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“Hidden in plain sight?”

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The Charles Close Society was founded in 1980 to bring together all those with an interest in the maps and history of the Ordnance Survey of Great Britain and its counterparts in the island of Ireland. The Society takes its name from Colonel Sir Charles Arden-Close, OS Director General from 1911 to 1922, and initiator of many of the maps now sought after by collectors.

The Society publishes a wide range of books and booklets on historic OS map series and its journal, *Sheetlines*, is recognised internationally for its specialist articles on Ordnance Survey-related topics.

Hidden in plain sight?

John Ambler

The chance purchase of two-and-a-half-inch (1:25,000) sheet SU85 Farnborough (Hants) at a flea market led me into this analysis of how security deletions impacted upon the depiction of the Royal Aircraft Establishment (RAE) and its airfield. The map with publication date 1958 was a 1961 reprint (with minor changes) and carries print code B/. The feature which immediately attracted my attention was the absence of any runways or other infrastructure associated with Farnborough airfield (now Farnborough International Airport) located to the south of Farnborough town centre. I immediately came to the conclusion that as the airfield was closely associated with the Government's military aviation research establishment, this was likely to be a security deletion. Perversely, some of the buildings of RAE itself and the railway which ran through the streets from Farnborough station to the RAE were shown. If a foreign power were intent on intelligence gathering that might be damaging to the British national interest, I would have thought the research establishment itself would be a better target than the runways which were easily visible from adjacent roads and the air.

I was already aware of security deletions affecting the depiction and/or labelling of "sensitive" locations, but it was the fact that Farnborough had been opened regularly to the aerospace trade and the public for over a decade when the map was reprinted that surprised me the most. The first Farnborough Air Show in 1948 was a week-long event, so anybody intent on intelligence gathering would have been able to explore and map significant areas of the airfield unchallenged. The revision information on the map includes "Compiled from 6-inch sheets last fully revised 1909-35. Other partial systematic revision 1938-56 has been incorporated", and "Made and published by the Director General of the Ordnance Survey, Chessington, Surrey 1958. Reprinted with minor changes 1961". Fascinated by the anomalies highlighted by the derivation of the two-and-a-half-inch map, I decided to review how the OS mapping of RAE Farnborough had been handled at various scales over the years since it came into existence. Map extracts are from my own collection unless otherwise credited in the captions.

To set the scene, *Figures 1 and 2* show the area under consideration before any development was shown on OS mapping on one-inch Third Edition, and six-inch maps published in 1914 and 1898 respectively. The dating of my Third Edition (outline) map is based on information in the cartobibliography in Hellyer and Oliver (2009) as the map itself had been dissected, mounted on linen, and placed into covers by Alfred Wilson, map and bookseller of 18 Gracechurch Street, London, who had retained very little marginalia, only half of the key being pasted on the rear, and no revision information at all. The price of 2s (10p) suggests that the map is no earlier than State 4 of 1914 – all higher numbered states also date to 1914, so I am reasonably confident this shows the last depiction of the area prior to publication of the Popular series. Note the positions of Cove Reservoir and Ively Farm on the one-inch map and the small hillock "Jersey Brow" and Swan Inn on the larger scale plan which are points of

reference which persisted through several generations of mapping and are highlighted in map extracts with overlaid blue crosses.

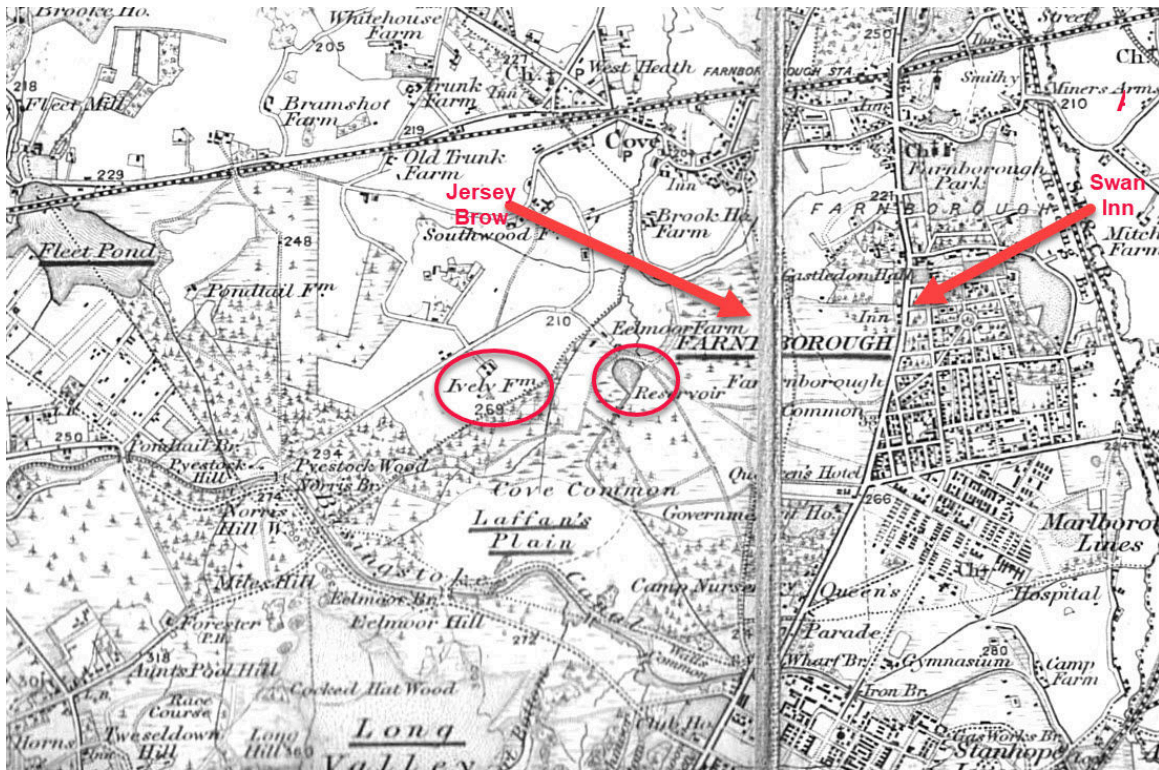


Figure 1: One-inch Third Edition 1914.

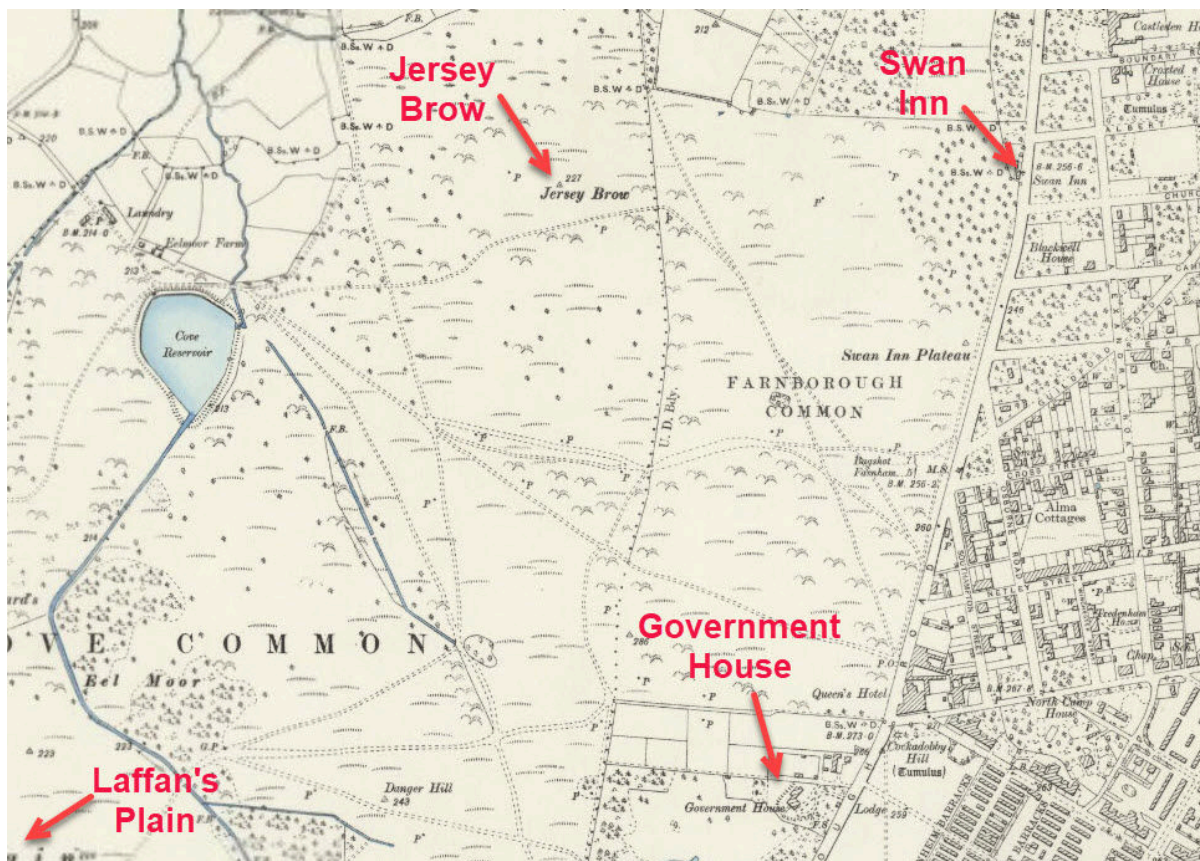


Figure 2: 6-inch 1898 (NLS).

The Swan Inn survives today on the A235 Farnborough Road on the junction opposite the Farnborough Air Sciences Trust (FAST) Museum, and the position of Jersey Brow approximates to the Airport Fire Station inside the security fence adjacent to Templar Avenue. Farnborough Common and Cove Common which are now home to Farnborough Airport can be seen to have been mainly unimproved scrubby land criss-crossed by tracks and small watercourses.

Large Scale Plans

The 6-inch and 25-inch plans essentially tell the same story, so I have concentrated on the smaller scale. The first sign of any aviation development at Farnborough (*Figure 3*) is seen on the plan published in 1912 (revised 1909) in the form of a balloon factory to the east of Jersey Brow (shown with a triangulation point at 227ft above sea level).

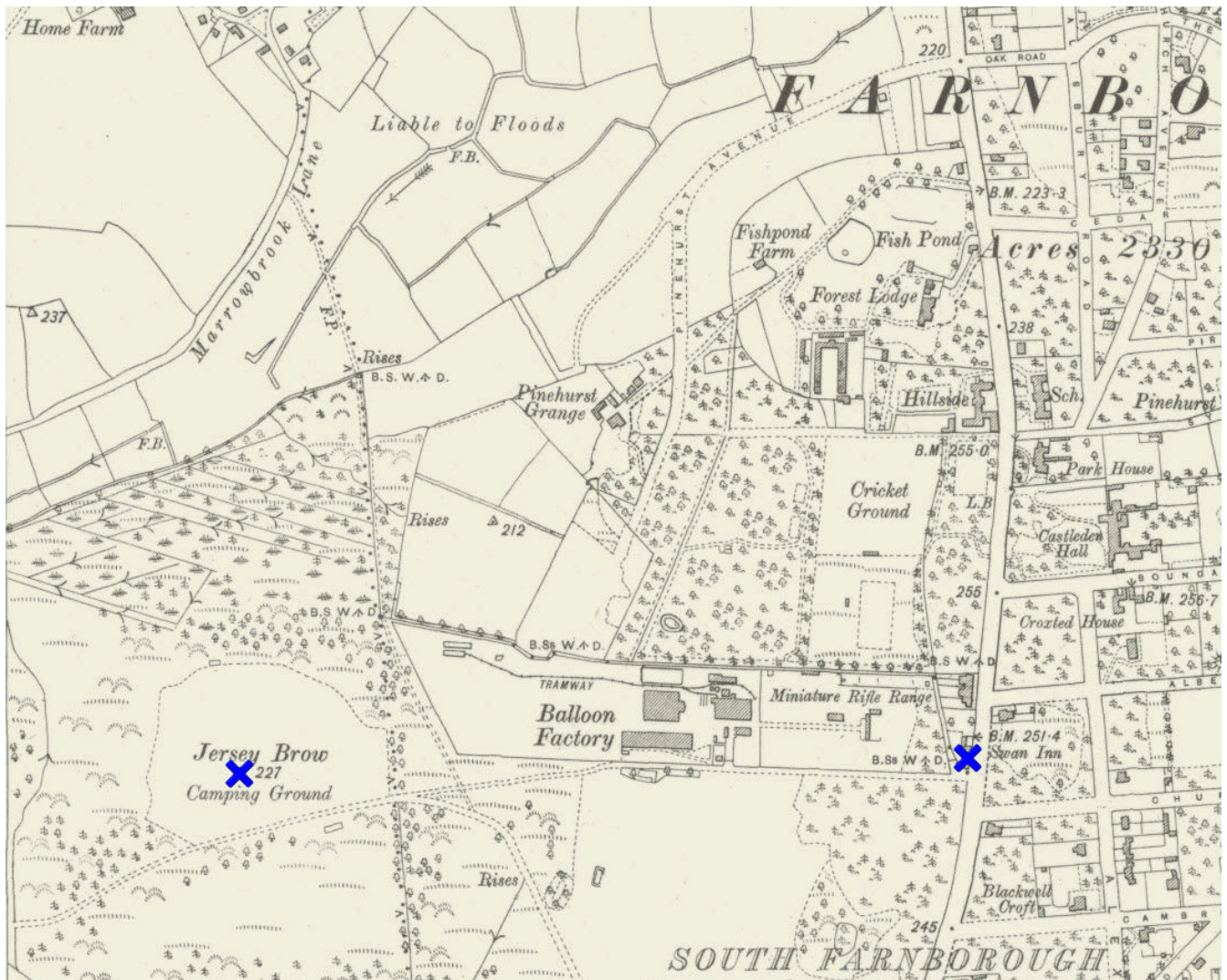


Figure 3: The Balloon Factory as depicted on the 6-inch editions of 1912 and 1920 (NLS).

The Army Balloon Factory (part of the Army School of Ballooning) was established in three large buildings around 1904 and the facilities included an internal tramway from the main buildings to a smaller structure at the western end of the site, and my guess would be that this was where hydrogen gas was

generated and kept separate for safety reasons until needed. As well as dirigible balloons (*ie* balloons able to navigate through the air under their own power), the factory experimented with Samuel Cody's war kites and powered aeroplanes, the first UK powered flight being made on Laffan's Plain about a mile south of the factory by Cody himself in 1908. Jersey Brow and Swan Inn Plateau to the south were both labelled "Camping Ground", probably associated with the extensive Army barracks at Aldershot to the south-east. The site came under civilian control in 1909 and was renamed the Royal Aircraft Factory in 1912 as depicted on the RAF plan of Farnborough Aerodrome and Surrounding Buildings (*Figure 4*) which is reproduced with the kind permission of FAST Archive.

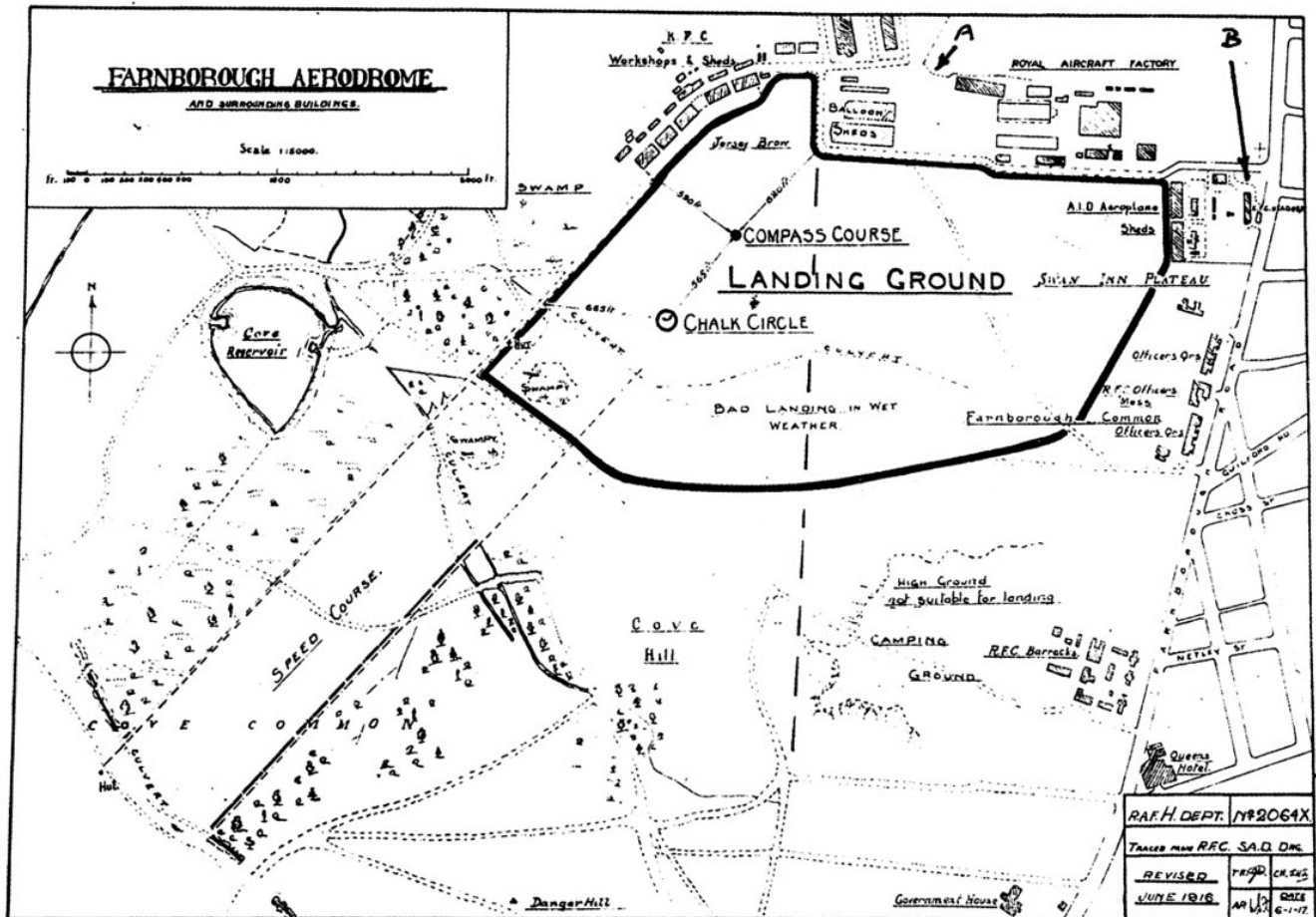


Figure 4: Royal Aircraft Factory plan of Farnborough Aerodrome, revised June 1916 (FAST Archive).

The next revision of the 6-inch plan for Hampshire published in 1920 (revised 1912-13) was essentially unchanged from the 1912 edition. However, the two subsequent revisions available from National Library of Scotland (NLS) published in 1932 (revised 1930) and 1946 (revised 1938) (*Figure 5*) were essentially very similar to each other and both censored, the Royal Aircraft Factory site (formerly the Balloon Factory) was no longer shown. By this date, the site had been renamed again (in 1918) as the Royal Aircraft Establishment (RAE) to avoid confusion with the Royal Air Force, formed in January 1918 and whose acronym was identical to that of the Royal Aircraft Factory. Although the factory itself was

deleted, part of the railway branch from Farnborough station goods yard (reputedly constructed by prisoners of war in 1917), was depicted but apparently terminating at the eastern end of the housing estate known as Rafborough, which had been built to provide accommodation for RAE workers. The line split into a number of short sidings at its apparent terminus beside Marrowbrook Lane where there was a long narrow building or loading dock. The trackbed of the railway line into the factory site can be made out as a cleared section curving through a lightly wooded area of rough pasture to the south of Rafborough. Although the rails into the factory appear to have been removed, they actually remained in place on this section until the railway was closed in 1969. The return arm of the loop through the factory which is shown on one-inch maps published between 1920 and 1929, is depicted as an embankment running northwards to join the main line in the area labelled “Liable to Floods”. Local army installations were not censored with the extensive Pinehurst Barracks being shown in detail.

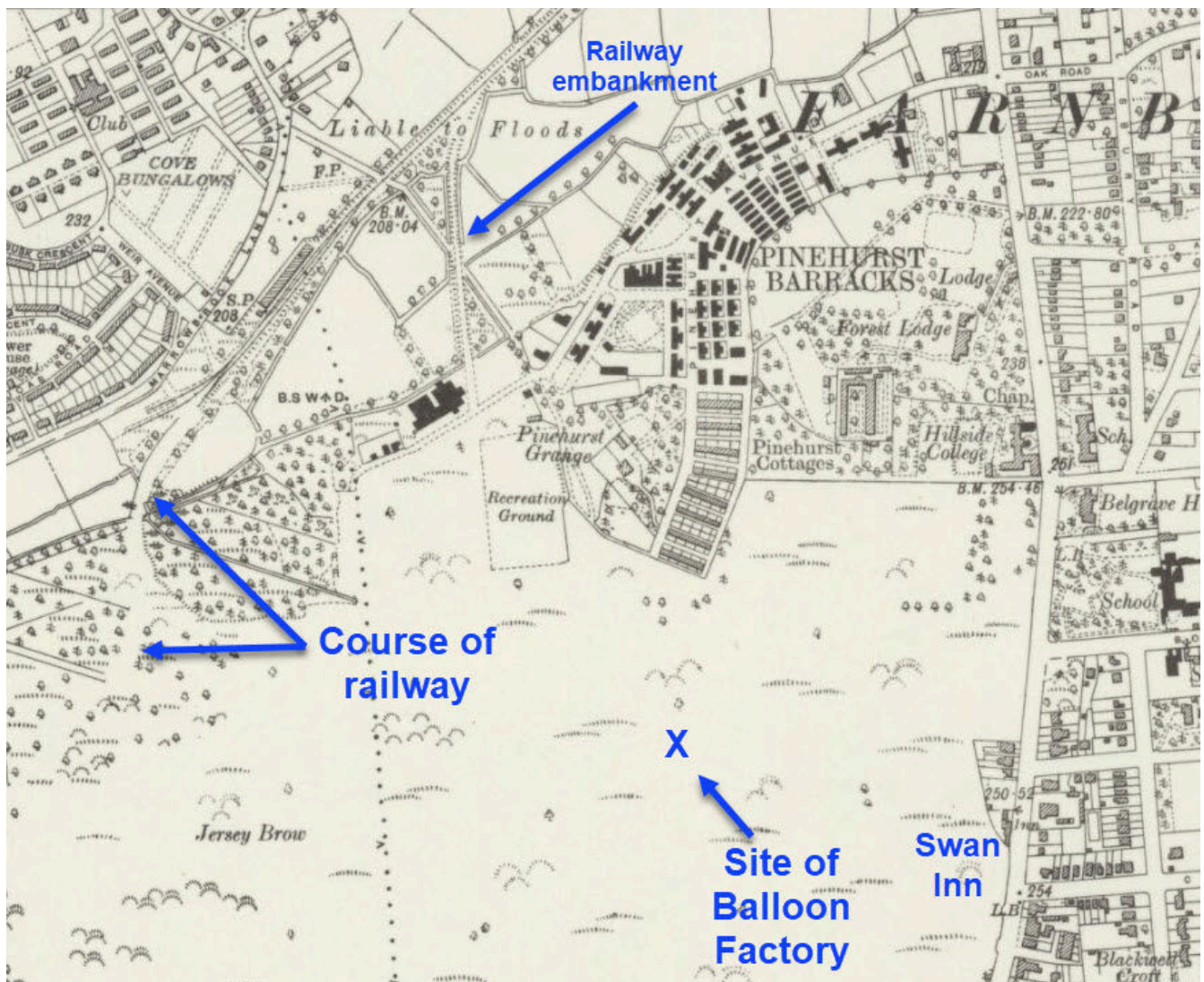


Figure 5: The site of RAE as depicted on the 6-inch editions of 1932 and 1946 (NLS).

The 1961 edition (*Figure 6*) of the 6-inch (1 in 10,560) map (Provisional Edition, revised 1930-1945, major changes 1956, boundaries 1-5-60) was much less censored than its predecessor in that it showed some buildings associated with western half of RAE and the railway that served it, but nothing on the site of the Balloon Factory which was due south of Pinehurst cottages, mid-way between Jersey Brow and The Swan Inn, and still nothing of the airfield. I have not been able to access any later issues of the 1 in 10,560 map series to determine when censorship might have ended.

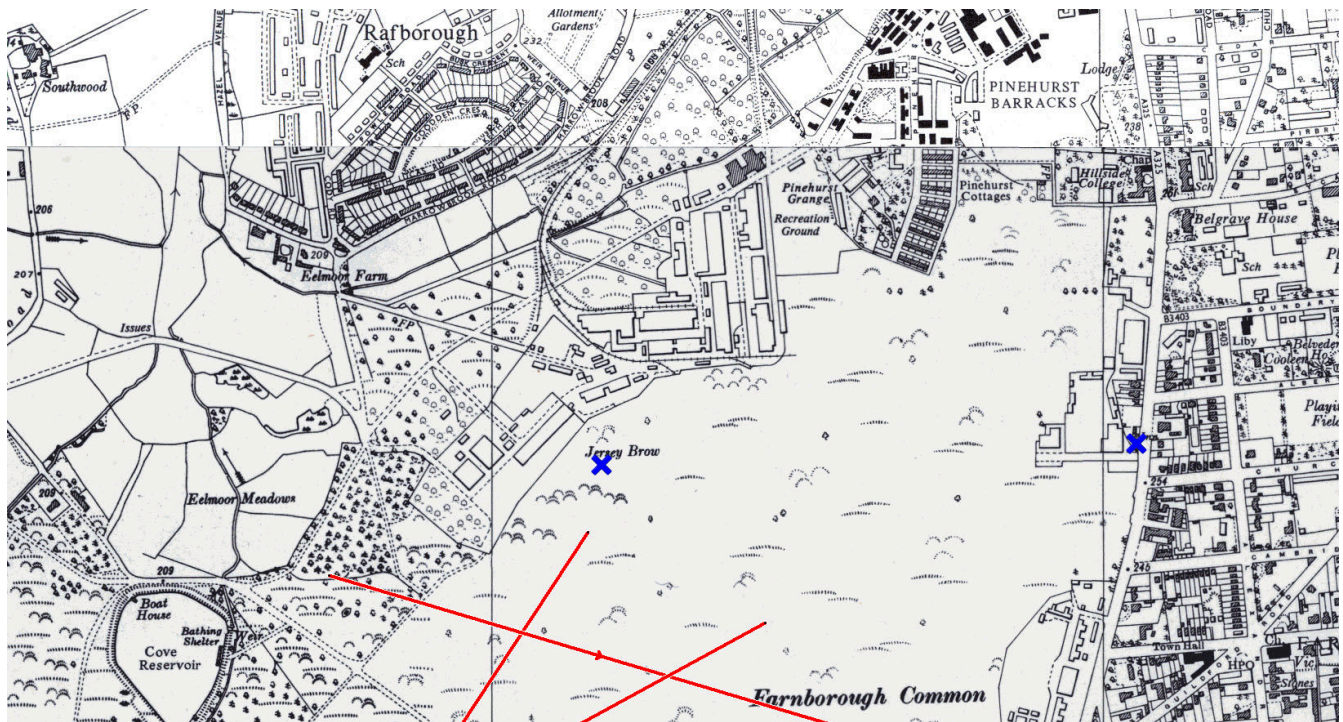


Figure 6: The site of RAE as depicted on the 1 in 10,560 sheets SU 85NE and SU 86SE in 1961, with the WW2 runways overlaid in red.

1:25,000 Maps

The First Series Sheet for Farnborough was published with two basic revision as Sheet 41/85 (Revision A) in 1949 (*Figure 7*) and as SU 85 (Revision B) in 1958 (*Figure 8*) with minor revisions B/ and B//* in 1961 and 1973 respectively (Hellyer, 2003). Both revision A and B are censored and show no detail whatsoever of the airfield. Pinehurst Cottages and Pinehurst Barracks which had been shown on the 6-inch map since the 1923 edition, were omitted on the A imprint of 1949. By the time of publication of the B/ imprint of 1961, there appears to have been a relaxation of the approach to the depiction of the RAE buildings, some at the western end of the site being shown as well as the Pinehurst Cottages and Barracks. On the 1949 edition, the railway branch is shown as terminating at the south-eastern corner of Rafborough whilst on the 1961 edition, the railway continues its course into the western end of the factory complex. No buildings are shown east of the end of the railway *ie* on the old Balloon Factory site.

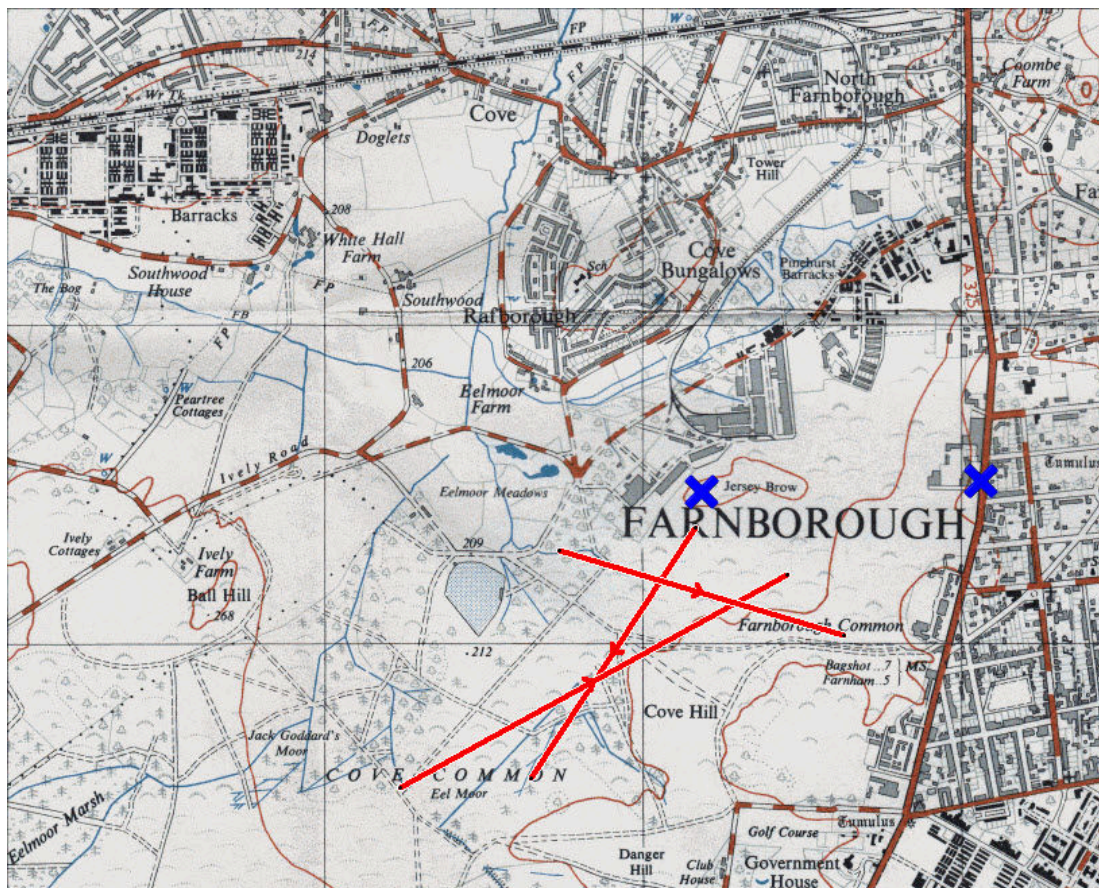
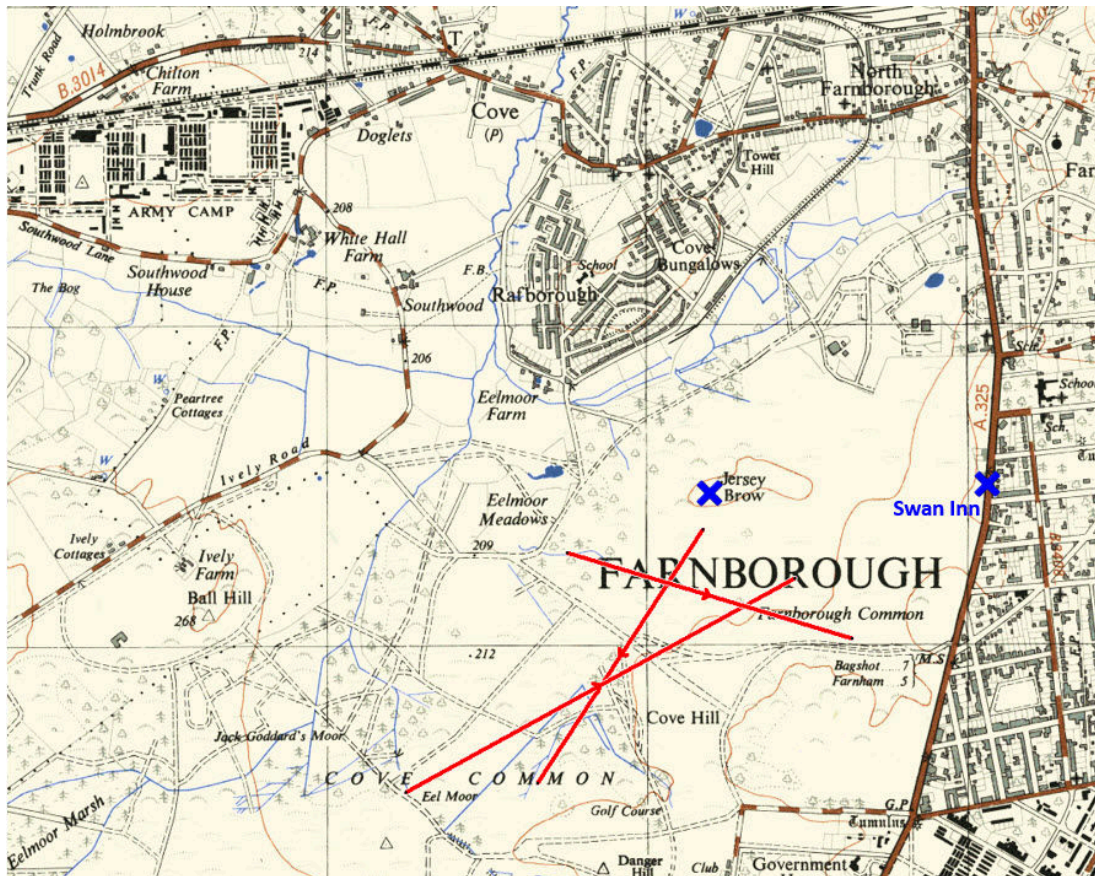


Figure 7 (top): Farnborough airfield and site of RAE as depicted on 1:25,000 sheet 41/85 of 1949 (Revision A). WW2 runways overlain in red (NLS)

Figure 8 (bottom): The map that stimulated this analysis. Site of Farnborough airfield and RAE as depicted on 1:25,000 sheet SU85 of 1961 (Revision B/).

The final imprint of SU 85 (B//* of 1973, *Figure 9*) was uncensored and shows full detail of RAE buildings including those on the Balloon Factory site, east of the surviving (though by now closed) section of railway, and the airfield runways.

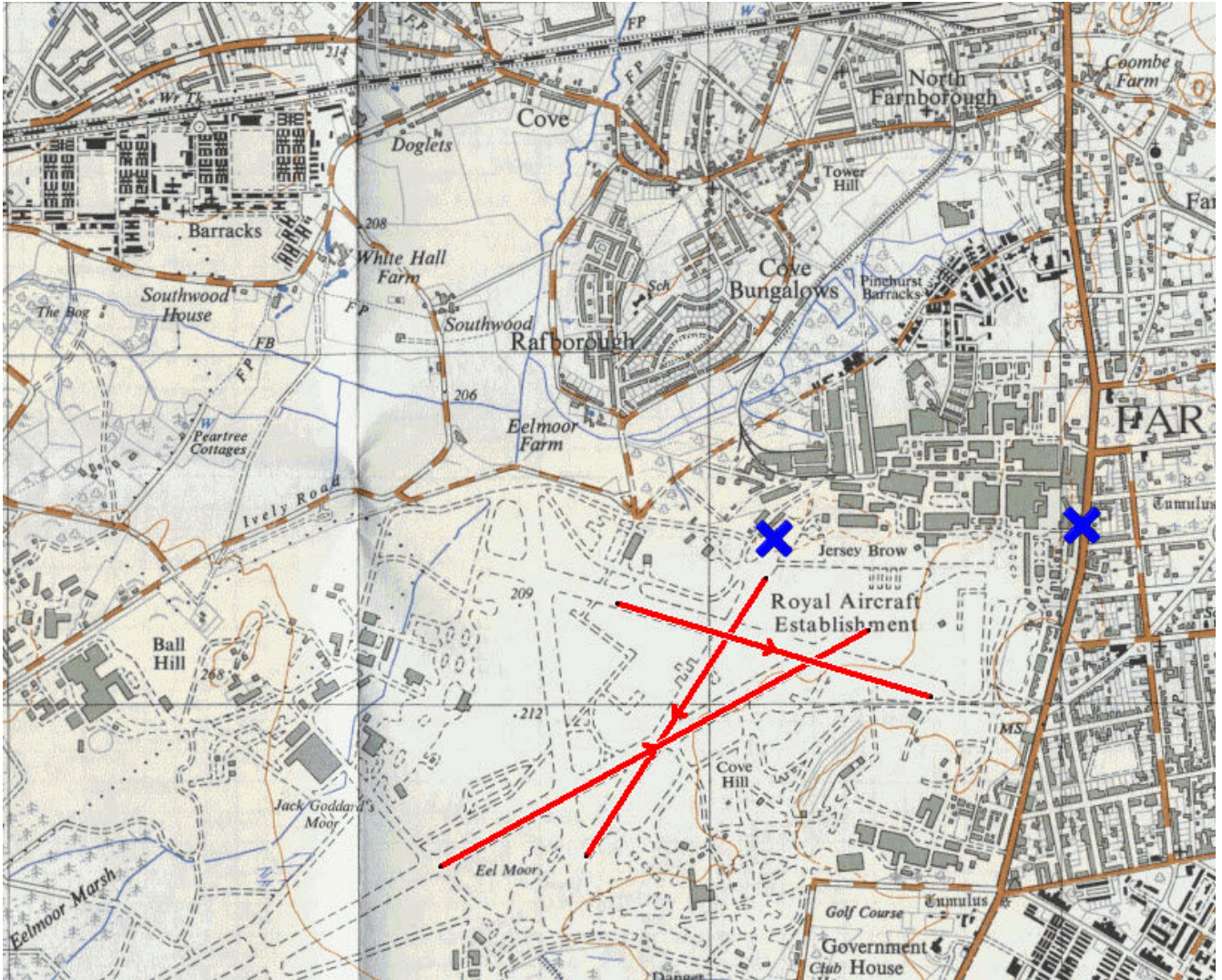


Figure 9: Farnborough airfield and site of RAE as depicted on 1:25,000 sheet SU85 of 1973 (Revision B//)*

One-inch Maps

Perhaps the most interesting history of depiction and censorship (from the cartographical viewpoint) is depicted on one-inch mapping as a result of the more frequent revisions resulting in new editions of the map. I have not managed to find any evidence of aviation activity being mapped at the one-inch scale before the Popular edition of 1920, my copy the Third Series map of 1914 being very similar to the Revised New Series map of 1896. The 1920 Popular sheet 114 "Windsor" appears to be uncensored (*Figure 10*). The "Ryl Aircraft Establishment" is clearly labelled shown as a complex of buildings served by a tramway (mineral lines and tramways symbol) which left the LSWR main line about a quarter of a mile west of Farnborough station (in the goods yard which was not shown). The tramway employed steam locomotives until its closure in 1969. It crossed Union Street, ran southwards along Elm Grove Road and crossed what is now the B3014

(Victoria Road) on the level, then ran south-westwards to enter open countryside on the way to the RAE site where there were several branches. The main line looped through the factory complex then turned northwards on a low embankment to re-join the main tramway avoiding the need for the locomotive to run around its train on a return trip from and back to Farnborough station.



Figure 10: Popular Sheet 114 'Windsor' of 1920 showing RAE, its railway, and flying tracks in detail.

Marked out in a series of solid and pecked lines on the land to the south-west of the RAE (Farnborough Common and Cove Common) were the areas labelled "Speed Track" which was straight and not quite in line with the modern main runway, and "Flying Track" which was kidney-shaped with a branch toward the factory in the north-east. I am left wondering if these labels and pecked lines were indicating features on the ground or the air corridor above the ground? A circular runway doesn't seem to make sense even with the low flying speeds of the 1920s, and the terrain indicated in earlier mapping suggests that landing here would be hazardous, so I'm wondering if this is an unusual (for the OS) and a very early case of virtual reality, i.e. the mapping of an invisible air corridor. The straight "Speed Track" was partially bounded on its eastern side by a watercourse, and on its western side by a track, but I have found no evidence in period aerial photographs for ground features marking out the "Flying Track", though breaks in

water courses west of Cove Reservoir and in the south eastern quadrant of the track might be suggestive of provision of a culvert to remove a hazard to the safe passage of vehicles or aircraft. A water course crossing the “Flying Track” near the eastern corner of Pyestock Wood however was not depicted as culverted, so interpretation is unclear.

I have seen a copy of the next edition of sheet 114 released in 1921 (thanks to Gerry Zierler) and it is unchanged from the 1920 edition, as is the edition of 1923. The 1927 and 1929 editions (*Figure 11*) have some subtle changes.



Figure 11: Popular Sheet 114 of 1929 (print code 5000/27.6000/29.500/29).
RAE no longer named.

The RAE label has been deleted and replaced by a new label “Aerodrome”, and “(Wireless Tel Sta)” was added above the large “FARNBOROUGH”. The symbols and labels for the “Flying Track” and the “Speed Track” were retained unaltered. The next edition to be published in 1931 was heavily censored (*Figure 12*). The RAE factory buildings, the street railway from Farnborough station goods yard, Farnborough housing estate, Pinehurst Cottages and Barracks, the flying tracks and the “Wireless Tel Sta” label were all deleted. Only the “Aerodrome” label added to the 1929 edition survived the censorship. Breaks in a small stream running across the site show where deletion of the railway left a witness that something had previously been shown very close to its course. Thanks to Bill Henwood, I have had sight of a copy of the 1932 reprint of sheet 114, which

confirms further censorship as the “Aerodrome” label was also removed and this was perpetuated on the 1933 issue (Figure 13).

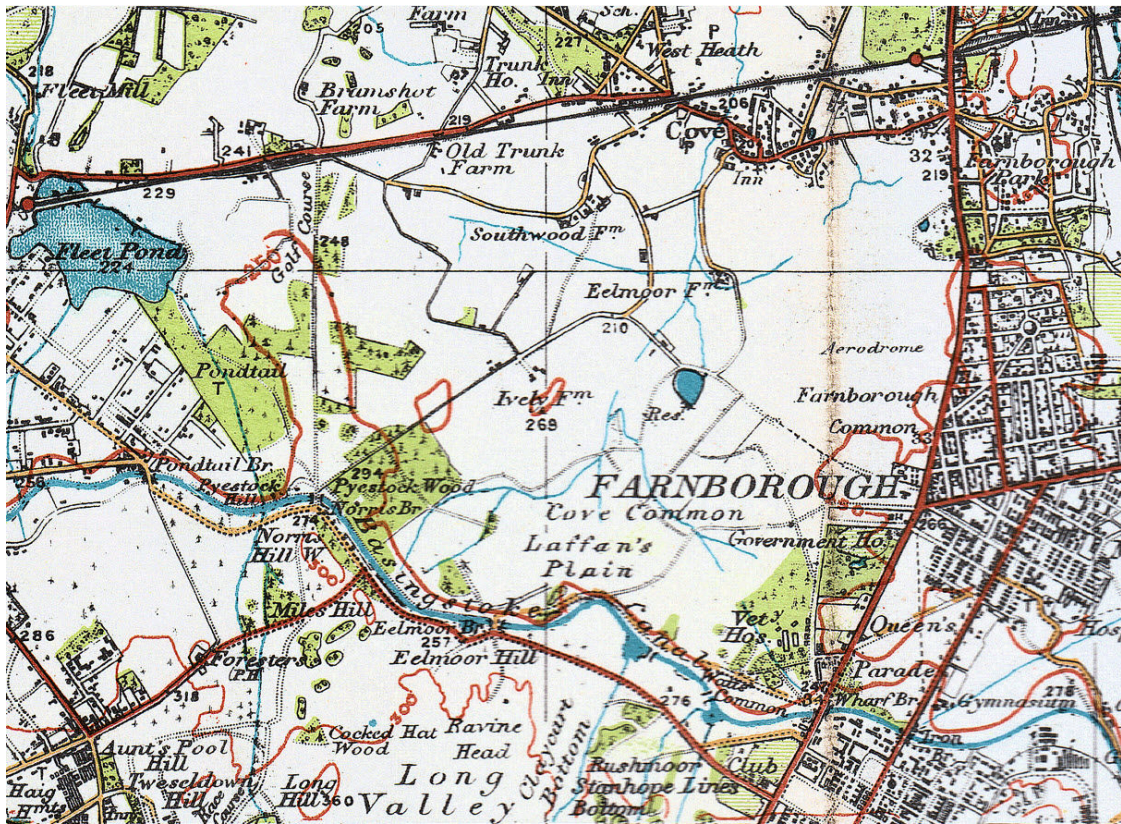


Figure 12 (top): Popular Sheet 114 of 1931 (print code 5000/27.6000/29.6500/31.2500/31).

RAE buildings and railway deleted, but “Aerodrome” label remains.

Figure 13 (bottom): Popular Sheet 114 of 1933 (print code 10,560/33). “Aerodrome” label deleted leaving no trace of RAE on the map.

My copy of the 5th Edition sheet 124 (*Figure 14*), published in 1934 (print code 35 35) was not censored as heavily as its Popular precursor. The housing at RAFborough, Pinehurst Barracks (but oddly not Pinehurst Cottages), the aerodrome label in the same location as on the pre-censorship Popular map, and most of the railway were reinstated, but not the RAE buildings. The railway's return loop northwards was excluded, probably because that section had become disused and had been lifted by then.

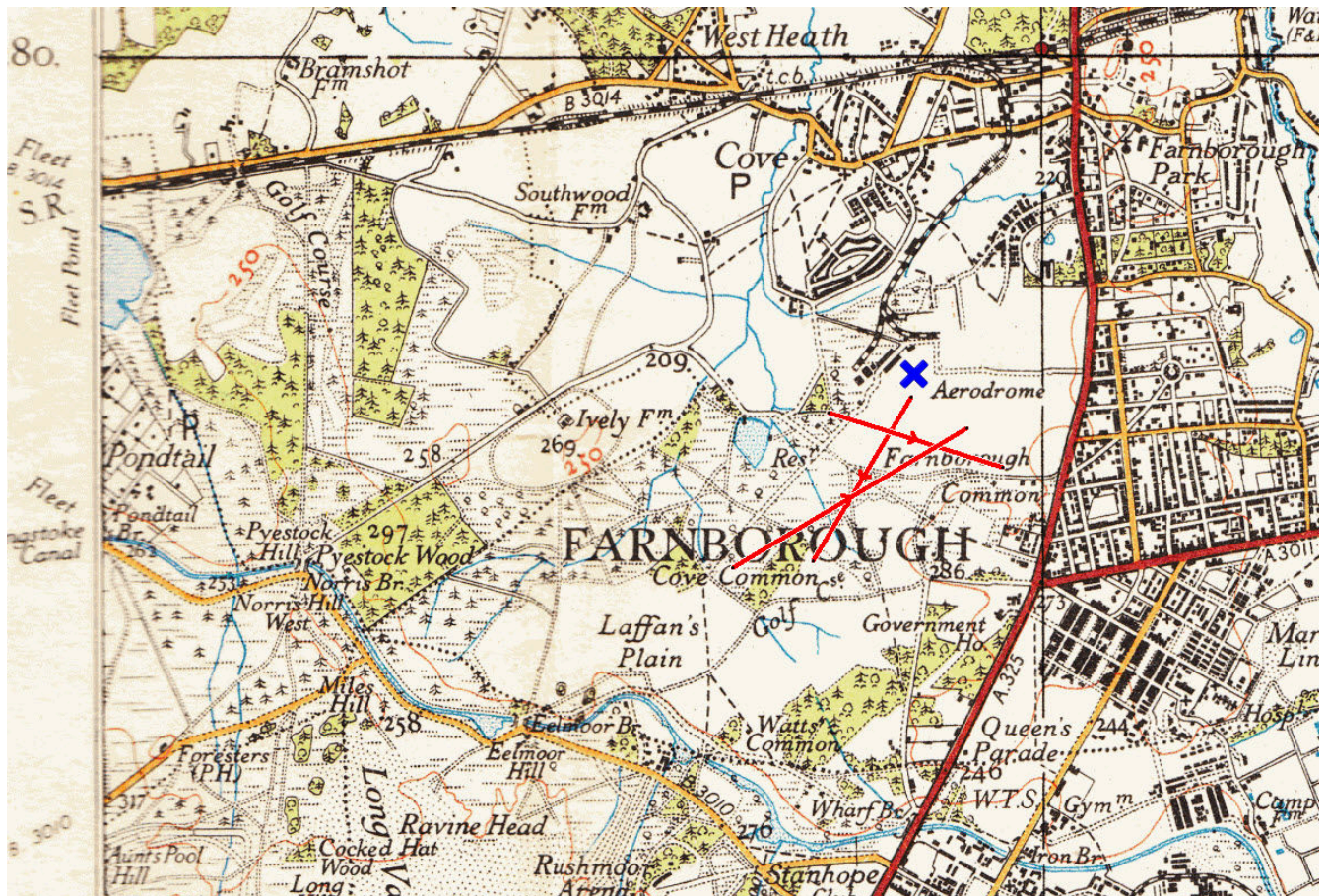


Figure 14: 5th Edition Sheet 124 (print code 35 35), 1934.

The four editions of New Popular sheet 169 (Aldershot) in my collection dating from the original, with publication date of 1940 (but probably not released until 1945), to printing F/, which had magnetic variation updated in 1957, are consistent in excluding the RAE buildings and its airfield. However, the branch railway is shown in a similar way to the 5th Edition map but with slightly less building detail at the southern terminus and reinstatement of Pinehurst Cottages. The “Aerodrome” label was once more deleted. Of the airfield infrastructure, nothing is shown on any New Popular map that I have seen. Information in the form of aerial photographs from the FAST Museum Archive, including one taken by the Luftwaffe, confirm that hard runways were laid down in WW2. The main runway ran from the south-eastern corner of the RAE site, south-west to a point approximately 1000 yards south-east of Ively Farm *ie* somewhat shorter than the current runway. A metalled road running across Laffan’s Plain, to a point just east

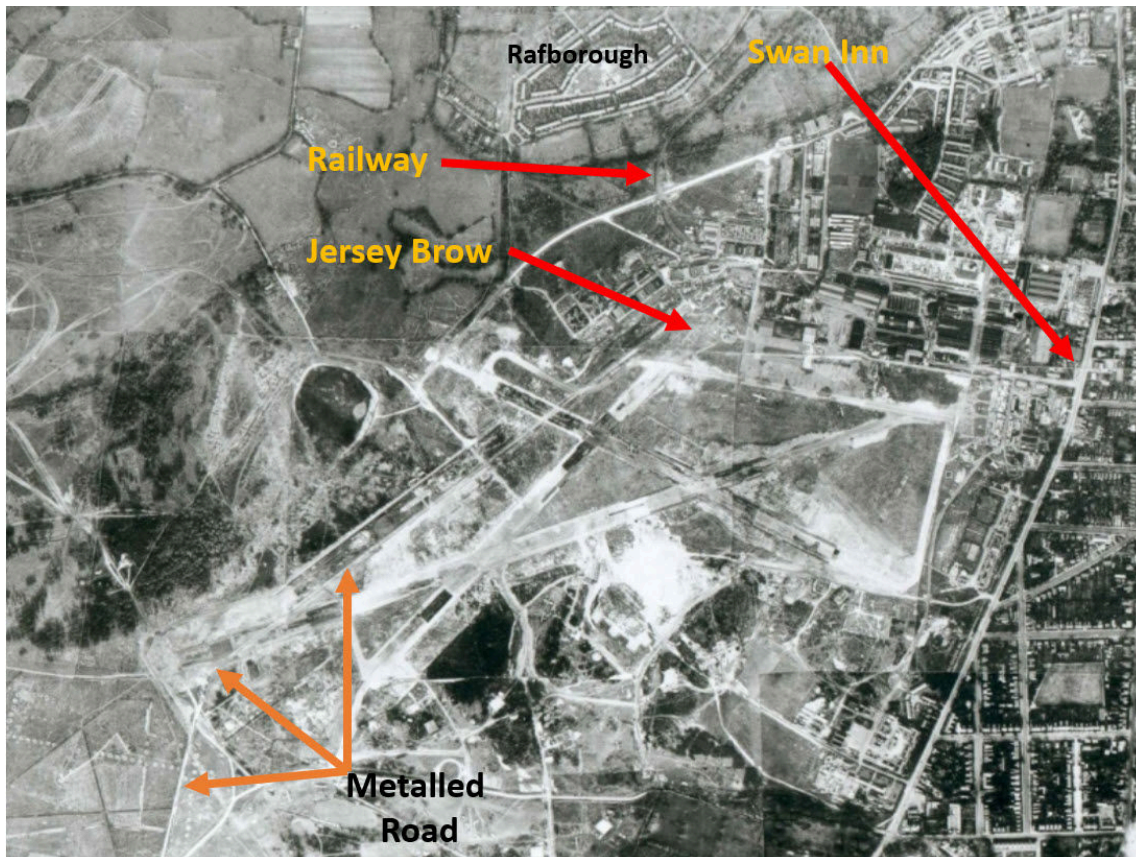
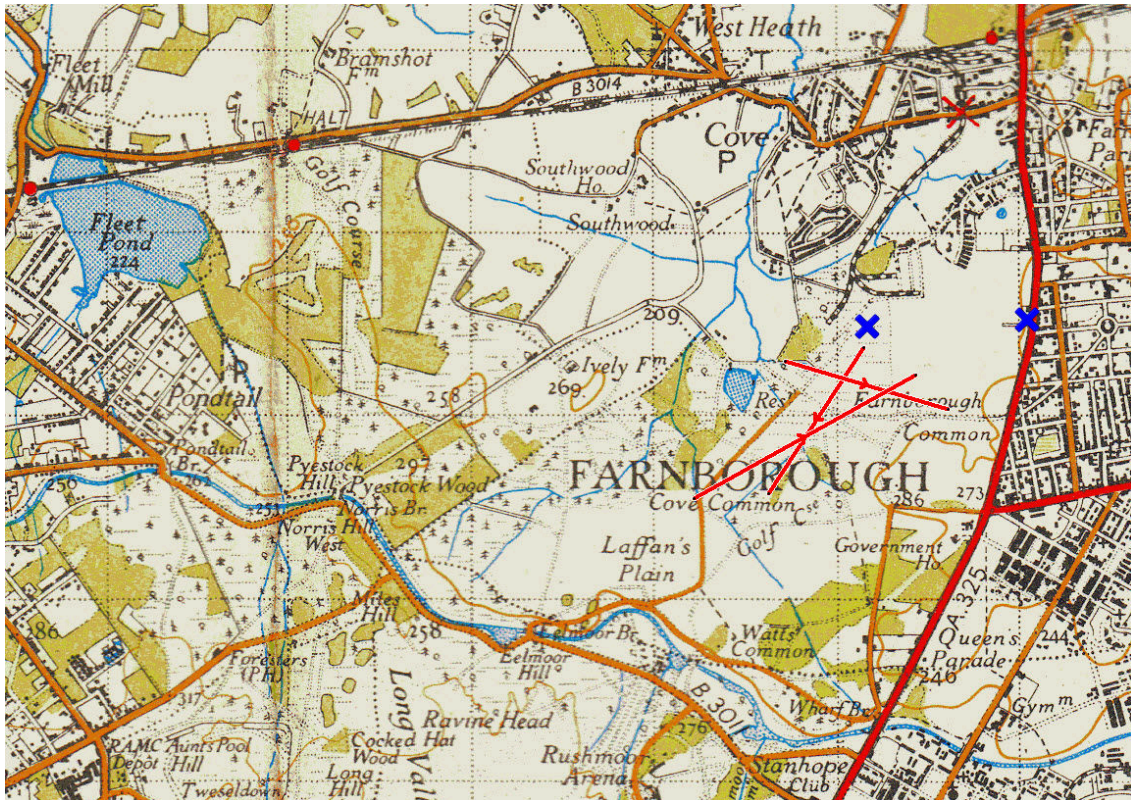


Figure 15 (top): New Popular Sheet 169, Aldershot, first issue of 1940.

WW2 hard runways overlaid in red.

Figure 16 (bottom): 1941 Aerial photo showing the hard runways, possibly under construction, and key locations indicated, including the metalled road shown only on the 1940 New Popular sheet (FAST Archive).

of Cove Reservoir was shown only on the 1940 map (*Figure 15*) and can be seen to cross the southern end of the hard runway on a 1941 aerial photograph (*Figure 16*). The road reverted to depiction as a track marked with pecked lines for the subsequent printings of the New Popular series (*Figure 17*).

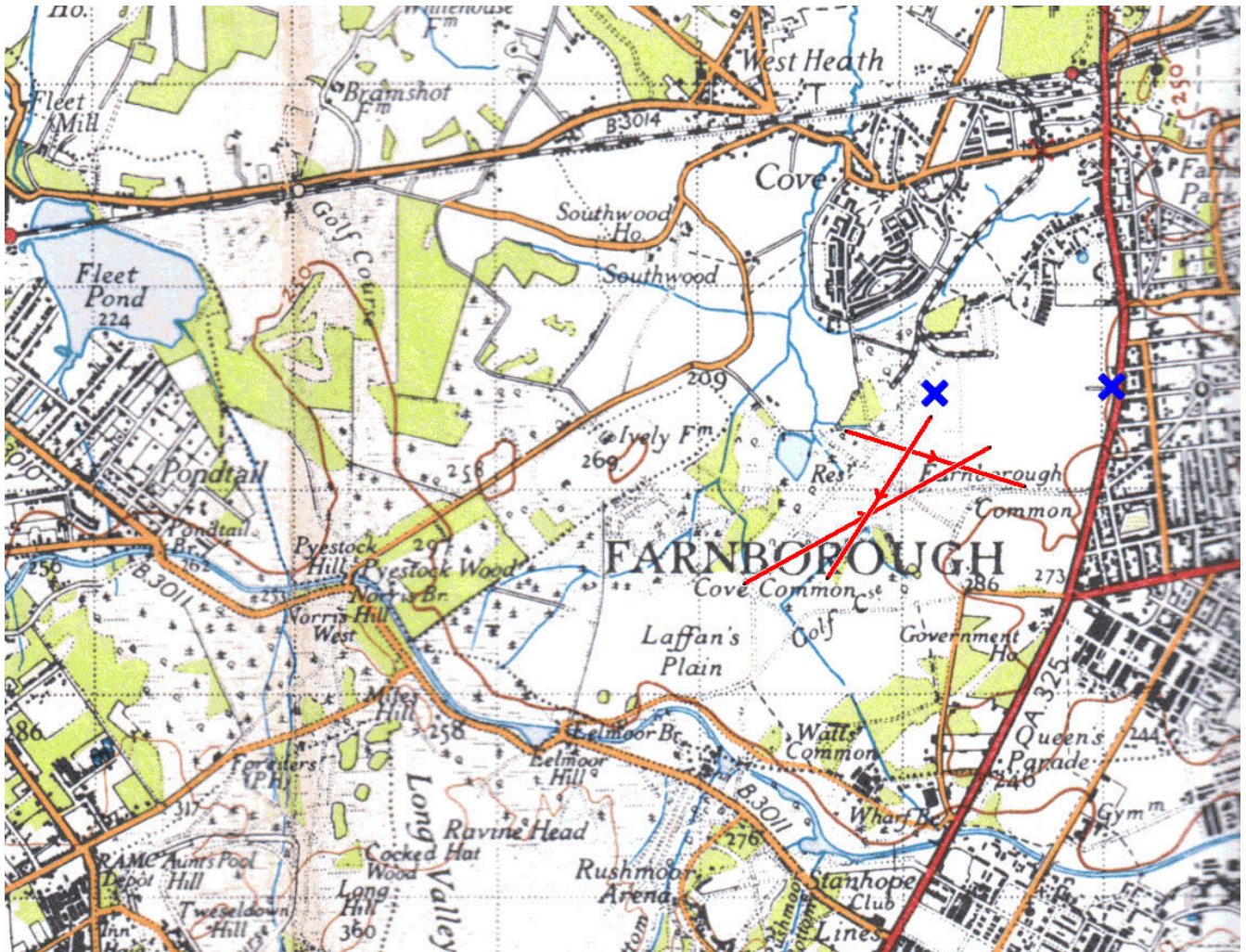


Figure 17: New Popular Sheet 169 (Revision F/) of 1957. WW2 hard runways overlaid in red.

A complex of small buildings to the south-east of Ively Farm was added to the 1949 and subsequent editions. These buildings would have been quite close to the main runway. The short lived Bramshot Halt serving the golf course to the south of the Southern Railway's main line was shown as open on the editions of 1940 and 1949 (1151) but as closed on the 1952 (F) and 1957 (F/) editions. The halt's closure c1946 is reputed to have followed an incident when a number of workmen employed building the nearby Southwood army camp were hit by a train and killed as they crossed the line.

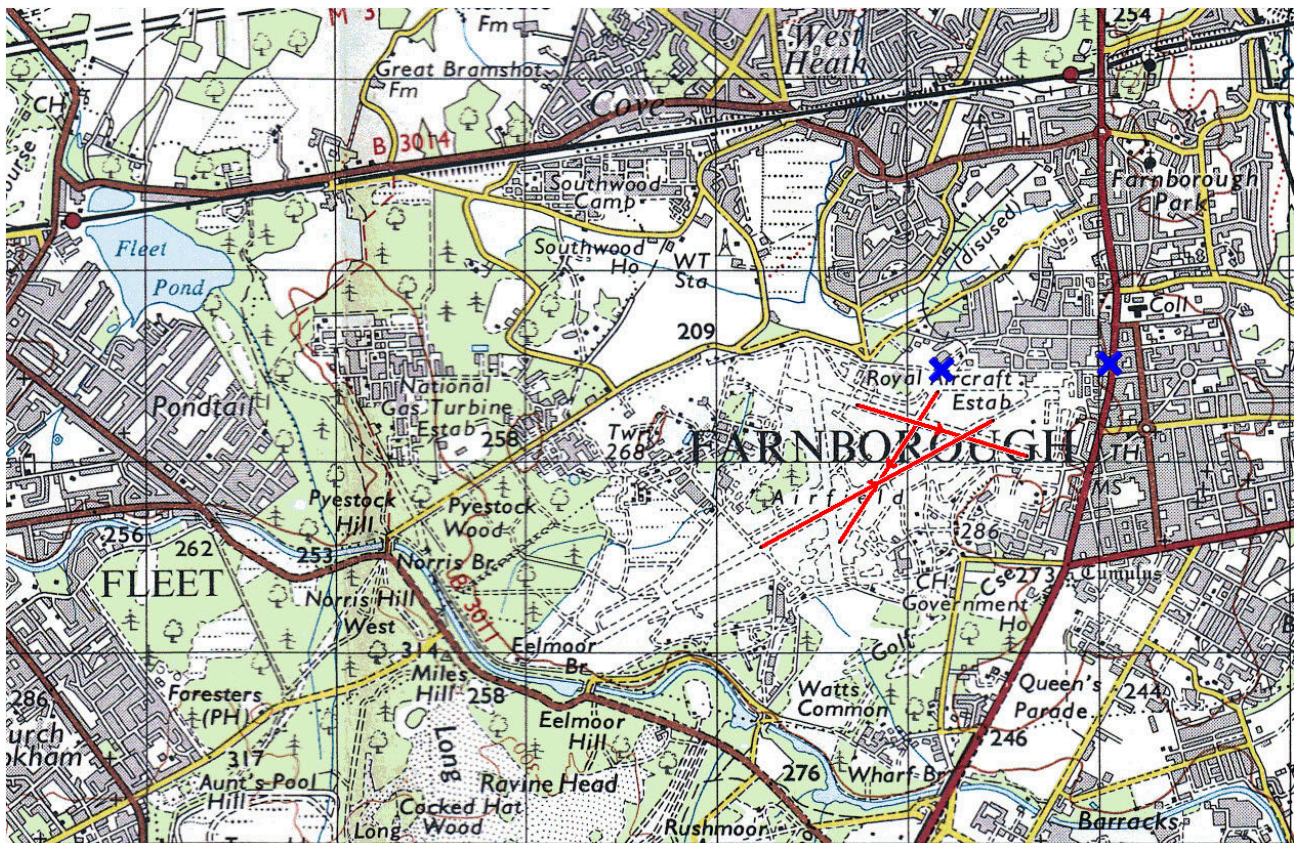
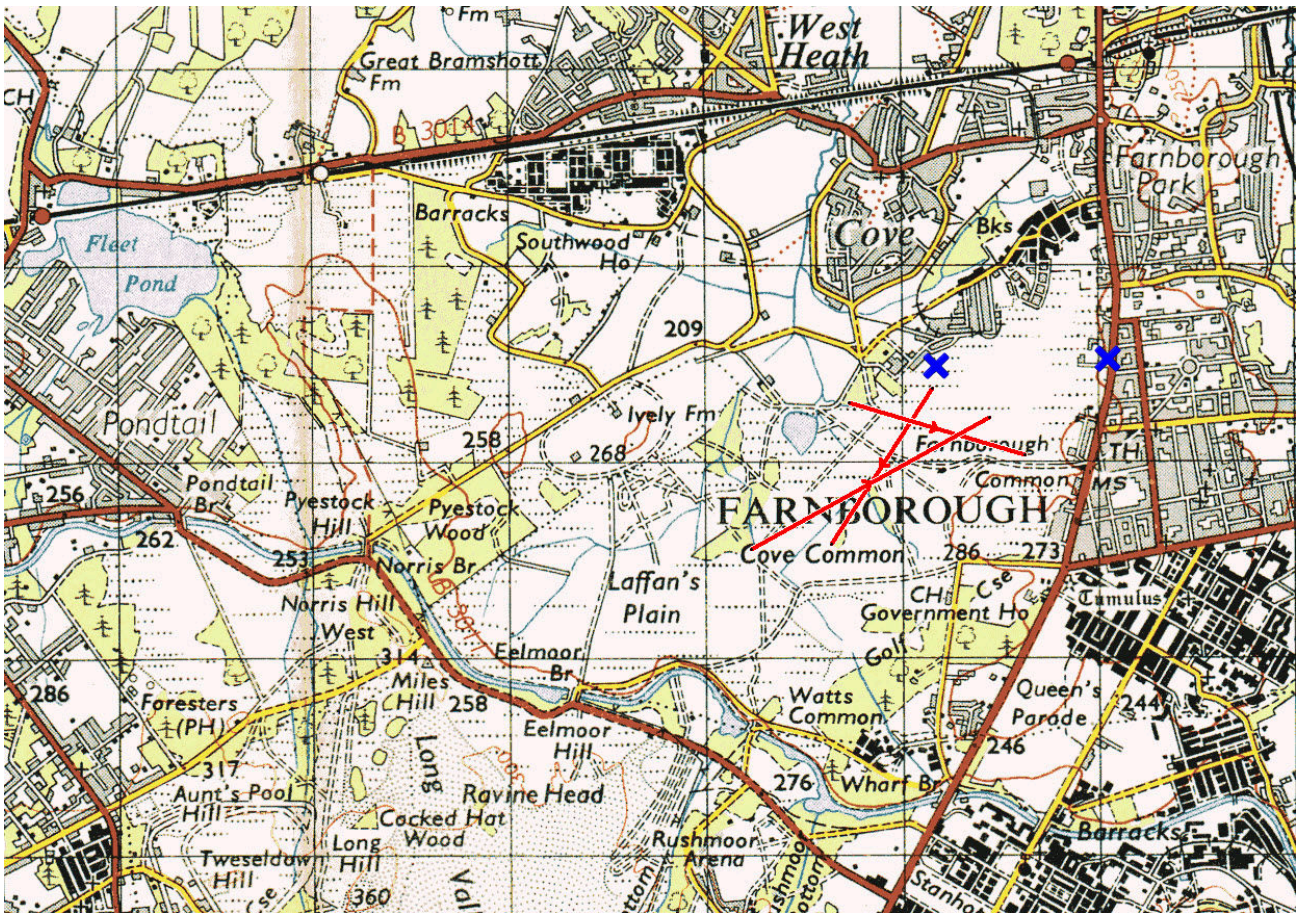


Figure 18 (top): 7th Series (Revision A/*) of 1965. WW2 hard runways overlaid in red, RAE buildings partially shown.

Figure 19 (bottom): 7th Series, 1971 (Revision B). WW2 hard runways overlaid in red. Post-war extensions to the runways and airport infrastructure are clear to see. The full extent of the RAE buildings and NGTE are shown.

Seventh Series maps in my collection with Revision codes A to B//* (1960 to 1965) show evidence of partial censorship (*Figure 18*). The RAE buildings at the end of the now simplified branch railway were shown but no features of the airfield were shown at all. Policy changed for the edition released in 1971 Revision B (*Figure 19*), which shows full detail of the runways, a much-expanded RAE including buildings on the former Balloon Factory site and, for the first time, significant development on the site of Ively Farm which ultimately became the Cody Technology Park. Also shown is The National Gas Turbine Establishment (NGTE) across the minor road to the west. The section of the branch railway south of the Victoria Road level crossing which closed in 1969 was still depicted with the “Mineral lines, sidings and tramway” symbol but labelled as “Disused”.

1:50,000 and Landranger Maps

The First Series 1:50,000 maps in my collection date from 1974 (A) to 1978 (A//**) and all show essentially the same level of detail with the Airfield, RAE and NGTE shown and clearly labelled. The branch railway remained, labelled as “Disused” in the earlier maps, but by 1978 the route was shown as a path (but not with public right of way). My *Landranger* maps from 1984 (A//**) and 1997 (B4) continued to record the development of the RAE area with the open ground to the north, crossed by the railway, being built upon. The former trackbed is now Invincible Road, named after the last steam locomotive to work on the line. On the 1984 map NGTE and RAE remain clearly identified but the 1997 edition omitted the NGTE label, and the RAE label was modified to show the new nomenclature of Defence Research Agency. RAE was renamed Royal Aerospace Agency in 1988, renamed Defence Research Agency after merging with other research organisations in 1991, then renamed again to Defence Evaluation and Research Agency (DERA) in 1995. Current mapping might suggest the reintroduction of censorship as there is a lot of white space on the site of NGTE, however this reflects the fact that the site closed in 2000, and most of the buildings were subsequently demolished with just the concrete bases remaining as seen on Google Earth aerial photographs. The NGTE site is currently being redeveloped for housing as Hartland Village. The RAE buildings fared no better. Following part privatisation of DERA in 2001, various parts of the site became commercialised as Farnborough Airport, QinetiQ, and the FAST Museum heritage site. The only parts to remain in Government hands were the Air Accidents Investigation Branch and the Defence Science and Technology Branch. The latter organisation later moved out of Farnborough leaving many parts of the site available for demolition and redevelopment as a business park, hotels, and housing, rendering any future security deletions unlikely.

My thanks to Rob Wheeler for Figure 9, and to Graham Rood for sanctioning the use of images from the FAST Archive.