

DEFENCE AREA 7

SULHAM VALLEY

1. **Area details:**

The defence area is 1 mile SSE of Pangbourne and 5 miles W of Reading centre.

County: Berkshire.

Parishes: Pangbourne / Tidmarsh / Sulham.

NGR: centre of area, SU 638747.

1.1 **Area Description:** [see Map 1].

The Sulham Valley runs north to south for some two miles from Pangbourne, on the south bank of the River Thames, to a point just south of the village of Sulham. The River Pang flows through the valley, rising to the south-west of Tidmarsh and reaching the Thames at Pangbourne. The hills on either flank of the valley reach a height of some 250 feet, and are heavily wooded above Sulham to the east. Suburbs spreading from Reading now end only half a mile or so from the edge of the Sulham heights.



Fig. 1 - The River Pang towards the north of the defence area. The river banks were not considered steep enough to serve as an anti-tank obstacle, so it was necessary to dig an anti-tank ditch which crossed the far meadow.

A narrow, busy lane meanders across the valley from Tidmarsh to Sulham, and another runs below the Sulham heights. The western edge of the valley is followed by the main A340 road running from Theale to Pangbourne, and beyond the valley to the south, a more open, semi-industrialised landscape, bordered by the River Kennet, and its accompanying Kennet and Avon Canal, is crossed by the M4 motorway following its route to the west.



The Sulham Valley comprises rich agricultural land, used in particular to pasture cattle, and is dotted with a number of farms and houses. Several large properties stand on the banks of the River Pang, and the valley bottom in the north of the defence area is mainly open grassland. A network of footpaths crosses the valley.

The northern border of the defence area is formed by the suburbs of Pangbourne, and the southern is an arbitrary line where the true valley ends south of Sulham. Viewsheds are formed by the heights on either side of the valley, and in the north by the open grassland to the east of the River Pang that allows sweeping views along the valley.

2. Assessment.

2.1 Defences: [see Map 2]

Defence overview -

A General Headquarters stop line, known as GHQ Line Red, to the rear of GHQ Line Blue, providing defence in depth against an attempt by enemy forces to encircle London and advance into the Midlands, was constructed from late June 1940. GHQ Line Red ran from a junction with GHQ Line Green at Great Somerford in Wiltshire, across what is now the south of Oxfordshire to join the course of the River Thames from Abingdon to Pangbourne. Its last section, where it was routed south down the Sulham Valley to meet the River Kennet and GHQ Line Blue at Theale, was perhaps the most important strategically. In the event of an enemy advance from the west, this would undoubtedly have formed a key hinge to be forced open by the Germans for an assault against the anti-tank island of Reading, and ultimately London.¹

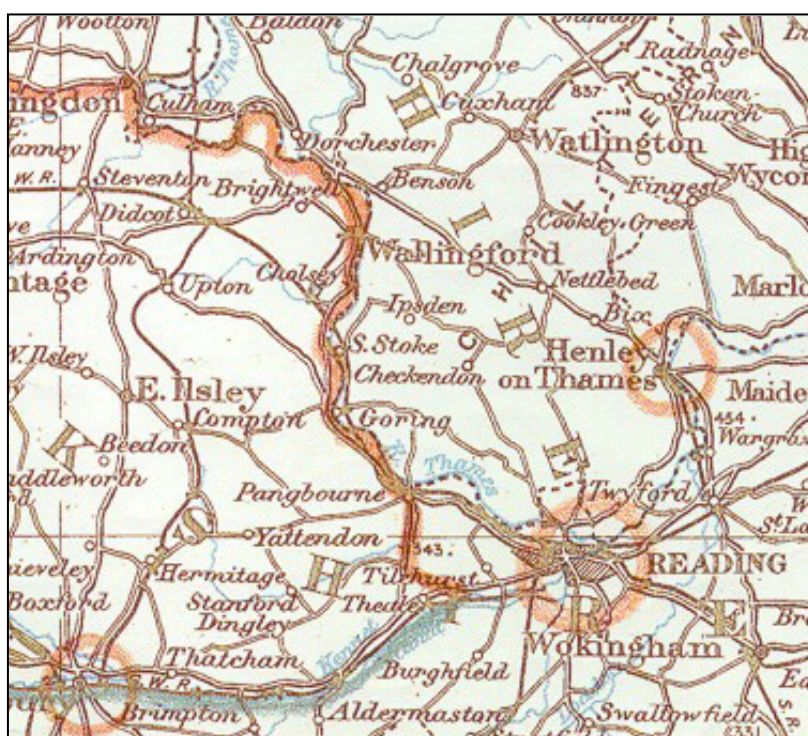


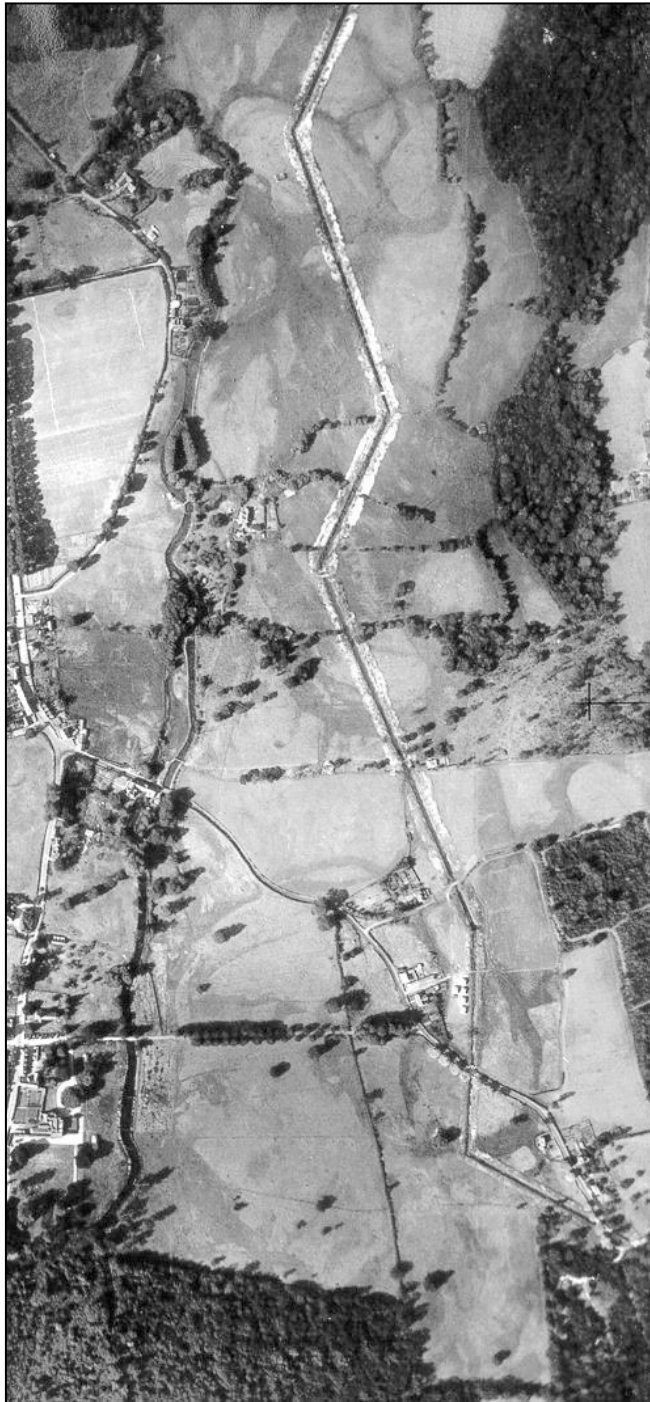
Fig. 2 - Portion of a map of the Southern Command defence programme, showing the south-eastern section of GHQ Line Red as it approaches GHQ Line Blue west of Reading.²

¹ TNA: PRO WO 166/1224. A GHQ memorandum of 17.8.1940 called it a 'vital part of the defence of London' - TNA: PRO WO 199/1801.

² TNA: PRO WO 199/48.



Reconnaissances of the Sulham Valley sector of GHQ Line Red were carried out by the 1st Canadian Infantry Brigade. As the River Pang did not constitute a sufficient anti-tank obstacle, it was decided to dig an artificial anti-tank ditch the length of the valley, and to prepare the sector against attack in particular by enemy armour. Twenty-four 2pdr. anti-tank gun emplacements were built between Pangbourne and Theale, as well as five shell-proof infantry pillboxes.³ Of these, ten emplacements and a pillbox lie within the study defence area.



The anti-tank ditch had certainly been begun by the first week in July 1940, because a farmer wrote a letter on the 4th July to the Berkshire County War Agricultural Executive Committee complaining that a ditch '800 yards long and 55 feet across' had been cut through her small farm rendering it 'practically unusable'. She had tried to have the line moved further to the east, but without success.⁴ Later, it was decided to deepen the anti-tank ditch and flatten the spoil heaps to a height of no more than two feet. By mid-August, the defence works in the Sulham Valley were either finished or well in hand, and, by mid-December, the eastern part of GHQ Line Red is recorded as completed.⁵

Fig. 3 - A portion of an August 1943 RAF air photograph showing the line of the anti-tank ditch in the Sulham Valley from the south border of the defence area [bottom] to just north of UORN 5712, the square emplacement of which can be seen. Oaklands Farm, with its concentration of three anti-tank gun emplacements, is towards the centre bottom of the photograph.

³ Alexander, 'Ironside's Line', pp49-50.

⁴ TNA: PRO MAF 169/26. The farm was 'Oaklands', which is in the southern half of the defence area. The width of 55 feet would have been measured between the spoil heaps on either side of the ditch itself. The ditch was filled in early in 1944, other than for a section by the Thames at Pangbourne Meadow where it was used for training in army bridging.

⁵ TNA: PRO WO 199/1801 and TNA: PRO WO 199/1714.



The Sulham Valley sector of GHQ Line Red also fell within the military South Midland Area. In addition to the Reading anti-tank island, the toll bridge at Pangbourne was a designated 'centre of resistance', with defences manned by the 4th (Pangbourne) Battalion, Berkshire Home Guard. Although GHQ Line Red was intended to be occupied by the Field Army in the event of a German invasion, it was accepted that area troops, together with the Home Guard, would have to man it pending the arrival of Field Army units. In December 1940, the area troops came from the 164th Infantry Brigade, with three platoons of a training company of the Royal Berkshire Regiment being allocated to twenty-one posts in the sector from Pangbourne to GHQ Line Blue.⁶

The defence works -

The particular feature of the anti-invasion defence works in the Sulham Valley was the widespread use of the 2pdr. anti-tank gun emplacement (the type 28A), with its main gun chamber plus one (sometimes two) light machine gun chambers. These type 28A emplacements came in two basic types - with a single main embrasure for the 2pdr. gun, or two main embrasures normally set at an angle of 90 degrees to each other.⁷ The latter type was generally positioned close to an angled corner of the anti-tank ditch so that it was possible to fire in both directions along it. The emplacements were variously positioned on both the defended side of the ditch, and on its attack side, and may provide evidence that GHQ Line Red was planned for two-way defence. Such a use can be seen, for example, with the emplacements, UORN 5719 and 2685.

Emplacement, UORN 2681, fires in two directions at a straight length of ditch, the east embrasure being restricted to fire across the ditch rather than along it. Its fire-power is supplemented, however, by two further single embrasure emplacements placed back to back a short distance to the east [UORNs 2682 and 16664], in the manner constructed elsewhere on GHQ Line Red [see Defence Area 59 - Frilford / Fyfield]. With a further two embrasure emplacement [UORN 2683] two hundred yards to the north, this location north of Oaklands Farm was clearly constructed as a stronghold, although the reason why this particular point in the Sulham Valley was chosen is not clear.



Fig. 4 - UORN 5719: anti-tank gun emplacement with two main embrasures [now blocked in] firing in different directions along the adjacent anti-tank ditch.

⁶ TNA: PRO WO 166/1224 and TNA: PRO WO 166/1037.

⁷ It has been calculated that, to build the anti-tank gun emplacements in this sector of GHQ Line Red alone, some 5% of the total concrete available to General Headquarters was needed. It is doubtful whether the emplacements were ever fully armed, as in 1940, after the losses at Dunkirk, they would have used up a large proportion of the less than two hundred 2pdr. anti-tank guns available to Home Forces - see Alexander, 'Ironside's Line', p50.





Fig. 5 - UORN 2681: the interior of the type 28A anti-tank gun emplacement, with two main embrasures [now blocked in]. There are two side chambers, to right and left, for LMG fire.

Fig. 6 - UORN 16664 [left] and UORN 2682: single embrasure type 28A emplacements positioned back to back.

The anti-tank gun emplacements at Oaklands Farm all appear to have been fired into with high-velocity weapons aimed at the embrasures, although it is possible as well that explosive charges were placed against them. This would appear to be the



Fig. 7 - UORN 2683: type 28A anti-tank gun emplacement of the two embrasure type, forming one of a group of four emplacements north of Oaklands Farm. They are all used today as cattle shelters.



Fig. 8 - Damage to one of the faces of UORN 2683, possibly occasioned in wartime tests of concrete-piercing weapons.

There is only one infantry pillbox within the defence area in addition to the anti-tank gun emplacements, and this stands on the north border of the area, adjacent now to modern housing [UORN 5709]. It is an unusual variant on a type 22 design, with walls of irregular length thickened to withstand shell fire. The purpose of a square structure built against it, of which the foundations can be seen, is not known.



Fig. 9 - UORN 5709: small, thick-walled pillbox standing in the open grassland at the north of the defence area. The structure in the foreground is a drainage sluice, which might be associated with the square structure projecting from the concrete base of the pillbox.

There are some substantial remains of the two roadblocks that stood within the defence area. Two anti-tank pimples ('dragon's teeth') lie by the side of the lane at the sharp corner south of Oaklands Farm [UORN 5716], and nearer to the farm, where the anti-tank ditch re-crossed the lane, there are four massive anti-tank cylinders standing six feet high. South of Sulham, at a point where air photographs show there was a gap in the anti-tank ditch, at least two steel vertical posts set in concrete survive [UORN 5717].



Fig. 10 - UORN 2684: anti-tank cylinders that once formed part of a roadblock at a crossing of the anti-tank ditch stand in a field by the lane.



Fig. 11 - UORN 5717: these two steel vertical rails, used today as posts for a barbed wire fence, once helped block a gap in the anti-tank ditch at this point. Other rails are perhaps hidden by bushes.

2.2 **Landscape:**

Despite the spread of suburbs from Pangbourne to the north, and from Reading to the east, the landscape of the Sulham Valley within the study defence area has remained substantially unaltered from that of sixty years ago. This is a beautiful valley, which today is almost certainly protected against the encroachments of development. It is perhaps surprising, therefore, that the 1940 defence works, which must have been considered after the war an eyesore, were allowed to remain. The reason is probably because they did not interfere with the agriculture of the valley, and indeed served a purpose in some cases in providing shelters for cattle. Consequently, there was no official impetus to remove them, and, because of the massive nature of many, such removal would have been very difficult for private individuals to accomplish. They have thus simply been left, many in hedgerows and under trees, merging into the landscape that it was once their purpose to protect.

The main interference with the agricultural life of the valley was the anti-tank ditch, and a reconnaissance to assess the damage it caused to the land, with the aim of its infill, was carried out as early as 1943.⁸ The roadblocks, and the perimeter barbed wire around many of the defence works, would also very likely have been dismantled before the end of the war.

The lanes that cross the valley are very busy, and there are few places where a car may be safely parked. However, there is a small lay-by near the River Pang on Sulham Hill, or there is the car park to The Greyhound public house for visitors who might want to use these facilities as well. A good network of footpaths enables most of the sites in the defence area to be reached, although some will require permission from landowners for a close inspection.⁹

2.3 **Statement of Significance:**

The defence area is very important as strategically it represents a critical sector of GHQ Line Red covering the approaches from the west towards London. The concentration here of the rare type 28A two-chambered anti-tank gun emplacement makes the area unique in field studies of anti-invasion works. Nowhere else in the country are there so many of these emplacements positioned so close together, and to which there is such good access, externally and internally.

No emplacement or pillbox within the area has been destroyed, and even UORN 5710, which was blown up, survives intact enough for its position and fields of fire to be understood. Although there is no trace of the anti-tank ditch today, its course can be traced exactly from air photographs, and the defended landscape reconstructed in relation to the ditch, which was the principal anti-tank obstacle and forward defence line. Similarly, the positions of roadblocks can be reconstructed from air photographic evidence, and the sites of these confirmed by surviving evidence on the ground.

⁸ TNA: PRO MAF 169/64.

⁹ It was not possible to inspect emplacement, UORN 5714, about which there is some confusion, one source giving the site as a pair of back-to-back emplacements while another says there are bases here to uncompleted structures only.



For the purpose of this study, this particular area within the Sulham Valley has been chosen for its high concentration of defences, and their good modern survival, to represent the sector of GHQ Line Red between Pangbourne and Theale. It is considered, however, that the sector is so important that further work should be carried out in areas to the south, as well as north to the River Thames, so that the totality of the defences that were built, and which survive, can be definitively recorded.

The defence area provides an excellent location for public information to be provided on Sulham Valley's place within the 1940/41 anti-invasion strategies. A 'pillbox walk' could also be established both north and south of Oaklands Farm pointing out individual defence works and explaining the tactical reasons for their siting.

3. **Recommendations:**

1. That the surviving anti-invasion defence works in the Sulham Valley defence area be considered of national importance. They enable the defence of this sector of GHQ Line Red to be interpreted, and provide evidence of the articulation of the defence and the inter-relationship of its functionally different components. Such interpretation is assisted by the documentary evidence provided in this report of defence structures that were built as part of the overall strategy, but which have now been removed.
2. That permission be gained for an inspection to be made of the anti-tank gun emplacement/s, UORN 5714, and a full record made.
3. That consideration be given to surveying other areas of the defence line between Pangbourne and Theale with a view to creating a definitive overall record of this important sector of GHQ Line Red.
4. That consideration be given, in a possible initiative with Berkshire County Council and the local authority, to providing information for the public on the 1940 anti-invasion defence of Sulham Valley. Such information might be displayed on a board at Tidmarsh, with footpaths indicated by which the visitor can visit those defence structures to which there is public access.

4. **Supporting material.**

4.1 **Photographs:**

Figs. 1 and 4-11 - taken (AWF) during field survey, 3.9.2003.
Fig. 3 - 16A/AC467 fr.5004 (4.8.1943) - NMR.

4.2 **Documentary Sources:**

'Southern Command Home Defence Programme, 1940' (map from General Headquarters Papers, Defence Works) - TNA: PRO WO 199/48.
South Midland Area HQ War Diary, 1940 - TNA: PRO WO 166/1224.
'Emergency Defence Works' (Berkshire County War Agricultural Executive Committee), July 1940 - TNA: PRO MAF 169/26.



'Construction of GHQ Zones, defence lines, road blocks, etc', July-October 1940 - TNA: PRO WO 199/1801.
 'Operation Instruction No.20', 26.12.1940 (from 164th Infantry Brigade War Diary) - TNA: PRO WO 166/1037.
 'Construction of Anti-Tank Islands and Centres of Resistance', 1940-1941 - TNA: PRO WO 199/1714.
 'Restoration of Land Used for Anti-Tank Trenches' (Berkshire County War Agricultural Executive Committee), 1941-1944 - TNA: PRO MAF 169/64.
 'G.H.Q Line Rear or Section Red: Research Report' [No author, no date] - copy with Defence of Britain Project Archive, NMR.

4.3 **Published Sources:**

Colin Alexander, 'Sulham Valley: A Heavy Concentration of Anti-Tank Pillboxes' (from *Loopholes* No.10 pp 10-18, December 1994).
 Colin Alexander, *Ironsides Line* (Historic Military Press, 1999).
Bastions of Berkshire [pamphlet] (Berkshire County Council, n.d.)

4.4 **Aerial Photographs:**

16A/AC467 frs.5003-5004 (4.8.1943) - NMR.
 16A/AC467 fr.5015 (4.8.1943) - NMR.
 106G/UK/1646 fr.3290 (10.7.1946) - NMR.

4.5 **Ordnance Survey 1: 2500 Plans:**

SU 6274-6374 (1969) - BLML.
 SU 6472-6572 (1965 and 1974) - BLML.
 SU 6473-6573 (1967) - BLML.
 SU 6474-6574 (1965) - BLML.

4.6 **Defence of Britain Project Database:**

[see 5. 'Annex'].

