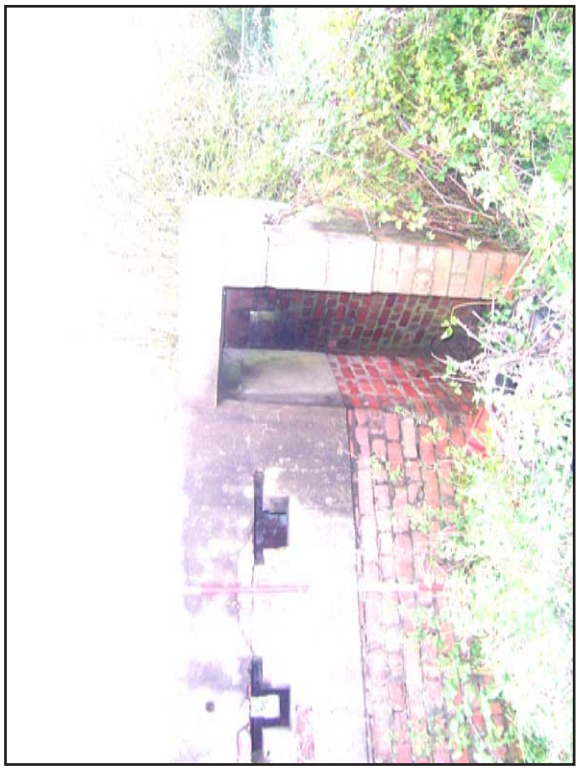
Site 83: Pillbox by western guard hut



Site 83 Plate 2



Site 83 Plate 4

Site 83 Plate 1

Site 83 Plate 3

Site 112: Gas Chamber and air raid shelters

NGR: ST 59731 80843 **Phase**: late 1930s expansion
Site type: roofed building

Location
The gas chamber (together with four adjacent air raid shelters) was located to the north of the airfield's technical area and a short distance to the north of Hayes Farm.

History
The 1945 airfield plan classes the gas chamber as a temporary brick (TB) building and it is listed as being constructed to Drawing Number 1486/32 (ie to a design type from 1932). The plan also shows the four surrounding 'Summers' type air raid shelters shown on the 1945 map.

Description
The gas chamber was a single thick brick structure, standing 2.5 m high with a flat fibre board roof on a timber frame (had collapsed). It was built on a concrete slab with bricks (0.23 m x 0.11 m x 0.08 m) with a flush sandy cement bond. Two metal window frames survive in the sides of the building, but all the doors and doorframes had been removed along with the end window. The whole building was covered in ivy and brambles.

The shelters were all overgrown and the two east and west of the gas chamber could not be reached. The shelter to the north was partly cleared and the one further to the east was covered in long grass. Both these appear to have been filled in as no entrances or vents were observed. Later investigation found the remains of the escape hatch on the northern most shelter. The shelter is in poor condition and starting to collapse.

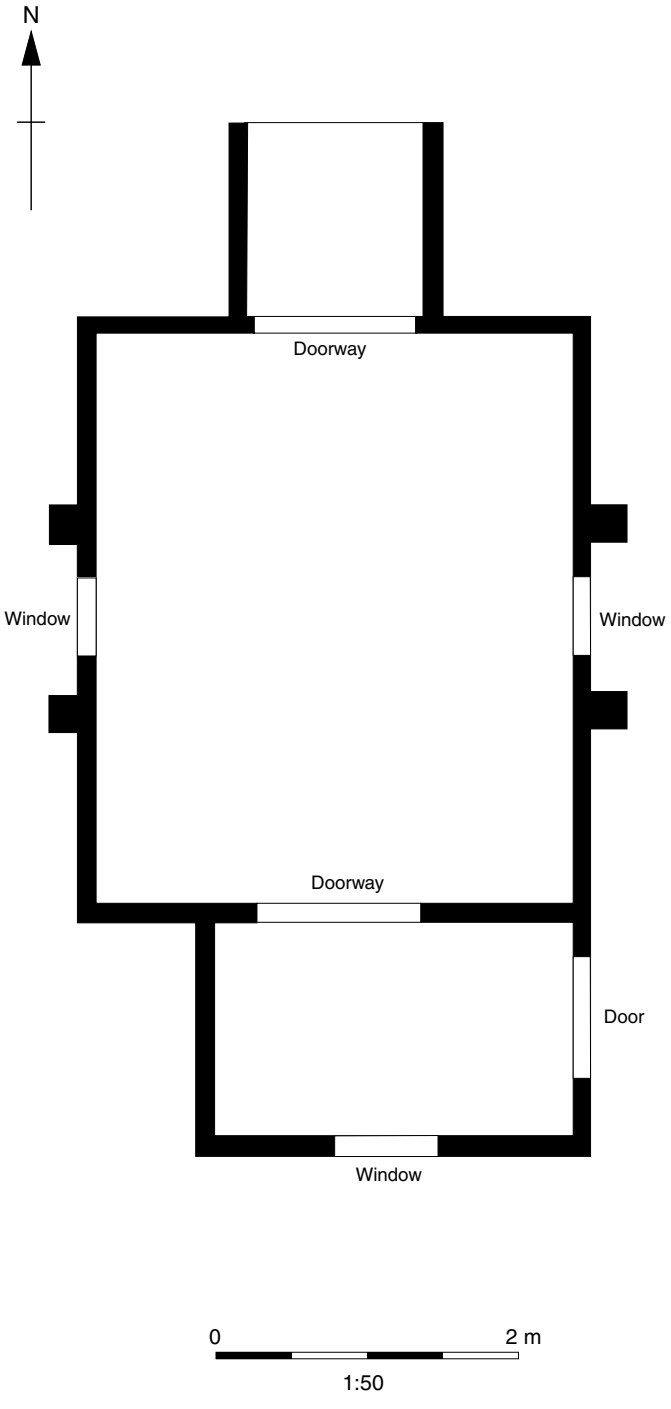


Figure 1: Site 112, gas chamber

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Site 112 Plate 1

Site 112 Plate 2

Site 112 Plate 3

Site 112 Plate 4

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Site 112: Air raid shelter (by gas chamber)

Site 122 - Shelters by gas chamber

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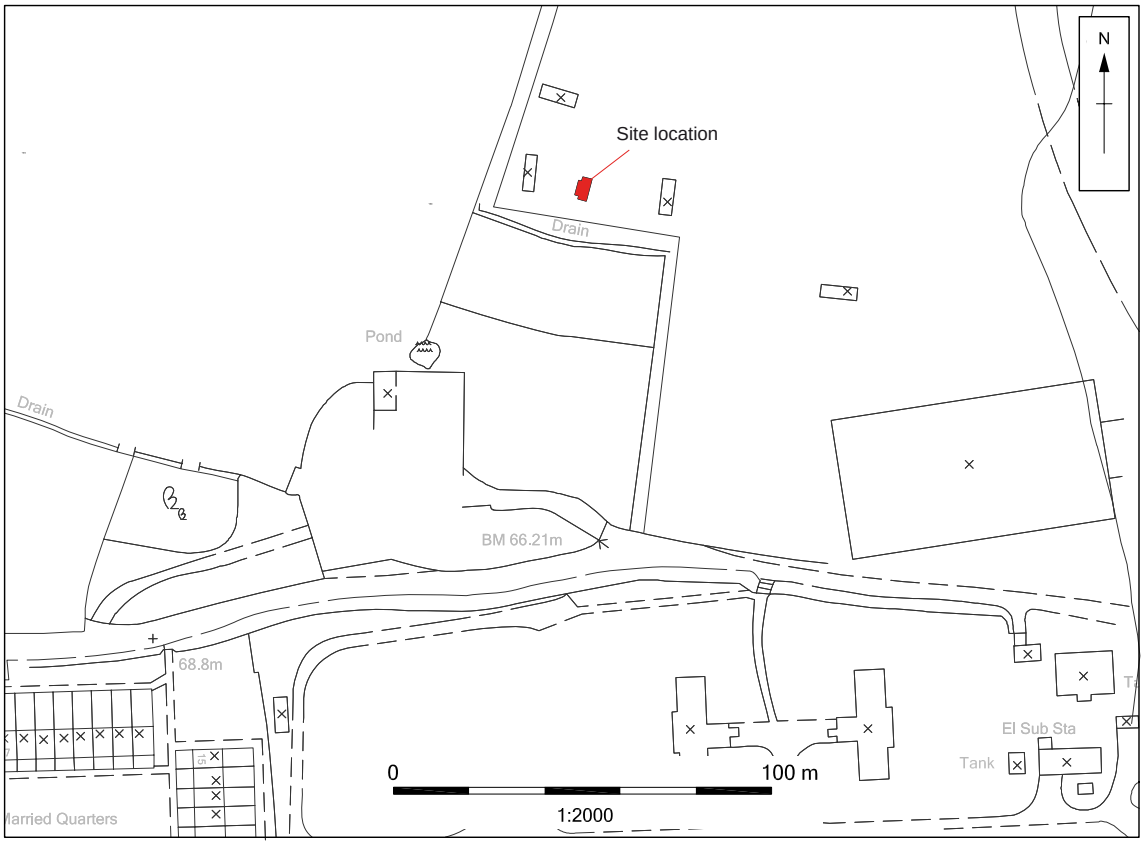


Northfield, Filton Airfield - Gazetteer of Buildings and Structures

Site 115: Northern sleeping shelter

NGR: ST 60284 81248 **Phase**: Second World War
Site type: Roofed building

Location
Towards the north-eastern corner of the airfield, close to one of the entrances into the site and well away from the technical area which would have been the main target for enemy attacks.

History
The 1945 airfield plan shows that it was constructed to the designs of drawing number 11049/41. From the last two numbers of this reference we know that the design was produced in 1941 and it is likely that the building was constructed in this year.

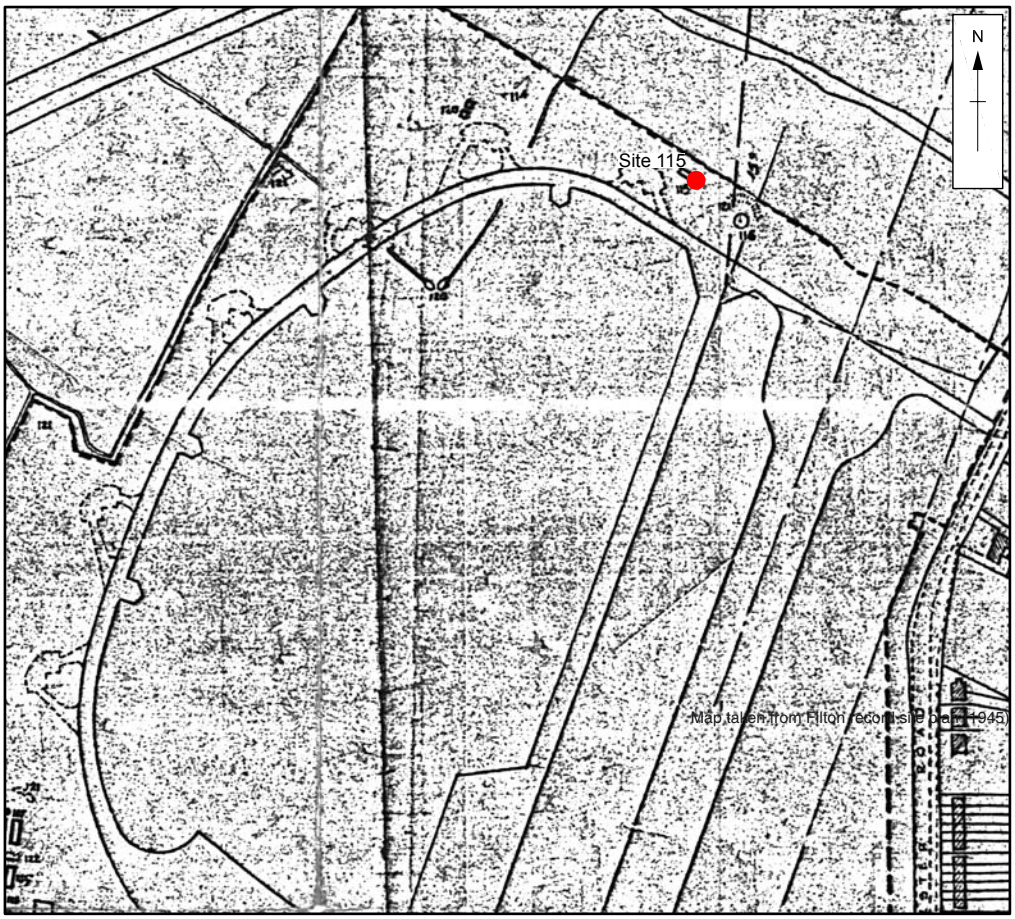
Description
The basic design of the northern sleeping shelter appears to be identical to that of the western sleeping shelter (82). is single storied with a rectangular plan (c.14 m x 3.5 m) and a flat concrete roof. The main structural walls are 35 cm thick and at the west end is a 1.25 m deep projection lower than the main roof which houses a lobby entrance (protective blast walls). There is also a further entrance at the east end through a lobby within the main plan of the building. There are no windows in the building but there are a series of small vent holes at the base of each main elevation.

Similarly to the western shelter the interior of the northern shelter would have comprised a central walkway the length of the building and with five sleeping bays to either side of this. Additionally at the east end would have been a further sleeping bay on the north side with the Ladies entrance lobby on the south side. Each of the sleeping bays is divided from each other by a 70 cm projecting brick pier.

Each of the sleeping bays was 2 m long and would have had space for three 95 cm deep bunk beds fixed to the wall. Thus the building could have accommodated 33 people. Simple iron brackets which project 8 cm survive in each pier wall showing the former location of the beds and as there are no bolt holes in the brackets it appears that the beds would have simply rested on top.

Within the inner face of each pier (facing the central walkway), is a wooden block three bricks above each set of brackets with small (c.1 cm diameter) circular holes in each. This suggests that a circular-section metal rail would have run the length of the building to prevent people from falling out of the bunk beds. Another interesting feature providing evidence of the former use of the building is a simple system to provide ventilation to the sleeping bays. As referred to above there are a series of small, evenly spaced ventilation holes at low levels visible on the exterior of the building. Inside the building it is apparent that these openings are immediately either side of the bed piers (but not the partition dividing the mens and ladies areas) and they connect to the base of a vertical timber lined duct which rises up to the ceiling. Within the face of each duct are three metal grilles to provide ventilation to each bed. The grilles are each immediately below the height of the bed above. Each duct is 7 cm deep by 23 cm wide and most of the grilles are at least partially in-situ.

The northern shelter has a number of cracks in its walls and similarly to the western shelter it has clearly suffered from fires or arson attempts.



Maplet of site 115

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Site 115: Northern sleeping shelter

Site 115 Plate 1

Site 115 Plate 2

Site 115 Plate 3

Site 119: Two-pounder Ammo Store

NGR: ST 59380 80488 **Phase**: Second World War
Site type: roofed building

Location
The two-pounder ammunition store was located towards the western edge of the main airfield buildings in a relatively isolated position due to the explosive nature of the stored ammunition.

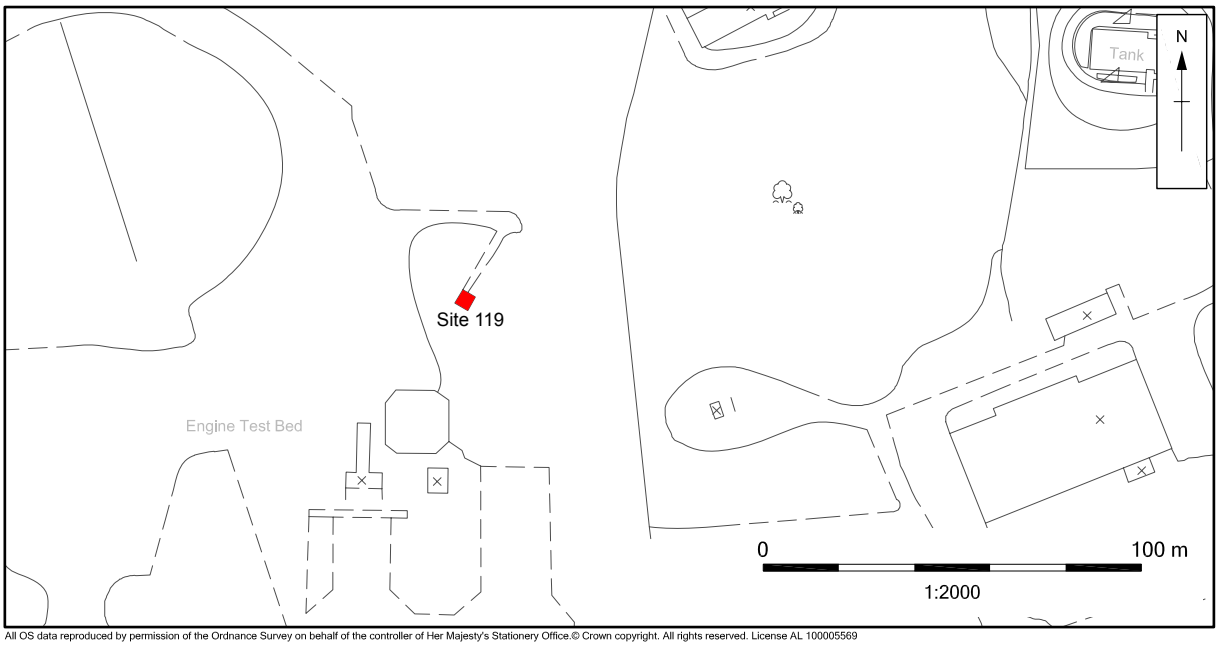
History
It is shown as being of 'permanent concrete' (PC) construction and designed to drawing number 9895/39. The last two numbers of this reference suggest that it was of a building type designed in 1939.

Description
The two pounder Ammunition Store is a small, square plan (c.4.5m^2), concrete building largely covered on all its sides by protective earth banks. The structure survives largely intact, although it is heavily overgrown and the interior is flooded with about a foot of standing water. Access into the building is from the north-east via a concrete-lined entrance through the bank with sloped top.

The metal doors at the inner end of the entrance passage survive, albeit heavily rusted, and adjacent to the door there are the words 'Standard C' painted on the concrete wall .

On the east side of the main room is a small pump room with a small cylindrical boiler albeit largely below the current water line.

The interior of the main room has exposed concrete walls and there is a pair of pipes extending horizontally around the walls. The ceiling is of reinforced concrete and at the centre is a single light fitting.



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Maplet of site 119

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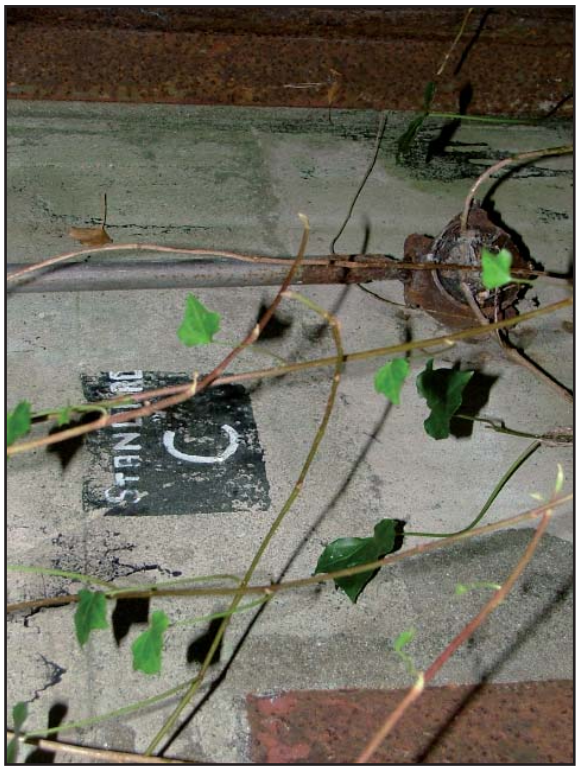
Site 119 Plate 2

Site 119 Plate 4

Site 119 Plate 1



Site 119 Plate 3

Site 120a: Pillboxes

NGR: S 59749 81001 **Phase**: Second World War defences
Site type: Intact structure

Location
There are two pillboxes located in this general area, c.200 m - 250 m north of Hayes Farm, along the field boundary which would have formed the edge of the airfield when the pillboxes were first constructed.

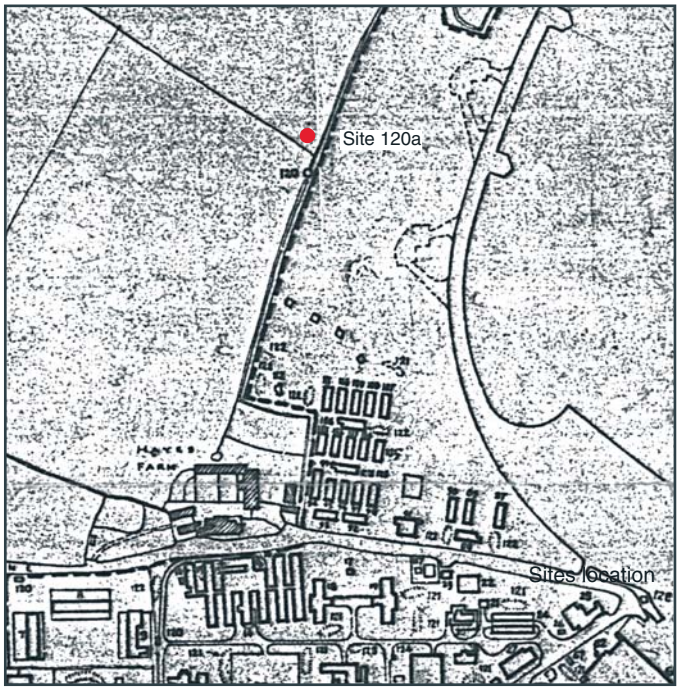
They are located to either side of the field boundary T-junction between the north to south hedgerow leading down to Hayes Farm and the east to west hedgerow which extends towards the Filton bypass. One of the pillboxes would have been at the north-eastern corner of the lower field while the other would have been at the south-eastern corner of the upper field.

History
These would have formed part of the series of pill boxes and other structures which were constructed around the airfield's perimeter to defend it from any potential land-based attack. They were probably hastily erected in the summer of 1940 as part of the massive programme of similar defences erected across the country as the Government came to fully realise the unpreparedness to counter the Nazi threat. In particular the possibility that airfields would be a key target for the Germans came to be appreciated in the spring of 1940 through the Blitzkrieg tactics used on the continent, and that airfields would have to be defended against land-based attacks.

Following the establishment of the USAAF camp within these fields in 1944 the pillboxes would have effectively been within the expanded military establishment rather than on the boundary.

Description
The better preserved of the two pillboxes, at the south-eastern corner of the upper field, is of the basic Air Ministry Norcon type constructed from a concrete pipe with loopholes in the walls. The structure survives in relatively good condition, although it is now partially buried and the trench on the south side which provided access to the pillbox has substantially collapsed. This access trench was covered by a 12 cm thick concrete slab. The structure is 2.05 m in diameter and it has a 24 cm thick concrete roof now partially covered by earth. Inside the pillbox there is a circular brick 'firing step' immediately inside the walls as well as a further circle of bricks at the centre. The concrete pipe is set on a brick base 6 courses tall with the seventh laid on its edge to fill the pipe cap. A 4 inch drain pipe beneath the pillbox carries water away from the structure towards the north-east. The structure would have been given extra protection by sandbags placed around the exterior.

The other pillbox, located at the north-eastern corner of the lower field was a Type 26 square concrete pillbox, which appears to have been blown onto its roof in the post-war period. This was marked on the 1945 map and shown on the 1944 AP's and may have been camouflaged with dry stonewalling to appear like a farm building as a large number of stone rubble lays around the site.



Inlay map taken from Filton record site plan (1945)

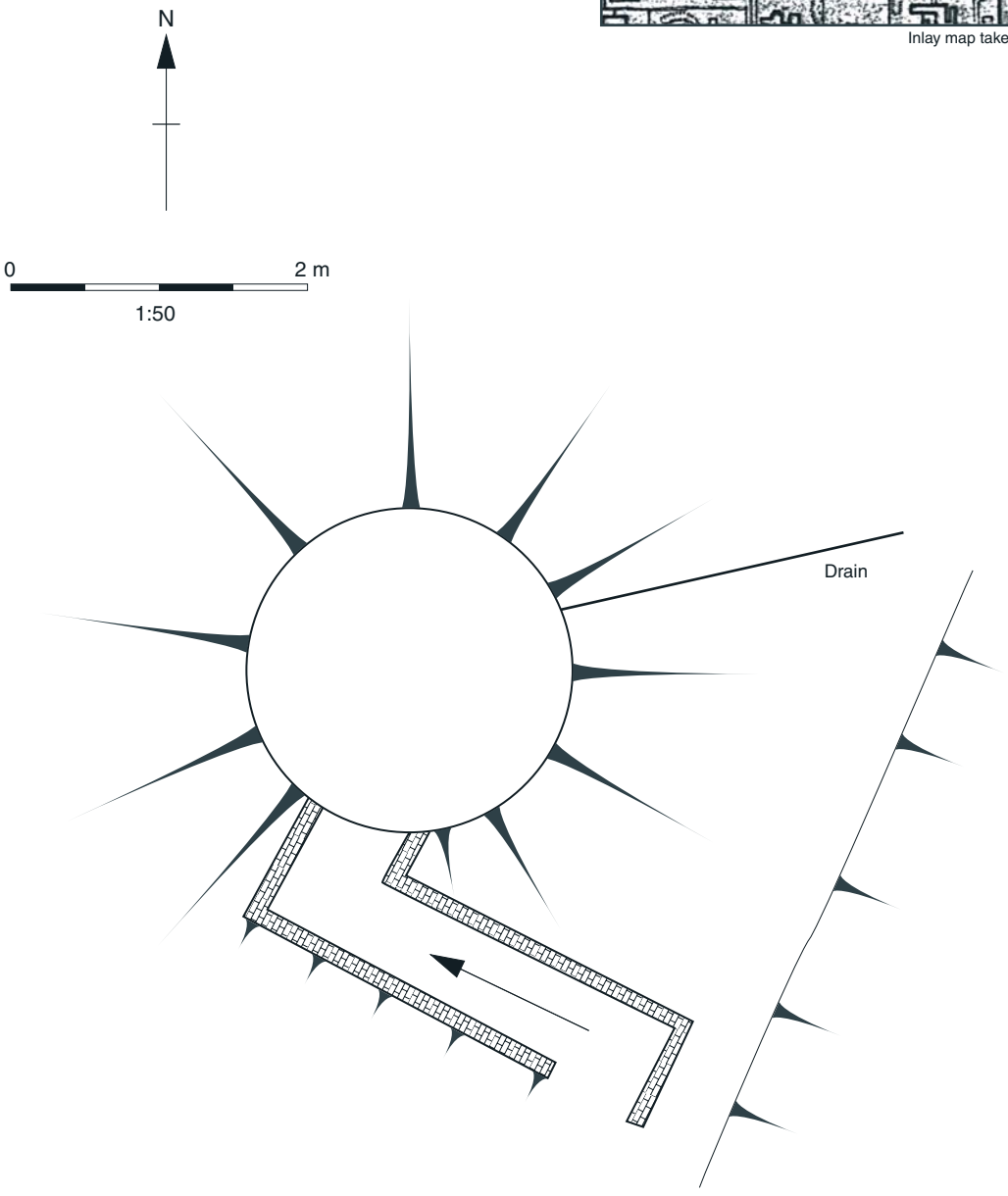


Figure 1: Site 120a, pillbox

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Site 120a Plate 2

Site 120a Plate 4

Site 120a Plate 1

Site 120a Plate 3

Site 120b: Defence Posts

NGR: ST 59253 80578 & ST 59368 80656 **Phase**: Second World War defences
Site type: partially intact structures

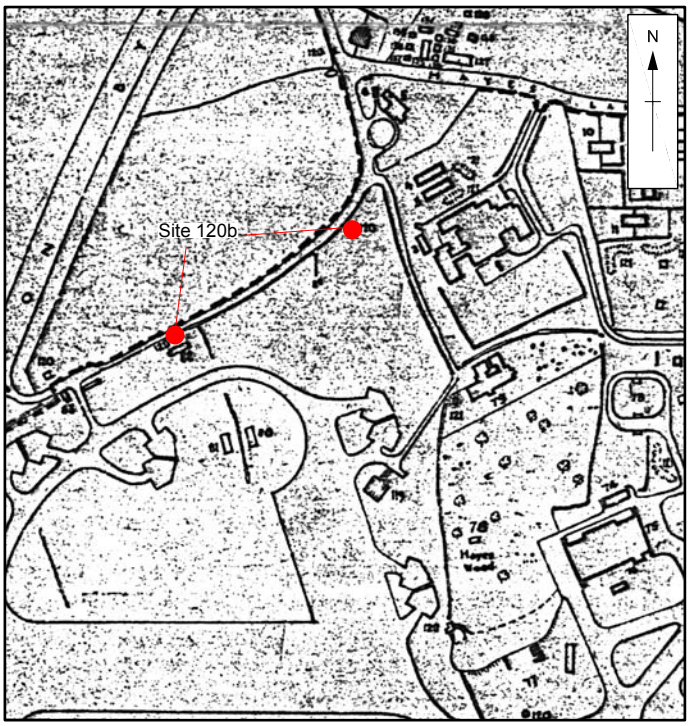
Location: These are two partially surviving defence posts on the southern side of the looped road which led down from the west end of Hayes Lane towards the Filton bypass. One of the structures is towards the western end of the road while the other is towards the eastern end.

History
These two defence posts would have formed part of the system of airfield defence which was probably constructed in 1940 to counter the threat from Germany. From the spring of 1940 it rapidly became appreciated that airfields would be a key target for the Nazis and that preparations should be made for possible land-based attacks as well as aerial attacks.

This route would have formed the main entrance into the camp from the 1930s following the truncation of Hayes Lane immediately east of the aerodrome to allow for the new longer runway.

Description
The western of the two defence posts is located immediately north from the western sleeping shelter (Building 82) and comprises the remains of a small circular brick defence post situated on a small mound. The structure is brick built (11 courses high) and with a possible ammunition locker at the rear (1m x 0.8 m x 0.7 m) and a concrete slab roof. This was probably the site of a Light Anti Aircraft position or watch post and although it is totally covered in ivy and small trees it is just visible.

Only very fragmentary remains survive from the eastern feature (towards the junction with Hayes Lane) but it appears to be labelled as a Defence Post on the 1945 plan. The feature could be barely observed in the undergrowth but 12 inches of the end brick wall (possibly with a window) could be seen.



Map taken from Filton record site plan (1945)

Maplet of site 120b

Site 122: Air raid shelter ('Summers' type)

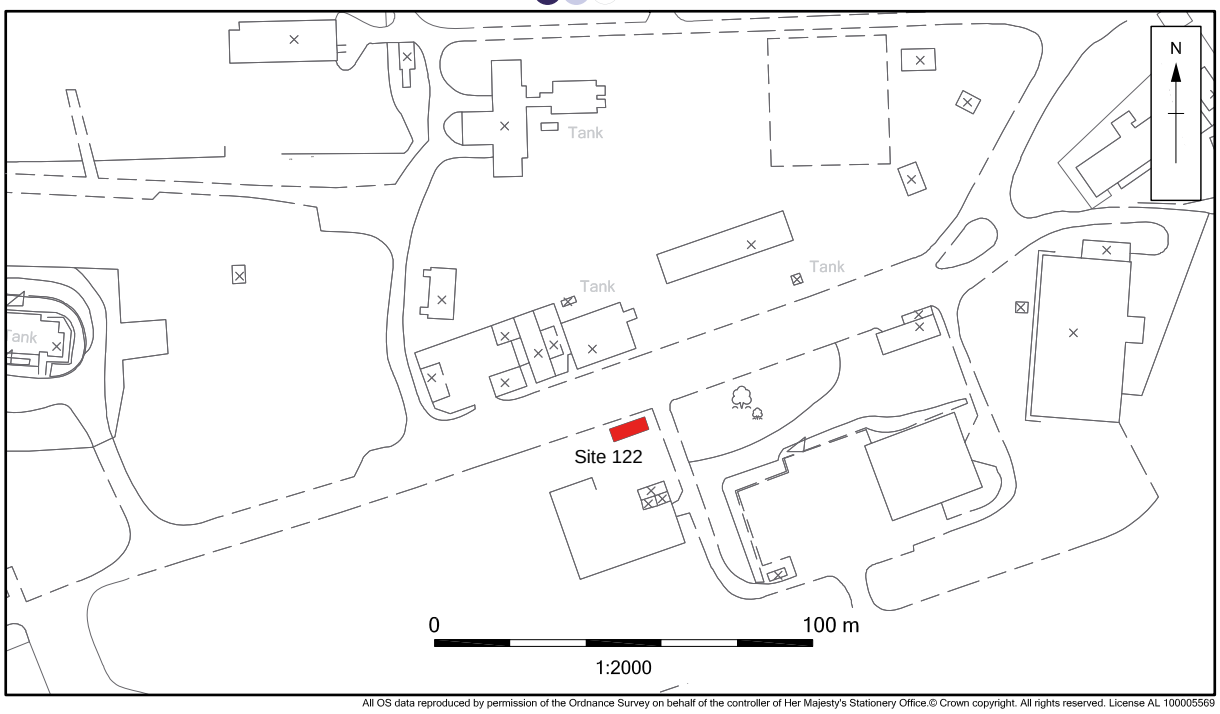
NGR: ST 59729 80503 **Phase**: Second World War
Site type: intact structure

Location
At the southern edge of the airfield's technical area is a 'Summers' type shelter on the opposite side of the road from the Operations Block. This is outside the current development site

History
This air raid shelter is shown on the 1945 plan as a Summers Type shelter (ref 2091/39) and the key shows that it was constructed from steel. It is likely that the name of the shelter comes from the company that manufactured and supplied this type of shelter. This shelter was clearly constructed immediately before or during the early stages of the Second World War to provide shelter for airfield personnel.

Description
This structure is a surface air raid shelter with a simple rectangular plan (internal dimensions 8.2 m long, 2.8 m wide and 1.8 m high) formed by a corrugated iron/steel arch, painted white and entirely covered by 70 cm thick earth banks. There is a narrower entrance lobby at the east end with a concrete slab roof and a short (2.4 m long), brick-lined entrance passage at right angles to the main body of the shelter. At the inner end of this L-shaped entrance passage is a metal door. At the western end of the shelter is a blank corrugated iron/steel wall with an escape hatch directly above (0.62m x 0.78 m) to which access is possible via a simple non-fixed ladder. The floor of the shelter is of concrete.

The structure survives in relatively good condition and the interior was partially accessible although trees have damaged the entrance and the escape hatch had collapsed.



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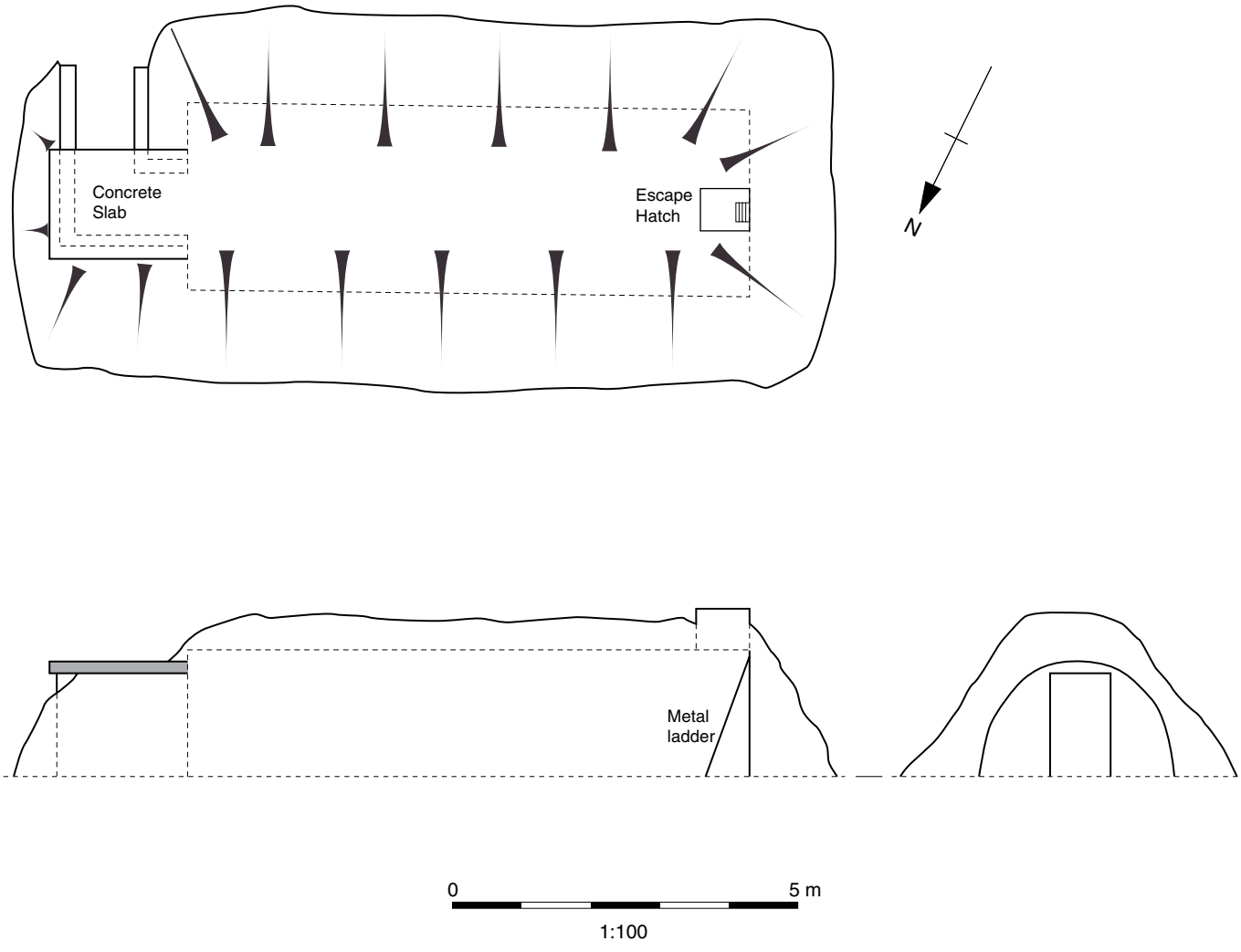

Figure 1: Site 122, Summers type shelter

Site 122 - Air raid shelter (Summers) plate 1

Site 122 - Air raid shelter (Summers) plate 2

Site 122 - Air raid shelter (Summers) plate 3

Site OA1: Hayes Farm

NGR: ST 59704 80786 **Phase**: Pre-20th century
Site type: partially surviving building

Location
The buildings of Hayes Farm were located immediately outside the RAF base, on the north side of Hayes Lane.

Introduction
Hayes Farm is the main complex of buildings (albeit substantially demolished prior to the current recording) on the development site to pre-date the 20th-century airfield.

When the initial 2006 phase of recording was undertaken in the current project the thick vegetation which covered the former farmstead prevented almost any access into this area. This vegetation was partially cleared in October 2009 (particularly in the areas surrounding the structures rather than from the structures themselves) and then more substantially during the winter. The remains of the former buildings were then recorded in early March 2010 before the re-growth of the vegetation. Watching brief recording was also undertaken in August 2010 while the structures were taken down 'to knee height' (for safety reasons) and while other limited intrusive works were undertaken. This area is being left as an open space in the current development so surface remains have been left in-situ. The intrusive work was also limited by the need to avoid disturbing tree roots.

Known history
Hayes Farm is first shown on the Ordnance Survey map of 1830 as a large farmstead. The Almonsbury Tithe map of 1838 labels the complex as Haise Farm and shows it comprising four large buildings surrounded by small paddocks/yards.

An airfield plan from 1945 shows that the farm remained just outside the airfield boundary during the Second World War with several fields to the north and west of the farmstead. Another air ministry plan from 1948 shows that these fields had been used in the very latter stages of the war as a United States Air Force camp (although it was by that date disused) but the farm buildings are shown intact and still labelled *Hayes Farm*.

Aerial photographs from the 1940s show the buildings and provide some indication of their form. The farmhouse appears to have been the southernmost building in the complex and to have been an east to west orientated structure facing Hayes Lane. The main east to west range of the farmhouse comprised two main elements: the eastern two-thirds appears to have been two storied and with three small south-facing gables while the western third is lower (possibly single storey). Adjoining to the rear of the farmhouse was a small range (probably lean-to) to the eastern half of the north face. To the north of the farmhouse was the farmyard with what appears to have been a gabled barn on the east side, with west facing porch towards the northern end of the building, and what may have been a stables (or animal shelter) along the north side. This shelter was also gabled and its south face comprised a series of narrow bays. The farm also comprised several later and more ephemeral buildings to the north and east.

Several aerial photos from the post-war era suggest that the farm buildings partially (or possibly entirely) survived into the late 1960s (they are shown on an AP from 1968) but that they may well have become disused. The area surrounding the buildings appears to have started becoming overgrown by 1968 and by 1980 it is heavily overgrown (with the farm buildings having been largely demolished).

The evidence of the partially surviving structures suggests that the farm buildings were probably constructed in the 18th or early 19th century.

Description

As stated above historic maps and photographs provide a good indication of the layout of the farmstead at Hayes Farm. The main house was located adjacent to Hayes Lane and immediately behind this was a farmyard with the main ranges on the northern and eastern sides. The eastern building appears to have been the larger of the two, incorporating a wagon porch towards the northern end of the west side, and was almost certainly the main barn. The yard also appears to have included two animal runs enclosed by walls between the main ranges and accessed from the smaller northern range which was almost certainly a long open-fronted animal shelter. An access track branched off from Hayes Lane and provided a route to the yard behind the house before continuing on and rejoining Hayes Lane beyond the farmstead. There were also several other farm buildings in the vicinity, particularly several to the east outside the main farmyard.

Nothing substantial appears to survive today above ground from the farmhouse although when the recording was undertaken this area still retained some vegetation cover so it may be that low footings remain at the surface. Any such remains in this area will be left in-situ in the current development.

Similarly there is no surviving trace of the probable barn on the eastern side of the former farmyard but remains do survive from the probable animal shelter which formed the north side of the yard. The western gable survives substantially intact from this building (3.7 m wide) together with part of the northern wall. It is possible to trace the northern wall for almost its entire length but whereas at the western end it is close to full height towards the east it drops down to ground level. There is no sign of a southern wall to this building which supports the belief that it was open fronted and related to the adjacent enclosed animal runs.

The walls are constructed from long, relatively flat non-dressed stone, roughly coursed and with a wide variety of sizes. Both the internal and external faces were limewashed.

The walls are largely featureless with no evidence of an upper floor to the former building and little evidence of windows or door openings. There was a single door towards the north end of the gabled western elevation although this has now been infilled with concrete blocks. A gun embrasure has been inserted within this wall (detailed further below).

The wall which formed the western side of the yard also substantially survived extending southwards in an alignment with the gable of the former animal shelter. This survives for c.11m, from a straight joint with the shelter, although a 4.5 m section of the wall has been replaced by an iron railing fence. There is a gate pier (fallen) at the northern end of the railings. Minor vegetation clearance in the current project revealed that a stone foundation continued beneath the iron railing suggesting that a stone wall formerly extended along the entire west side of the yard.

The floor of the animal shelter is a concrete slab and much of this has been left in situ in the current development (particularly to avoid disturbing roots).

Several fragments from an earlier floor have been exposed during the works within the former yard to the south of the animal shelter, particularly adjacent to the partially surviving western yard wall.

Although only small areas of it were exposed the floor appears to have extended between c.5.95 m south of the animal shelter's north wall and 9.6 m south of it. Two main areas were exposed adjacent to the west wall (one towards the southern end and one towards the northern end) and both were of similar construction. The floor was formed from bricks roughly laid in rows rather than with an overlapping bond and most of the bricks appeared to be of 19th century date. The bricks were of various types (eg yellow, red/orange, blue/black) and the floor appears to have been formed with whatever bricks were available at the farm. Some old paving stones are also mixed into the floor and at their western end the bricks abut the lower part of the stone wall.

The brick floor appears to terminate at the southern end of the area (ie c.9.6 m to the south of the north wall of the animal shelter) and this broadly coincides with the southern end of the west garden wall. As referred to above to the south of this point the yard wall has been replaced by an iron fence.

At the northern end of the former floor the area scraped clear extended slightly further north and this exposed a distinct area of ash/coal (c.40 cm squ) immediately north of the brick paving. It may be that this related to a small blacksmiths hearth in this area. This floor was not exposed more fully because it was not being removed or directly impacted in the development.

There are several surviving sets of gate piers and fragments from other walls in the general vicinity of Hayes Farm. Two of the sets of piers are at either end of the curved track into the farmyard from Hayes Lane. Those at the western end of the track are c.60 m to the south-west of the surviving gable while those at the eastern end are c.47 m from the gable. The piers to the west are of stone and relatively plain while those to the east are more decorative with long vertical tooling marks, a gothic arched top and a benchmark towards the base. There are also fragmentary remains of further piers at the north-western corner of the farmyard, from a track which would have extended north-west along the field boundary.

Military features within Hayes Farm

Within the general vicinity of Hayes Farm there are a number of surviving features relating to the Second World War. Some of these are detailed elsewhere in the gazetteer (eg OA6, OA17, OA18) but in addition to this there are two other more minor features of interest. One of these is a gun loop or embrasure which was inserted into the partially surviving north wall of the former animal shelter at its very western end. This position overlooks the open field to the north and the loop must have been added during the Second World War to add to the airfield defences.

The embrasure, which is set immediately above ground level, is 70 cm wide by 25 cm tall and it has an iron bar lintel. The jambs of the opening are sloped and both these, and the area immediately above the lintel, are covered by a cement render. The embrasure has not been roughly infilled. It was a common tactic during the war to create minor defence positions such as this within existing buildings.

Immediately in front of the former animal shelter (c.9 m north-east of the embrasure) is a depression which has been created by the removal of a pillbox and on the north-eastern side of this are various fragments of corrugated iron which would probably have lined a sunken access trench into the pillbox. The pillbox is shown on the 1945 plan.

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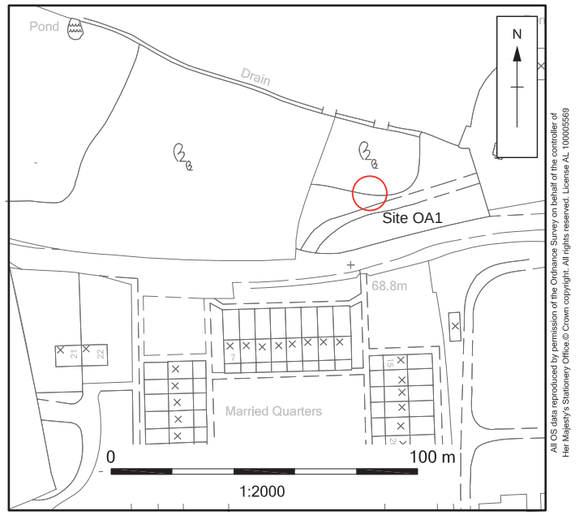

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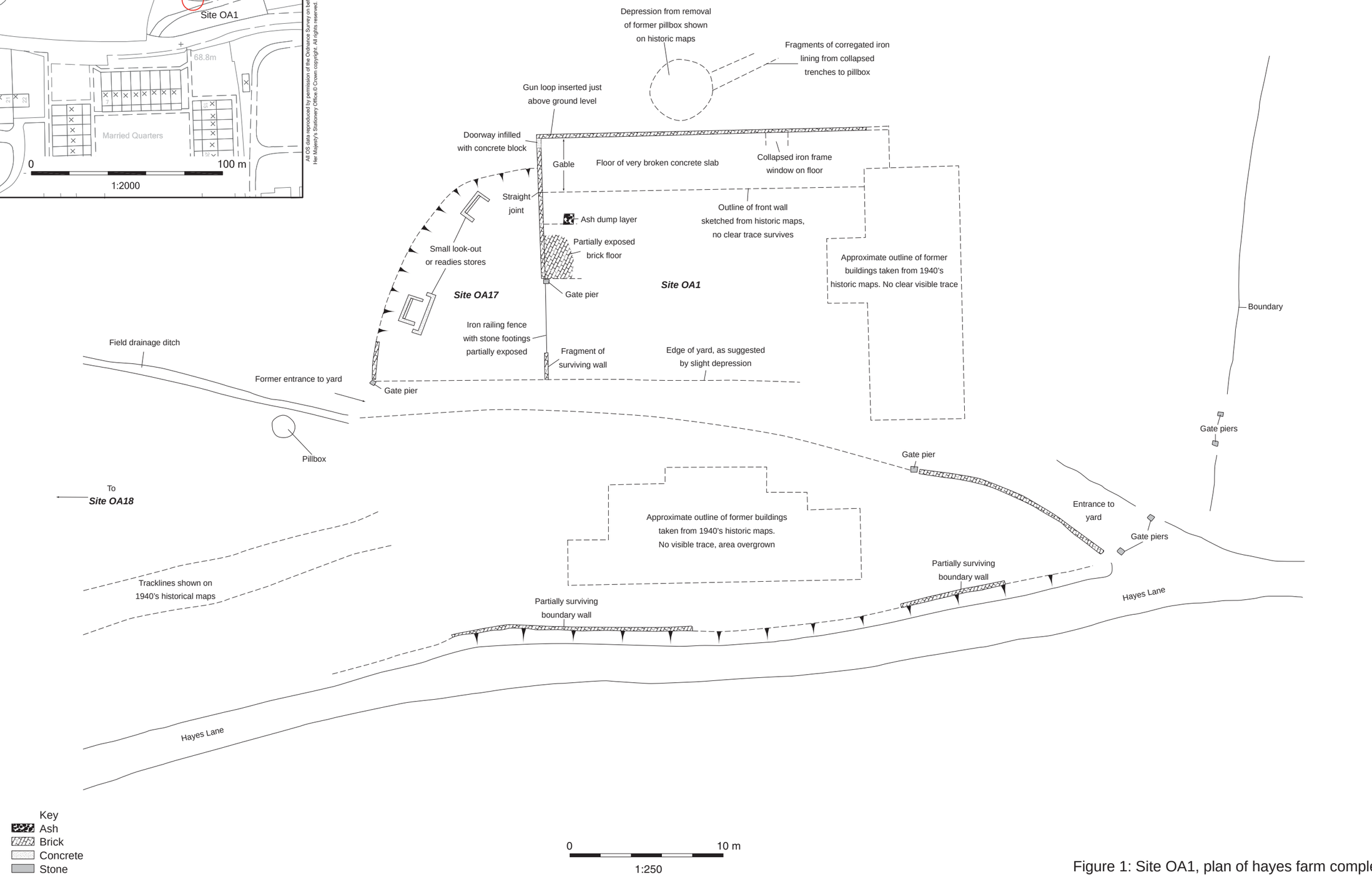

Figure 1: Site OA1, plan of hayes farm complex

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OA1 Plate 2

OA1 Plate 4v

OA1 Plate 1

OA1 Plate 3

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OA1 Plate 6

OA1 Plate 8

OA1 Plate 5

OA1 Plate 7

Site OA2: Flak Tower

NGR: ST 60119 81323 **Phase**: Second World War defences
Site type: intact structure

Location
The Flak Tower was located close to the northernmost edge of the airfield.

History and background
The Flak Tower was constructed during (or in the preparations immediately before) the Second World War and was essentially a raised platform on which a gun would have been based with good all round visibility with which to attack enemy aircraft and with an enclosed magazine below. It was altered in the 1980s (probably late 1980s) by the construction of an additional frame on top of the WWII structure.

The Flak Tower is considered to be the most significant surviving building within the current development site at Filton (although there are more significant structures immediately outside the site) and in 2003 South Gloucestershire Council made a request to English Heritage for the structure to be considered for scheduling. The resulting EH assessment concluded that although as a type the Flak Tower is a relatively rare survival it is of local rather than national interest due to its relatively poor survival and lack of group value or context (ie the other flak towers at the site do not survive).

Description

The Flak Tower has a distinctive form comprising two similar but structurally separate blocks each of which encloses a single room and forms a raised roof platform with concrete parapet walls. Each block is constructed with a reinforced concrete frame comprising four corner posts supporting the jettied and overhanging roof platform. The main walls between the posts are of red brick infill (39 cm deep) and they incorporate a series of concrete-lined defensive embrasures which would have provided local defence and views across this part of the airfield in the event of a ground-based attack on the aerodrome. The two blocks are of similar size (southern one 3.85 m sq, northern one 3.7 m sq) but the southern block is taller and the overall form of the tower has been significantly altered by the addition of a tall, metal-framed, post-war tower and external metal staircase, with cabin on top which is believed to have been used as a reserve control tower.

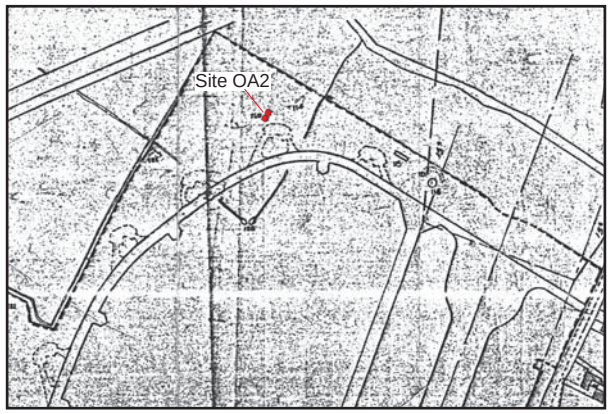
The platform of the northern block splays out on all four sides but that of the southern block overhangs to the east and west sides only. The roof platforms are immediately adjacent to each other (and allow access from one to the other) but due to the overhang this creates a 1.34 m wide covered passage at ground floor level which allows access through two doorways into the two ground floor rooms. Parts of the brickwork in the walls appear to have been rebuilt.

Traces of camouflage paint survive on several of the brick walls.

The lower (northern) platform would have housed the main fixed anti-aircraft gun, to attack aircraft approaching the airfield from the north while the taller southern platform would probably have been intended for observers and light machine guns on pintel mounts. The floor surface of each platform has been covered by a later layer of tarmac but at the centre of the floor of the southern one is a raised plinth (65 cm squ) which would have been for the gun mounting. At each corner of this platform are simple covered ammo stores (1.05 m wide by 61 cm deep by 67 cm tall) without doors. The main ammo would have been stored in the room at ground floor and this would have been passed through a hatch in the floor (now hidden). Also at each corner of each flat roof is a small simple drain.

A sign on the door to the southern room shows that this area had a secondary use in the second half of the 20th century as a 'PMR Standby Facility'. Another sign says 'danger battery charging in progress'. The door to the northern room is plain.

The interiors of each room are of similar form with bare brick walls and few if any features relating to the war-time use of the structure. The sheet metal linings to the embrasures remain in-situ and in the northern room is a secondary desk or small work bench. The floor and ceiling of each room is of exposed concrete.



Inlay map taken from Filton record site plan (1945)

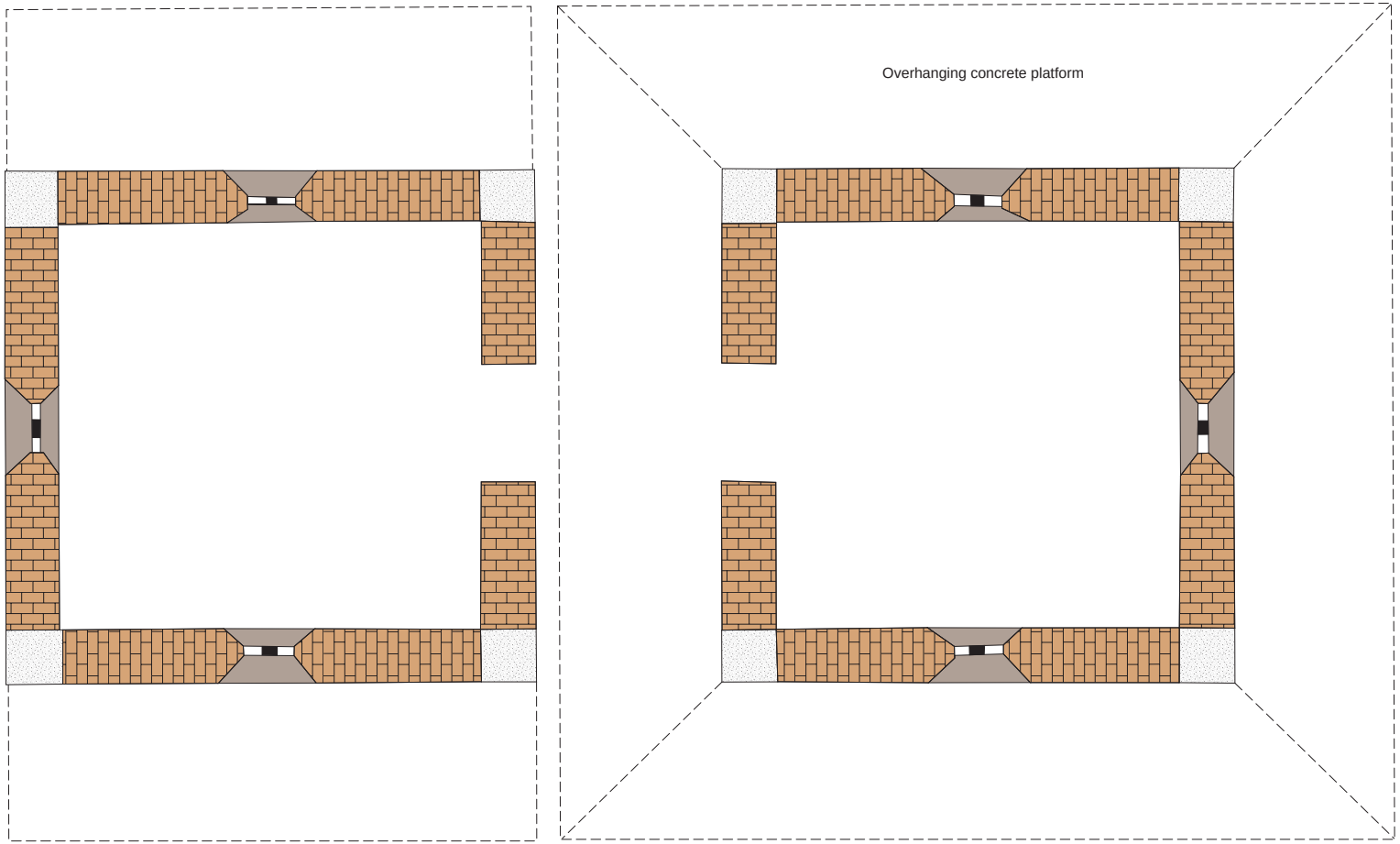


Figure 1: Site OA 2, flak tower plan

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OA2 Plate 2

OA2 Plate 4

OA2 Plate 1

OA2 Plate 3

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OA2 Plate 6

OA2 Plate 7

OA2 Plate 5

Site OA3: Sea Wolf Facility

NGR: ST 59741 81148 **Phase**: Post War developments
Site type: Complex of intact buildings

Location and known history
In the northern part of the Northfield site is a distinct group of buildings within a self-contained compound known as the 'Sea Wolf Facility'. This is well to the north of the former RAF base and historic airfield and was purpose built in the 1980s for the assembly and test of the Vertically Launched Seawolf missile during the Development and Production phases of the project. A plaque at the entrance to the compound confirms that it was opened in 1985.

Prior to the Second World War this area appears to have been agricultural land and historic maps show it as part of a field pattern but aerial photographs from April 1944 show it covered by hardstanding and forming part of the large US Air Force depot/camp which was formed here in the logistical preparations for D-Day (OA12). Post-war aerial photographs suggest that prior to the construction of the Sea Wolf facitlity this area was not developed and was shrubland and overgrown hardstanding.

When OA first visited the site in 2001 it was still a top secret operational area which could not be photographed or inspected.

The description below includes valuable information which was kindly provided in the preparation of this report by John Frankham, former Chief Engineer of the Sea Wolf project.

General site description

The Sea Wolf facility comprises seven main buildings which have been labelled Buildings A-G in the current study (see plan). The compound has a secure perimeter fence and the only access into the area was from the west past the gate house and via a set of short roads which led to each building. The buildings are generally dispersed from one another and the facility is located in an area where the ground slopes down noticeably towards the west. The ground towards the eastern edge of the site, where the key buildings are located also appears to have been lowered/levelled and the spoil used to construct a substantial protective bank (c.3 m tall) along the eastern side of the main buildings (detailed further below). The slope of the ground and the bank to the rear gives the main buildings the appearance of being partially sunken and John Frankham has confirmed that this was for protection if there was an accidental explosion or motor ignition in one of the buildings. Similarly the physical separation of the buildings was to prevent a 'knock-on' effect between buildings the event of an accident. The assembly of the missiles involved solid fuel rocket motors.

Building A
Building A was the Main Assembly Area for the Seawolf Missile, comprising of Changing Room Facilities, Test Room, Test Cell, Alignment and build cells (J Frankham pers comm).

The *exterior* of the building has the character of a large modern, flat-roofed shed and each elevation is clad in lightweight, corrugated light grey panelling (coated metal) to the lower half. The upper half of each elevation is clad in black panelling where each section overlaps the next and would have allowed ventilation to the building. The frame structure of the building is expressed through black painted steel posts which articulate the lower light grey panelling but which are hidden beneath the darker cladding to the upper half. The plan of the building is generally rectangular (c.32 m x c.18 m) but the south-western corner is inverted and there a lower entrance porch in this area.

Observations were also made on the building during its demolition and this provided evidence regarding the structure of the building beneath the cladding. There appears to have been a large rectangular plan 'core' constructed from thick reinforced concrete and then around the northern and

western sides of this was a much lighter weight steel-framed structure with simple horizontal and vertical members. The concrete section would clearly have housed the main assembly operations where there was some risk of accidental motor ignition. The concrete was painted black and there appears to have been a layer of fibre insulation between it and the cladding.

Among the more interesting features of the building's external shell are a set of six large red plastic 'pop-out' plugs or stoppers in each bay of the east elevation. These bright plugs, which are 1.5 m in diameter give the elevation something of a post-modern architectural appearance typical of the mid 1980s and John Frankham has confirmed that in the event of an accidental motor ignition they would pop out and the energy would be released outside to be absorbed by the adjacent earth bank.

The main access into the building is from several doors (largely painted red) along the western and southern elevations including three doors for pedestrian access and a larger shuttered door towards the centre of the west wall which would have been where the assembled missiles would have left the building on vehicles. The main roadway leads to this doorway.

The *interior* of the building is very plain with no adornment, painted concrete walls and floors and very few features. The principal production assembly area (ie the rectangular plan block towards the south-east divides into a full length circulation space to the west and to the east of this are six individual bays separated from each other by concrete walls. The northern bay was a test cell where tests would have been undertaken and the other cells was a build cell where the missiles would have been assembled on trolleys. The 'build cells' were plain but there was an imprint visible in the floor from where the build trolleys would have sat with remaining lugs or holding-down bolts. The four southernmost 'build cells' were open to the west but the northern two cells (including the Test cell) had double split doors (like very tall stable doors) up to the high ceiling. Immediately outside the test cell is a red 'test in progress' warning light and inside there is a large, rectangular raised imprint on the floor where the test stand was bolted to the floor.

The 'pop-out' plug in the east wall of each of the six bays is not clearly visible internally although a large metal security grille fixed to the internal walls clearly shows their locations.

A guided trackway formed from RSJs is fixed to the ceiling which would extends along the spine of the circulation space and incorporates branch sections into each of the bays. Clearly this track system would have carried missiles and/or parts around the building and it links into the adjacent block (Building C).

Along the northern and western steel-framed sides of the building were various service rooms including the loading and unloading area to the south of the shuttered entrance and to the north of this were two small rooms: one contained the paint booth, and the second contained small stores cables etc (J Frankham pers comm). The internal walls in these areas are largely constructed from concrete block. At the southern corner of the building was a small nitrogen store.

Building B

Building B was the plant room located between Buildings A & B and serving them with heating and air supplies. This was a smaller and lower box-type building than the two adjacent structures and it was clad in light grey panelling. It had a simple rectangular plan (c.10 m x 7 m) with an inverted north-east corner and the main door was in the west wall. No internal access was possible in the current recording although signs on doors showed that towards the northern corner there was a solvents store and to the west of this was a switchgear room.

Building C

Building C was the original Research & Development block which pre-dated the other ranges and was constructed in 1983 (J Frankham pers comm). This building again took the form of a large, single storey shed with a flat roof and plain rectangular plan (c.32 x 12m). Similarly to Building A the lower half of the elevations were of light grey corrugated cladding while the upper halfs were of darker cladding with long horizontal slats (possibly vents). The west elevation is very plain and divides into

six bays. There is a pedestrian entrance in the southernmost bay while the third bay from the south has sliding doors which allowed vehicular access into a covered through passage. The rear (east) elevation has five red plastic pop-out plugs the same as those in Building A and two pedestrian doorways in the southern bays.

Limited observations were made during the demolition of the building and it appears that it was entirely constructed of reinforced concrete beneath the cladding.

The interior divides into two main sections, one to either side of the covered vehiclular loading bay to the south of the centre. To the north of the central bay were four further build cells (similar to those in Building A) and a test room while on the east side of the building while on the west side was an open area. There are RSJs fixed to the ceiling which would have formed an overhead travelling track to carry missiles and parts around the building. This track extends out of the southern end of this area, into the covered loading bay and then dog-legs east before returning south again into the room on the south side of the loading bay. At the intersections of the track there are separate circular junction pieces which could be rotated to allow the missiles to turn 90 degrees. These were operated by simple mechanisms wth pulleys and cables fixed to the wall.

Building D
Building D was an isolated structure which was used as a storage area for holding motors prior to assembly. This was a relatively small building (c.7.5 x 6 m) in which the western half was an open-faced, covered area and the eastern half was a single room. The building was clad in the lightweight metal-coated cladding and the structure appears to have been entirely reinforced concrete. There was a very tall set of split doors which allowed access into the room (sign with 16W-24 on door) and above this entrance is a RSJ track on which motors could have been transferred from vehicles into the store room. Another sign on the building states that this was 'Store A'.

Building E
Building E was a further isolated store building which is located towards the southern edge of the compound. This is larger than the other two stores (Buildings D & F) and it would have functioned as the despatch store where assembled Seawolf Missiles were held prior to despatch. This building is again a simple oblong box (c.18 m x 7 m) with a flat roof and while the main walls are clad in light grey corrugated panels the upper third is formed from darker panels with long vents. The building is three bays long and the north-western bay would have formed an open-faced, covered loading bay. Between the loading bay and the main internal space is a set of tall, sliding 'concertina' doors. The interior is very plain with painted concrete walls but there is an RSJ fixed to the ceiling with a small motorised travelling winch.

Building F
Building F was the third isolated store building and it was located towards the western side of the compound. Externally it is very similar to Building D with a relatively small plan incorporating a covered, open-faced loading area to east but the internal area is divided into two rooms: one side was for holding motors prior to assembly while the second cell would have held casualty missiles (J Frankham pers comm). A sign on the building shows that this was known as Store B and other signs show that the southern room, which had an RSJ guided track and split doors, was 16W-25 and the northern room, was 16W-26. The building is c.7.75 m long x 5.5 m wide.

Building G
Building G was the guard/gate house and flanked the northern side of the entrance to the Sea Wolf compound. John Frankham has said that entry/exit of all personnel and equipments was strictly controlled from this building. All personnel were scrutinized individually for potentially hazardous materials/devices and the building also served as the rest area for all staff working on the site. It is a simple, single storey building clad in corrugated panelling similar to that on the main Sea Wolf buildings and with a covered secure area at the front which is covered in a wire mesh.

On the building is a plaque saying that the facility was opened on 10 May 1985 by Rear Admiral GGW Marsh CB, OBE. In this area there is also a sign with red lights stating 'Test in progress, no exit, Sea Wolf facility, use alternative road'.

John Frankham has said that just inside the compound, beyond the gate house was a famous pond where they kept fish and which was very popular with visitors!

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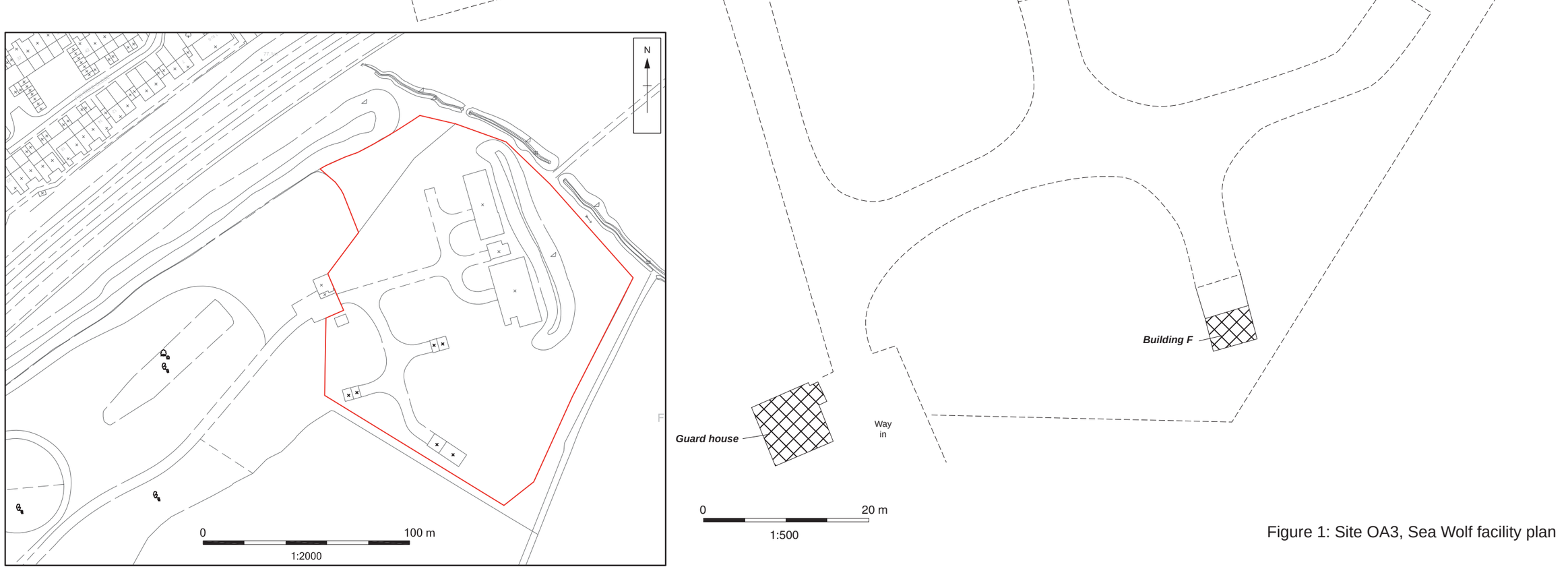

Figure 1: Site OA3, Sea Wolf facility plan

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OA3 Plate 2

OA3 Plate 4

OA3 Plate 1

OA3 Plate 3

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OA3 Plate 6

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OA3 Plate 7

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OA3 Plate 10

OA3 Plate 12

OA3 Plate 9

OA3 Plate 11

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OA3 Plate 14

OA3 Plate 16

OA3 Plate 13

OA3 Plate 15

Site OA4: 'Concorde' Hangar

NGR: ST 59839 80777 **Phase**: Post-war developments
Site type: Intact building

Location
Immediately to the north of Hayes Lane and to the east of the site of Hayes Farm

History
This is a very large, modern hangar which was constructed in the 1980s (probably later 1980s) apparently to store components for the Concorde Aircraft. The airfield plan from 1945 and aerial photographs from the Second World War show the area housing a series of temporary barrack huts. An aerial photograph from June 1989 shows the building but one from 1980 shows the area not built upon (other than a fragmentary layout from previous buildings).

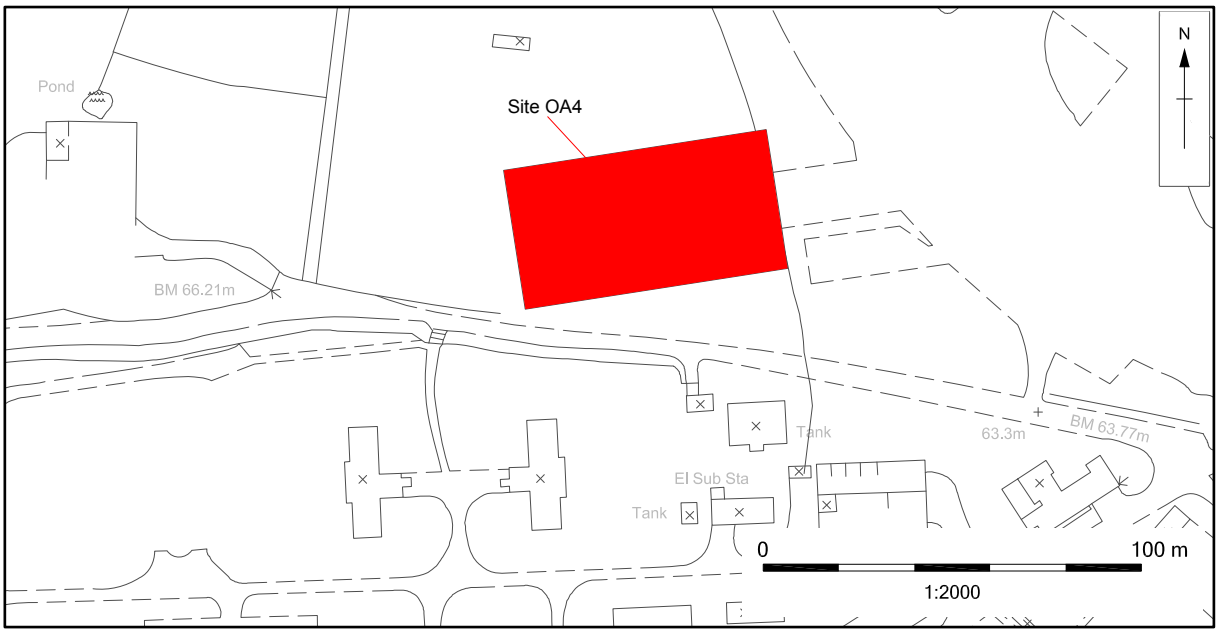
Patrick Hassell and Cliff Richard who worked at Filton for many years have said that the hangar was constructed c.1985-6 and that it replaced lots of huts and a former rifle range.

Filton has a strong relationship with Concorde through the fact that the aircraft was tested and prototypes manufactured here and this gives some interest to the hangar even though it was only used for the storage of components. Indeed the tagline of the 'Concorde at Filton' visitor attraction is 'birthplace of supersonic travel'.

When the main phase of recording in the current project was undertaken the building was still in use and at this stage it was not possible to inspect its interior for security reasons. However photographic recording was undertaken on the building during its demolition.

Description
The Concorde Hangar is c. 70 m long by c.36 m wide and is a plain shed covered in light grey corrugated cladding and with a shallow pitch gabled roof. The east elevation comprises a red 'concertina' type door supported on a steel lintel which extends beyond the main walls of the building so that almost the entire elevation can be opened.

The structure of the hangar comprises a series of steel portal frames supported at each end by large steel stanchions (c.75 cm long)with diagonal bracing towards each corner. The roof cladding is supported on a series of common purlins (10 to each slope) and the end bays have additional steel 'zig-zag' bracing



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Maplet of site OA4

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OA4 Plate 2

OA4 Plate 4

OA4 Plate 1

OA4 Plate 3

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OA4 Plate 6

OA4 Plate 8

OA4 Plate 5

OA4 Plate 7

Site OA5: Turntables and driving circle

NGR: ST 59542 80910 (large turntable)
NGR: ST 59506 80883 (small turntable)
NGR: ST 59511 81030 (driving circle)

Phase: Post-war developments
Site type: partially intact structures

Location
These are located in the northern part of the site, outside (to the north of) the pre-WWII airfield boundary but within the area of the former USAAF base.

Background
This site comprises three distinct but apparently related features: a small turntable, a larger turntable, and a circular road (or driving circle). The age and significance of the larger turntable has previously been the subject of an assessment by Oxford Archaeology (July 2006) due to the possibility of it being older than previously supposed and of greater heritage interest. It is believed that these features formed part of, or were related to, the antenna testing facility (see OA11).

Historic plans and aerial photographs
The turntables and driving circle are within a derelict part of the site which remained as fields for much of the Second World War (shown as fields on an Airfield Plan dated April 1945 held at RAF Museum) but which was used as an American Airforce Camp towards the end of the war (see OA12). Another airfield plan dated 1948 labels the large area between Hayes Lane and the by-pass (including the site of the turntable) as 'Disused USAAF Camp'. The turntables themselves however had not been constructed by this date and they are also not shown on an Ordnance Survey map from 1971.

A study of aerial photographs confirm that the features had not been constructed in June 1969 but that they had been built by 1980. It is interesting to note how brightly the circle and other features appear and how clearly they stand out suggesting they had only relatively recently been constructed. In contrast a later image, from June 1989, again shows the two circles but they appear to be more weathered and they stand out less than in 1980.

Post-war use of this area
In 1959 the Bristol Aeroplane Company merged with several other manufacturers to form the British Aircraft Corporation which later became part of British Aerospace and then in 1999 BAE Systems. The large area which formed the World War II USAAF base was used by this organisation and that part which includes the site of the turntable was used by a missile research/development division of the company[1].

The most important missile which originated at Filton was the Bloodhound Surface to Air Missile which was developed by the Bristol Aeroplane Company from 1947 and it was first deployed in 1958. A second version (Bloodhound II) was operational by 1964 and remained in use until the early 1990s. The Bloodhound was the UK's main air defence weapon and was in large-scale service for much of the second half of the 20th century.

However, after discussions with her BAE Systems colleagues, Lynda Stone has informed OA that it was the Rapier missile that was developed in the area with the turntables. The first version of the Rapier was developed in the 1960s but development of a second version (the FSC) was undertaken in the late 1980s and the system entered service in 1996.

Another missile developed at Filton was the Sea Wolf which was first developed in the 1970s but research on a updated version is known to have been undertaken at Filton as recently as 2001 (A Haile pers comm). This was when OA undertook their original survey of the site and no access was possible

[1] This information is provided by Lynda Stone (BAE Systems) who has discussed the turntable and that part of the site in which it stands with her colleagues, some of which have worked at the Filton site for many decades.

to the area where the Sea Wolf missile was being researched. This was not the area where the turntables and driving circle are located.

Main turntable
The large turntable structure is located c.200 m to the north of Hayes Lane. The feature is reached by a straight concrete road which extends south-east from the main track through this part of the site. Metal sheets were bolted to the ground along this track (a small number survive).

The feature is a circular pit (c.10.5 m diameter x c.0.75 m deep) on which a turntable used to stand but the turntable has been removed within recent years or two and relocated to a different part of the site (A Haile pers comm). What now survives is a pit with an ledge towards the outer edge on which a series of small wheels used to sit to support and rotate the metal turntable. Very few of these wheels survive. There is a concrete inner ring which also formerly had supporting wheels and within this is the base from the former hub of the turntable with wires from the former operating mechanism.

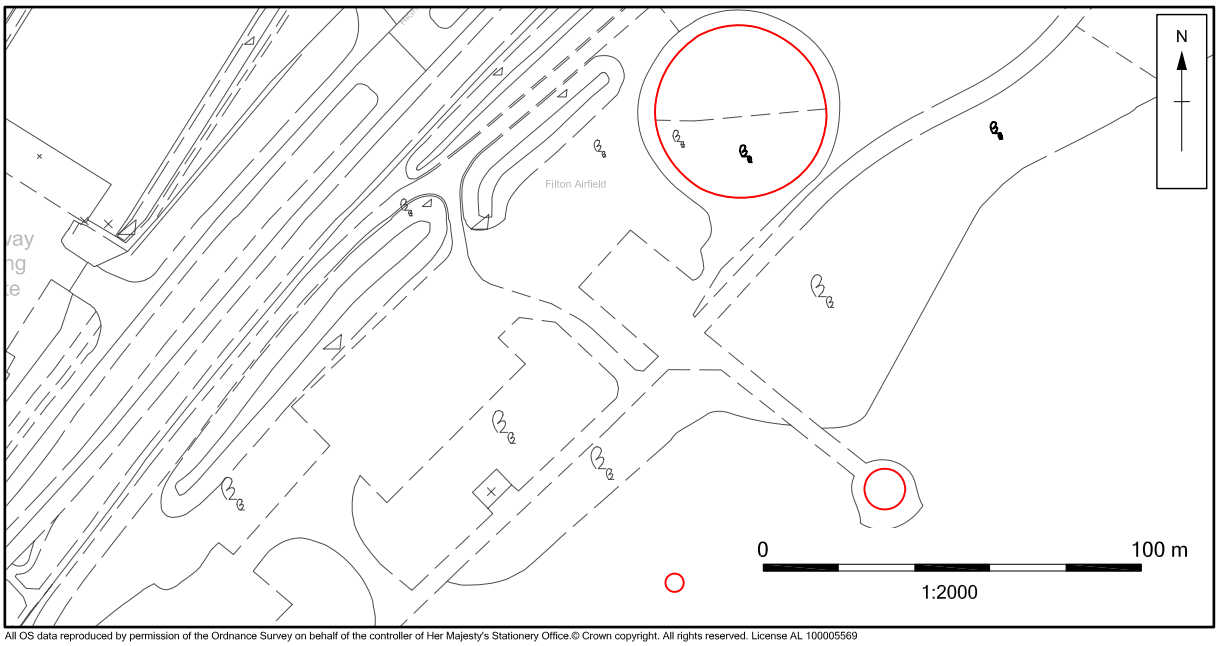
Towards the southernmost point of the feature is a rectangular recess, adjoining the edge of the circle, where the pit extends and houses a metal box with an open top. There are various bolts, brackets and cables within the box and presumably some form of a sensing or measuring device would have been located within or on top of this box. The concrete, metalwork and cables suggest a later 20th-century date.

Alan Haile, who has worked at the site for BAE Systems for over 15 years says that while he has been at Filton his understanding of the main turntable has been that it was for EMC testing (Electronic Magnetic Capability) to check that electronic devices/equipment could pick up signals whatever their orientation. He has said that vehicles, engines (or other equipment) would have been placed on the turntable and then rotated while a fixed device beside the turntable would measure whether signals could be communicated with the vehicle/engine. It is interesting to note that modern aerial photos (Google Earth) of this area show heavy wear to the ground between the site of the turntable and the buildings of the antenna testing facility (OA11) to the west suggesting that the two areas were functionally connected.

David Atkins, who also worked at the site, has also stated (in an e-mail to Lynda Stone) that there was a turntable in this part of the site which was used to measure antenna patterns on light vehicles and that it was not built for a specific project. He estimated that this was c.20 years old and they moved this turntable to a different (active) part of the site where it continues to perform its previous function.

Smaller turntable
The remains of the smaller turntable are located c.80 m SSW from the larger turntable and it is also connected to the buildings of the antenna testing facility to the north-west. This feature is 4.5 m in diameter and it is also a circular pit from which a former turntable has been removed. The bottom of the pit is filled by a layer of mud which hides any possible evidence of fixings, runners or wheels but bolts are visible from the former supporting structure for the turntable. One interesting feature are subtle blue and white gauge marks which extend around the rim of the circle which would clearly have allowed the turntable to be rotated to a specific point.

Driving circle
This feature is a circular road, c.54 m in diameter with a shallow grass covered mound within it. The road has a number of ridges within it (like small rumble strips) but other than this it is relatively featureless.



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Maplet of site OA5

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OA5 Plate 2

OA5 Plate 4

OA5 Plate 1

OA5 Plate 3

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OA5 Plate 6

OA5 Plate

OA5 Plate 5

OA5 Plate 7

Site OA6: Pill box by Hayes Farm

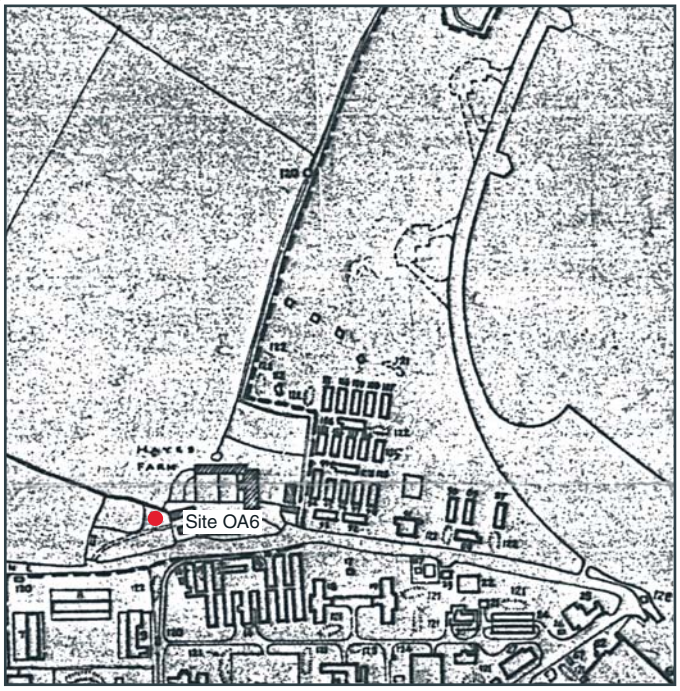
NGR: ST 59661 80759 **Phase**: WWII airfield defences
Site type: intact structure

Location
This pillbox is immediately to the south of the west entrance into Hayes farm.

History
The pillbox is not shown on the 1945 or 1948 plans but it was almost certainly constructed in the summer of 1940 as part of the series of structures which were added around the airfield's perimeter to defend it from potential attack. This desperate programme of emergency works was a reaction to the realisation that airfields would be a key target for the Germans and defences should be ready for either an aerial attack or a land-based attack following an initial invasion.

Description
The pillbox, which is of the Air Ministry Norcon type, survives in good condition and covered the entrance to the farm with interlocking fields of fire with other defence posts along the west and north sides of the airfield perimeter. The Air Ministry Norcon type pillbox was a pre-cast reinforced concrete cylinder with six loopholes and small entrance. It measured 2.04 m ∅ x 1.2 m and 0.24 m thick and was set on a six course high brick circular base. This was set 1.4 m in the ground with a partly covered brick lined trench entering it at right angles from the west. The pillbox had a 0.24 m thick concrete cast roof and floor with a 4" ceramic pipe drain from floor into boundary ditch.

This pillbox is of the same type as 120a which survives along the field boundary to the north of Hayes Farm.



Inlay map taken from Filton record site plan (1945)

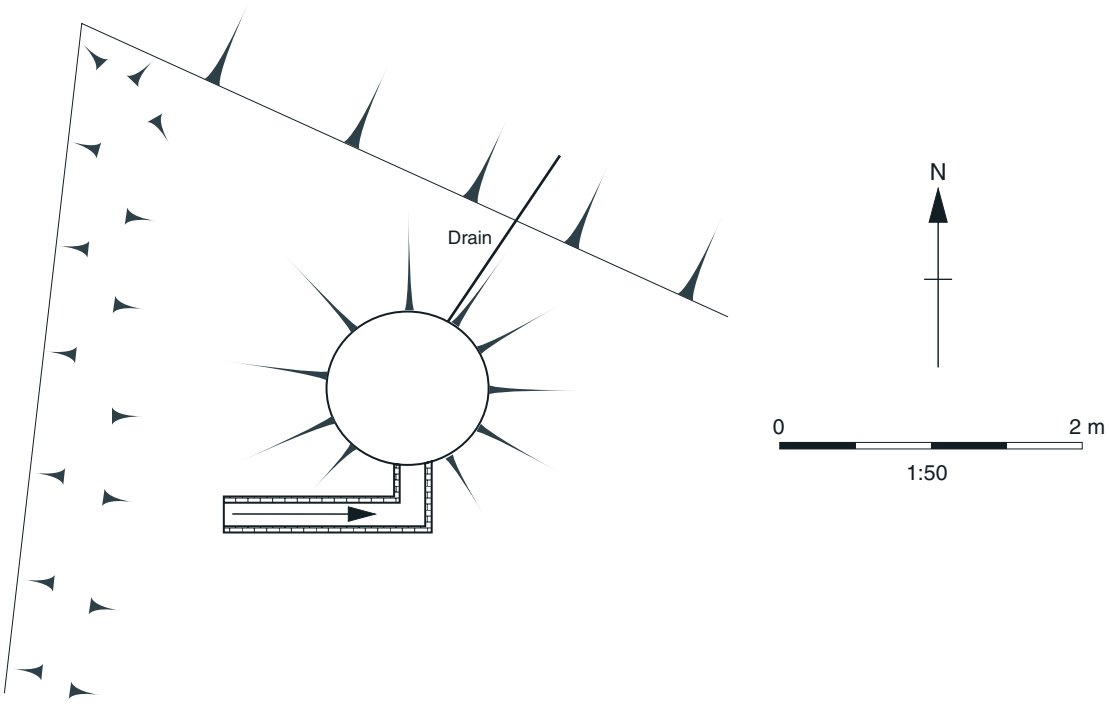


Figure 1: Site OA6, pillbox

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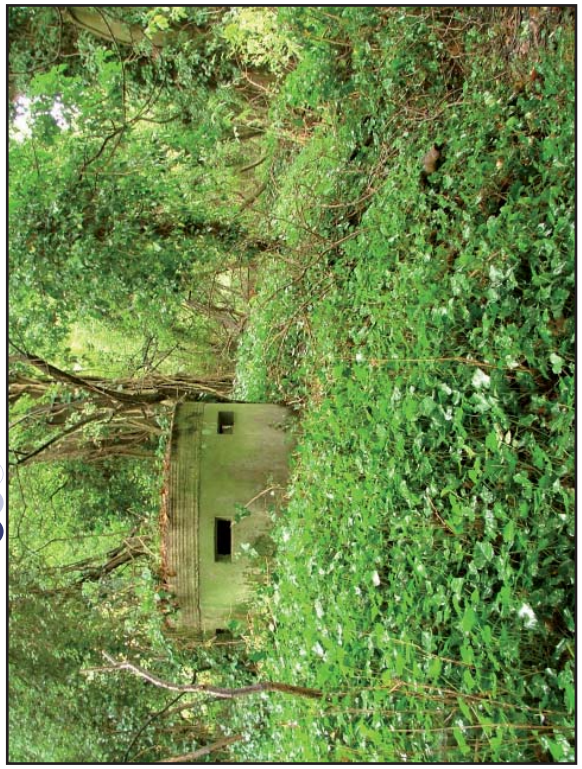
Site OA6: Pillbox to west of Hayes Farm



OA6 Plate 2

OA6 Plate 4

OA6 Plate 1

OA6 Plate 3

Site OA7: Radio aerial mast bases

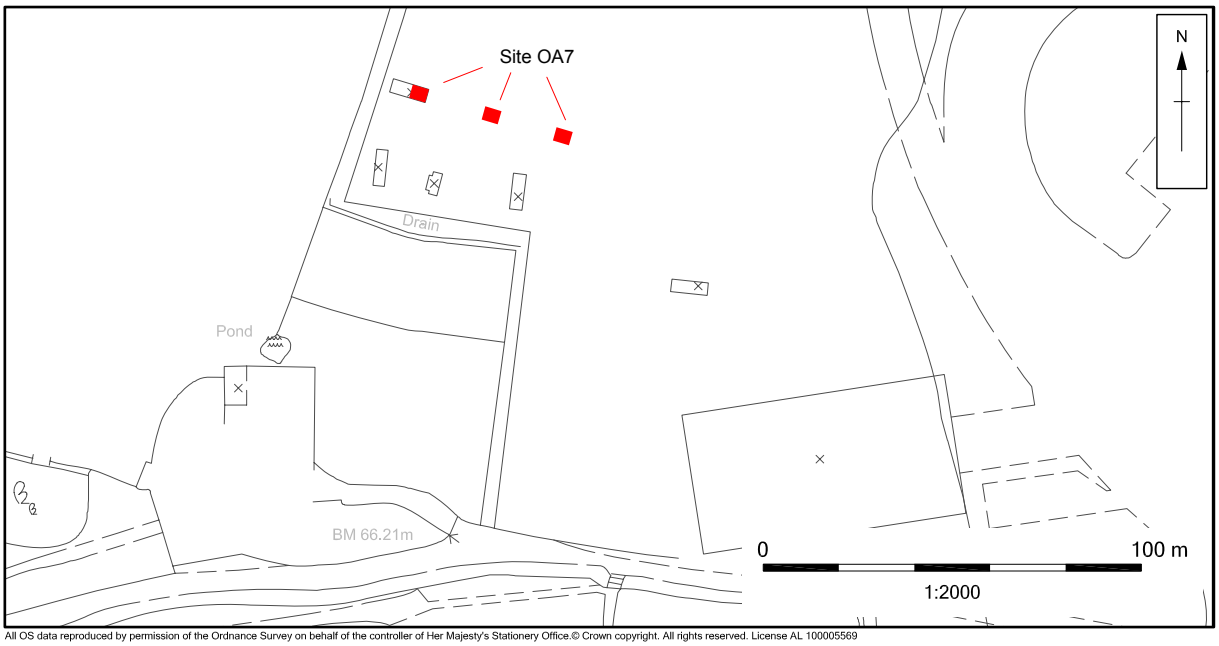
NGR: ST 59742 80874 & ST 59561 80607 **Phase**: Second World War
Site type: partially intact structures

Location
To the north of Hayes Farm is a row of three concrete pads which are each shown on the 1945 airfield plan and which have been located in the current recording. A further two very similar pads have also been found further to the south, within the 1920s airfield.

History
These pads (as well as several others) are clearly shown on the wartime aerial photographs. The function of these pads is uncertain but it may be that they were for radio masts.

Description
The three surviving concrete pads to the north of Hayes Farm are from of a group of four aligned north-west to south-east that were shown on the 1945 map. The two pads to the south-east were 4.9 m^2 and the north-western pad was 3.9 m^2 and all were 0.16m thick. In the centre of each was a circle of six 4 inch square holes 0.72 m in diameter. In the two side pads (ie not the central one) there is a shallow rectangular imprint in the concrete, in the centre of the circle 16" x 4".

The two similar pads found within the main RAF base were located towards the western end of the technical area, and they appear to have been southern two from a group of four similar pads. The four were shown on the 1945 map and aerial photographs. They were 2.6 m square and 0.10 m thick with a 0.02 m raised centre, 0.85 m ∅ with six 0.10 m square socket holes around it. These were 0.10 m in depth and for a mount possibly and aerial or mast.



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Maplet of site OA7

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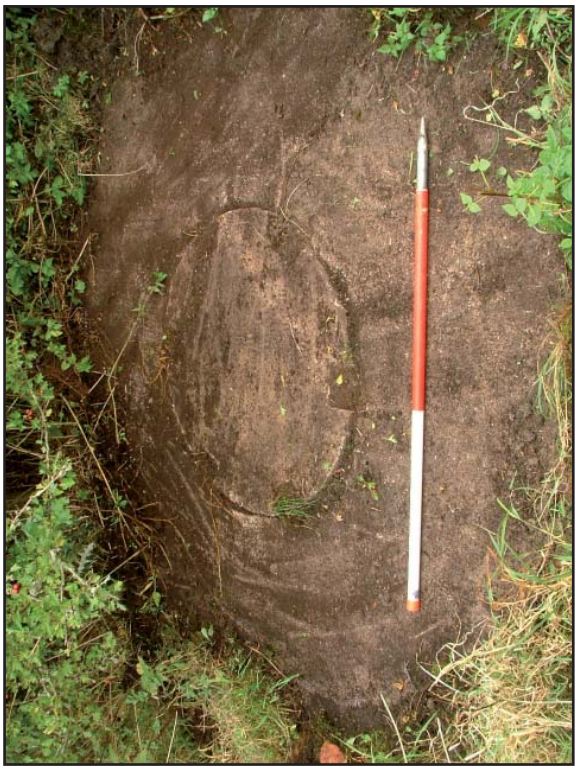
Site OA7: Radio aerial mast bases

OA7 Plate 2

OA7 Plate 4

OA7 Plate 1



OA7 Plate 3

Site OA8: Haye's Lane Defence post

NGR: ST 59349 80761 **Phase**: Second World War defences
Site type: partially intact structure

Location
At the west side of the 'T' junction where Hayes Lane adjoins the road into the camp survives one of the many defence posts which were constructed to help defend the airfield from attack.

History
This defence post would have formed part of the system of airfield defence which was probably constructed in 1940 to counter the threat from Germany. From the spring of 1940 it rapidly became appreciated that airfields would be a key target for the Nazis and that preparations should be made for possible land-based attacks as well as aerial attacks.

Description

This feature is in the form of a rectangular hollow aligned east to west, with a ramp into it at its west end. It measures 13 m x 5 m with sloping sides to a flat base 6.6 m x 3.5 m and was 1.4 m below ground surface. This appears to be a position for an airfield armoured vehicle to drive into for a hull-down defensive position. On the south side of the hollow a small emplacement was located with a concrete cast embrasure and earthworks. In the reverse base are two cast niches for small arms ammunition and explosives.

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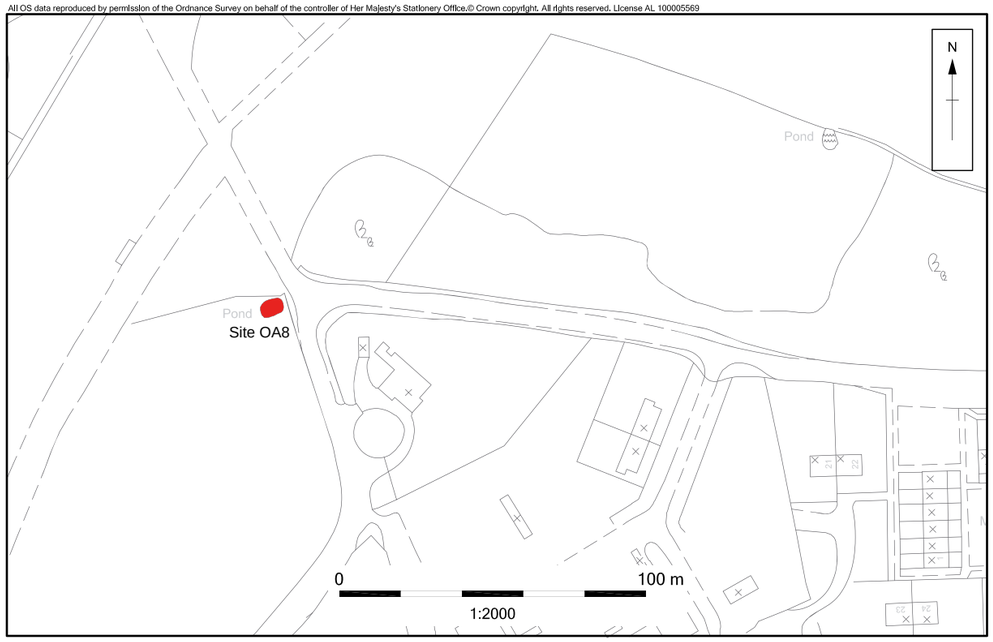

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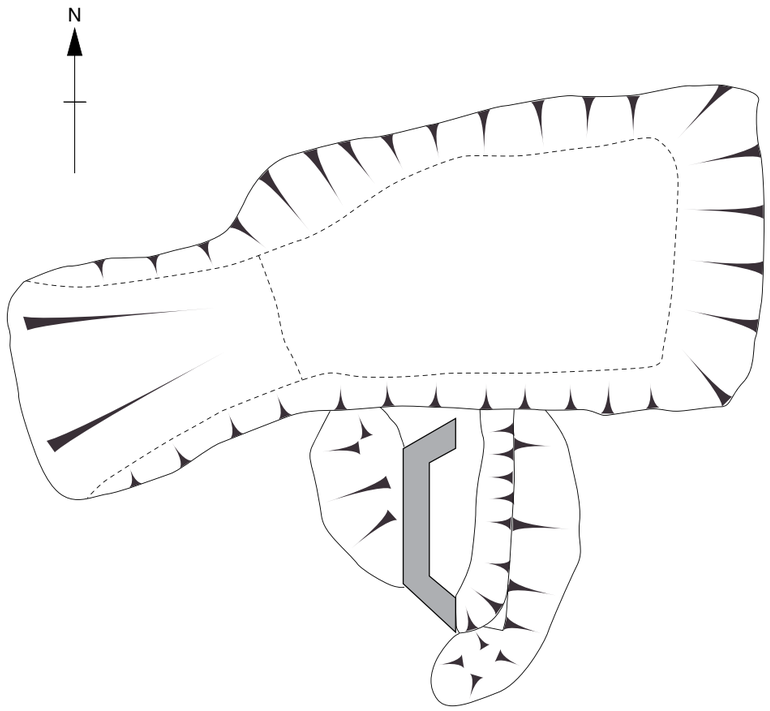

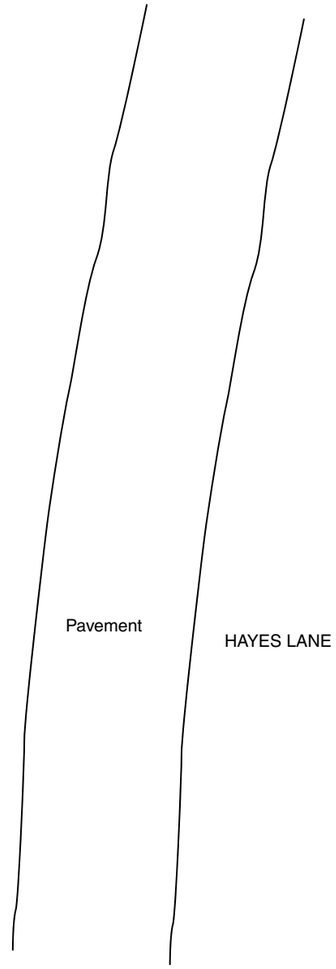

Figure 1: Site OA8, defence post

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OA8 Plate 2

OA8 Plate 3

OA8 Plate 1

Site OA9: V-bomber dispersal base

NGR: ST 59965 80833 **Phase**: post-war developments
Site type: Area of airfield

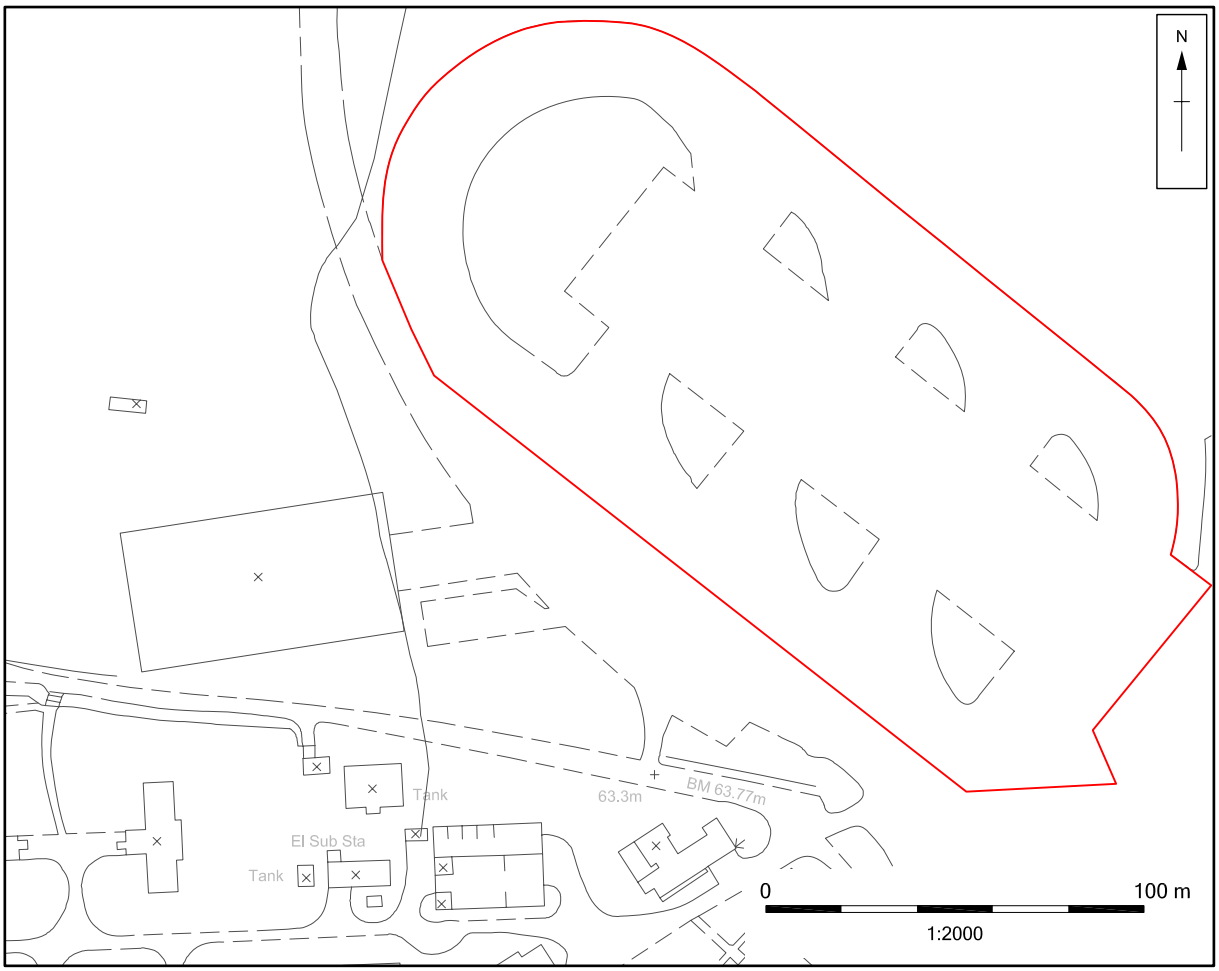
History
During the late 1950s and early 1960s during the height of the Cold War Filton was designated as one of the RAF's V-bomber dispersal bases, presumably largely due to the extension of the runway a few years previously. The V-Force was the UK's strategic nuclear strike force and at times of international tension it was dispersed in groups of either two or four aircraft to a number of bases across the country in an attempt to counter the impact of a pre-emptive attack. During the Cuban Missile Crisis of 1962 Vulcan bombers were kept in a state of readiness at Filton.

Location
The V-bomber dispersal area at Filton was almost certainly immediately to the north-east of the 1920s RAF base and to the east of the Concorde Hangar. A large area of hardstanding with a distinct pattern matching other known V-bomber dispersal bases is shown on aerial photographs of Filton from 1963 onwards. No such feature is shown on wartime photographs.

The feature is broadly rectangular (c.245 x 110 m) in plan but with a semi-circular north-western end and it is connected to the long runway by a narrow aircraft taxiway. There does not appear to have been any buildings in this dispersal area.

Although the use of the use of this area as a V-bomber dispersal area appears to have been confined to the late 1950s and 1960s it is clear from aerial photographs that the area of hardstanding was still maintained into the 21st century and it was probably also used by the airfield for other purposes.

When the current recording was undertaken this was inside the operational airfield so access was not possible although the area is within the Northfield development site. *The Archaeology of Airfields* by Bob Clarke contains further information of V-bomber dispersal bases and the typical plan of dispersals.



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Maplet of site OA9

Site OA10: Air raid shelters (East boundary)

NGR: ST 60430 81019 **Phase**: Second World War
Site type: intact structure

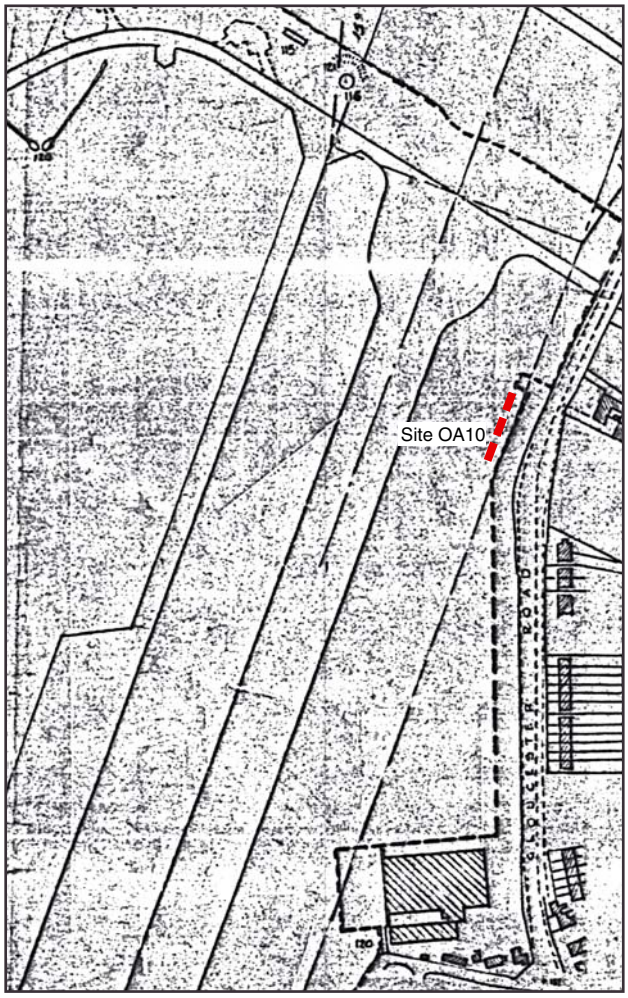
Location
These three semi-sunken air raid shelters are located along the eastern boundary of the site, immediately adjacent to the Gloucester Road and towards the north-east corner of the airfield.

History
These shelters are not shown on the 1945 airfield plan but they were clearly constructed shortly before, or during the early stages of, the Second World War. These would have formed part of a much larger collection of air raid shelters around the airfield and nearby BAC factories. Indeed these would have been a considerable distance from the main RAF buildings and it may well be that they were principally intended for the employees of the aircraft factories. The South Gloucestershire Historic Environment Record contains listings for numerous air raid shelters, particularly flanking Gloucester Road. Many of these appear to have been of a similar form to the three covered by this gazetteer entry (eg SGSMR9721 SGSMR17382). The HER states that there were originally 23 shelters, all of the same design and each one probably capable of holding c.35 people. They are listed as variant Stanton shelters.

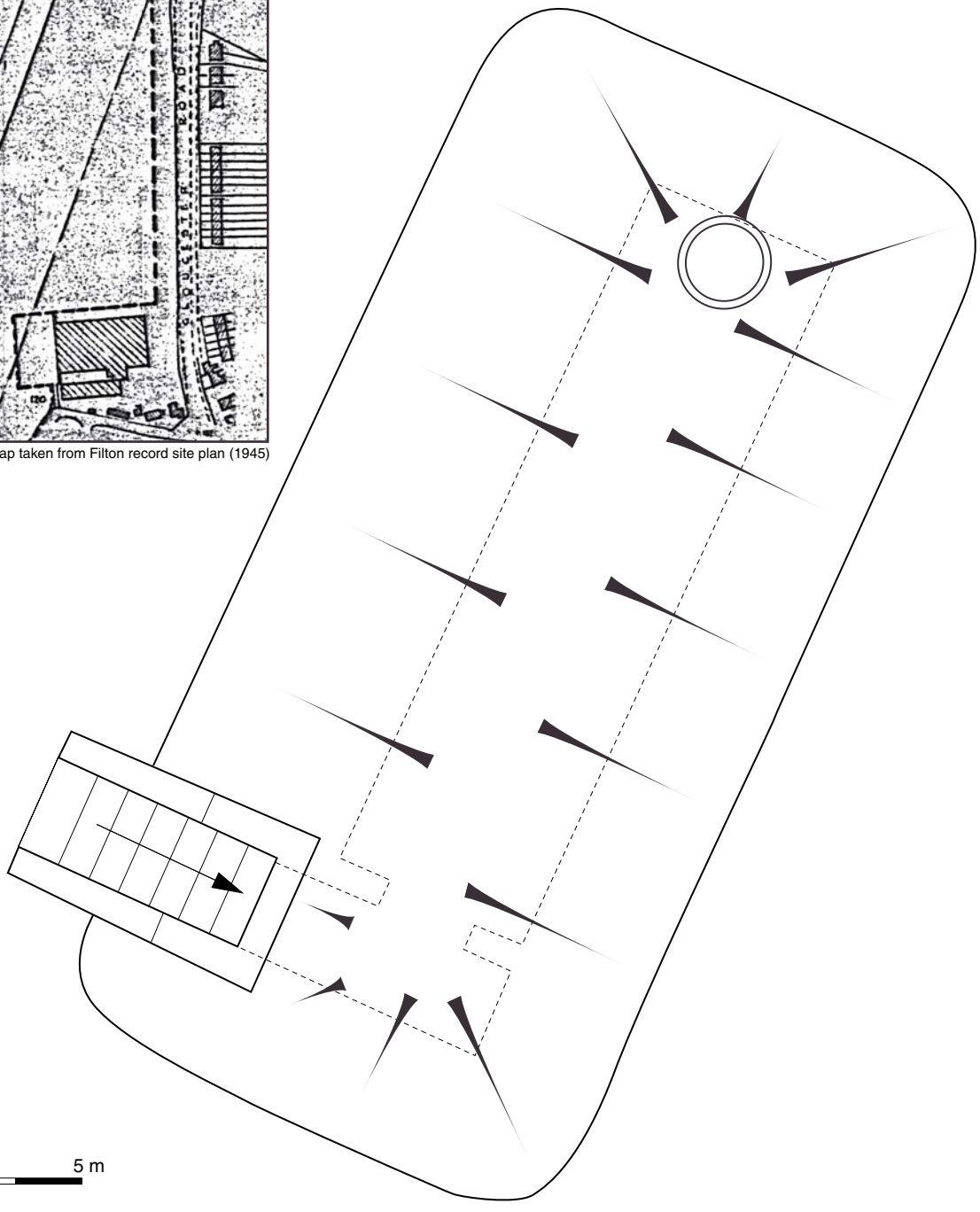
Description
Each of the three shelters were of the same basic construction and although they were almost entirely overgrown, their form and entrances were just visible.

Each shelter was constructed from cast concrete and had a long narrow plan (13 m long x 1.52 m wide) with an arched roof (2 m high). They were sunk 1.2 m into the ground and stood 1.5 m high above with the soil covering. There was a 0.6 m diameter circular escape hatch with a metal hatch at one end and a narrow passage with 6 steps at right angles to a 0.68 m wide doorway at the other. A light switch fed by a cable though a hole in the top of the wall was opposite the entrance. These were the same as the group of air raid shelters at the east end of the run way. No internal fittings or fixtures remained in-situ.

The northern end of the northern shelter is c.1.3 m to the south of an electrical substation.



Inlay map taken from Filton record site plan (1945)



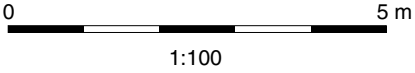


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Figure 1: Site OA10, air raid shelters

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OA10 Plate 2

OA10 Plate 4

OA10 Plate 1

OA10 Plate 3

Site OA11: Antenna testing facility

NGR: ST 59446 80929 **Phase**: Post-war developments
Site type: various

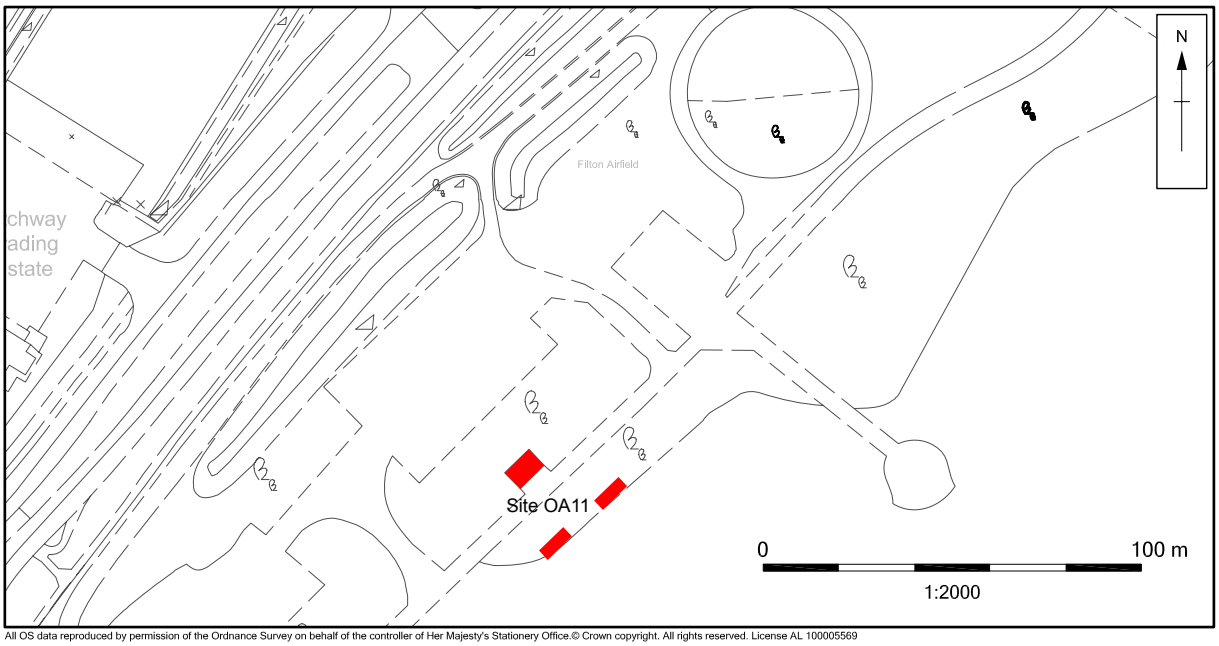
Location
This is located in the northern part of the site, outside the pre-WWII airfield but on part of the site of the former USAAF camp.

History

As detailed elsewhere a large temporary US Airforce camp was established in the area to the north of the airfield in the latter stages of the Second World War and that after the removal of the camp at the end of the war this area remained largely disused. The British Aircraft Corporation (then British Aerospace, then BAE Systems) took over this area and certain parts of the site found uses such as missile development and an antenna testing facility was constructed towards the centre of the former US camp. Aerial photographs show that the antenna testing facility was established between 1969 and 1980 (probably later 1970s) and it appears to have comprised several distinct elements. These include two turntables (included elsewhere in gazetteer), the antenna buildings and (possibly) a driving circle (detailed elsewhere).

Description
The antenna testing equipment was housed within two plain prefabricated sheds located on the south side of the main track which passes through this part of the site. One of the sheds is a white colour and has a small lobby (a separate prefab adjoining) with '16 W-1 Antenna Range' on the door. This building has a large antenna immediately to the south of it fixed to the floor. The other prefabricated building is a brown/yellow colour and it has 16W-3 over its door. Both buildings have what appears to be various electrical measuring devices (eg calibration sets with dials etc)

On the north side of the track, immediately opposite the prefabs is a single storey brick building added in the 1980s (not shown on AP of 1980 but is shown on one of 1989). This building has a shallow pitch roof and it has two garage-type doors to the south side. It was presumably a vehicle house and is marked 16W-7.



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Maplet of site OA11

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OA11 Plate 2

OA11 Plate 3

OA11 Plate 1

Site OA12: US Army Air Force temporary camp

NGR: ST 59446 80929 **Phase**: Second World War
Site type: site of former camp

History
A large section of the northern part of the current development site lies outside the historic boundary of the RAF Filton airfield and the 1945 plan shows this area as fields with hedge boundaries intact. However the 1948 plan labels this large area as 'Disused USAAF Camp' and dotted lines show probable areas of hard standing which partially survive today.

Further information on this part of the site is provided in David Berryman's 'Gloucestershire Airfields in the Second World War'. This states that in November 1943 the USA Airforce established the 'IX Base Aircraft Assembly Depot (BAAD) on the north-west side of Filton Airfield, with technical and accommodation sites for 1000 personnel near Charlton Village, alongside the Patchway by-pass'. At this site American planes were assembled after arriving in crates at Bristol Docks and this must be the same USAAF base as is shown on the 1948 plan. Clearly the 1945 plan was partly based on an earlier plan and that by this date the US camp had already been established.

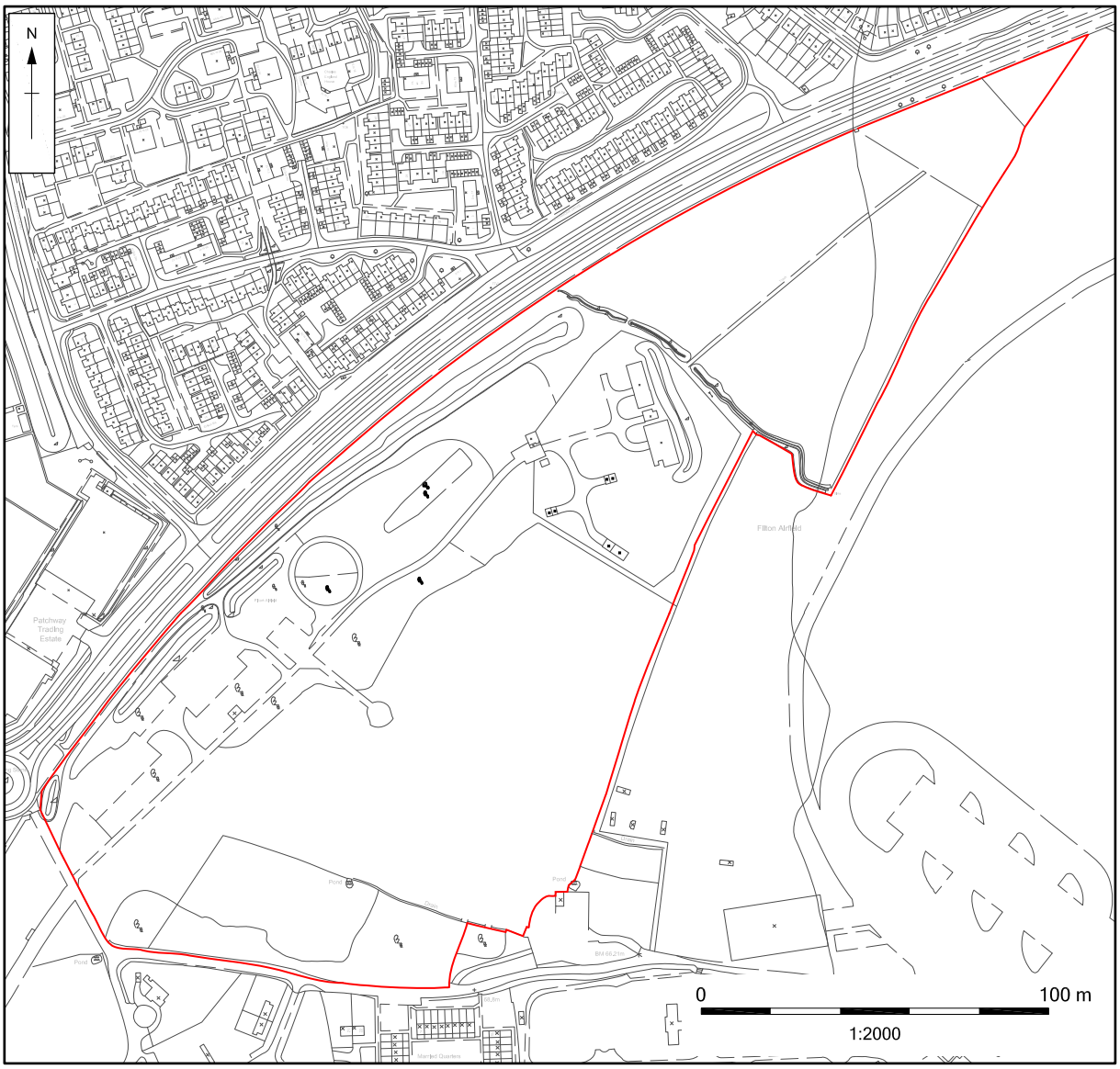
The USAAF camp was one of a great many established in the south of England in second half of the war (Operation Bolero: the logistical build-up to D-Day) and it is very clearly shown on an aerial photograph from April 1944 (included in this document at the front of the gazetteer). This shows a large collection of tents tightly packed together in the triangular northern part of the site, in which the 1000 personnel would presumably have been housed. In the even larger area to the south of this were five large prefabricated sheds in which the planes would presumably have been erected. Many aeroplanes are shown across this area and the site is filled with containers, vehicles and a new temporary road layouts. It is interesting to note that the 1944 map shows markings just to the west of Hayes Farm which strongly appear to be a baseball pitch.

A further aerial photograph from March 1946 also shows the area but by then it had been totally vacated by the Americans and the area is largely deserted. The hangars and tents have been removed although the very clear imprint of the former camp remains in the form of tracks, building bases and other cleared areas.

In 1959 the Bristol Aeroplane Company merged with several other manufacturers to form the British Aircraft Corporation which later became part of British Aerospace and then in 1999 BAE Systems. The large area which formed the World War II USAAF base formed part of the post-World War II expansion of the site and of this company.

Various post war aerial photographs have been studied and much of the site of the USAAF base appears to have remained unused to the present time. Several areas have been used by British Aerospace (then BAE) for missile development and there are separate sections in the gazetteer covering these areas (Sea Wolf Installation, turntables, driving circle, antenna testing facility).

Description
Other than the features described elsewhere the site of the former USAAF camp is something of a wasteland. A small number of building bases survive towards the west end of the site (brick faced) and there are many large items dumped here such as large containers, metal frames, fibre glass structures and boxes. There are also several prefabricated temporary sheds probably dating to the 1980s and forming security huts. The site of the temporary tents at the north-eastern corner is now overgrown and disused.



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Maplet of site OA12

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OA12 Plate 2

OA12 Plate 3

OA12 Plate 1

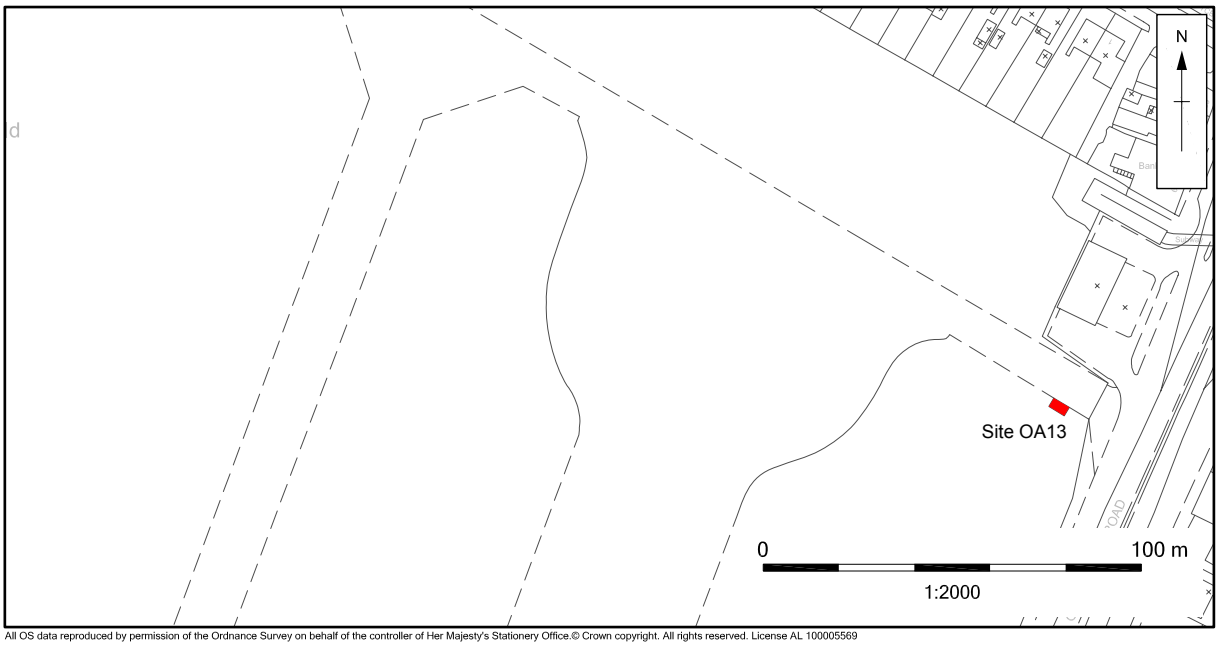
Site OA13: Northern Guard House

NGR: ST 60456 81116 **Phase**: Second World War
Site type: roofed building

Location
This is located at the north-eastern corner of the site and although it appears to have been disused for many years it formed a small guardhouse at this entrance to the airfield from Gloucester Road.

History
This guardhouse is not shown on the 1945 or 1948 airfield plans although it strongly appears to be of mid 20th century date and if it hadn't been constructed by the date of these plans it must have been built soon after.

Description
The northern guardhouse is a single storied building with corrugated asbestos-panel covered gabled roof. It is constructed with single skin (stretcher bond) brick, covered by rough render, and it has a rectangular plan (4.9 m x 2.75 m). The interior is divided into a main room for the guard and a small toilet/store area at the south-west corner. The main entrance to the building is through a door at the west end of the north elevation while entrance to the WC is through a door at the centre of the west elevation. There are windows to each elevation (other than the west wall) which are all crittal type windows but which are now boarded over.



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Maplet of site OA13

Site OA14: Officers quarters

NGR: ST 59449 80648 **Phase**: 1920s Airfield
Site type: site of former building

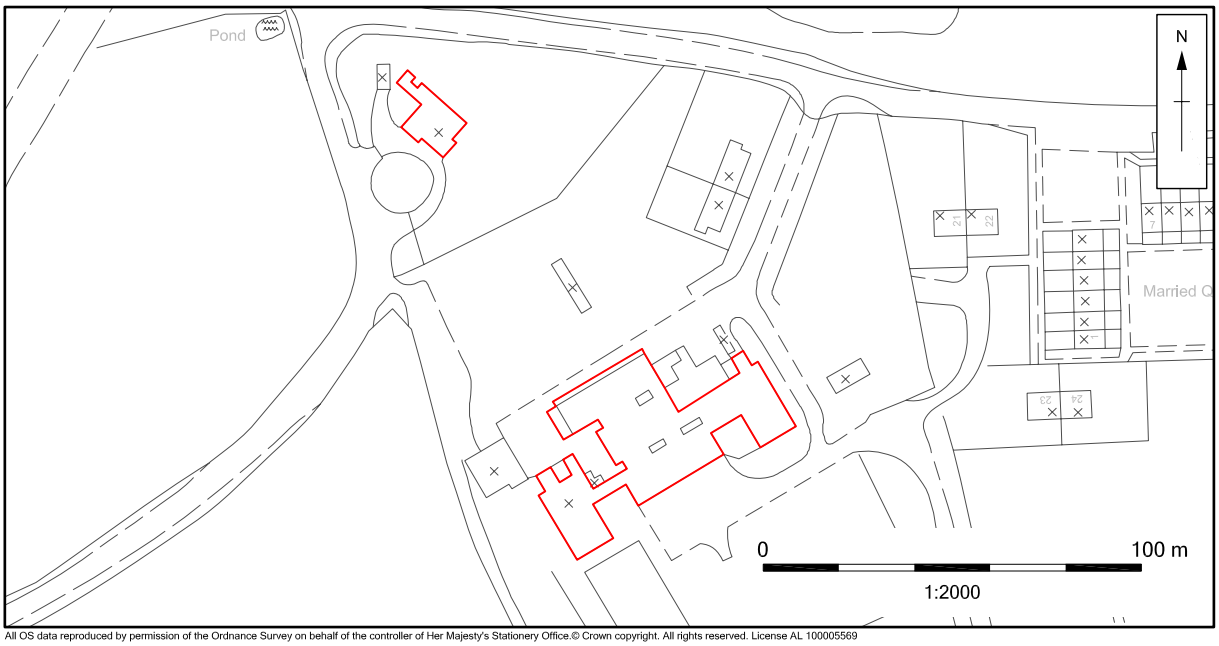
Location
The Officers quarters (together with various associated buildings) were located to the west of the airfield's technical area close to the junction between Hayes Lane and the entrance road to the camp from the west.

Description
None of these buildings now survive, many having been demolished in the 1990s, but a number of ground floor platforms do survive and the outline of the former structures is shown on the two 1940s airfield plans. Several sections of red tile floor survive as well as other areas with the imprint from former wooden block flooring.

The largest building was the Officers Mess which comprised three main ranges: a central range (SW-NE) with walkway links to two side ranges (each orientated SE-NW). Aerial photographs from the 1940s show that these ranges each had hipped roofs and it is safe to assume that they followed a standard RAF type. The 1945 airfield plan shows that the Mess was constructed from drawing number 1588/26 and that it could accommodate 48 officers. To the south of the Officers Mess appears to have been an open grassed area enclosed by a wall and beyond this was the YMCA building. To the north of the Officers Mess were two rectangular blocks which formed Officers quarters and each of these were 'for 7 officers in cubicles' (1945 plan). The plan also shows that these were of timber construction, which explains why no trace of these appears to survive whereas concrete bases survive from the permanent brick structures.

To the north of the timber quarters was a further building for the 'Old Group Officers Quarters' (1945 plan). This was of brick and the building base partially survives together with the curved driveway to the building. In the previous Oxford Archaeology assessment of the buildings at Filton (2003) this was included as the station Commanders House and it is likely that it served both functions at various times. The surrounding hedge and gateposts survive from this house.

Two officers garages are shown in this area: one immediately to the north west of the 'Old Group Quarters' and one to the west of the Officers Mess.



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Maplet of site OA14

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OA14 Plate - Officers quarters (after Hall, 1995)

Site OA15: Site of Barrage Balloon

NGR: ST 59565 80751 **Phase**: Second World War Defences
Site type: partially surviving structure

Location
The Barrage Balloon was located in a field on the north side of Hayes Lane and to the west of Hayes Farm

History
It is known from aerial photographs (and the current investigation) that there was a barrage balloon in an area to the north of Hayes Lane, which was outside the 1920s airfield.

In June No 935 (Balloon Barrage) Squadron arrived at Filton to operate a system of balloons to help defend the airfield and these were flown nightly and following air raid warnings.

Description
The surviving evidence of the former barrage balloon comprises two concentric circular rings of concrete blocks to which barrage balloons would have been tethered. The two rings of blocks for the barrage balloon are shown on wartime aerial photographs and although they were largely hidden beneath vegetation and rubble at the start of the current project a number of the pads have been partially or fully exposed in the recording . The fixings are 60 cm x 60 cm concrete blocks with a central bolt. The inner ring has a diameter of c.22.5 m and the outer ring has a diameter of c.38.5 m. The current work has identified 14 pads from the inner ring but it would probably have comprised a total of 24. The 1944 aerial photograph also appears to show 24 pads in the outer ring. The pads in the inner ring are c.3m apart.

At the eastern end of this field, adjacent to the former balloon are the remains of three buildings (OA18) which were probably stores or other ancillary buildings for the balloon.

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Site OA15: Site of barrage ballon

OA15 - Baloon base

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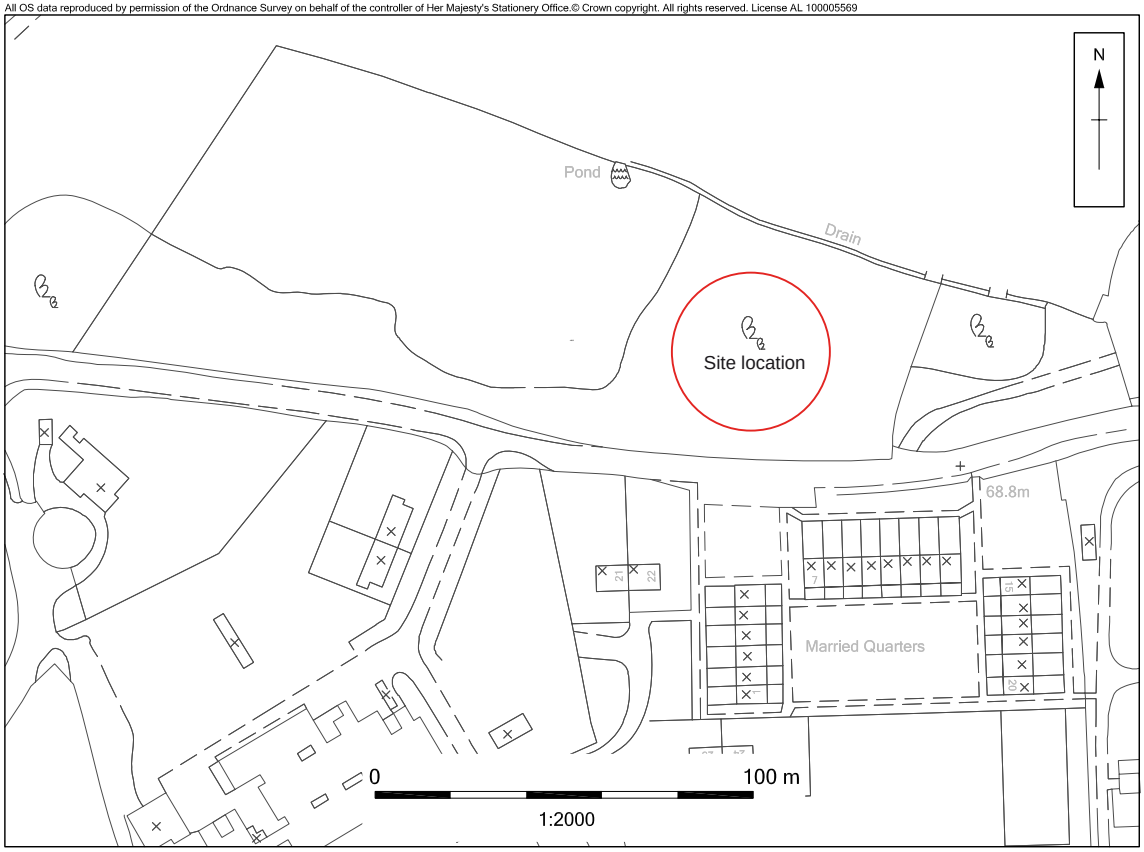


Site OA16: Pickett-Hamilton Fort

NGR: ST 59647 81100 **Phase**: Second World War defences
Site type: Ex-situ, partially surviving structure

Location
On the south side of the track which leads into the Sea Wolf Facility (OA3) within the former USAAF base (OA12) is a circular concrete structure that is almost certainly the remains of a Pickett-Hamilton Fort. The structure was heavily overgrown and a close investigation was not possible but it strongly appears that it was ex-situ and had been dumped in this location from elsewhere at the airfield. This is supported by the fact that this location would have been outside the boundary of the airfield at the start of the Second World War from when the fort would have been constructed.

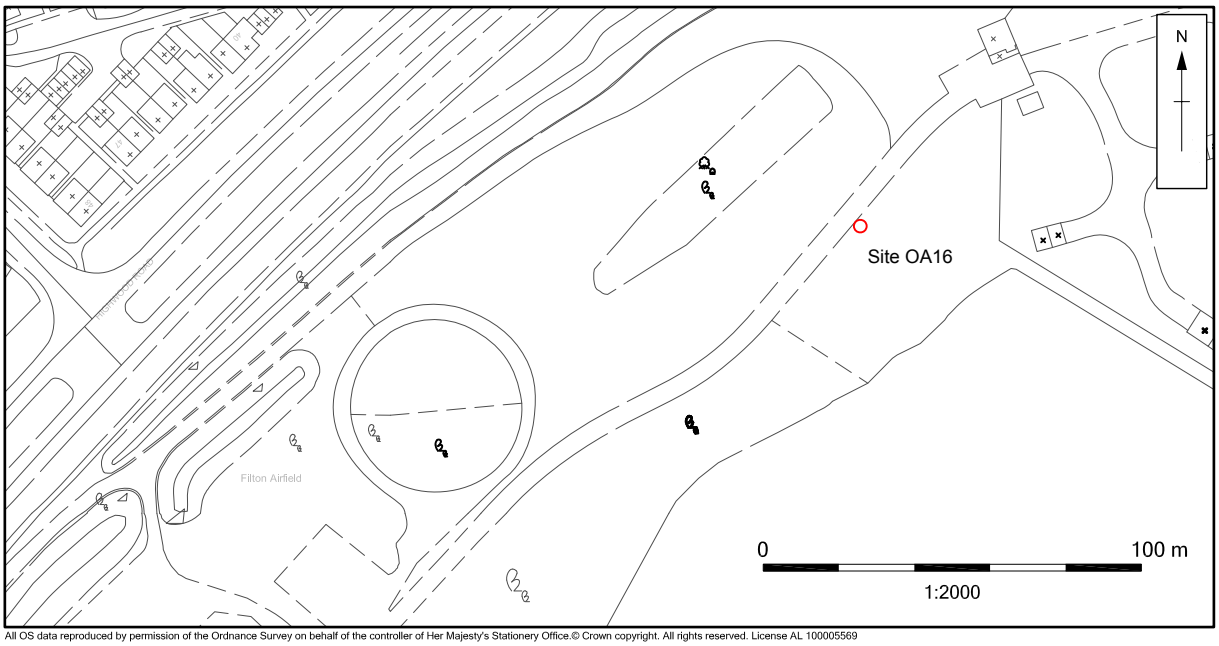
History
The Pickett-Hamilton Fort is a distinctive type of circular-plan pillbox which was constructed at airfields from January 1941. The forts comprised two concrete rings, one immediately inside the other, and the inner one of which could be mechanically raised or lowered. Therefore when the airfield was in use the top of the concrete would be flush with the ground but when the aerodrome was threatened it could be raised to provide fire from three loopholes. The early models used counterbalance while later models used a pneumatic mechanism and then hydraulics to raise or lower the structure.

Unfortunately, despite their technical sophistication the Pickett-Hamilton Forts were a costly failure, and after the programme was discontinued after the initial phases of construction. Their failure was partly due to the unreliability of the lifting mechanism and partly due to the ever larger bombers being constructed which were too heavy to taxi over the forts.

Volume X (Airfield Defences in WWII) of The Council for British Archaeology's survey on 20th-century fortifications in England contains a very useful summary of the Pickett-Hamilton programme and a list of those forts constructed. This confirms that three Pickett-Hamilton's were built at Filton (three was the standard number of forts added to airfields) and that the forts were described as being 'due 28 Feb 1941'. At the start of the programme all the airfield's in the country were divided into ten groups to reflect the priority of their construction rating and Filton appears to have been a medium priority. It was in Group 6.

Description
The structure which remains at Filton is almost certainly the inner, moving ring from a Pickett-Hamilton Fort. It is a reinforced concrete cylinder, capped at the top by a slightly larger concrete circle which is c.1.75 m in diameter. The slight overhang of the circular cap would have rested on a ledge at the top of the sunken outer ring when the fort was retracted. There are three rectangular loopholes in the cylinder a short distance below the top of the fort. In the top of the fort is an iron-lined hatch door which would have allowed men into and out of the fort when it was retracted.

The structure is now partially buried beneath vegetation and dumped rubble and this prevented a full investigation of the structure.



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Maplet of site OA16

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OA16 Plate 1

OA16 Plate 2

Site OA17: Defence block/ammo stores by Hayes Farm

NGR: ST 59659 80796 **Phase**: Second World War defences
Site type: partially intact structures

Location
A short distance to the west of the surviving gable wall from the former animal shelter at Hayes farm are two small structures, very similar to each other, which would probably have formed look-outs or simple defence blocks added during the Second World War.

History
These structures would have formed part of the system of airfield defence which was rapidly constructed in the early stages of the Second World War to counter the threat of a possible land-based assault on the airfield following a German invasion. It is interesting to note that graffiti on one of the structures appears to confirm that these were erected in 1940, when it is known that the great emergency programme of defence works was underway.

Description
The two structures overlook the large field to the north-west of Hayes Farm which was used in the latter stages of the war by the US Air Force and they are each set on slightly raised ground at the top of a curved bank. This distinct quarter-circle curve is shown on the plans from the 1940s.

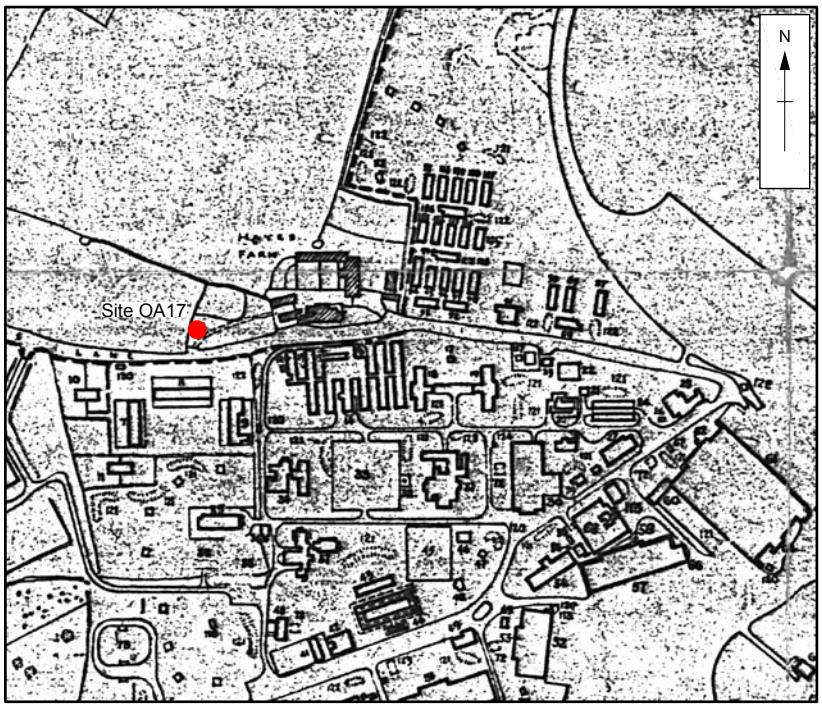
The structures are each constructed from relatively crude single-skin concrete blocks (24 cm wide), which have the character of having possibly been made on site rather than mass-produced commercially. Each structure comprises three walls in the form of a rectangle (2.9 m x 1.5 m) with one of the long sides left open and there is a ledge or shelf along the closed long side. The structures are c.1m tall and there is no clear evidence to suggest that they were formerly taller. There would presumably have formerly been a simple roof over each structure but no evidence of this survives.

To the rear of the southern structure is a lower wall located c.1m from the main structure which presumably former a protective barrier to the open east side. The protective wall is 50 cm thick and has short westward returns at each end to further shield the access into the store. It is 4.35 m long and only c.30 cm tall. A considerable number of fragments of cast iron plates with circular perforations were located around the structures, possibly from vent grilles around doors.

An interesting feature of the northern shelter is that in the internal render on the northern wall the words ‘Laid in second year of the world war’ have been inscribed. Presumably this was 1940.

The fact that these structures were constructed from concrete blockwork rather than reinforced concrete like a pillbox strongly suggests that they were not part of the main ‘front line’ defences but they are clearly located to look out over the fields and the covering structure would presumably have incorporated small embrasures and gun loops.

Other features in this general area which also relate to the airfield defences include a large depression immediately north of the former Hayes Farm animal shelter building which marks the location of a former, removed pillbox. Adjacent to this there survives a largely collapsed former trench system which would have provided covered access into the pillbox. This pillbox is shown on the two 1940s airfield plans. Another feature of interest is a gun loop which was added just above ground level at the western end of the north wall of the Hayes Farm animal shelter. This was located between the former pillbox and the two ammo stores and together these features highlight the strategic importance of this area between the airfield ad the open fields to the north.



Map taken from Filton record site plan (1945)

Maplet of site OA17

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OA17 Plate 2

OA17 Plate 4

OA17 Plate 1

OA17 Plate 3

Site OA 18: Barrage balloon stores/office

NGR: ST 59597 80754 **Phase**: Second World War defences
Site type: partially intact buildings

Location and known history:
On the north side of Hayes Lane and to the west of Hayes Farm is a long field which was outside the 1920s airfield but which is known from aerial photographs (and the current investigation) to have been the location of a barrage balloon (OA15). At the eastern end of this field, adjacent to the former balloon are the remains of three buildings which were probably offices, stores and/or other ancillary buildings for the balloon.

These buildings are not shown on the two plans of the airfield from the 1940s although we can be very confident that they had been constructed and they do appear to be shown on an aerial photograph from 1944.

The aerial photograph also shows what appears to be two further larger buildings immediately to the west of the partially surviving structures.

Description

The three buildings are adjacent to each other and are broadly aligned north to south. The southernmost of the three wartime buildings at the western end of the site retains its roof and is a small, simple rectangular plan structure (3.5 m x 2.8 m) with a single room and there are partially surviving iron shelving racks (three to each side). The walls are 34 cm thick, of red, English-bond brickwork and there is a concrete lintel above the door. Each shelf had a simple iron bar at the front to hold the items.

The other two structures have a much lighter, more ephemeral construction and have each lost their roofs. It appears that they would have been two similar (or identical) structures with single-skin brickwork and crittall type windows but the walls now only partially survive. Only a simple L-plan section of wall survives from the southern structure but all four walls partially survive from the northern building. This building, which was 4.1 m long by 2.06 m wide, had a window in the west wall and it would have had a door in the north wall. The iron frame of the window partially survives and it appears that it would have comprised four rows of four small lights.

The top of one of the walls survives and the slope of this suggests that the buildings would have had light, single pitch roofs.

A watching brief was undertaken during the demolition of these three structures and the contrast in the ease with which the last remains of the northern two buildings were demolished, from the force required to take down the southern structure was very marked. The southern building was very robustly constructed and presumably stored heavy items or even light ammo.

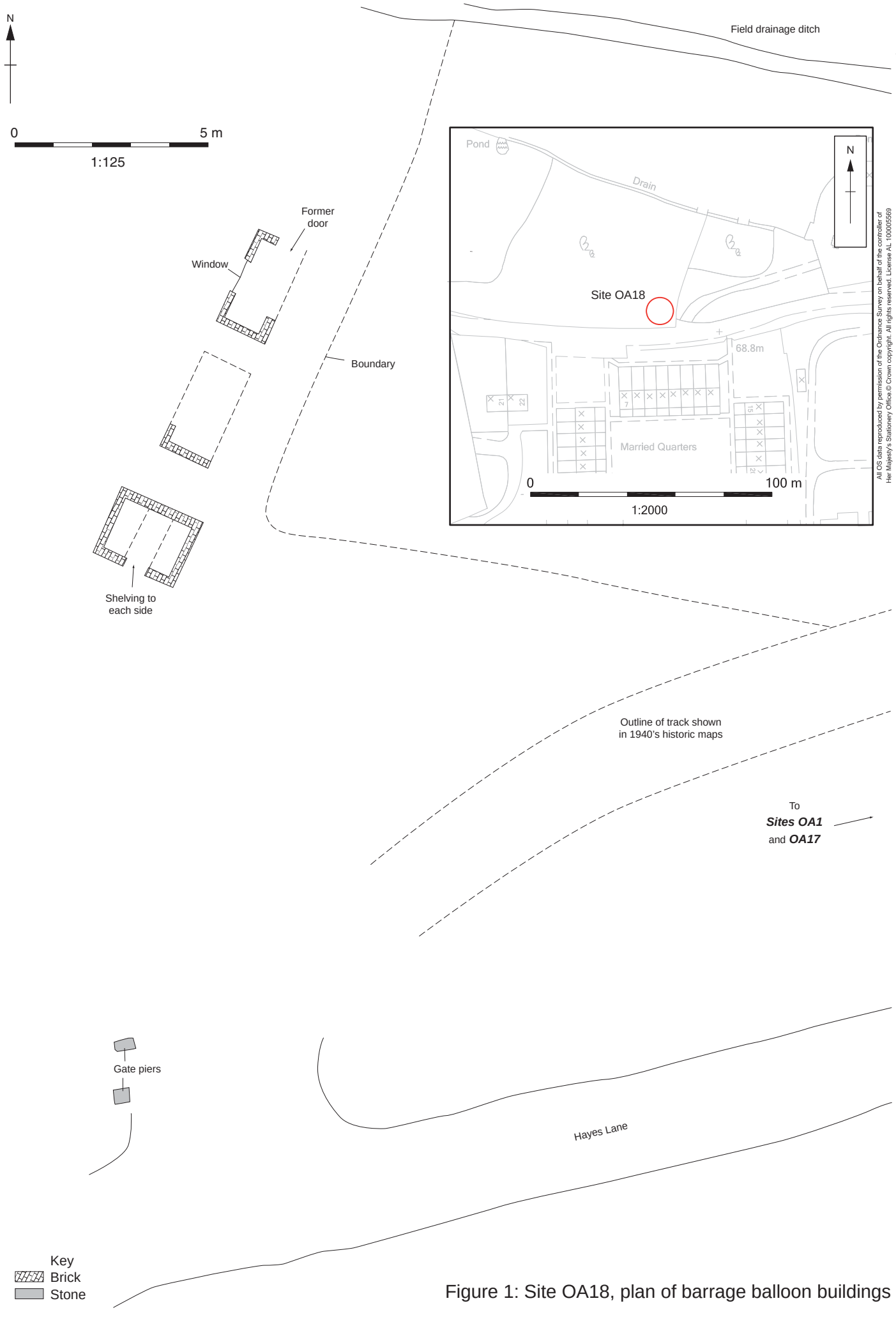

Figure 1: Site OA18, plan of barrage balloon buildings

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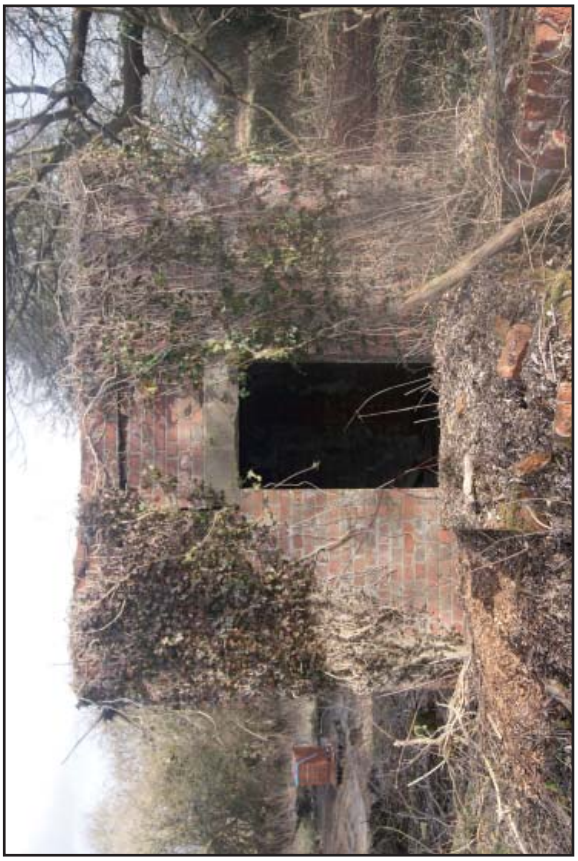
OA18 Plate 2

OA18 Plate 4



OA18 Plate 1

OA18 Plate 3

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Site OA18: Barrage balloon buildings

OA18 Plate 6

OA18 Plate 5

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