



South
Cambridgeshire
District Council

Duxford Airfield conservation area

Draft council policy (Ref: DCV 0048)



2007

1.0 INTRODUCTION

Duxford is regarded as the finest and best-preserved example of a fighter base representative of the period up to 1945 in Britain, with an exceptionally complete group of First World War technical buildings in addition to technical and domestic buildings typical of both inter-war Expansion Periods of the RAF. It also has important associations with the Battle of Britain and the American fighter support for the Eighth Air Force.

In 2000 English Heritage undertook a *Survey of Military Aviation Sites and Structures* as part of a thematic listing programme. At Duxford the report recommended 40 buildings or structures for listing (one at Grade II*, the remainder at Grade II) and also recommended the three World War I hangars previously listed at Grade II be upgraded to Grade II*. The study also recommended that consideration be given to designation of a Conservation Area at Duxford Airfield. This appraisal draws much of its information from the findings of that study together with an Historical Report on Duxford Airfield prepared by Paul Francis on behalf of the Imperial War Museum in 2001. In October 2002 the Secretary of State listed the Officers' Mess, squash court and World War I Barrack to afford them protection due to proposals to convert the Officers' Mess to an hotel. Finally, in December 2005 the Secretary of State listed almost all the other buildings and structures in line with the recommendations of the English Heritage thematic study, including the upgrading of the three World War I hangars to Grade II*.

1.1 What are Conservation Areas?

Conservation Areas were introduced in the Civic Amenities Act of 1967 and are defined as '*areas of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance*'.

The designation of a Conservation Area increases the local planning authority's control and planning applications are assessed for their impact on the character and appearance of the designated area. Designation provides greater control over the demolition of buildings and structures, whilst the rights of owners to undertake works to their properties without first obtaining planning permission (known as 'permitted development rights') are also reduced or taken away. Stricter controls are exercised over the design of new buildings and owners are required to give the

Council six weeks notice of their intention to carry out works to trees. Planning applications affecting a Conservation Area must be advertised on site and in the local press to give interested parties the opportunity to comment.

1.2 Location

Duxford Airfield is located 7 miles south of Cambridge and a mile west of the village of Duxford. The site straddles the boundaries of three civil parishes; Duxford, Thriplow and Whittlesford. The airfield lies immediately to the west of the M11 (the construction of which resulted in the eastern end of the runway being shortened), adjacent to its junction with the A505. The technical site of the airfield is located south of the A 505, while the domestic site (barracks, married quarters, mess facilities etc.) is located to the north of the A505. This arrangement of separating the domestic and technical parts of the station was quite common on early airfields.

2.0 HISTORY AND DEVELOPMENT

2.1 1912-1918

Duxford's suitability as a landing field first led to its use for military flying during the Military Manoeuvres of 1912. Air power had initially been conceived as an adjunct of the army and the navy, and the first military airfields were built for the army's Royal Flying Corps around Salisbury Plain and for the navy's Royal Naval Air Service around the coast. After the first German bomber raids on London in 1917 it became apparent that the distribution of airfields away from the coast to form a defensive arc around the capital would be required. This marked a fundamental shift in the conduct and logistics of warfare. Construction of the Training Depot Station (TDS) at Duxford started in October 1917 with the first units, including Americans, arriving in March 1918. TDSs, which comprised the main instructional flying unit for the Royal Flying Corps, were built in pairs, and Duxford combined with its sister station at Fowlmere to make one wing. Each TDS comprised three flying units, with each unit having a coupled general service shed (i.e. hangar) and one repair hangar, as well as a range of other specialist buildings, such as carpenters' shops, dope and engine repair shops and technical and plane stores. Although the repair hangar at Duxford was demolished in 1968, the group of early hangars and other buildings that still remain on the technical site now constitute the best-preserved group of buildings surviving from a First World War airfield

in Britain. On the 1st April 1918 the RFC and RNAS were amalgamated to form the Royal Air Force, the world's first independent air force.

See map of Duxford 1918 page 3

2.2 1919-1939

Duxford was one of 63 Training Depot Stations in existence in November 1918 (when the RAF occupied a total of 301 sites, 271 of which were cleared in 1919) and was one of a core number of stations retained for the RAF after the end of World War I, first as a Flying Training School and then (from 1 April 1923) as a fighter station with 19 Squadron. This squadron was designated as a mobile (expeditionary) squadron, and they remained at Duxford until August 1941, when they were replaced by the Eagle Squadron of American volunteers. 19 Squadron's expertise resulted in the station hosting the introduction a number of aircraft into RAF service - such as the Gloster Gauntlet, which it received in January 1935 and was displayed along with the prototype of the Gloster Gladiator at George V's Silver Jubilee in July of that year; the first Spitfire to an RAF squadron was delivered to Duxford by Supermarine's test pilot on 4th August 1938, and 12,000 visitors caught their first sight of the Spitfire during Empire Day on the 20th of May 1939.

The RAF's founding father and first Chief of Air Staff was General Sir Hugh Trenchard and from the Armistice until the early 1920s he concentrated on first securing a firm foundation for a technology-based service. In 1923 Parliament approved the expansion of the air force in line with Trenchard's vision of an offensive bomber force based in East Anglia and Oxfordshire, behind an 'aircraft fighting zone' some fifteen miles deep and extending round London from Duxford to Salisbury Plain. Sir Hugh Trenchard retired in January 1930, but his policies continued to guide the siting and layout of stations after 1933, when Hitler's rise to power and the collapse of the Geneva disarmament talks forced the British Government to engage in a massive programme of rearmament. Between 1923 and 1939 more than 100 stations were built in permanent fabric, all planned in accordance with Trenchard's requirements that the fabric must be dispersed against attack. In all cases the technical site, comprising hangars and workshops, with the guardroom and station headquarters placed at the site entrance, was separated from the domestic site, with its barracks institute and mess.

The Air Ministry had to integrate radical

departures in planning and design with the commencement of Trenchard's expansion of the RAF from 1923. It was the need to integrate the fundamental principle of dispersal against air attack which made airfield planning markedly different from the formal and more condensed layouts of naval or army barracks, a point which was frequently brought up by the Air Ministry in justifying the expense of airfield construction to a sceptical Treasury. Another significant outcome of this policy in terms of airfield planning was the redesign of the officers' mess, which separated out the functions of mess and recreation rooms and accommodation in order to obviate the risk of a single run of bombs destroying a building and its occupants.

The design of the first phase of Trenchard's stations displayed a stark utilitarian architecture that, apart from the Garden City inspiration for station married quarters, owed much to the army background of the designers who worked from the office of the Air Ministry's Directorate of Works and Buildings. The marked improvement in the quality of design of stations built under the post-1934 schemes reflected government and Air Ministry reaction to public concerns, given articulate expression by the likes of Clough Williams Ellis and Patrick Abercrombie, over the issues of rearmament and the pace of environmental change. It was in this context that Ramsey MacDonald, as Prime Minister, had instructed that the Royal Fine Arts Commission become involved in airfield design. A process of consultation with the Air Ministry was initiated with visits by commissioners - three distinguished architects (Sir Edwin Lutyens, Sir Reginald Blomfield and Giles Gilbert Scott) and the planning authority Professor S D Adshead - to Upper Heyford and Abingdon in November 1931. All drew attention to the lack of any architectural skill in Colonel Turner's Directorate of Works and Buildings.

See map of Duxford 1928-30 page 4

Despite the obvious clash of cultures that ensued, particularly over the dispersed layout which the Air Ministry stressed was a vital component in airfield design, there is no doubt that the period of mutual consultation resulted in improvements to individual and standard designs between 1932 and 1934. This can be observed not only in the individual one-off building designs, but also in some of the standard designs produced by DWB in this period: the barracks at Duxford, for example, where the careful proportions, considered use

of materials and classical detail carved in stone probably represented an attempt to meet some of these concerns. The ratification of Scheme A in June 1934 resulted in renewal of collaboration between DWB and the RFAC, resulting in the creation of the new post of architectural advisor to the Director of Works and Buildings (comparable to Holden's position at London Transport), first occupied in October 1934 - more than 3 months after ratification of Scheme A in June - by A Bulloch. Many of the early (1934-5) building designs were specifically approved by the commissioners; in February 1935, Lutyens was deputed by the RFAC to liaise over layout and other matters, although the exact extent of his involvement remains unclear. The buildings erected for much of the 1930s Expansion Period were, as a consequence, more carefully proportioned and distinguished by common textures and colours than their predecessors. A clear distinction was made between neo-Georgian for domestic buildings, exhibited most dramatically in the officers' mess designs by Bulloch and his successor J M Binge, and a more stridently modern horizontal emphasis for technical buildings. From 1938, and coinciding with Bulloch's replacement by P M Stratton, new buildings and stations made increasing use of concrete and flat roofs in order to counter the effects of incendiary bombs and minimise bomb damage. The decontamination centres which appeared on bases from 1937, and which with their encircling blast walls bore a superficial resemblance to new designs for operations blocks (see below), were designed and built with the fear of gas attack in mind.

With one exception, the First World War wooden-framed barrack buildings were replaced in a rebuilding campaign that commenced in 1928. A major phase of modernisation was approved in 1931, resulting in the construction of the station headquarters and guardroom on the technical site and the construction of a number of buildings in the domestic site - the sergeants' mess being the first building ready for occupation. Other building phases were related to the Scheme 'A' of RAF expansion made from 1935 and Schemes 'L' and 'M' that commenced in 1939. (Cabinet approval of the so-called Expansion Period fell into 5 distinct phases, Schemes A, C, F, L and M, the alphabetical leaps being occasioned by the scrapping of some schemes in order to adjust financial commitments or maintain parity with projected figures of front-line German aircraft).

See map of Duxford 1935 page 6

2.3 1940-1945

During the Battle of Britain, Duxford was the most southerly airfield in 12 Group, which was responsible for the defence of the Midlands and Eastern England, but also was well placed to reinforce and support 11 Group to the south, which bore the brunt of the Luftwaffe assault. As well as 19 Squadron, 242 Squadron together with Czech (310) and Polish (302) squadrons also operated from Duxford during the battle, and on the 15th of September 1940 - the critical point in the battle - these four Duxford squadrons, together with 611 Squadron from Digby, led by Squadron Leader Douglas Bader claimed their highest 'score' of 52 enemy aircraft destroyed (plus 16 probably destroyed and 3 damaged). Bader - Commander of 242 Squadron initially based at Coltishall - was the instigator of what became known as the Duxford Wing, a strategy whereby he led 3 (and later 5) squadrons of Spitfires and Hurricanes into battle, and which formed the focus of disagreement concerning fighter defence strategy. This disagreement continued into the winter of 1940 and eventually contributed to the removal of Sir Hugh Dowding from his position as C in C, Fighter Command, and the replacement of Air Vice Marshal Keith Park as A.O.C 11 Group by his rival AVM Trafford Leigh-Mallory of 12 Group. Some of the pillboxes, air raid shelters and fighter pens installed by 1940 for the purposes of airfield defence and protection against attack have survived.

See map of Duxford 1940 page 7

The arrival of the RAF's Air Fighting Development Unit in December 1940, saw a wide variety of new aircraft for evaluation and testing, including the Hurricane's replacement, the Hawker Typhoon, the Mosquito and the Mustang (the most powerful fighter of the Second World War). The airfield was officially handed over to become base 357 of the US Eighth Air Force on 1 April 1943, and the first of 75 P47 Thunderbolts arriving on the same day. The King and Queen returned to Duxford (having previously visited in January 1941 to inspect the base and present medals) to welcome the Americans in May. The first of the new Merlin-powered P51 Mustangs - which were to play a critically important role in the European air war - arrived to replace the Thunderbolts after the completion of a prefabricated steel matting runway in December 1944, and the base in this fighter support role was responsible for the destruction of 338 aircraft in the air and a further 358 on the ground for the loss of 167 aircraft and 113 pilots.

See map of Duxford 1945 page 8

2.4 Post-war

Duxford was formally returned to the RAF on 1st December 1945 and saw post-war service as a jet fighter station, with Meteors, Hunters and then Javelins, following the completion of a replacement runway in concrete (6000 feet long with Operational Readiness Platforms at both ends) in August 1951. Ten years later, on 1st August 1961, the last operational aircraft (a Gloster Meteor) took off from Duxford. The station was subsequently chosen as one of the locations for filming of 'The Battle of Britain' in 1968, when during the filming the 1917 Repair Hangar was destroyed.

See map of Duxford 1964 page 9

In 1969 the Ministry of Defence declared its intention to dispose of Duxford. Plans for a sports centre and a prison were proposed, but nothing came to fruition. Duxford was the subject of a public inquiry in 1976, when Sir Douglas Bader argued for the retention of the entire airfield in opposition to the construction of the M11 across the eastern boundary of the site. Meanwhile the Imperial War Museum had been looking for a suitable site for the storage, restoration and eventual display of exhibits too large for its headquarters in London and obtained permission to use the airfield for this purpose. Cambridgeshire County Council joined with the Imperial War Museum and the Duxford Aviation Society and in 1977 bought the runway to give the abandoned aerodrome a new lease of life. Over the subsequent decades the IWM have undertaken a number of projects on the airfield, including the construction of the Land Warfare Hall in 1992 at the west end of the site, and in September 1995 work started on the construction of the iconic American Air Museum (designed by Sir Norman Foster), which the Queen officially opened in August 1997. Currently work is in progress to remodel and extend Hanger 1 (erected in 1986 for the IWM) to form the focus for the new Air Space Museum.

3.0 ARCHITECTURE AND PLANNING – THE TECHNICAL SITE (THE SOUTH CAMP) *See map page 38*

3.1 Airfield

Early flying fields, of the period up to 1918, required only a take-off run of 500-600 yards (450-550m). As engine technology progressed, so did the size of airfields, but until 1936 airfields

remained typically as omni-directional grass areas of 1000 yards (900m) diameter. After 1936 airfield development was subject to new operational and strategic requirements, an issue brought to the fore by the wet winter of 1936/37. The ability to disperse and shelter aircraft from attack, ensure serviceable landing and take-off areas and control movement was viewed as increasingly important. The development of radio communications and the adoption of the strip principle in January 1938 (which facilitated the proper organisation of the flying field into different zones for take-off, landing and taxiing) brought with it an acceptance that movement on the airfield needed to be controlled from a single centre. Control towers thus evolved from the simple duty pilot's watch office to the tower design of 1934 and integration of traffic control with weather monitoring of 1939. From 1938 the dispersal of aircraft around the airfield perimeter was increasingly considered as the most effective defence against an enemy 'knock-out blow'. In March 1939 the Air Ministry agreed that fighter stations should have dispersals for 3 squadrons of 12 aircraft each, subsequent to which fighter pens with blast-shelter walls and internal air-raid shelters were erected on key fighter airfields. Remains of two fighter pens are still clearly visible at Duxford (though one is on farmland outside the boundaries of the current airfield and museum) while some sites of others are also discernable.

At the outbreak of the Second World War Duxford retained a large grassed landing field measuring approximately 1,600 yards by 2,000 yards (1,450 metres by 1,800 metres). The construction of concrete runways was largely confined to Bomber Command airfields, though the fighter station at Biggin Hill was equipped with a tarmac runway in the autumn of 1939 to counter problems of bad weather serviceability. During the war prefabricated surfaces of wire mesh (Somerfield Track, Square Mesh Track) and steel plank (Pierced Steel Plank, the most popular choice of surface) allowed for the rapid runway provision and Duxford was equipped with a Pierced Steel Plank runway in December 1944. After the war this was found to be acceptable for the first generation of jet fighters and it was not until August 1951 that it was finally replaced with a concrete runway. This runway was subsequently reduced in length when the M11 was constructed in the late 1970s down the eastern side of the airfield.

The buildings and structures of the airfield built prior to the outbreak of World War II are all

arranged within a grid of roads, the axis of which is aligned with the adjacent A505 road. The pierced steel runway and subsequent concrete runway were also aligned to this grid.

3.2 World War I hangars and associated structures

On the earliest flying fields aircraft were initially accommodated in tents. The first generation of permanent hangars had a span of 60 feet (18 metres), with 60 feet (18 metres) clear opening doors located in a sidewall opening direct onto the flying field. In March 1916 it was decided to increase the number of aircraft in a squadron from 12 to 18. This led to a complete change in hangar design with the development of the larger span, end-opening aeroplane shed. These hangars initially had a span of 80 feet (24 metres) that was subsequently increased to 100 feet (30 metres) in 1918, following a corresponding increase in the number of aircraft in a TDS squadron from 18 to 24. The location of the doors on the gable ends facilitated the more rapid deployment of aircraft and during 1917 the practice of constructing hangars in pairs was adopted; three pairs comprising the standard complement of hangars until November 1918, with only the repair section hangar remaining as a single-span shed. In the period up to November 1918, most RFC and RAF hangars were constructed from timber trusses, almost certainly the result of wartime expediency. The Anderson 'Belfast' truss, initially developed in response to demand from the Ulster flax industry for large-span roofs, became the standard form of truss used, in combination with buttressed brick walls, for the General Service Sheds of the Training Depot Scheme stations of 1917-18.

Despite the large number of sites occupied by the RAF in November 1918 (301) only a few examples of these early hangars now remain. From this entire period there are only 8 sites (including Duxford) where hangar groups (comprising 3 or more hangars) have survived. At Duxford three pairs General Service Aeroplane Sheds (Buildings 78, 79 and 84, also known as Hangars 3, 4 and 5) built in 1917 comprise a uniquely well-preserved group. These buildings, by the War Office's Directorate of Fortifications and Works have 100 feet (30 metres) span 'Belfast' trusses bearing onto external brick walls with buttresses to bay divisions and a central brick arcade supporting the trusses between the coupled sheds. These hangars are listed Grade II*.



*Building 84 1917 Hangar from the west and
Building 79 1917 Hangar from the north*

The three hangars are arranged in-line facing the flying field, with a larger gap between easternmost (84) and central (79) hangars, formerly occupied by a service hangar of the same date. Each hangar is a double shed and of standard plan, in 15 bays, with an overall length 170 feet (51 metres) and each shed having a span of 100 feet (30 metres); the roofs are double, very flat, segmental arches, carried at the central valley on brick piers; giving clear access through each bay. Each hangar has a low, lean-to annexe to the long outer walls, in varied formations. All sheds have full width and height openings to their end elevations, which are fitted with 'Essavian' sliding/folding timber doors, with diagonal timber boarding, fitted to an overhead track and with a deep apron above running the full width of the double shed and compact brick piers at each end. The long flanks have raking buttresses of painted brickwork carried up to the eaves soffit, with half-brick curtain walls between. Each end bay is plain; the remaining 13 bays have a full-width steel casement window in 27-panes, alternate bays also incorporating a 6-pane pivoted opening section. Above these windows is a deep apron band.

The roofs are in modern, profiled steel in flat segmental form, with continuous ridged patent glazing roof lights (to the central 13 bays), and with a line of patent glazing each side of the central valley. The eaves have a plain painted fascia with gutter. The segmental gables above the door are plain, with regular vertical divisions.

The annexes, built as low lean-to structures against

the long sides of the hangars, formerly provided accommodation for a variety of functions that included; the flight commanders, pilots and clerks, stores, boiler room, electrical and radio rooms, equipment stores and offices. The annexes were modified variously in 1928 and 1935. Windows are steel casement, originally in 16 panes, and similar in detail to those on the sheds, but later of a more domestic kind, but all in small panes. Roofs are either corrugated steel or felt on timber boarding. Building 78 has 11 bays to the north, all with original windows, and a similar run to the south. Several bays have doorways.

In close proximity to these hangars are a series of other modest buildings and structures, but which are historically important, since they form a uniquely well-preserved group that remain from the original layout and designs of 1917-18; they have survived with minimal external changes, and are representative of the basic designs in use during the early years of the Royal Flying Corps.

They comprise:

Buildings 87 and 89 (Flight Offices) – these date from 1918 and were originally a group of three that served the hangars. Designed by the War Office's Directorate of Fortifications and Works. Painted brick walls, under a slate roof with wood 4-pane sashes and small ridge stacks (note, although these buildings were put forward by English Heritage for listing in their own right, they are currently not listed, but are deemed to be curtilage listed by virtue of their functional association with the hangars).



Building 89 Flight Office with Building 84 behind

Each building comprises a small, gabled, single-storey structure containing single-depth offices; originally symmetrical, with a central entrance, the central rooms were for commanding officer and flanked by orderly and rest rooms. Building 87 was extended to the east by one room in 1935, to provide an extra room for airmen. Building 89 was

extended to the West to create an armoury and watch office c.1928.

Building 63 (former Main Stores) and Building 66 (former Clothing Stores) – these date from 1917, by the War Office's Directorate of Fortifications and Works. Constructed of painted brickwork, under slate roofing on steel trusses, with steel small-pane casement windows over thin slate sills and with flush concrete lintels, set to very slight reveals. Building 63 has a higher roof at slightly steeper pitch than 66, and the two buildings may have been originally separate, as an intermediate section has a roof separate from 66. Entrances are by wide, full height timber doors on the long sides to the south. These buildings are sited tight to the road immediately north of the hangars and are listed Grade II.



Building 63 Technical Stores with Building 66 beyond

Buildings 53, 55, 57, 58 and 292 – these buildings by the War Office's Directorate of Fortifications and Works date from 1917-18 and comprise a group of painted brick huts with corrugated asbestos-cement roofing on steel trusses, built for photographic reconnaissance training, gunnery and navigation training and workshops.



Buildings 55, 57 and 58

The former photographic hut (53) lies at the rear of the site, parallel with the A505, the others are at right angles to this, in 3 parallel rows. All huts have the original steel casement windows, in 16 panes, four of these in the top half as a pivoted opening light. The long, 6-bay huts have a series of external brick buttresses defining the bays and at the corners, with a plain timber plank door in the gable ends; the two smaller huts, originally the gunnery workshops, are in 2 bays without buttresses; hut 53 has a door in the south end, and 292 on the west side. All five buildings in this group are listed Grade II.

Building 72 (Workshop) – this workshop dates from 1917 and comprises a former engine repair shop, coppersmiths' shop and blacksmith's shop, by the War Office's Directorate of Fortifications and Works. Constructed of painted brickwork under a slate roof on steel trusses, this building is representative of the basic designs in use for aircraft repair shops during the early years of military aviation.



Buildings 66 and 72

A simple gabled shed, with a small boiler room added at the north-east corner. All windows are steel 16-pane casements incorporating a 4-pane pivot hung section in the upper half. The south front has 5 windows each side of a full-height wide pair of plank doors. The return to the right has 2 similar casements, that to the right modified, two doors, one with louvres, and a further door to the small flat-roofed extension, from which rises a tall steel stack. The back has a range of steel casements; there is a small brick stack at the left-hand gable end, and four patent-glazing ridge roof-lights. The building is listed Grade II.

Buildings 73 and 74 (Military Transport Garages and Workshops) – built in 1917 by the War Office's Directorate of Fortifications and

Works. Constructed of painted brickwork walls and piers, under low-pitched slate roofs on steel trusses. These garage bays are arranged in a form that became standard on military airfields and comprise a pair of parallel 12-bay sheds with broad central concrete manoeuvring space.



Buildings 73 and 74

The two ranges are virtually identical in their detailing, with full width overhead roller-shutters to each vehicle bay, with square dividing piers to a plain eaves. The outer and end walls are plain, except the east gable to Building 73, which has three steel 12-pane casements. Building 73 has the first bay filled to create an office, with a brick partition wall containing a door and window; Building 74 has bays 11 and 12 filled to form store/workshops, with horizontal board to timber framing, and with an early plank door with overlight, and three 2-light small-pane casements. There is patent-glazing ridge-lighting to bays 10 – 12 in Building 73, and bays, 6, 8, and 9 in Building 74. Both buildings are listed Grade II.

Building 80 (Carpenters' Workshop and Dope Shop) – a single storey, double gabled building dating from 1917 that was sited to the rear of, and functionally linked to, the now-demolished repair hanger in the gap between Hangar 79 and 84, by the War Office's Directorate of Fortifications and Works. Early aircraft were made with a timber frame covered in fabric that was then treated with dope to shrink it in order to give a taught skin. Building 80 is constructed of painted brickwork walls and piers, under low-pitched corrugated iron (formerly slate) roofs. The south elevation has twelve 16-pane steel casements, with two doorways off centre (the one to right is now partially blocked). The north elevation is similar to the south, while the twin-gabled end elevations each having four 12-pane steel casements (except for one later C20 window to north-east gable)

and timber boarded double doors. The building is Grade II listed.



Building 80 Carpenters Shop and Dope Shop

3.3 Operations Building (Building 59)

The Operations Building at Duxford (Building 59) dates from 1928 and is built to a 1924 design, which resembled a hipped roof bungalow surrounded by earth blast walls. The walls are in English bond brickwork, with asbestos-cement diagonal slate roofing. An extension at the north end is boarded timber framing. The operations building is typical of the first phase of Trenchard's expansion of the RAF and displays a stark utilitarian architecture that owed much to the army background of the designers who worked for the office of the Air Ministry's Directorate of Works and Buildings.



Building 59 Operations Building

From March 1936 Sir Hugh Dowding started to put in place the operational infrastructure for fighter Command that provided the key to incisive and economic marshalling of fighter squadrons,

and which made a significant contribution to the eventual outcome in the Battle of Britain of 1940. It saw the system of Chain Home radar stations (the first five of which became operational in 1938) and Observer Corps posts linked by telephone and teleprinter to: the Filter Room at Fighter Command Headquarters (at Bentley Priory, Stanmore); the underground Operations Rooms which controlled the Groups into which Dowding had subdivided the country; and finally, within each group, the Operations Rooms on the principal sector airfields that controlled the fighter squadrons. Duxford's Operations Building is regarded as the best-preserved example from its period and its associations with the Battle of Britain makes this a particularly important building. It is listed Grade II*.

Plan: A standard operations room layout with central entrance on the east side to a short corridor to the mains operations centre far right, adjacent to signals and wireless telegraphy rooms. To the left are battery room, tele-printers and store, and a small boiler room with flat roof. The building is enclosed in and protected by an earth breast-work about 1.75m high, with a break only for the entrance.

Exterior: Windows are small-pane steel casements in wood sub-frames, 2-light with transom. The paired flush-panelled entrance doors are below a 3-part overhead, with 2 windows, wide-spaced, to the left, and 3+1 to the right; beyond these is the gabled end of the later extension. At the far left end is the square boiler stack and the boiler house. The return has three close-spaced windows, and the west front has seven 2-light and two 3-light casements, plus a small door.

3.4 Control Tower/Watch Office (Building 209)

The development of radio communications and the adoption of the strip principle in January 1938 (which facilitated the proper organisation of the flying field into different zones for take-off, landing and taxiing) brought with it an acceptance that movement on the airfield needed to be controlled from a single centre. Control towers thus evolved from the simple duty pilot's watch office to the tower design of 1934 and integration of traffic control with weather monitoring of 1939. The Control Tower at Duxford (Building 209) was one of 160 wartime Watch Office for All Commands control tower buildings erected by the Air Ministry's Directorate of Works and

Buildings of which 82 survive. It is constructed of rendered brickwork with an asphalt roof, and was prominently sited in front of the main hangar group and its associated aprons. The building is listed Grade II.



Building 209 Control Tower/Watch Office

Plan: Ground floor has watch office to front with duty pilot's rest room, meteorological office, switch room and lavatories to rear; first floor has control room to front, with controller's rest room and signals office to rear, opening onto passage with access to stairs.

Exterior: Large multi-paned steel casements to front and to flank walls of watch office and control room, providing clear views of the flying field, with access from steel stairs on the west side elevation to concrete balcony with tubular steel railings and with iron columns providing support; tubular steel railings to roof, which has post-war visual control room. Timber boarded door next to stairs, and smaller steel casements to rear part of side and rear elevations.

3.5 Other buildings from the inter-war period on the technical site

Building 62 (Guardhouse with cells, fire-party and fire-tender house) – Built in 1932 with west wing and part of north elevation extended 1936, by the Air Ministry's Directorate of Works and Buildings. Constructed in stretcher bond, yellow gault brickwork under a slate roof, this building stands at the main entrance to the base and comprises an unusually complete and little-altered example of a typical guardhouse characteristic of the utilitarian designs that marked the first phase of the inter-war expansion of the RAF which commenced in 1923 under the leadership of Sir Hugh Trenchard, with original materials and detailing; the verandah

formation comprises an ingenious version of a classical peristyle. The building is Grade II listed. Immediately adjacent to Building 62 is a K6 telephone kiosk (not listed).



Building 62 Guard-house and K6 telephone kiosk

Plan: A complex of small single-storey linked units; the guardroom block to the front has an open verandah covered by a flat roof, the other roofs are pitched and hipped. The guardroom, orderly room, detention and NCO's rooms to the front are linked to the L-shaped rear unit with the fire tender garage and fire-party accommodation.

Exterior: Windows are generally 12-pane wooden sashes under brick voussoir heads and with concrete sills. The entrance front has 5 wide-spaced brick piers, with chamfered corners, on high painted brick bases and plinths, with square cappings bearing a tripartite wooden fascia, all set to a concrete terrace, behind which the main wall has 2 doors, towards the left, one with overlight, two 12-pane windows, one paired 12-pane window and a large composite 3-light window with a transom to bay 3. The short L-plan return to the left has three 12-pane windows, and the right return has a close-grilled light set high. A set-back links to the 3-bay fire-tender house, which has a small door and a large pair of main doors to the east. To its right, set back, is an arched opening to a deep-set door, then three 12-pane sashes. There are two stacks with brick cappings, and the whole building has a deep soffit with plain fascia and gutter.



Building 61 Station Offices

Building 61 (Station Offices) – Dated 1933, to a 1930 design by the Air Ministry's Directorate of Works and Buildings and is a typical, but unusually little altered, example of the HQ buildings designed under Trenchard's post 1923 expansion of the RAF. It is sited adjacent to the main entrance to the base, diagonally opposite the Guardhouse and built of stretcher bond, yellow gault brickwork under a slate roof, with a reinforced concrete first floor. The building is Grade II listed. Photo Building 61 Station Offices

Plan: Central hall and staircase to corridor and double-banked offices to each floor. A symmetrical 2-storey rectangular hipped range with short central T-arm to rear with flat roof, continued in one storey with a double hipped unit to a central valley. Original accommodation included for the Commanding Officer, engineer office and clerks, also accounts section, waiting and orderly rooms, lecture room and library.

Exterior: 2 storeys. 9-window front. Windows are all wooden sash in reveals to slightly cambered brick voussoir heads and concrete sub-sills; the principal windows have a 6-pane upper and a single pane plate glass lower sash. The front has three central bays slightly set forward, with a parapet or blocking-course carried above the eaves by approx 1m. This section has 3 sashes above a central pair of part-glazed doors in a stone pilaster surround with heavy flat entablature on brackets, with a sash each side. To each side are 3 further bays, with two close-set sashes on the short returns. A fascia and soffit eaves to the principal block is continued across the central section with its raised parapet wall. Centred to the ridge is a square louvred turret on a flared lead-clad apron, and with a square lead cupola with pinnacle. The central parapet carried a flagstaff. The back has 3 over one sashes each side of the centre section with an external square boiler stack and a small window, with a large sash at each level to the south return, and modified sash and 2 doors on a raised landing to the north. The low doubled wing has a slightly lower outer section, with 4 + 1 sashes to the south, and five smaller 4-pane to the north, plus door and overlight. The end return has 2 sashes and a door. There is a small roof vent.

Building 48 (works maintenance yard and buildings) – Built in 1935 to a type design of the 1920s expansion period by the Air Ministry's Directorate of Works and Buildings as stores and offices for the stations Clerk of Works. Constructed of yellow gault brick in Flemish bond

under a slate roof with brick stacks. The building is Grade II listed.



Building 48 works maintenance yard and building

Plan: Rectangular plan single-storey structure containing separate offices for the clerk of works and station engineer, a fitter's shop and a large store. An attached yard bounded by brick walls for the storage of building materials.

Exterior: Concrete lintels over all openings. South elevation has small 6-pane steel casement to right of half-glazed door with overlight; further to left, a similar set of double doors is flanked by multi-paned transomed steel casements. The roof to either side is hipped for the returns to the rear wings, and on the left is a lean-to with similar door and flanking small casements. Similar fenestration to rear, the right return having double doors to workshop with skylights.

Building 70 (petrol tanker sheds) – Built in 1936 to a 1934 design, by the Air Ministry's Directorate of Works and Buildings. This block originally comprised 6 bays, but was extended in 1938 by 2 bays to the south. It is prominently sited at the east end of the main technical buildings, facing down the main thoroughfare between these and the hangars. Constructed in Flemish bond brickwork under a concrete roof with an asphalt finish. The building is Grade II listed. Prior to the post-1934 Expansion Period, the method of refuelling aircraft was to taxi them to the Aviation Petrol Installation. After 1934, the RAF's mobile tanker system of refuelling aircraft became standard practice. To house the many petrol tanks required, Petrol Tanker Sheds were designed for all stations and sited close to the hangar aprons. This is an unaltered, and typical, example of the careful design characteristic of the post-1934 expansion of the RAF with its original roller doors. Grade II Listed.

Plan: A straight row of conjoined garages opening to the west.



Building 70 with Hangar 2 behind

Exterior: A plain rectangular block with six full-height openings fitted with up-and-over roller doors separated by brick piers. A square drip-course in concrete with concrete upstand continuous across the full width of the building, and round all sides; above this a 9-course brick parapet with plain flush concrete coping. In front of the piers between garage doors are free-standing protective concrete blocks, approx 1m wide, with rounded ends.

Building 105 (machine gun test butt)

– Built in 1938 to a design by the Air Ministry's Directorate of Works and Buildings. Constructed of brickwork in English bond, with a roof of corrugated steel on steel purlins and positioned prominently to the east of the hangar group. It was built in two parts, with a tarmac tethering apron facing onto the test butt, originally for testing machine guns but modified in early 1942 to test cannon. Not Listed.



Building 105 machine gun test butt with Building 70 behind

The front, facing the airfield, is completely open, but with high wing walls projecting approx. 2.8m each side. A deep apron of corrugated steel runs across as a fascia between the higher flank walls, which also are stepped up a further 375mm at mid

point. These walls have flush concrete copings, and are strengthened by two external brick buttresses with three offsets. The rear wall rises the full higher level, and also has two buttresses. The walls are lined internally with a cheaper, Fletton brick.

3.6 Buildings from the post-war period on the technical site

Whilst the historical significance of Duxford Airfield is its unique collection of buildings and structures that date from the first half of the 20th Century, the Technical Site also includes a number of later structures, many of which play a significant part in delivering the airfield's new role as part of the Imperial War Museum. Some of these buildings are of very a significant size and make equally significant architectural statements within the proposed Conservation Area.

Hangar 2 North and Hangar 2 South During the inter-war period, and after resumption of hostilities in 1939, the Directorate of Works and Buildings developed a number of different hangar types including the Type T, developed in collaboration with the Teeside Bridge and Engineering Company. 906 examples of this type of hangar were built on RAF stations in Britain and abroad from 1940. In the 1950s, during the Cold War period, a T2 hangar was erected at Duxford to the east of the original 1918 hangars, though this was subsequently dismantled and removed in c.1962. In 1980 the Imperial War Museum re-erected a T2 Hangar on the same site (Hangar 2 South). This hangar had previously been sited at RAF Thamesford in Bedfordshire where it was first erected c.1942. In 1990/91 a further T2 Hangar was erected immediately adjacent (Hangar 2 North). This hangar was purchased from a contractor who specialised in salvaging T2



Hangar 2 North and South (type T2) from the west.

hangars and it is believed that this particular hangar included components from a number of sites. These hangars are sited off the grid established in the original development of the airfield, but face the airfield apron, which is angled at its east and west ends.

Armoury A building from the Cold War period, constructed in 1954, but remodelled in 2004 by HOK Architects to form the new ticket office and shop as part of the first phase of the new AirSpace Museum.

Hangar 1 – Air Space Museum 1986 by PSA for Imperial War Museum, currently (2005/06). This is the largest structure on the site and has recently undergone major remodelling with extensions by HOK Architects and is due to reopen in 2007. It now comprises a simple rectangular structure with large doors in the gable end elevation facing onto the flying field and curved sidewalls.

American Air Museum 1996 by Sir Norman Foster (now Lord Foster). This seminal building from the last decade of the 20th Century is sited off the grid established for the early airfield development, but mirrors the arrangement of the

T2 Hangars and faces the airfield apron that is angled in this locality. The building has a simple architectural form, with a curved concrete roof that is a segment of a sphere, rising out of the ground on the north, east and west sides, to then terminate with a vertical wall of glass facing south onto the airfield. The lower part of the roof is covered in grass while the upper roof is finished in a grey, single ply membrane; the junction between the two finishes is defined by a band of patent glazing. Lining the footpath leading to the raised museum entrance on the north side is a memorial recording the USAF wartime losses from British bases in the form of a series of etched glass panels.



American Air Museum Entrance



Hangar 1 Air Space Museum with the former Armoury in the foreground



American Air Museum from the south west



Land Warfare Hall from the east

Land Warfare Hall 1992 (and subsequently extended 2000) by RH Partnership, Cambridge. A rectilinear building located at the western extremity of the airfield, with a raised central spine and exposed composite steel beams over the adjacent flat roofs, finished in industrial cladding. Photo Land Warfare Hall from the east

At the eastern extremity of the airfield (adjacent to the boundary with the M11) is a collection of 5 modest structures, comprising a small hangar (Eastern Hangar) and a series of workshops (Buildings 418, 419, 420 and 421), which are of no particular architectural or historic interest.

4.0 ARCHITECTURE AND PLANNING – the Domestic Site (the North Camp)

Whilst the Technical Site retains many of its original First World War structures, the Domestic Site was almost totally redeveloped over various phases during the inter-war period. All buildings on the Domestic Site are arranged within a grid of roads that follow the same axis as that established for the Technical Site on the south side of the A505. The two sites are linked by a single track, steel Bailey bridge over the A505 sited towards the eastern

end of the Domestic Site, this was erected in 1983 by the Imperial War Museum to provide improved access between the two sites.

The buildings of the North Camp are subdivided into 5 groups for consideration comprising:

- The Parade Ground area
- Buildings to the north of the Parade Ground
- The Officers' Mess and associated buildings
- Buildings along the central 'spine'
- Offices' houses and Building 91 on the east side of the North Camp

4.1 The Parade Ground area

The redevelopment of the North Camp commenced in 1932-33 with a group of buildings arranged around a new Parade Ground sited to the west of the camp (on an area previously occupied by three barrack blocks similar to Building 147).



Parade Ground looking west

The Parade Ground is a large, open rectangle measuring approximately 74 by 60 metres, and while it remains open it is now used as a storage

area and carpark with a cluttered, unkempt appearance. The buildings enclosing the Parade Ground form a distinct group and display characteristics that typify the designs established during Trenchard's post-1923 expansion of the RAF.

They comprise:

Sergeants' Mess (Building 288) - This building is located in the southeast corner of the Parade Ground (though its front elevation is on the south side away from the Parade Ground) and was one of the first buildings completed in 1932, but based on a design of 1924, examples of which were built at Bicester, North Weald and Upper Heyford. Grade II listed.



*Building 288 from south and
Building 288 from Parade Ground*

Plan: A single-storey building with entrance off-centre, right, and with gabled wings projecting forward at each end. At first the layout had the billiard room to the right of the entrance and the mess, with external eaves stack, to the left; kitchen and services to rear. Later, in 1935, the billiard room was moved to a matching new wing to the left, and new mess room, to accommodate 55 members, attached to the rear, adjacent to the billiard-room wing. Further extensions were made in 1943 when the building was adapted to function as another Officers' Mess (for 113 members); at this time service facilities were also extended, all to the rear, so that the front layout was not altered.

Exterior: Stretcher bond cavity red brick walls with a slate roof. Windows are generally timber-bar sashes to stone sills and with slightly cambered brick voussoir heads. On the south, entrance front, the projecting gables have a 12:18:12-pane triple sash to flat voussoir heads, under a flush semicircular arch containing a flush tympanum in herring-bone brickwork. Above these is a small ventilation slit, then the shouldered gable with stone copings. The inner returns have a small 8-pane sash, then the set-back long front has a central square bay with tall 8:12:8-pane sash to brick mullions, and a small 8-pane on the returns, the bay taken up to a coped parapet above eaves level, and with a 1932 date stone. To its left is the external eaves stack, taken up to a bold brick capping, flanked by tall 8-pane sashes. To the right is a pair of panelled doors, the top panel glazed, in a cast stone heavy pilaster surround with simple architrave flat cornice, again flanked by tall sashes. To the left of the entrance is a broad capped ridge stack, and further left the ridge to the added mess of 1935 rises slightly above the earlier lines.

The left return has 12-pane sashes, and the rear gable is similar to the front; the right return has a part-hipped outer end under a louvred half-gable, then a lower, set-back wing to a hipped end, with a plank door, and 2 + 1 four-pane sashes. The end of this wing is plain, and continues to a yard-enclosing wall with central entry, beyond which is the tall hipped end of the added mess. At the time of the 1943 extensions a long 'temporary' range in cement rendered brickwork was also attached to this part of the building.

Although variously modified over a considerable period, this retains in good state the principal front ranges, completing a significant group with the Pilots' Block (Building 11) and Sick Quarters (Building 10). Sergeants' Messes were more greatly affected by the development of RAF personnel policy than any other domestic buildings designed and built by the Directorate. They originally catered for sergeants on the basis that 50% were married and so non-users of the Mess, but with the growth in numbers of sergeant pilots, of whom only 10% were entitled to be married, the original areas were found to be inadequate in relation to the number of regular users. In its altered form it also reflects the major changes occurring at Duxford, especially with the increase in numbers of personnel following the arrival of US personnel.

Barrack block for airman pilots (Building 11) - This building is located in the centre of the south side

of the Parade Ground and, while it was erected in 1933, the design dates from 1925 and had already been used at Bicester and Upper Heyford. Grade II listed.



Building 11 Barrack Block for airman pilots

Plan: The building originally had a simple rectangular plan form containing five bedrooms and a bathroom, but in preparation for an increase in the station's complement of Sergeant Pilots, in 1935 an 'L' shaped extension was added to the west elevation to provide an further 11 rooms.

Exterior: Cavity brickwork in stretcher bond under a slate roof. Windows are steel casement with small panes and steel transom. The front is asymmetrical, with three 2-light and transom to the left, and two to the right of plank doors set to a plain brick pilaster surround, set forward a half-brick distance. The short right return has a small plank door with overlight, set centrally; the long left return has three 2-light casements flanked at each end by a single light, all as to the front, set to concrete sills and tight to the eaves. The lofty hipped roof is entirely plain, without stacks or ventilators.



Building 10 Station Sick Quarters

Station Sick Quarters and Decontamination Annexe (Building 10 and Building 131) – This building is located in the southwest corner of the parade ground but, as with the Sergeants' Mess, its

principle façade faces south, away from the parade ground. The Sick Quarters Building dates from 1933 (and is dated '1933 AD' over the central arch) to a design that dates from 1930. Grade II listed.

Plan: A single storey T-plan with central arched entry through a symmetrical south front; the rear wing is offset to the left and is connected by a high-wall passageway to the Decontamination Annexe Building 131), built in 1939 to a pattern evolved in 1937. The Decontamination Annexe was built for wounded personnel who also required decontamination for the effects of gas (for more details of decontamination buildings see Building 103). This unit has its own water tanks above the flat roof, and was protected by earth abutments (cut away to its SW corner for an access road).

Exterior: Stretcher bond brickwork under a slate roof. All windows are replacement uPVC, in plain reveals and to concrete sills. The front (south) has each side a group of three, then a pair of openings, to brick mullions, and a wide central arch to brick voussoirs and a painted keystone with date; the arch springs from low walls with coping framing the entrance landing to set-back doorway. At each return is a pair of lights with brick mullion, and a small 3-light flat-roofed dormer above the entrance. The hipped roof is set to a tight eaves detail. At the back (north) are similar windows, then a short diagonal link with large steel casement to the rear wing, which has 3 doors to deep overlights and various windows; there is a small brick stack centred to the wing.

Airmen's Barracks (Buildings 7, 8, 9 and 13)

– A group of 4 barracks buildings, two of which face onto the Parade Ground (Building 8 along the west side and Building 9 along the east side) and the other two (Building 7 and Building 13) are located to the northeast and northwest of the Parade Ground. The two storey buildings are all of a similar design and were built in 1933, though Building 13 followed slightly later in 1934 and is slightly larger. The architectural treatment of these buildings reflect, in their careful detailing and proportions, the impact of Air Ministry consultation with the Royal Fine Arts Commission, who were involved in airfield architecture and design after November 1931. Detail is economical, but carefully considered and carried out, with attention given to overall grouping and proportions, reflecting the impact of the RFAC monitoring of military architecture. All four barracks are Grade II listed. A World War II Air Raid Shelter is still visible between Buildings 8 and 13.



*Building 9 Airmen's Barracks and air-raid shelter
between Buildings 8 and 13*

Plan: Two storey blocks with central entrance and staircase hall flanked by small rooms for corporals and larger dormitory spaces, accommodating 4 NCO's and 56 airmen in the smaller units, and 4 NCO's and 64 airmen in the larger block (Building 13). To the rear, centre, a slightly lower hipped service wing.

Exterior: Stretcher bond red brick cavity walling with slate roofs. Windows are all wood glazing-bar sashes, to brick voussoirs, and with cast stone sub-sills. The front has central 3 bays slightly stepped forward and with a small barred oculus within a closed pediment, with central paired panelled door under a plain over-light, in stone pilaster surround with cornice and blocking course – the date 1933 carved above doors. The end gables have a closed pediment with oculus, above three 12-pane sashes to each floor, and the back has three 12-pane sashes to each floor (four to Building 13), each side of the service wing, which has a vertical 8-pane window adjacent to the main range, and two small 6-pane windows (8-pane to Building 13) at each floor. The outer end has a small light above a large louvred door to a battery room. The gabled ends have 'rusticated' quoins formed by recessing, for 2 brick widths, 1 course in every 5. A small flat eaves soffit all round has a small fascia and cornice mould or ogee-gutter to square-section cast-iron downpipes.

Institute and Dining Room (Building 6) – This building is sited centrally along the north side of the Parade Ground and dates from 1933. An unusually large complex, built to provide facilities for 200-250 corporals and airmen, but extended in 1942 to cope with a wartime total of more than 2000 airmen and WAAFs; the extension, later demolished, accounts for the additional doors in the centre part of the Parade Ground frontage. The layout, proportions and detailing are similar to the contemporary barracks blocks (Buildings 7, 8, 9, 13), which this building dominates and with which the Institute is grouped. The exterior remains virtually unchanged, and in its careful detailing and proportions is characteristic of the period immediately dating from the Royal Fine Arts Commission's involvement in airfield architecture and design after November 1931. Grade II listed



*Building 6 from Parade Ground and
Building 6 from north*

Plan: A long narrow principal block in 2 storeys facing the Parade Ground, with short returned wings to the front, and containing the dining areas for airmen (ground floor) and corporals (first floor), with reading rooms and games areas. Entrance at each end to the wings containing large square staircase wells. To the rear, mainly on one floor, but with a 2-storey staff accommodation building, are the kitchens, beer cellar, boiler room and general services.

Exterior: Stretcher bond red brick to cavity walls under slate roofs. All windows are wooden glazing-

bar sashes, to brick voussoirs and stone sub-sills. The parade-ground front is symmetrical, with a recessed 5-bay centre having 12-pane above 15-pane sashes, but bays 2 and 5 modified to contain pairs of glazed doors below the 6-pane upper part of the former sashes. The short wing returns have a 12-pane window above a pair of flush doors with a plain overhead, set in stone pilaster surround with cornice. The outer ends of these wings have a closed pediment with small ventilation slit, above a full-height Portland stone panel containing a 15-pane window above an oculus with square grid, all with moulded surrounds, and to a sill on brackets above plain apron panel; these wings also have a small plinth in stone. The return ends are identical, with a closed-pediment gable above 8:12:8-pane sashes above central doors flanked by a small 8-pane sash, the ground floor openings with moulded stone architraves and cornice. The forward-projecting wings each have a 12-pane window at first floor, and 4 small lights to the ground floor. The rear wall of this main block has a closed-pediment gable near the left-hand end, with a single 12-pane window, then eight 12-pane windows at first floor, above the various service buildings. Eaves are to a flat soffit and moulded cornice or gutter, and the gable ends have 'rusticated' quoins forced by recessing in 1 in every 5 courses, taken 2 bricks wide. The complex service range has hipped roofs to all units; continuing from the pedimented ends of the 2-storey range are low units with 6 small 12-pane windows, returned to a central door. Across the rear within these returns is a 2-storey block in 5 bays, flanked by single storey wings, and deep inset entries; there are 6 brick stacks of varied heights, all with brick cappings.

Airmen's Games Room (Building 286) and Airmen's Reading & Writing Room (Building 287) – Flanking the Institute and Dining Room (Building 6) are two 'temporary' buildings erected as part of the 1942 works to expand the facilities to cope with the increase in personnel on the station. Building 286 is 10 bays long and is located immediately to the west of Building 6, between the Institute and the Airmen's Barracks (Building 13). Building 287 is 7.5 bays long and is located immediately to the east of Building 6, between the Institute and the Airmen's Barracks (Building 7). The buildings have cement rendered walls with metal casement windows and corrugated asbestos cement roofs. While not listed in their own right, due to their close association with Building 6 these buildings are regarded as being curtilage listed.



Building 286 and Building 287

4.2 Buildings to the north of the Parade Ground

Immediately north of the group of buildings enclosing the Parade Ground is another range of 4 buildings erected on the north-south axis of the Parade Ground and Institute (Building 6).

They comprise:

Ration Store (Building 132) – A very modest structure with little architectural pretension, but a standard unit essential to the operation of the base which was erected in 1933 in conjunction with the Institute (Building No 6) and sited immediately to the north of Building 6. Grade II listed.



Building 132 Ration Store

Plan: A small single-storey L-plan gabled building with two rooms, office to left and store to right, behind veranda incorporated under roof slope.

Exterior: Stretcher bond cavity wall brickwork under a slate roof. Timber windows, with concrete sub-sills and slightly cambered brick voussoir heads. The front has two 4-pane sash to the gable, left, then a small high casement and wide pair of plank doors, set back to a deep veranda, the front eaves carried on slender timber posts set to concrete base pads. The end returns are plain, and the back has two high lights, and two 4-pane to the gable end, all this in one plane. All windows are barred. There is a slight rendered plinth, and the slate roof is brought to tight eaves and verge.

Dining Room (Building 215) – This building is sited north of the Ration Store (Building 132) with its principle elevation to the north and dates from 1939/40. It has a central entrance hall with main staircase, flanked by dining rooms on two floors with a single storey range of kitchen and service rooms to the rear (south). Not listed.



Building 215 Dining Room from north

Exterior: Stretcher bond cavity brick walls under hipped plain tile roof with deep eaves (flat roofs to single storey range to rear). Steel 14-pane casement windows. The north elevation has 3:3:3 fenestration, with the central 3 bays stepped forward under a hipped roof over a central entrance with curved canopy and reeded Art Deco pilasters to a triple doorway.

Ration Store (Building 5) – This single storey building was built c.1939 to a standard earlier design of 1934. The building is in three parts; a main, central section set behind a veranda comprised the main ration store, with an annex on the west side forming a shoemaker's shop and another on the east end functioned as a tailor's

shop. The store is built in cavity brickwork under a steeply pitched plain-tiled roof and with concrete flat roofs to the side annexes. The south-facing veranda has more recently been enclosed with white powder-coated aluminium windows set over a low brick wall. Not listed.



Building 5 Ration Store

Boiler House (Building 4) – This building dates from 1939 and is a very effective yet simple design reflecting the influence of the Royal Fine Arts Commission on RAF buildings in the 1930's Expansion Period. It has Art Deco characteristics, and forms the northern terminal to the axis of North Camp, centred on the parade ground, barracks and Institute. It provided the station's independent supply of central heating and hot water. Grade II listed.



Building 4 Boiler House

Plan: A neat cube to a square plan, entered from the south through a tall water storage tower, set forward from the main block. To the rear (north)

is an extended fuel yard with various later buildings.

Exterior: The entrance front has the slender tower, stepped in slightly in two stages at the top to a flush parapet, and reduced in plan size at the rear to form the main stack. A central door with flat concrete canopy and in recessed brick jambs is set below an extended blind brick panel, which is repeated on the sides. The main block has three 2-light steel casements with horizontal bars to sides and rear, at mid height, and one casement to the left of the tower. Finished to a plain concrete coping on a brick soldier course. The wall enclosing the fuel yard is rendered.

NAAFI (Building 285) – A ‘temporary’ Nissen hut dating from 1941 built in association with the adjacent dining room (building 215). The building is made up of 15 number 6ft bays, each with a 24ft span, in curved corrugated iron painted green. This building has been modified to incorporate ‘dormer’ windows and door openings within the curved corrugated iron on both the east and west elevations. Not listed.



Building 285 NAAFI from north

4.3 Buildings along the central ‘spine’

The Parade Ground and associated buildings area located on the Western side of the North Camp. Immediately to the east of these buildings is a central ‘spine’ of buildings running northwards back from the A505. Working back from the A505 they comprise:

Gas Decontamination Centre (Building 103) - With the threat of gas attack, greatly feared after World War I, all air stations were provided with heavily built and protected decontamination centres. This one is the standard form for the Expansion Period of the 1930s, and is a completely free-standing example, close to the barracks area and the Officers’ Mess. There is a second centre for wounded personnel of identical design at Duxford, attached to the Station Sick Quarters (Building 10) and built to the same pattern. Grade II listed.

The use of gas in war was outlawed by the Geneva Gas Protocol of 1925 (both Britain and Germany were signatories), but not its production and development. As a result the British Government, with its previous experience of the ease at which signed agreements were broken during hostilities, decided to develop gas weapons and design methods of protection against their use. This included the construction of specialised buildings, so that in the event of such an attack, personnel who became gas casualties could receive first-aid treatment and get decontaminated. The decontamination building is therefore, designed to deal with all types of gases developed during World War I: lachrymatory agents; respiratory agents and blister agents.



Building 103 Gas Decontamination Centre

It was possible to protect oneself from many of the gases by wearing a respirator. Some had distinctive odours that gave sufficient warning of the presence to allow personnel to take cover inside a building or shelter. However, mustard gas has only a faint smell of garlic and its symptoms are not always apparent until some time after the attack, especially the worst effects of the agent. In liquid or vapour form mustard gas can be absorbed by the skin without being detected. By the time irritation is noticed, the agent has penetrated the surface of the skin and started to cause serious damage. Therefore, special warning posts with metal plates coated with detection paint that changed colour when exposed to mustard gas, were placed at intervals along pathways connecting with buildings. The idea was to get out of all contaminated clothing, dispose of it, wash thoroughly and change into fresh clothing as soon as possible. If all this could be achieved within 20 minutes of the initial contamination, serious injury could be avoided.

As one of the symptoms of exposure to mustard gas is blindness, guardrails or projecting covered entrances guided injured personnel through a footbath of bleach solution, on their way to the undressing area. On entering the reception and undressing area, patients removed their clothes, which were placed through special openings on an outside-wall into bins for collection and decontamination by boiling. An air lock was then used to get access to the bleaching room where decontamination could take place. Showers were often arranged in two groups with a space between so that a person could wet themselves under one, move into the space to use soap and then move under the next shower cubicle to wash off the soap. It would have been routine procedure to wash out the eyes in warm water. After a thorough wash, treatment of the affected areas could begin. The antidote to mustard gas is bleach and a specially prepared paste would be rubbed into the damaged area and then wiped off within 2 minutes. Next came the dressing and waiting area, leading to an exit via another air lock. The plant equipment supplied clean, filtered air and in a gas-contaminated environment, raised the internal air pressure to seal the building to prevent gas entering. This enabled the building to be used during a gas attack. All doors had rubber seals that formed a perfect seal when shut. The undressing room has pressure stabilisers on an outside-wall to release the pressure as necessary.

Plan: A rectangular block 88' x 32' (26.9m x 9.7m), with two protected entries on the long

west side. The interior, which has a double-skin 'protected' concrete roof, is divided by brick partitions; the northernmost entrance leads via a short passageway to reception and undressing areas, and lockers in the external walls can be accessed from outside, for which a protected walkway is taken round the north end and to a short return. From the undressing room through air locks, is the large bleaching room with showers. The south half has storage for clean clothing, a large dressing room, and an exit, again through an air lock, to the west. Beyond this area are boiler and air-conditioning plant rooms.

Exterior: Brickwork walls in Flemish bond, protected to half-height by grassed earth revetments, which with heavy steel beams support a flat, asphalted concrete roof, with part containing the water tanks raised as hipped roof, also asphalted.

A massive, plain, brick box taken to a high flush coped parapet; at the south end is a square external stack to the boiler room. On all sides, rising to about half the total height, the brickwork is cement rendered, and earth at a natural angle of repose is carried all round, grassed on top to provide stability. On the west side are two U-plan sections of walling, the returned raked at the angle of the earth revetment. These stand separated from the main body of revetment, through which two narrow passageways lead to the exit and entrance; at their outer-ends the walls are raked down with the earth slope. A hipped roof section, over the large water storage tanks, is visible above the parapet off-centre on the roof, above the entrance and shower areas.

Stand-by-Set House (Building 40) – In time of emergency an alternative (fourth) electricity supply could be obtained from diesel driven generators located in the stand-by-set house. The structure was built between 1935 – 36 and fed an alternative supply circuit routed away from the permanent circuits.



Building 40 Stand-by-Set House

The building is a simple rectangular structure, constructed of Flemish bond brickwork under a slate roof with half-hips and enclosed by a blast wall. Six water tanks were located between the engine room and the blast wall. Not listed.

Gymnasium and Chapel (post WWII cinema) (Building 207) – A large ‘temporary’ multifunctional building built in 1941, that was initially designed as gymnasium, but which could also be used as a chapel or dance hall. In 1955 a projection room annexe was built against the west gable enabling the main space to be used as a cinema. The building is in three parts; a central gymnasium, a chancel annex to the east and the projection room annex to the west.



Building 207 Gymnasium and Chapel

The original building was 14 bays long, with externally expressed piers at 3metre (10ft) centres and infill panels of rendered brickwork under a corrugated asbestos cement roof. The gymnasium, which also doubled as a dance hall and housed the congregation when the building was used for worship, comprises 9 bays, with a roof span of 7 metres (28 ft) and a steel framed clerestory window to each bay. The chancel annex is 5 bays, but with a reduced span of 5.5 metres (18 ft) is subdivided into a chancel, Roman Catholic chapel and vestry. Not listed.

Barrack block (Building 213) – This is the only surviving example of four similar barrack blocks, built in 1939 as part of the extensions carried out at Duxford under Scheme ‘L’ of RAF expansion. The other three similar blocks were buildings 211, 212 and 214. Building 211 was sited immediately to the north of building 213 and was demolished following a fire in 1944, while Buildings 212 and 214 were sited to the west of the Dining Room (Building 215) and as mirror images of Buildings 211 and 214 reflected about an axis running

through the centre of the Parade Ground and Dining Room (on land now developed for private housing in the latter part of the 20th century). The planning of these barracks provided a direct response to the demand for increased standards of accommodation on military airfields, including the provision of sitting rooms and basement air raid refuges. Not listed.



Building 213 Barrack Block

Plan: The block comprises a 2-storey compact H-plan housing 8 NCOs and 84 airmen. Central entrance to each wing leading to central open-well staircase and internal corridors with rooms each side: further staircases at junctions with cross wing that also has service facilities including a utility room.

Exterior: Stretcher bond cavity walls with hipped plain tile roofs. Steel 10-pane vertical casements to wings, some horizontal units to cross wing set to continuous thin concrete lintel and sill bands. Outer fronts of wings in 2:5:2-bays, with deep 2-light windows, and to the centre 5 bays are continuous sill and lintel bands, the upper band continued around the whole. The central pair of panelled doors is set within rendered, Art Deco pilasters with a flat canopy over. On the east front is a similar doorway, but to brick jambs. The short ends of these blocks are plain, and the inner faces are in 3 bays, with casements as to the front, each side of the central link. The centre range is in 7 bays, with 2 and 3-light casements to continuous sills and lintels, on one side, but with a deep stair light, and a ground-floor door to the second and sixth bays on the other. Small vents are built into the brickwork all round at mid and eaves levels.

Field Force Motor Transport (FFMT) garage (Building 104) – The northern most building along the central ‘spine’ is a large garage structure that is also sited to terminate the vista down

the road that leads north from the A505. From April 1923 until August 1941 Duxford was home to 19 Squadron. This squadron was designated as a mobile (expeditionary) squadron and could, therefore, become part of the British Expeditionary Force (BEF). Accordingly Duxford required a Field Force MT garage to house the squadron's vehicles and equipment that would make up the road party. Not listed.



Building 104 Field Force MT Garage

The FFMT building is a large, 12 bay, rectangular garage structure constructed at the north end of the central 'spine'. The garage is built of cavity brickwork under a double-hipped, slate roof set behind parapet walls. The two long side elevations are open; with a series of horizontal sliding, steel clad doors, comprising 11 leaves to each elevation.

Beyond the FFMT garage building, and remotely sited for safety and security reasons on land now outside the IWM boundary, was a group of four ammunition stores (buildings 281, 281, 183, and 284). All these structures have now been demolished and the land returned to agriculture.

4.4 The Officers' Mess and Associated Buildings

The Officers' Mess and associated buildings are sited to the east of the central 'spine', with the Officer' Mess facing onto a landscaped turning area fronting the A505. The group comprises:

Officers' Mess (Building 45) – Built in 1935 to a design by A Bulloch and extended in 1939. A fine composition, externally in original condition, typical of this period in its neo-Georgian style. It also clearly shows the impact of the Royal Fine Arts Commission on designs of the post-1934 Expansion Period, but especially the 'guiding hand' of Sir Edwin Lutyens in its careful grouping of openings, and in the paired chimney stacks. It was

planned according to the principles of dispersal, established by Trenchard in the early 1920s, whereby the central dining area and recreational facilities are separated from the accommodation wings by lengths of corridors with the idea of localising the effects of bomb damage. Grade II listed.



Building 45 Officers' Mess

Plan: A broad-fronted 'H' plan, with symmetrical front, the central single-storey range is set back from the two-storey bedroom wings. The central range is long and shallow, with the central hall flanked by the main reception rooms – a long ante-room to the right and two rooms to the left, approached by the long corridor at the rear. The main dining room lies at right angles to this range across the corridor but central to the ante-room. To the left, rear, are kitchen and services, with a small two-storey bedroom block. The transverse corridor is taken through short links to the bedroom blocks, which are double-banked, with central corridor; the left-hand (west) wing is also extended to the rear (in 1939) by a unit with separate hipped roof. All roofs are hipped, with parapets to the reception range and the dining room, the remainder to an eaves, and flat roof to kitchen and services.

Exterior: Red brick in Flemish bond, under a pantile roof on steel trusses. All windows are timber sash with glazing-bars, to flush boxes, with brick voussoirs and stone sills. The central range has a slightly stepped forward central 3 arched bays to brick piers, over set-back pairs of glazed doors with radial fanlights, all to a one step full-width stone landing; the parapet is taken higher than to the flanking sections, in five bays with large 29-pane windows (grouped 3 + 2), with 2 similar windows on the end returns; to the right one of the windows has a pair of doors inserted below the upper sash. There are 2 plain square ridge stacks

to the centre section.

Short low-level links, each with 2 pairs of glazed French doors, connected to the 2-storey blocks. The short ends have three 12-pane above a central arched, part-glazed door flanked by 12-pane, and at the eaves, tall paired stacks linked at the top over an arched opening. The long returns are in 8 bays, with 12-pane to each level, but that to the left extended, with a further 3 sashes and a door to the ground floor, and one above. The rear (N) end of the right-hand block is in 3 bays, identical to the front, including the doubled stack. The inner faces have a variety of 12 or 9-pane and triple sashes, also one deep 21-pane stair light. At the rear to the left is the long rectangular mess, in 8 x 2 bays, with very large 28-pane sashes (but one only of these on the W side); the outer 4 bays have brickwork of different colour from the inner bays, marking the extension of the 1940s. The roof slopes have 3 louvred vents, and the whole is with parapet. To the right is a compact 2-storey range, with projecting central bay having an arched central door under 12-pane, and a small 9-pane set back each side; the returns have five close-set 12-pane above a door and three 9-pane (west side). There are walls and gates enclosing internal courtyards.



Building 46 Squash Court

Squash Court (Building 46) – This building is located on the same axis as the Officers' Mess and immediately to behind it. One or more squash courts were normal to RAF bases, closely related, as here, to the Officers' Mess. This court is characteristic of the careful approach to design typical of the 1930s Expansion Period of the RAF, and of the amenity provision for officers on military barracks dating from the mid C19. Built in 1935 and Grade II listed.

Plan: A single court, entered through south gabled end, and with stairs to observation gallery, and

small waiting room.

Exterior: Flemish bond brickwork with stiffening piers under a corrugated asbestos-cement roof. A tall gabled block, the central part of each gable raised to a shouldered parapet with coping, above a louvred vertical opening to a flush concrete lintel. At the south end a central part-glazed entrance door, and on each return, at a low level, a small 2-light timber casement with glazing-bars; these and the doorway to flush lintels. To each long side and two full-height buttresses. Each roof slope has a large area of patent glazing taken up to the ridge.

Barrack block (building 147) – This is the only building to survive on the Domestic Site from the initial development at Duxford, a barracks block (now in use as a store), built in 1918 to a design by Lieut. J.G.N. Clift of the War Office's Directorate of Fortifications and Works. Constructed of rendered brickwork under a roof of asbestos-cement slates on timber trusses. This is a very rare surviving example of a once common type of standard barracks hut of the First World War period, in this case built as single officers' quarters. Originally there were at least 3 identical huts, in parallel, just to the north of the Officers' Mess (Building 45), and on plans of the station from 1918 to 1933 they are shown as Officers' Quarters. It now forms a significant group with the Officers' Mess and Squash Court (Building 46) and is listed Grade II.



Building 147 Barrack Block of 1918

Plan: A long narrow block with raised central area and clerestory, divided longitudinally in plan with entrances in short gable ends. In 8 bays each of 13ft (3.96m).

Exterior: Windows are all standard steel casements, originally standard 12-pane casements, but in the lean-to ranges replaced by later casements with side-hung lights and small top vents, without glazing-bars. The gabled ends have

a raised centre with lower sides, all in one plane, having a pair of tall plank doors flanked by 2-light small-pane casements. The long sides have a series of 8 horizontal small-pane casements set tight to the upper eaves, above the later windows in bays separated by shallow flat buttresses; on the right (E) side is a small further projection to the first bay, with a small 8-pane light.

4.5 Offices' houses and Building 91 on the east side of the North Camp

At the extreme eastern end of the North Camp are a group of 5 officers' houses comprising Nos. 20, 21, 29, 30 & 31 Ledo Road. These houses are all to a distinctive design of 1935 by the Air Ministry architect, A Bulloch. Detailing is restrained throughout, but massing, spacing and proportions are carefully considered in the neo-Georgian style favoured at this period, and influenced by the impact of the Royal Fine Arts Commission, especially through the architect Sir Edwin Lutyens. Ledo Road is named after the Ledo Road built by the American Forces from Ledo in Assam through to Shingbwiyang in Burma (a distance of 103 miles) in 1942/43, from where it linked to the Burma Road (although the route of this road had first been surveyed by the British at the end of the nineteenth century).



No 30 Ledo Road from the north

Nos. 20, 21, 29 and 30: Married officer's houses. 1936-7 to a Group V design for Flight Lieutenants by A Bulloch, architectural advisor to the Air Ministry's directorate of Works and Buildings. All four are Grade II listed.



No 30 Ledo Road from the south east

Exterior: 2 Storey, red cavity brick in Flemish bond, pantile roofs and brick stacks. All windows are timber sash with glazing-bars, to flush boxes, with brick voussoirs. Garden fronts to south have canted bay windows to the left of 4-window range with 12-pane sashes (No 21 and 29 have late C20 conservatory additions while No 30 has one window deepened into French windows). North elevations, facing onto drives, have projecting gables, containing entrance hall and stair with 8-pane sashes to returns and to gable face a panelled doors set in classical doorcases with bracketed cornice, End and axial stacks.



*No 31 Ledo Road from the south and
No 31 Ledo Road from the north east*

No 31: Married officers' house. 1936-7 to a Group IV design for Squadron Leaders by A Bulloch, architectural advisor to the Air Ministry's directorate of Works and Buildings. Grade II listed.

Exterior: 2 Storey, red cavity brick in Flemish bond, pantile roof and brick stacks. All windows are timber sash with glazing-bars to flush boxes, with brick vousoirs. Garden front to south has canted bay window to left of 4-window range with 12-pane sashes; adjacent bay window is French window in raised brick architrave. North front, facing drive, has 5-window elevation with 12-pane sashes and central panelled door set in semi-circular arch with tile imposts and brick tympanum, flanked by 9-pane sashes with 3No. 8-pane sashes above. End and Axial stacks.

W/T and R/T Transmitting Building (Building 91)

- North of the officers' houses, and originally well away from other structures, is a radio transmitting building that was built in 1928 at the same time as the Operations Building (Building 59) on the South Camp. Initially there were three aerial masts located nearby, but in 1936 a new 70 ft high timber tower was erected in close proximity to the building.



Building 91 W/T and R/T Transmitting Building

The building has a simple square plan-form and is sub-divided into six rooms comprising; an engine room for charging batteries, a workshop, store and toilet, office, W/T machinery room and boiler room. The building is constructed of solid brick walls (in Flemish bond) under a flat, reinforced concrete roof. Today the building is in a very poor state of repair; the guttering and rainwater pipes have failed resulting in water damage to the brickwork, while trees are growing in close proximity to the building and their roots are causing further damage to the structure.

5.0 PROPOSED CONSERVATION AREA BOUNDARIES *see map page 40*

The proposed boundaries for the new conservation area have been drawn so as to include all the significant buildings that survive from the first half of the 20th century (illustrating how the site developed at the end of the First World War, through the period of RAF expansion in the inter-war period, and then its use in the Second World War). However the construction of the M11 and post-war housing developments on the periphery of the North Camp have also been taken into consideration. As a result, the proposed boundary excludes that part of the former airfield that now lies to the east of the M11 (this area contains only one structure, a small single storey utilitarian building used to control the lighting on the airfield). The design of the inter-war airmen's married quarters (built on the west side of the North Camp at Whitehall Gardens and Woburn Place) reflect some of the ideas developed in the 'Garden City' movement, the principles of which are also reflected in the inter-war buildings of the North Camp and the officers' houses in Ledo Road, but a lot of the character and historic interest of these married quarters has been eroded through subsequent changes to the fabric of these dwellings and construction of new housing. It is the Council's view that these houses would now contribute very little to the proposed Conservation Area and it is therefore inappropriate to include these houses within the boundaries. As a result, the only dwellings to be included within the proposed boundaries are the officers' houses in Ledo Road (on the east side of the North Camp). The boundary has been extended to include the WWII pillbox sited immediately north of the A505 that is currently being adapted to form a bat roost.

Immediately to the north of the North Camp is a Scheduled Ancient Monument, the site of a Roman Settlement, and beyond this is a SSSI (Thriplow Peat Holes). However, neither of these has any direct relationship or relevance to the development of Duxford Airfield in the first half of the twentieth century and, since both already benefit from statutory protection, no additional advantage is to be gained from including them within the boundaries of the proposed Conservation Area. Similarly, the northern boundary of the proposed Conservation Area excludes the site of the former ammunition stores, since following their demolition and the return of the land to agriculture there is now no visible evidence of them remaining.

6.0 KEY CHARACTERISTICS

6.1 Outline Character Analysis

6.1.1 South camp

The character of the South Camp is one of a series of very large, simple structures that face onto the airfield, backed by a series of smaller, but equally utilitarian, buildings arranged within a grid of roads and located between the airfield and the A 505. Most of these lesser structures are single storey and are set tight to the roadways, providing a sense of enclosure, but with long east-west vistas. All buildings are located on the north side of the airfield, while to the south the ground is open with uninterrupted views towards a line of low hills beyond the airfield perimeter. Aside from ordered areas of grass between the buildings and some trees planted for camouflage amongst the smaller structures adjacent to the A505 and alongside the 1918 hangars, there is very little in the way of soft landscaping within the area of the South Camp. It is noticeable that there has been no tree planting associated with the later T2 hangars or other large exhibition buildings. The boundary is formed by a combination of fencing and native species hedgerows

6.1.2 North Camp

While the buildings of the North Camp are broadly similar in date to many of those on the South Camp, the character of the North Camp is significantly different. The 'permanent' buildings on the North Camp are more uniform in their massing and are predominately two-storey with traditional pitched roofs, though a significant number are single storey. There are also a number of 'temporary' structures erected during WWII that still remain, which all single storey and display a variety of roof forms. There is a greater feeling of openness and space between the buildings, and many of the 'permanent' structures incorporate design features that soften the utilitarian plan forms and reflect the increased attention to design in buildings erected after 1932. The North Camp also includes significant tree planting, which was originally introduced for camouflage, and these trees have now matured and make a very positive contribution to the spaces between the **buildings**.

6.2 Scale

The hangars and later exhibition buildings are extremely large structures. All have a simple, robust massing and form, and together dominate the South Camp, where they ring the northern edge of the airfield. Aside from these structures

the majority of the other buildings on both sides of the A 505 are either single or two-storey structures with simple, rectilinear plan forms.

6.3 Walling materials

6.3.1 South Camp

The majority of buildings within the South Camp have a paint finish applied to their exterior walls, either direct onto brickwork or over a cement render, and there is only a limited use of fair-faced brickwork. The T2 hangars and later exhibition buildings have no masonry and are encased in industrial type cladding materials, though the only vertical wall on the American Air Museum is all glass and its other walls are all enclosed behind earth bunds, a reflection of the earth blast walls that also enclose the Operations Block.

6.3.2 North Camp

On the North Camp the 'permanent' inter-war buildings are all in brickwork that is generally left fair-faced, though the remains of camouflage paint is visible on some buildings (eg Building 213). The surviving 'temporary' WWII structures display a variety of materials eg the NAAFI (corrugated iron), Airmen's Games Room and Gymnasium (painted cement render). The Decontamination Centre and the Decontamination Annex to the Station Sick Quarters are both enclosed behind earth bunds.

6.4 Roofing materials

6.4.1 South Camp

On the South Camp more use is made of industrial type roofing materials such as asbestos cement and profiled steel sheeting, though many of the smaller structures built in the early 1930s have roofs of Welsh slate. The Operations Building is roofed in diagonal asbestos cement slates and a number of the other more functional buildings built in the inter-war period have flat concrete roofs with an asphalt finish. The modern exhibition buildings continue the tradition of using contemporary industrial type roofing materials, which include curved profiled aluminium sheeting and single ply membranes.

6.4.2 North Camp

The buildings on the North Camp are generally roofed with traditional pitched roofs covered in Welsh slate or clay tiles, thereby reinforcing the domestic appearance of this part of the camp. The 'temporary' wartime structures are built of materials reflecting their limited planned life (ie corrugated iron and asbestos cement profiled sheeting).

6.5 Roof forms

Roof forms are generally simple and reflect the materials and usage of the buildings. On the North Camp, where widespread use is made of traditional materials, roofs are pitched, though there is a wide mixture of hipped and gabled roofs. Roof pitches also reflect the materials used, with slate used at shallower pitches and clay tile used on steeper pitches. On the South Camp roof pitches are generally shallow for both slate and corrugated sheeting. Roofs in corrugated sheeting almost always have a simple, gabled form whereas slate roofs are more generally hipped.

6.6 Chimneys

The buildings of the North Camp have a more domestic appearance and this includes the provision of chimneystacks to the pitched roofs. Within the South Camp, where there is greater presence of large-span industrial type structures, chimneys are not to universal.

6.7 Windows and doors

Doors (including the original sliding doors to the WWI hangars) are generally in timber, though some have more recently been faced with steel sheeting for additional security. Windows are either of timber (generally vertical sliding sash) or steel (side-hung and/or top-hung casements). The more utilitarian buildings are more likely to have steel casement windows, while those buildings that most reflect the influence of the RFAC generally have white painted timber sash windows. The introduction of modern uPVC replacement windows is unfortunate, but so far this has only occurred in a few buildings.

6.8 Grid layout

All the buildings within the North Camp and the majority of those within the South Camp are set out on a simple, functional grid. On the South Camp some of the larger, peripheral buildings are sited off grid, but orientated parallel to the concrete runway apron. The one exception is Hanger I (the Air-Space Museum), which is sited at an angle at the north-east corner of the South Camp (backing onto the junction of the A505 and the M11). This grid layout has a significant impact on the overall form and appearance of the camp. Both the North and South Camps contain a number of original lamp standards from the Inter-War period manufactured by W. Lucy & Co Ltd of South Shields. These should be retained and consideration should be given to selecting a contemporary lamp standard that complements the design of the original lamp standards (without

seeking to copy them), which could be adopted for all new light fittings throughout the site.



Original Lamp Standard

Whilst the road serving the officers' housing to the east of the North Camp follows the same grid orientation as the other roads within the Camp, the houses themselves are all orientated east-west (ie at an angle to the road) thereby enabling maximum benefit to be made of sunlight.

6.9 Views and vistas

The grid layout adopted for the camp creates a number of views and vistas between the buildings. On the North Camp many of these key views are reinforced by regularly spaced trees, originally planted to augment camouflage and now matured to provide a major contribution to the overall quality of the environment. There is less planting on the South Camp (where trees would have been less successful in providing camouflage for the larger buildings) but again a number were planted around the smaller structures sited between the hangars and the A505. Most views terminate on buildings within the camp, though not in a formal, or planned architectural manner, but others continue beyond the fence line into the open

countryside beyond. Within the North Camp there are also a number of shorter vistas into the Parade Ground between the enclosing buildings.



View looking south with Building 213 on left and Building 7 on right

6.10 Spaces

Aside from the Parade Ground and the forecourt area in front of the Officers' Mess, there are few formally enclosed spaces within the Camp. Towards the north of the North Camp there is a large, open, grassed area, part of which was the site for some temporary buildings during WWII, though the majority of it has always been open ground. It is now used for temporary parking during major events at the IWM.

7.0 ENHANCEMENT OPPORTUNITIES

Whilst the transfer of the airfield into the care of the Imperial War Museum has provided it with an appropriate and viable use for the foreseeable future, it is apparent that the North Camp in particular continues to suffer from a lack on investment. There is a need for the IWM to develop a long-term strategy for the whole site, which should include:

- requirement for new buildings (including the impact such buildings might have on the existing building stock which might be made redundant as a result);
- the management of visitors to the site (including how visits to the North Camp might be permitted), and overflow parking for special events;
- specialist storage and storage of bulky pieces of equipment and exhibits awaiting conservation;
- proposals for redundant buildings.

In addition, the Parade Ground presents a clear

enhancement opportunity that could provide an important pedestrian space and which might then more clearly reflect its original function within the camp.



Parade Ground Looking East with Open Air Storage

In respect of the redundant buildings, the continued uncertainty over the future use of the Officers Mess and Squash Court is now a cause of concern and the buildings must not be allowed to deteriorate further while their future use is clarified. Consideration will be given to placing these buildings on the Council's Buildings at Risk list. The other building that is of immediate concern is Building 91, and while this is not a Listed Building, it remains an integral part of the development of the site during the inter-war period and urgent measures should be taken to ensure its survival in the short term, while its longer term future should be considered as part of the strategic plan for the whole site. Given the remote siting of this building, it maybe that the IWM will not be able to find an appropriate use for it. Building 91 is sited immediately adjacent to a row of houses on the and is contained within the planning framework of those houses. In the event that the IWM cannot find a use for this building, and assuming that a suitable vehicular access can be arranged from Ledo Road, then consideration might be given for its sensitive conversion to a dwelling, so long as this could be achieved while at the same time allowing the building to be restored to its original external appearance.

Where buildings are surplus to the requirements of the IWM and cannot be easily accommodated within their future plans, great care will need to be taken in finding new uses that are both appropriate for the structures and also do not compromise the holistic setting of the camp through security issues, access and car parking requirements etc.

On the south side of the airfield the proposed

Conservation Area boundaries include the remains of one of the fighter dispersal bays, where the remains of the old blast walls are still clearly evident. This now lies within land used for agriculture and the co-operation of the landowner and tenant farmer should be sought to ensure the long-term well survival of this feature.

8.0 POLICIES TO PRESERVE THE CHARACTER OF THE AREA

8.1 Re-use of existing buildings

It is generally accepted that the best way of securing the upkeep of historic buildings is to keep them in active and economically viable uses. Within the Conservation Area there is a presumption in favour of retaining all buildings of historic or architectural interest, together with those that make a positive contribution to the character or appearance of the Conservation area, whether listed or not. Where existing historic buildings at Duxford have no use identified by the IWM it maybe appropriate to identify possible new, but compatible, uses. At Duxford this situation is most likely to arise on the North Camp, since the buildings on the South Camp are in use either accommodating primary exhibits, or in a secondary role providing ancillary accommodation in support of main functions of the Museum.

Many of the buildings on the North Camp are relatively simple, multi-cellular structures (such as the barrack blocks), which could lend themselves to a number of uses (such as offices, or even residential, maybe in the form of live-work units). However, in introducing such uses on the site (and aside from the planning issues set out in the 2004 Local Plan or the emerging Local Development Framework) it will be important to consider the impact that such uses might have on the spaces between the buildings, which are equally important to the wellbeing of the Conservation Area. All new uses will bring with them a requirement for car parking, but other issues such as requirements for fencing, private external spaces, externally sited plant, accommodation of refuse bins etc all have the potential to impact on the Conservation Area and the setting of the listed buildings it contains. Any application for change of use of surplus buildings on the site will need to clearly show how these external issues are to be resolved, as well as how the buildings are to be adapted internally.

8.2 New buildings

Any new buildings to be introduced into the

either the North or South Camp will need to be carefully designed and sited so as to minimise their impact on the overall Conservation Area and the setting of the many individual listed buildings contained within it, together with the impact on the day to day functions of the Museum and the operational airfield. Consideration might be given to siting new buildings in spaces left following the demolition of previous structures, with the new buildings replicating the massing of the previous structures, but in a contemporary (rather than pastiche) manner. Such locations could include the site of the H block barracks adjacent to Building 213 on the North Camp and the site of the 1917 Repair Hanger on the South Camp. The latter site is extremely sensitive with Grade II* listed Hangers on either side and other Grade II listed buildings in close proximity. The need for new buildings will principally be linked to the requirements of the IWM (and therefore identified in the long-term strategy for the site recommended above), but there may also be a case to consider 'enabling development' as set out in the English Heritage document *Enabling Development and the Conservation of Heritage Assets* (March 1999) and supplemented with a practical guide to assessment published in June 2001. The issues surrounding enabling development are considered in more detail below.

Any new buildings should be sited so as to respect the formal grid layout and the principle open spaces within the camp, along with any trees contained within those spaces. The scale of any new buildings will need to be carefully considered to respect the scale and massing of adjacent structures (and in particular that of any nearby listed buildings). Due to the presence of the hangers and museum buildings, the South Camp is capable of accommodating a wider variety of built form than on the North Camp, where the majority of structures have a smaller scale and quasi-domestic form. Materials should generally reflect the limited palette used within the camp, though there may be a case to consider appropriate contemporary materials where it can be demonstrated that this would positively enhance the Conservation Area and the setting of any nearby listed buildings. New landscaping associated with new buildings should seek to develop the grid of tree planting established in the interwar period to provide camouflage, particularly within the North Camp.

8.3 Enabling Development

In respect of enabling development it should

be noted that *'the case for enabling development ultimately depends on demonstrating that the cost of repair (and, where appropriate, optimum beneficial use) plus other valid development costs...is greater than the value on completion. Since optimum uses, costs and values fluctuate over time, the case can only properly be considered in the context of a specific application, whose assertions should normally be tested by first offering the property on the open market.'* (English Heritage Enabling Development and the Conservation of Heritage Assets 1999). The majority of the buildings at Duxford appear to be capable of conversion to beneficial new uses without requiring excessive repairs or alterations that would render such works uneconomic and therefore make enabling development necessary. Certainly the case for any enabling development has yet to be made and would appear to be premature.

In considering any application for enabling development English Heritage believes that there should be a presumption against any enabling development that does not meet **all** of the following criteria:

1. The enabling development will not materially detract from the archaeological, architectural, historic or landscape interest of the asset, or materially harm its setting.

Comment: Enabling development that involves full or partial demolition of buildings or significant new-build structures inserted between listed buildings, are likely to detract from the character and appearance of the Conservation Area and the setting of the listed buildings. As such this type of development is likely to result in at least some material harm.

2. The proposal avoids detrimental fragmentation of management of the heritage asset.

Comment: Currently both the North and South Camps are managed as a single entity by the IWM. Any enabling development that required the formal sub-division of the site is likely to be detrimental.

3. The enabling development will secure the long term future of the heritage asset, and where applicable, its continued use for a sympathetic purpose.

Comment: Any enabling development that is of significant size, requires a prominent location, affects the viability of the Museum or the active use of the airfield is likely to result in harm and would therefore be counter productive.

4. The problem arises from the inherent needs of the heritage asset, rather than the circumstances of the present owner of the purchase price paid.

Comment: It has yet to be determined that there is a 'problem' that justifies enabling development.

5. Financial assistance is not available from any other source.

Comment: Enabling development is generally regarded as a 'last resort' and all other sources of financial assistance must be investigated first.

6. It is demonstrated that the amount of enabling development is the minimum necessary to secure the future of the heritage asset, and that its form minimises disbenefits.

Comment: In order to 'secure the future of the heritage asset' it is first important to find appropriate and viable new uses for any buildings surplus to the needs of the IWM and further enabling development is unlikely to be justified.

7. The value of the survival or enhancement of the heritage asset outweighs the long-term cost to the community (i.e. the disbenefits) of providing the enabling development.

Comment: The sequential test requires that the case for enabling development needs to be made first, and then for its impact to be assessed. As previously stated, the case for enabling development has not yet been made.

Bailey Bridge	Prefabricated, sectional steel bridge used by the armed forces to form temporary bridges in theatres of war.
BEF	British Expeditionary Force
Belfast Truss	Composite timber truss developed in Ulster to create large span industrial spaces for the flax industry and developed to provide the wide clear spans necessary for early aircraft hangers in the latter years of WWI.
Brick voussoirs	Special shaped, tapering bricks used to form a 'flat arch' over a window or door opening
Dope	A treatment applied to the fabric covering on the wings and fuselage of early aircraft to shrink the fabric and provide a taught skin.
FFMT	Field Force Motor Transport. From April 1923 until August 1941 Duxford was home to 19 Squadron, designated as a mobile (expeditionary) squadron that could, therefore, become part of the British Expeditionary Force (BEF).
NAAFI	Navy Army and Air Force Institutes; a canteen for members of the armed forces run by the NAAFI.
PSA	Property Services Agency; Government agency (now disbanded) responsible for looking after MoD and Crown Estates.
RAF	Royal Air Force; formed on 1st April 1918 through the amalgamation of the RFC and RNAS.
RFAC	Royal Fine Arts Commission.
RFC	Royal Flying Corps; the precursor to the RAF.
RNAS	Royal Navy Air Service.
R/T	Radio Transmission
Somerfield track/Square mesh track	Wire mesh reinforcement for grass runways.
Steel plank runway	– Runway made from prefabricated planks of pierced steel
TDS	Training Defence Station
Tympanum	The semicircular panel under a half-round arch and over a door (originally found in Norman/Romanesque architecture)
USAF	United States Air Force
W/T	Wireless Transmission
WWI	1st World War (1914-18)
WWII	2nd World War (1939-45)

APPENDIX B: RELEVANT PLANNING POLICIES

Cambridgeshire Structure Plan (adopted October 2003)

- PI/2 Protection of sites of archaeological, historical or architectural value.
- P7/6 Local authorities will protect and enhance the distinctiveness of the historic built environment.

South Cambridgeshire Local Plan (adopted February 2004)

This section summarises the main Local Plan policies that are relevant to Conservation Areas.

- SE10 Protected Village Amenity Areas.
- HG10 The design and layout of residential schemes should be informed by the wider character and context of the local townscape and landscape.
- HG12 Extensions and alterations to dwellings should be in keeping with local character.
- EM6 Small scale employment in villages.
- SH6 Resistance to loss of shops in villages.
- CS7 Utility companies to be urged to place pipes, fibres, wire and cables underground where this would not have unacceptable environmental impacts.
- CS8 Location of telecommunications installations to minimise visual impact.
- CS9 Protection of village pubs and recreational facilities.
- EN1 Importance of maintaining character and distinctiveness.
- EN4 Protection of the historic landscape, whether or not they are statutorily designated.
- EN5 Retention of trees and hedges in new developments.
- EN15 Protection, preservation and enhancement of known and suspected sites of archaeological importance.
- EN16 Public access to archaeological sites and records.
- EN17 Building preservation notices and spot listing of buildings of archaeological or historic interest to protect unlisted buildings.
- EN18 Presumption against demolition of Listed Buildings.
- EN19 Recording and salvage if consent for demolition is granted.
- EN20 Unsympathetic extensions to Listed Buildings.
- EN21 Preservation or salvage (including public record) of fabric or features of Listed Buildings where consent for extensions or alterations is granted.
- EN22 Imposition of conditions to protect the fabric and character of buildings.
- EN23 Preservation of the character of roofs of Listed Buildings, in particular long straw and gault clay roofs.
- EN24 Use of planning powers to secure the sound repair of Listed Buildings.
- EN25 Maintenance of register of 'buildings at risk'.
- EN26 Considerations to be applied when considering the conversion of Listed Buildings to new uses.
- EN27 Applications for planning permission and Listed Building consent will not be considered separately.

- Requirement for the consideration of Listed Building applications and planning applications, including the need to consider the full effects of proposals on the building and its setting.
- EN28 Requirement to submit illustrative and technical material to allow the impact of proposals affecting a Listed Building, its curtilage and wider setting.
- EN30 Requirement for applications for planning permission in Conservation Areas to be accompanied by sufficient details to allow their impact to be assessed.
- EN31 High quality of design, planting and materials connected with landscaping of developments in Conservation Areas.
- EN32 Controls over consent for demolition of buildings in a Conservation Area.
- EN33 Salvage of materials and pictorial record if consent for demolition in a Conservation Area is granted.
- EN34 Retention of the character, materials, features and details of unlisted buildings in Conservation Areas.
- EN35 Restrictions of permitted development rights to safeguard elements of the character of Conservation Areas.
- EN36 Control over external cladding which affect the character of Conservation Areas.
- EN37 Control over location and design of meter boxes on Listed Buildings.
- EN38 Need to retain traditional shopfronts and their details.
- EN39 Controls over design of advertisements and signs on Listed Buildings and in Conservation Areas.
- EN40 Controls over design of advertisements and outside Conservation Areas. Area of Special Control is in place.
- EN41 Coordination of planning permissions and consent for demolition or felling of trees in Conservation Areas.
- EN42 Promotion of enhancement schemes in Conservation Areas.
- EN43 Statutory undertakers and utility companies should consult and seek to agree works in Conservation Areas.