Wakehurst Place Relay Station Archaeological Investigation
Additional assessment by CART

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Introduction

CART (Coleshill Auxiliary Research Team) was offered the opportunity to review the report produced by Archaeology Southeast in January 2012, following investigations of an Auxiliary Units base at Wakehurst Place, Ardingly, between 30th September 2010 and 8th March 2011. The report was sent to select CART researchers with particular experience of archaeological investigation of Auxiliary Units SD (Special Duties) structures and knowledge of the operations of the network. These members were;
Dr William Ward, CART CIO (County Information Officer) for Dorset and former Defence of Britain National Coordinator for Auxiliary Units, member of the Coleshill Archaeology Group investigating Coleshill House, the former Auxiliary Units HQ, who has also surveyed several Special Duties dugouts across the country and provided advice to the Forestry Commission on site interpretation.
Evelyn Simak, CART CIO Norfolk, author of a detailed report on the excavations at Norwich Zero Station in Norfolk (1,2), an extremely well preserved SD control dugout, excavated by CART members in conjunction with Norfolk Archaeology.
Adrian Pye, CART CIO Suffolk, co-excavator at Norwich. Adrian and Evelyn have investigated all the known Aux Unit locations in Norfolk and Suffolk both physically and historically.

Historical Overview

Sources

The report includes a brief historical overview, based on information available to the report's compilers at the time. Other organisations were available for advice and information, the majority of which have been contacted subsequent the archaeological investigation. These include CART, as well as the aux_units-sigs group who have been conducting investigation in Sussex. I understand the latter have made contact with the local NT staff to discuss other investigations.

The overview makes limited reference to "The Last Ditch" (3) a key source for all Auxiliary Units research, but with specific importance for the interpretation of this site. Because it was researched in the immediate post-war period (published 1968), the author, David Lampe, had direct access to many of those directly involved and interviewed them personally. While all secondary sources must be considered with caution, Lampe had opportunities not available to subsequent authors. The Last Ditch states the following,

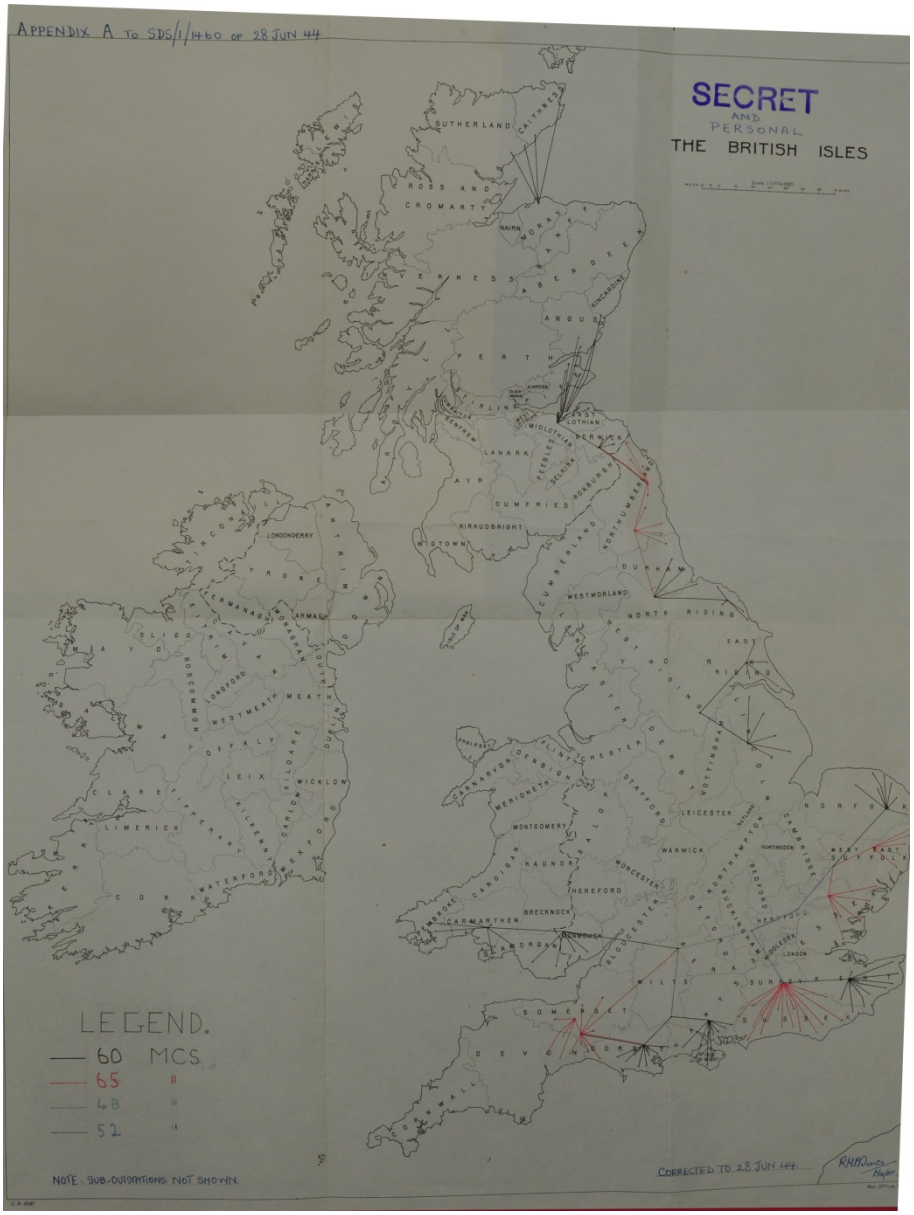
"Control stations were all supposed to be within the perimeters of Army divisional headquarters"

"Some of the other control stations were at ……. Ardingly and Heathfield in Sussex"

"Each control station had two transmitters and two receivers, one set that was in use every day during the existence of the radio network, the other for special occasions and for the ultimate occasion, when the Germans arrived in Britain. The 'everyday' broadcasting equipment was usually in plain view above ground. The only things secret about these stations were the transmitters themselves, and the operators had strict instructions to throw covers over them before allowing anyone not in Auxiliary Units to enter the huts".

As the above quotes demonstrate, the approximate location of this site was established by 1968. It was considered by those reporting to Lampe to be one of the control stations. Wakehurst Place was the headquarters for the Advanced Headquarters of the Canadian Corps between January 27th 1942 and October 23rd 1943. This may have been consistent with the pattern of inclusion within Divisional Headquarters.

There are very few contemporary sources for the Auxiliary Units Special Duties branch which mention locations. One key source is known as the Major Jones map. This shows the approximate location of all the Special Duties stations on a map of the British Isles, with the links and frequencies used on the networks. It is signed by Major RMA Jones, then commanding the Royal Signal contingent of the Special Duties branch, on 28th June 1944. Of note, both the Wakehurst Place and Heathfield control stations are absent from the map, indicating that they were likely no longer in use.



The "Jones map" from National Archives file WO 199/1194
Image © aux_unit_sigs group

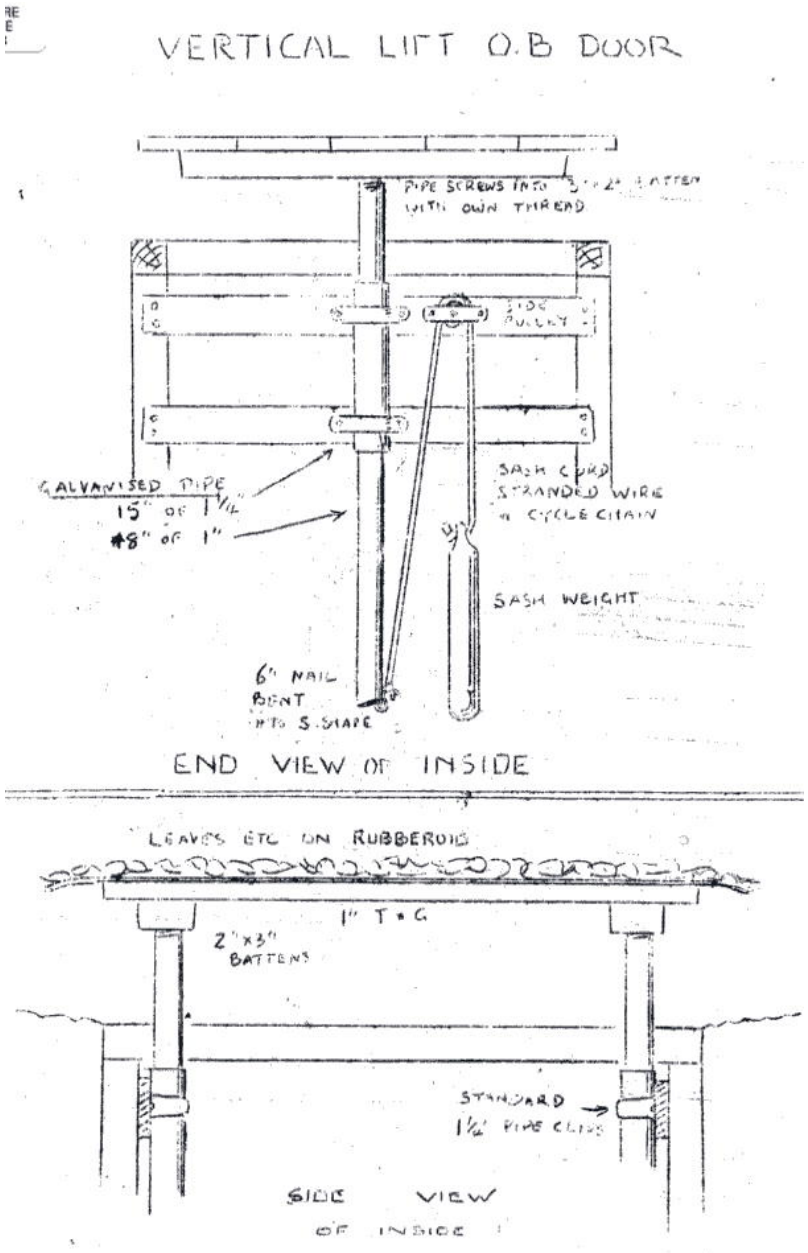
It is speculated that such control stations were operational only while there was a major (Corps or Divisional) HQ nearby, and that when this moved, so too did the Special Duties personnel. As the Wakehurst Place HQ closed in late 1943 this suggests that the dugout may have fallen out of use at his time. Subsequently Wakehurt place was used to accommodate American troops and a Field Ambulance unit prior to D Day (4,5).

It is not clear why there would not have been an above ground control station hut, also called a "Met Hut", since these appear to have been present in the majority of locations where control stations have been identified and eye witness accounts exist (eg Taunton, Castle Neroche, Hollingbourne). The first underground dugouts were constructed in mid-1942 according to key figures in the SD branch. Prior to this all sites had above ground huts only. (6)

An additional secondary source is an article written in early 1990s in the local Argus newspaper (7). This recounts that the controls to open the hatch were in the old oak tree on the left, with the escape exit on the right. The article

clearly draws on The Last Ditch, and it may be that this description is speculation, but it is known that Auxiliary Units bunkers were frequently accessed by a remote cable being pulled to release a sprung bolt holding the hatch closed. This cable was commonly concealed in nearby undergrowth. Two such mechanisms have been identified at Coleshill House during excavations.

The only other primary source of relevance is a drawing produced as part of wartime training course at Coleshill House, which shows the construction technique for counterbalanced vertically raising hatch cover (Fig 1). The almost complete remains of similar mechanisms have been excavated at Coleshill House and Norwich, with parts of similar mechanisms on display at the British Resistance Organisation Museum at Parham in Suffolk. The important point is that the hatches were frequently not just simple hinged lids.



Contemporary drawing of vertical lift mechanism with counterweights, provided as part of standard materials on training courses at Coleshill House.
© CART courtesy Mrs Trego.

A model example of the vertical rising counterweighted hatch mechanism. © CART.

The use of oral history is very useful, though it would be helpful to know how the accounts have informed the report.

Recording the site

It is clear from the report that detailed recording was hampered by the dangerous nature of the structure and limited time on site from the archaeologists, the latter presumably the result of financial and practical considerations. Unfortunately we suspect that this may have lead to the loss of archaeological information that could have assisted to more accurately record and interpret the structure.

The wider site has been clearly and precisely surveyed using GPS technique, which provides an excellent clear plan of the site and associated structures such as the aerial trees.

Concrete cap (report 5.2)

The report notes the nature of the seal, of concrete and iron reinforcing bar composition. The photographs appear to show some small concrete slabs and bricks adjacent the concrete cap to the southwest (report Fig 4.1). At other SD locations, the entrance shaft is often larger than the entrance hatchway and it is possible that these components formed a part of the original structure. They do not appear to have been clearly recorded.

Entrance shaft (report 5.1)

The dimensions of the shaft have not been accurately recorded. Although it is clear that there were dangers on site that prevented certain aspects of access, the ability to insert a camera, and subsequently to enter the structure and take close images of the entrance shaft from within, mean that the opportunity existed to precisely record these. As with all such structures comprised of standard components, recording the number of courses and blocks in each would also have allowed a close estimate of the dimensions, particularly if the size of the blocks was also recorded during the necessary demolition works. The cover photo of the report makes it clear that these are hollow breeze blocks with two chambers in each block. The term breeze refers to the construction of the block from breeze (=ash or cinder) rather than its form.

Hatch Mechanism (report 5.7)

The report highlights the presence of wooden beams that may be part of a possible hatch mechanism. The dimensions and spacing of the beams has not been recorded. The presence or absence of any holes in the walls, evidence of fixings or manmade debris in the soil fill has not been recorded.

Ventilation (report 5.5)

Ventilation pipes are recorded arising from the edge of the roof of the structure (Fig 4.3). No mention is made of the pipe visible in Fig 4.2 above the roof of main part of the structure, to the southwest of the shaft. The vertical ranging pole is at the location of the recorded pipe in fig 4.2. The orientation of any pipework has not been recorded during excavation work. Very few sites have had any excavation of the ventilation system to know how it was arranged between leaving the structure and reaching the surface.

Main Chambers

It appears from the photographs that the interior of the structure was accessed by a member of the team. However, the internal dimensions were not recorded, nor the internal location of ventilation shafts, nor the dimensions of the escape tunnel. The photograph shows that the floor of the main chamber is paved with concrete slabs

Finds

The report makes mention of two finds.

A piece of cable found 300mm to the north of the entrance (report 5.3). The dimensions of the cable are not recorded, nor is the nature of the cable (for example, copper coated with rubber, dual or single core). It is not clear if this find has been discarded or retained by the NT.

A protective tin cowl (report 5.5) found loose in topsoil above the roof. There is no image, detailed description or drawing of this cowl, nor is its disposal recorded. No such cowls have been identified at other sites making this a significant find.

Other finds not mentioned would include the pieces of ventilation pipe seen loose in one photograph. The dimensions of the pipe have not been recorded.

The internal views (Fig 6.1, 7.1) show extensive surviving wiring, an exceptional find not seen elsewhere and likely of national importance in terms of interpreting the arrangements in such structures which are normally almost totally devoid of wiring. This was beyond the original scope of the report but it appears the significance of this finding has not been recognised.

Interpretation

Concrete cap (report 5.2)

Many Auxiliary Units SD underground sites have been found to have concrete caps placed over the entrance shafts. This suggests the possibility of a systematic programme of sealing of the sites. Norwich provides one such example. Before the capping of the shaft, it appears to have been normal practice to demolish the top row or two of blocks into the shaft. From experience at other sites, it is likely that the rubble in the shaft may also conceal remains of the hatch mechanism.

Entrance Shaft

The use of double chamber hollow breeze blocks is consistent with the construction technique on many Special Duties dugouts in other parts of the country. This, along with the common design of the control or “zero” stations indicates that they were being built to a standardised plan, possibly by the same construction unit. It is known that Royal Engineer tunnelling companies built some Auxiliary Units Operational branch dugouts. The presence of Canadian Engineers is recorded in several areas in the southeast. The Canadian Army also had a unit of Tunnelling Engineers in Britain, part of which appears to have been committed to war works in 1941, preventing its despatch to Gibraltar early that year.(8)

Hatch Mechanism

The two wooden cross beams would appear to be consistent with the vertical lift hatch mechanism illustrated in a contemporary record. A similar mechanism has been found at the Norwich control station, having been collapsed into the shaft. Fig 6.1 shows what appears to be a metal cylindrical structure on the floor which might be

counterweight from the mechanism. Fig 4.5 appears to show lighter areas of wood in locations similar to the attachment points for the brackets seen in the drawing.

Ventilation

From the available images, it appears that there was most likely a ventilation pipe arising horizontally near the base of the entrance shaft, turning through 90 degrees via a curved pipe section and running vertically up the end wall of the main chamber before reaching the surface at an undefined point. There was most likely also another vent arising out of the roof of the main structure. It was common practice to have vents entering at the base of the structure and leaving at the top, in order to create a through draft by convection of air warmed by those working inside. From the photographs, the pipes all appear to be glazed ceramic, as was routine at Auxiliary Units dugouts of all types.

Main Chambers

Fig 4.4 showing the first chamber of the three within the main structure shows no evidence of whitewash on the walls, whereas this is clearly visible in he other chambers (Fig 6.1, 7.1). In addition there is a clearly discernible red-brown line, similar in colour to the rusty corrugated roof, running around the doorway at an estimated 9 inches from the door frame. It is probable that this is the outline of disguise that would have concealed the doorway from view. In other SD bunkers sets of shelves were commonly used, with these either opening outwards, or having removable shelves allowing access to the rest of the structure.

Fig 6.1 shows the middle chamber and extensive wiring. This may be both electrical wiring to power lighting and wireless equipment and aerial cable to connect to the four identified aerial trees. In addition, the outline of several junction boxes and possible light switches can be seen on the wall where they have been removed. To the far right of the wall can be seen fixings for what may have been a wooden door frame. The extent of the surviving wiring visible in Fig 6.1 is absolutely exceptional and far exceeds what has been seen in the any of the other Control stations that have been investigated. This makes it of national significance in understanding how such structures were used.

Fig 7.1 shows the opening for the escape tunnel. Surrounding this is a black outline and cloth fragments that probably represent an oilcloth covering. It is believed that this third chamber was routinely used to house the generator engine for charging wireless batteries and this room was normally separately ventilated to prevent carbon monoxide poisoning of those working underground. This meant that this chamber would be sealed from the central chamber by an air-tight door. Oil cloth was commonly used for these seals. Most commonly, a pair of pipes runs through the chamber from the partition wall with the central chamber to the left while looking at the escape exit. The edge of one such pipe may be visible to the top left of the Fig 7.1. The possible sump is a find not always present in similar control station structures.

CART Recommendations

Aerial photography

A desk based assessment using wartime and immediately post war aerial images from RAF and or USAAF series is recommended to identify what hutting was present in the Wakehurst estate. This may allow identification of targets for future investigation, since experience at Coleshill House has indicated that hut bases may remain unrecognised for many years in even heavily frequented areas. More modern images may identify the presence of these as parch marks. The presence of an underground dugout makes an above ground hut likely.

Oral History

It is suggested that the oral history reports be made freely available for future research, subject to necessary consents being available. (One of those recorded has since died). This could be hosted by a group such as CART in an online format, with archival copies being lodged with the NT archives and the Imperial War Museum Sound Archive.

The location of the site is recorded as being known to estate staff during and after the war. A specific request to former staff to record their recollections of activities reported during the war and subsequently might shed further light on what was known when and who sealed the structure.

Photography

It is likely that estate staff, and possibly also the contractors undertaking stabilisation works may have taken photographs during the recent works, given the unusual nature of the site, that might reveal some of the details

that may have been lost. An approach to those involved is recommended to improve the photographic record of the destroyed elements of the site.

Physical survey

Assessment of the surviving wiring within the structure should be taken, within the bounds of necessary safety precautions in a potentially unstable structure. The apparent exceptional survival, thanks to the sealing of the structure, should allow considerable additional information to be obtained about how the structure connected to the surviving aerial trees and how the internal equipment was arranged. Given the damage to the ventilation system, particularly if the entrance is sealed, any internal work should be undertaken by operators trained in confined space working using appropriate safety equipment, including but not limited to gas detectors and emergency escape equipment. It is also important that they understand and can record in detail the wiring arrangements to maximise what can be learnt.

At the same time a detailed assessment of the interior of the structure should be undertaken, to maximise the recorded information prior to any further deterioration.

The escape exit ought to be excavated to assess if there is any evidence of a counterweighted hatch mechanism. A mechanism similar to that seen in the wartime drawing was found in a similarly shaped escape exit at the Norwich site. Counterweights and remains of the mechanism were found in situ.

It is possible that volunteers could undertake a significant part of this work under the auspices of an organised local archaeology group, possibly in conjunction with a specialist underground exploration group such as Sub Brit. Formal risk assessments of any such work would be essential.

Geophysical survey

Consideration should be given to further investigation of the ventilation system and aerial cable connections using geophysical techniques to assess the remaining structures in a non-destructive manner. The buried glazed pipes and aerial cables would both be detectable with conventional methods. It would also be possible to precisely map the exact underground location of the main chamber and escape tunnel without entry to the structure. This would allow heavy surface equipment to be kept away from the structure where it might be subject to collapse. Also vegetation in the vicinity could then be actively managed to avoid further damage to the structure, for example by preventing trees becoming established and avoiding plants with long roots.

Record of stabilisation works.

While outside the immediate scope of the archaeological report, the lack of a record of what works were undertaken may hamper future investigation of the structure. It would be useful to detail what works were undertaken, the materials used and where there was interference with the original structure.

Future works

Given the necessity to destroy the entrance shaft as part of immediate safety works, it is disappointing that opportunity was not taken to provide accessibility to the structure as part of the works. It is not clear if the works have allowed the condition of the bunker to be monitored on an ongoing basis. The nature of the property means that it is suited to providing public access under controlled conditions, for example as part of a special guided tour. This need not include allowing people inside the structure, although the National Trust has allowed access to a similar smaller Auxiliary Units bunker at Coleshill House following works to provide a safe entrance. This has proved popular attraction when opened for specific events, but is kept securely sealed the remainder of the time.

Publication of findings

CART would be happy to work with other organisations appointed to carry out this work. It would look to publish its findings on the www.staybehinds.com website, and would deposit copies with the National Trust and at the local records office as part the Sites and Monuments Register (SMR).

References

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