

SECOND WORLD WAR ANTI-INVASION DEFENCES IN SOUTH AND SOUTH-
WEST WALES: A COMPARATIVE CASE STUDY AREA BASED APPROACH

By

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ABSTRACT

Conflict archaeology is a popular subject of academic research. Within the topic of British Second World War archaeology there are few studies examining anti-invasion defences, and none relating to the evidence or its use. This research was influenced by concepts in historical and conflict archaeology and the archaeologies of the recent and contemporary past. It was undertaken to determine the extent of survival of archaeological, documentary, aerial photographic and cartographic evidence for three cases in south and south-west Wales. Case study method was used to identify, select and analyse evidence. Grounded theory was used to induce meaning. The evidence was given equal primacy, assessed critically and analysed for its role, value and contribution. Official sources were used for their unique, informed and authoritative content. Knowledge of military organisational practices and formation/unit identities were required to use the evidence effectively. A rich but incomplete evidence base of a complex character was identified. Evidence was found to be complementary and inter-dependent, representing aspects of a common shared phenomenon. The diverse sources could be used to induce meaningful narratives. The research suggested that an archaeological approach was a valid and effective form of inquiry when applied to cross-disciplinary evidence from the recent past.

Dedicated to Nigel Berry, 1945-2003.

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1. INTRODUCTION

1.1 Overview

Many decades after their construction to counter an anticipated German invasion of Britain, Second World War anti-invasion defences remain tangible symbols of a determination to resist a potential invader whom threatened national sovereignty (Wills 1985). Despite not being used for their intended purpose and their subsequent partial removal through official and localised clearance schemes, these monuments have survived *in situ* in sufficient numbers to be engaged with by the public (for example Defence of Britain Project 1996; Denison 1995, 2002) and have become the focal point for academic and professional archaeological research (Berry 2011b, 2013; Dobinson 1996b, 2000a, 2000d-e; Foot 2006a-b; Liddiard 2012b; Rowe 2012).

The approach of significant anniversaries associated with this conflict (Dobinson 1998; Schofield 2004) and the rise of modern conflict archaeology as part of the wider development of the sub-disciplines of conflict and historical archaeology (Schofield 2005; Schofield et al. 2002) has prompted wider investigation of the material legacy of this phenomenon from an archaeological perspective. Through initiatives such as the Council for British Archaeology's Defence of Britain and Defence Areas projects increasing numbers of these monuments were added to national and regional archaeological inventories and facilitated decision-making regarding conservation, management, interpretation and legal designation.

The literature review in Chapter Two will demonstrate that the results of investigative research in England and Scotland were particularly noteworthy in terms

of both the numbers of new defence sites identified and their recognition within existing contemporary documentary, cartographic and aerial photographic sources. In contrast, this research will identify that the investigation and research in Wales was much less intensive, as the Defence of Britain project did not penetrate significantly and there was no equivalent to the Defence Areas project. The data published will be shown to be substantially incomplete, primarily empirical in character and local in focus. The literature review will demonstrate that the majority of published studies on Welsh defences originate from the enthusiast-led sector and do not seek to move beyond basic low-level analysis of site identification and description. Such works do not provide comprehensive thematic, spatial or chronological coverage in Wales, and recognition of this situation provides the initial impetus for this research.

The following sections of this chapter will introduce and characterise the research context and resource. The research problem is established and the research questions defined. The motivations for and the relevance of the research are described. The limitations of the research are stated and the structure of the thesis is established.

1.2 Characterising the research context

Anti-invasion defences feature in two relevant published national research agendas. These are pertinent to this research and an analysis of their content is presented here to set the immediate context for this study.

The national historic environment agencies co-published *Modern Military Matters*, which attempted to summarise the state of knowledge and future research priorities relating to twentieth-century military remains in Britain (Schofield 2004). Three of the sub-themes identified within the theme of 'operations' in the assessment of the known resource focused on anti-invasion, coast artillery and airfield defences (2004: 24-29); these sub-themes form the scope of this research (see Plate 1.1 for examples). Much of the content described in the sub-theme statements was Anglo-centric in focus, reflecting the greater levels of research, fieldwork and assessment undertaken in England. Few explicit statements related to the situation in Wales.

The stated research agenda objectives identified a range of site types for continued primary investigation regarding what was built where and when, and what form the sites took, but none of the three sub-themes identified above were included in the list, as the Defence of Britain, Defence Areas and other projects had largely completed this work for England and Scotland. The stated objectives presented a potentially misleading articulation of research progress for Wales, and appeared to imply that research in Wales was equally advanced. This is not the case and does not appear to have been openly questioned before.

Additional advanced research and documentation in order to improve understanding of the surviving resource was recommended for a number of sub-themes including anti-invasion defences (but not coastal artillery or airfield defences). Four specific areas of new research for anti-invasion defences were proposed comprising:

- A survey at The National Archives (TNA) to create a research catalogue;
- Enhanced understanding of defence policy and its local implementation;
- Investigation of the removal of defences during and after the war; and
- Assessment of German aerial reconnaissance photographs, mapping and associated documentation (2004: 42-43).

These additional research areas were primarily of interest to the research context in England and Scotland. In contrast, the primary research objectives to investigate what anti-invasion, coastal artillery and airfield defence sites were built where and when, and what form the sites took in Wales were not defined.

The revised *Research Framework for the Archaeology of Wales* paper on the industrial and modern (post-AD 1750) period reconfirms that the assessment of the significance of military and defensive sites is a priority, but does not summarise progress made, state how the research priority should be addressed nor cite any relevant references in the associated bibliography (IFA Wales/Cymru 2015).

This discussion demonstrates that the two most significant research agendas covering the investigation of anti-invasion, coastal artillery and airfield defence sites do not present accurate summations of research progress or objectives in Wales: the former could be interpreted as misleading and the latter as inadequate.

Consequently, the re-focusing of research objectives onto the evidence sources, their character and to facilitate the identification of what was built where and when, and what form the sites took in Wales are identified as key priorities to be addressed by this research.

1.3 Characterising the historical context

It is important to establish the immediate historical framework for this research in order to place it in its proper context and to provide an introduction for those unfamiliar with the topic. Britain was faced with the imminent threat of an invasion following the German military victories in Holland, Belgium and France and the evacuation of the British Expeditionary Force from Dunkirk during May-June 1940 (Story 2006: 16-25).

Preliminary British anti-invasion defence planning commenced in April 1940 following the invasion of Norway, and the period May 1940 to September 1942 defined the main anti-invasion defence construction period (Dobinson 1996b). Anti-invasion defences in Wales were established in order to counter the perceived threat of a German invasion via Eire, which was neutral but seen by the British Government as possibly pro-Nazi and therefore potentially hostile (Redfern 1999). The data in Tables 1.1-4 are presented as informative wider background and was compiled from broader aspects of this study.

1.3.1 The developmental phases of inland defence preparation

Dobinson characterised the successive phases of defence preparation (1996b). The defence preparations undertaken by General Kirke, Commander-in-Chief Home Forces in May 1940 were important and formed a crucial foundation on which his successors built. He commenced the obstruction of landing grounds, a review of fortification types, the inland defence of ports and the widespread reconnaissance of beaches perceived to be vulnerable to invasion (1996b: 14-23).



Plate 1.1: Examples of common anti-invasion defences: FW3 Type 24 pillbox; anti-tank block alignment; vertical anti-tank rails, beach defence gun house; battle headquarters; Pickett-Hamilton fort; spigot mortar emplacement; and roadblock sockets.

Kirke's successor General Ironside was responsible for instigating the 'national defence plan' from June 1940, which comprised the rapid establishment of a network of largely anti-tank obstacles including the GHQ line, inland stop lines, nodal points, coastal crust defences and the use of a depleted mobile GHQ Reserve force (Dobinson 1996b: 24-40). A list of known stop lines in Wales identified through this research is presented in Table 1.1. The GHQ line did not extend into Wales.

Ironside's decisions created the majority of the anti-invasion infrastructure that is familiar today. Research undertaken at TNA for this study demonstrates that all elements were controlled within the existing Home Forces administrative command-based structure (Command > Area > Sub-Area > Sector/Garrison), which retained operational control over the subordinate military formations and units located within its territorial responsibility (WO 166/94, /1247, /1270 and /1314).

This linear and nodal point-based defensive system was inherited by Ironside's successor General Brooke in July 1940. He quickly introduced economies and adopted a more offensive stance from August 1940 (Dobinson 1996b: 40-53). The defences became operational briefly during 7-9 September 1940 when the codeword *Cromwell* was issued, indicating that an invasion was imminent.

Evidence from the war diaries consulted at TNA demonstrates that defence preparations continued apace into the winter of 1940 (WO 166/1247, /1270 and /1314). Units relocated to their winter quarters from November 1940 and planning was undertaken for defence improvements during 1941. This involved completing outstanding works from the revised schemes from the previous year and new extensions to strengthen existing defences (WO 166/91).

| Serial No. | Type | Route | Command Area | Source |
|------------|----------|---|-----------------------------|---|
| 1 | Command | Line of R. Severn from Tewkesbury-Shrewsbury-Llandrinio | Central Midland North Wales | Western Command Operation Instruction 7, 05/07/40 (WO 166/94) |
| 21 | Command | Rhyl-Corwen-Bala-Dolgelly-Machynlleth | North Wales | Western Command Operation Instruction 7, 05/07/40 (WO 166/94) |
| 22 | Command | Conway-Bettws-y-coed-Harlech | North Wales | Western Command Operation Instruction 7, 05/07/40 (WO 166/94) |
| 23 | Command | Bangor-Capel Currig-Portmadoc | North Wales | Western Command Operation Instruction 7, 05/07/40 (WO 166/94) |
| 24 | Command | Cardigan-Tenby | South Wales | Western Command Operation Instruction 7, 05/07/40 (WO 166/94) |
| 25 | Command | Line of R. Loughor-Llandilo-Llandovery | South Wales | Western Command Operation Instruction 7, 05/07/40 (WO 166/94) |
| 26 | Command | Line of R. Usk-Brecon | South Wales | Western Command Operation Instruction 7, 05/07/40 (WO 166/94) |
| 27 | Command | Line of R. Wye from mouth-Hereford-Hay | South Wales North Wales | Western Command Operation Instruction 7, 05/07/40 (WO 166/94) |
| N.N. | Command | Line of R. Towy from its mouth-Carmarthen-thence R. Avon Gwili to Conwil Elvert-Rhos-Llangelier | South Wales | Western Command Operation Instruction 13, 22/07/40 (WO 166/94) |
| N.N. | Command | Ammanford-Crosshands-Carmarthen | South Wales | Western Command Operation Instruction 13, 22/07/40 (WO 166/94) |
| N.N. | Sub-Area | R. Taff | South Wales | Severn Sub-Area Defence Scheme 2, 14/12/40, (WO 166/1314) |
| N.N. | Sub-Area | Neath Valley | South Wales | Severn Sub-Area Defence Scheme 2, 14/12/40, (WO 166/1314) |
| N.N. | Sub-Area | Swansea Valley | South Wales | Severn Sub-Area Defence Scheme 2, 14/12/40, (WO 166/1314) |
| N.N. | Sub-Area | Gower | South Wales | Severn Sub-Area Defence Scheme 2, 14/12/40, (WO 166/1314) |
| N.N. | N.N. | Pembroke | South Wales | 17/02/41 |
| N.N. | Sub-Area | Builth Wells-Caersws | North Wales | North Wales Area Operation Instruction 13, 26/05/41 (WO 166/1245) |
| N.N. | Sub-Area | R. Dee | North Wales | Oswestry Sub-Area Defence Scheme 2, 19/07/41 (WO 166/1309) |
| N.N. | Sub-Area | Clwydian Range | North Wales | Oswestry Sub-Area Defence Scheme 2, 19/07/41 (WO 166/1309) |
| N.N. | Sub-Area | Canaston-Wiseman's Bridge | South Wales | Carmarthen Sub-Area Counter Invasion Scheme 2, 29/05/42 (WO 166/6729) |

Table 1.1: Known stop lines established in Wales listed by earliest identified documentary source.

From spring 1941 the principle of linear defence was increasingly abandoned to be replaced by a scheme of robust beach defences and strongly defended towns and villages on major transportation routes (Dobinson 1996b: 48).

The decision of the German high command to commit forces to the invasion of the Soviet Union in June 1941 (Story 2006: 34-37) effectively ended the serious invasion threat to British sovereignty, but this fact was unknown to the British general staff at the time and defence preparation and improvement continued.

Documentary evidence from war diaries at TNA shows that an order from Home Forces to cease the construction of pillboxes was issued on 23 February 1942 with instructions to replace them with earthwork positions capable of all round defence (WO 199/1779). The requirements for training and other types of construction took over as the key priority from defence site provision on 22 June 1942 (WO 32/10066) and the defence system reached its zenith in September 1942.

1.3.2 The developmental phases of airfield defence preparation

Airfields, as large military installations, received their own discrete and specialised defence infrastructure, either added to inter-war period airfields or incorporated into new wartime airfields from the beginning (Dobinson 2000e). A list of major airfields built in Wales and their initial functions is presented in Table 1.2.

| RAF airfield name | Open | Initial function |
|--------------------------|-------|--|
| Sealand | 1917 | No. 3 Aircraft Storage Unit; No. 5 Flying Training School Nos. 30, 36 & 47 Maintenance Units, Maintenance Command |
| Pembroke Dock | 01/30 | Seaplane base, No. 15 (General Reconnaissance) Group, Coastal Command |
| Llandow | 1937 | No. 38 Maintenance Unit, No. 41 (Aircraft Storage) Group, Maintenance Command No. 53 Operational Training Unit, No. 81 (Training) Group, Fighter Command |
| Manorbier | 1937 | Anti-Aircraft Co-operation Unit, Army Co-operation Command for School of Anti-Aircraft Artillery, Manorbier |
| Pengam Moors / Cardiff | 1937 | Anti-Aircraft Co-operation Unit, Army Co-operation Command No. 52 Maintenance Unit, Maintenance Command |
| Hell's Mouth | 02/37 | Relief landing ground for RAF Penrhos |
| Penrhos | 02/37 | No. 5 Armament Training Station, No. 25 Armament Group, Training Command No. 9 Air Observers School (later No. 9 Bombing and Gunnery School), 25 Armament Group, Training Command |
| St Athan | 09/38 | No. 4 School of Technical Training, No. 24 (Training) Group, Training Command No. 19 Maintenance Unit, No. 41 (Aircraft Storage) Group, Maintenance Command No. 32 Maintenance Unit, Maintenance Command |
| Pembrey | 1939 | No. 2 Air Armament School, Flying Training Command Sector Station, No. 10 Group, Fighter Command |
| Carew Cheriton | 04/39 | Anti-Aircraft Co-operation Unit, Army Co-operation Command for School of Anti-Aircraft Artillery, Manorbier Coastal Command Development Unit, No. 15 (General Reconnaissance) Group, Coastal Command |
| Newton / Stormy Down | 04/39 | No. 9 Armament Training Station, No. 25 Armament Group, Training Command |
| Hawarden | 09/39 | No. 48 Maintenance Unit, No. 41 (Aircraft Storage) Group, Maintenance Command No. 57 Operational Training Unit, No. 10 Group, Fighter Command |
| Towyn | 1940 | Anti-Aircraft Co-operation Unit, Army Co-operation Command for No. 7 Anti-Aircraft Practice Camp, Tonfanau |
| Aberffraw / Bodorgan | 09/40 | Anti-Aircraft Co-operation Unit, Army Co-operation Command for No. 4 Anti-Aircraft Practice Camp, Ty-Croes No. 15 Satellite Landing Ground for No. 48 Maintenance Unit at RAF Hawarden |
| Blaenannerch / Aberporth | 12/40 | Anti-Aircraft Co-operation Unit, Army Co-operation Command for No. 1 Anti-Aircraft Practice Camp, Aberporth and No.13 Anti-Aircraft Practice Camp, Aberaeron |
| St Brides | 12/40 | No. 6 Satellite Landing Ground for No. 19 Maintenance Unit at RAF St Athan |
| Rhosneigr / Valley | 02/41 | Sector Station, No. 9 Group, Fighter Command |
| Rudbaxton | 04/41 | No. 4 Satellite Landing Ground under No. 38 Maintenance Unit at RAF Llandow |
| RNAS Lawrenny Ferry | 05/41 | Seaplane training base, HMS Daedalus II |
| Fairwood Common | 06/41 | Fighter Station, No. 10 Group, Fighter Command |
| Llanbedr | 06/41 | Forward airfield under RAF Valley, No. 9 Group, Fighter Command |
| Wrexham | 06/41 | Satellite for No. 57 Operational Training Unit at RAF Hawarden |
| Chepstow | 07/41 | No. 7 Satellite Landing Ground for No. 19 Maintenance Unit at RAF St Athan |
| Llandwrog | 07/41 | No. 9 Air Gunnery School, No. 25 Armament Group, Flying Training Command |
| Angle | 12/41 | Forward airfield for No. 10 Group, Fighter Command |
| Rhoose | 04/42 | Satellite airfield for No. 53 Operational Training Unit at RAF Llandow |
| Dale | 05/42 | Satellite Landing Ground for RAF Talbenny, No. 19 (General Reconnaissance) Group, Coastal Command |
| Talbenny | 05/42 | No. 19 (General Reconnaissance) Group, Coastal Command No. 4 Armament Practice Camp, No. 25 Armament Group, Flying Training Command |
| Haverfordwest | 11/42 | No. 3 Operational Training Unit, No. 17 (Training) Group, Coastal Command |
| Heneglwys / Mona | 12/42 | No. 3 Air Gunnery School, No. 25 Armament Group, Flying Training Command |
| Templeton | 01/43 | No. 306 Ferry Training Unit, No. 17 (Training) Group, Coastal Command |
| St David's | 08/43 | No. 19 (General Reconnaissance) Group, Coastal Command |
| Brawdy | 02/44 | Satellite Landing Ground for RAF St David's, No. 19 (General Reconnaissance) Group, Coastal Command |

Table 1.2: Dates of opening and initial functions of Second World War airfields in Wales.

Airfield defence policy and practice was overseen by the Air Ministry and the War Office. Airfield defence provision evolved in response to ongoing analysis of the deployment of the new *blitzkrieg* tactics as utilised successfully in the Low Countries. From April 1942 the RAF Regiment was responsible for airfield ground defence (Oliver 2002).

Dobinson identified five structural phases of airfield defence development (Dobinson 2000e: 47). The first phase from mid-May to mid-June 1940 was based on simple weapon pits and Lewis gun emplacements for ground and air defence, together with the use of light and heavy anti-aircraft guns depending on their availability.

The second phase from mid-June to late September 1940 ran in parallel with Ironside's 'national defence plan' and equipped airfields with pillboxes, but as part of locally-designed defence schemes.

The third phase from late September 1940 was characterised by the implementation of the results of the Taylor Plan which assumed that airborne troops would seize an airfield and then advance to a nearby port in order to establish a bridgehead from which to launch a land assault. The report classed airfield defences by their proximity to ports rather than function and established minimum defence standards and recommended layouts (Dobinson 2000e: 47-55).

Table 1.3 demonstrates that the majority of airfields in Wales during September 1940 were classified as Class I airfields located within twenty miles of a vulnerable port and were consequently equipped with the highest densities of airfield

defences. The airfields at Aberporth and Fairwood Common had not opened (McLelland 2012) and therefore did not feature in Taylor's report.

The fourth phase from the autumn of 1941 was characterised by the introduction of new types of defence posts, including battle headquarters and spigot mortar emplacements. The use of pillboxes and static defences were abandoned and an offensive infantry-based approach was adopted, characterised by the use of defended localities, barbed wire entanglements, rifle section posts and machine gun emplacements (Dobinson 2000e: 59-61).

| RAF airfield name | Taylor's class | Vulnerable ports |
|-------------------|----------------|--|
| Cardiff | Class I | Barry, Cardiff, Newport, Penarth |
| Carew Cheriton | Class I | Milford Haven |
| Hawarden | Class I | Liverpool |
| Llanbedr | Class III | - |
| Llandow | Class I | Barry, Briton Ferry, Cardiff, Penarth, Port Talbot |
| Llandwrog | Class I | Holyhead |
| Manorbier | Class I | Milford Haven |
| Morfa Towyn | Class I | Portmadoc |
| Pembrey | Class I | Carmarthen / Llanelly |
| Penrhos | Class I | Portmadoc |
| Porthcawl | Class I | Barry, Briton Ferry, Port Talbot, Swansea |
| St Athan | Class I | Barry, Cardiff, Penarth, Port Talbot |
| Sealand | Class I | Liverpool |

Table 1.3: Known airfields within twenty miles of vulnerable ports in Wales as listed in the Taylor Report accompanying AM letter S 5342/DGD, 27/09/40 (TNA AIR 14/196).

This trend was consolidated in the final phase from summer 1942 when the RAF Regiment established much wider and more mobile zones of operations within airfield environs (Dobinson 2000e: 55-57).

1.3.3 The developmental phases of coast artillery defence preparation

The established policy of solely defending ports with coastal artillery was replaced by a 'continuous' linear coastal defence frontier in May 1940 (Dobinson 2000a; Hogg 1974; Saunders 1989). This arose as the Navy could no longer guarantee against the occurrence of seaborne landings (Dobinson 2000a; Saunders 1997). New emergency batteries were established equipped with guns on loan from the Admiralty (Dobinson 2000a; Maurice-Jones 2005).

Documentary evidence at TNA reveals that orders were issued for new 6-in emergency batteries in Wales at Penarth Head, Soldier's Rock, Fishguard and Holyhead on 8 June 1940 and for new 4-in emergency batteries at Port Talbot, Llanelly and Caernarvon on 21 July 1940 (WO 166/11). Other coastal batteries were also constructed at Mumbles Hill and Flat Holm (WO 192/155 and /320 respectively).

They supplemented existing port defences at Mumbles Island, Milford Haven, Nell's Point and Lavernock. New dock defences were also built at Cardiff, Newport and Swansea. The Coast Artillery School relocated to Llandudno (Hill 1999: 163).

The coast artillery network in Wales (see Table 1.4) reached its peak during 1941, from which point it shrank through the implementation of a series of national restructuring exercises (Dobinson 2000a: 71-74). The *Ebbtide* scheme of August 1942 reduced the state of readiness of many batteries to release soldiers for other duties. The *Floodtide* scheme of November 1943 resulted in the closure of a number of batteries and the use of Home Guard personnel at others. The final *Neaptide* scheme of August 1944 placed a further tranche of batteries into a care and maintenance basis and the Home Guard ceased to staff such batteries.

| Name | Location | Type | Armament | Source |
|-----------------|---------------|--|--|------------|
| Uskmouth | Newport | Emergency Anti-Motor Torpedo Boat Battery | ?2 x 75mm QF | |
| Flat Holm North | Flat Holm | Dual purpose heavy anti-aircraft and coast artillery | 2 x 4.5-in Mk II dual purpose | WO 192/155 |
| Flat Holm South | Flat Holm | Dual purpose heavy anti-aircraft and coast artillery | 2 x 4.5-in Mk II dual purpose | WO 192/155 |
| Cardiff Docks | Cardiff | Emergency Close Defence Battery | 2 x 6-in Naval BL | |
| Cardiff Docks | Cardiff | Emergency Anti-Motor Torpedo Boat Battery | 2 x 75mm QF Mk I | |
| Penarth Head | Penarth | Emergency Close Defence Battery | 2 x 6-in Naval BL | |
| Lavernock Point | Lavernock | Existing port defences | 2 x 6-in Naval BL Mk XII | WO 192/316 |
| Nell's Point | Barry | Existing port defences | 1 x 4-in Naval BL 2 x 6-in BL Mk VII | |
| Port Talbot | Port Talbot | No. 15 Emergency Close Defence Battery | 2 x 4-in Naval BL QF Then 2 x 138mm | |
| Mumbles Head | Swansea | No. 14 Emergency Close Defence Battery | 2 x 6-in Naval BL Mk II | WO 192/320 |
| Mumbles Island | Swansea | Existing port defences | 2 x 4.7-in QF Mk III | WO 192/156 |
| Swansea Docks | Swansea | Close Defence | 2 x 4.7-in 2 x 4-in 2 x 12-pdr | |
| Swansea East | Jersey Marine | Emergency Close Defence Battery | 2 x 6-in | |
| Burry Port | Llanelli | No. 13 Emergency Close Defence Battery | 2 x 4-in Naval BL QF Mk VII | |
| East Blockhouse | Milford Haven | Existing port defences | 2 x 6-in BL Mk VIIa 2 x 9.2-in BL Mk X 2 x Twin 6-pdr QF | WO 192/317 |
| West Blockhouse | Milford Haven | Existing port defences | 2 x 6-in BL | WO 192/315 |
| Soldier's Rock | Milford Haven | Emergency Close Defence Battery | 2 x 6-in Naval BL Mk XII | WO 192/160 |
| Penrhyn | Fishguard | Emergency Close Defence Battery | 2 x 6-in Naval BL Mk XII | |
| Fort Belan | Caernarfon | Emergency Close Defence Battery | 2 x 4-in Naval BL Mk VII | |
| Llanfwrog | Holyhead | Emergency Close Defence Battery | 2 x 6-in Naval BL Mk XII | |
| Little Orme | Llandudno | Coast Artillery Practice Battery | 2 x 6-in BL Mk VII 1 x 4-in BL Mk VII 1 x Twin 6-pdr QF | WO 192/158 |
| Great Orme | Llandudno | Coast Artillery School | 1 x 9.2-in BL 3 x 6-in BL 1 x 4.5-in BL 3 x 4-in BL 3 x 12-pdr QF 1 x Twin 6-pdr QF | WO 192/158 |

Table 1.4: Known existing port defences and newly established emergency coast defence batteries in Wales during the Second World War.

1.4 Characterising the research resource

A review undertaken as part of this study into the published research regarding Second World War anti-invasion defences in the United Kingdom will reveal a rich and varied resource of different defence site types (Dobinson 1996b; Foot 2004, 2006a; Lowry 1996; Osborne 2004, 2008; Ruddy 2003; Wills 1985).

This research will demonstrate that all defence posts were the product of – or if pre-existing, utilised by – a defence scheme that originated with a military authority. Although regularly revised, these defence schemes were subjected to senior approval by higher authorities in the well-defined military hierarchy and once constructed they were regularly inspected.

These activities were the subject of military record and in theory a contemporary documentary (and/or cartographic and/or aerial photographic) audit trail was created, which may have been preserved in an archive. Similarly, the decommissioning of defence structures would have been documented and evidence may also survive in archives.

1.4.1 Defence posts

Fieldwork undertaken for this research shows that defence posts ranged from the commonplace excavated fieldwork slit trench designed to accommodate one or two infantrymen, barbed wire entanglements and sandbagged infantry posts through to more sophisticated and static hardened shelters such as pillboxes, and spigot mortar and anti-tank emplacements designed to house specific weaponry.

Combinations of defence posts were inter-linked in networks to create defended localities such as anti-tank islands, centres of resistance and nodal points.

Although much of the defence provision was new, significant numbers of sites utilised existing infrastructure such as defended buildings, fortified houses and loopholed walls. Many existing buildings also found new uses as military headquarters, stores and accommodation. Identifying such changes can present a considerable challenge.

1.4.2 Linear defences

A wider analysis of stop lines – notional defended lines of resistance – undertaken as part of this research in Wales (see Table 1.1) demonstrates that these features were established in combination often utilising existing linear geographical features such as rivers and railways in order to hinder and delay advancing armoured fighting vehicles (AFV). Documentary source evidence records that at least twenty stop lines were planned for Wales (see Table 1.1), although research has not yet determined the actual number built; three were trans-national in character.

Fieldwork visits undertaken as part of this research demonstrate that linear defences for use either inland or in coastal environments and of varying lengths and composition were created by the use of combinations of alignments of concrete anti-tank blocks, steel RSJs and ditches together with existing features such as cliffs and railway embankments. Networks of road and railblocks were established to prevent movement along transportation routes, particularly where these routes passed stop lines and the boundaries of defended localities. A variety of area denial weapons

were utilised including anti-personnel and anti-tank minefields, fougasse sites, Canadian pipe mines and demolition sites. All such defence works were covered by gun emplacements.

1.4.3 Airfield defences

As some of the largest and most complicated defence complexes airfields were subjected to a phased development of defence provision (Dobinson 2000d-e; Francis n.d., 2010). Air Ministry records at TNA establish that it developed its own specific range of defences including pillboxes, battle headquarters, seagull trenches, Pickett-Hamilton forts and Allan Williams' turrets, deployed in varying numbers and compositions depending on the importance and perceived vulnerability of a given airfield. These records also show that the Pickett-Hamilton forts were authorised for use in July 1940 and scheduled for installation for RAF stations at Cardiff, Porthcawl, Llandow, St Athan, Pembrey, Carew Cheriton and Manorbier in January-February 1941 (AIR 2/5194).

As well as providing outward ground defence, provided largely by the Army during the earlier part of the conflict, the sources examined in this study establish that airfield defence provision was also equipped for inward ground and aerial defence capabilities. Documentary records state that anti-landing obstacles were constructed in open spaces within five miles of some vulnerable airfields from regularly spaced earthworks, poles or stone cairns. Airfields were also defended with anti-aircraft and searchlight emplacements.

1.4.4 Coast defences

Specialised forms of coastal defence already existed and were enhanced or started afresh (Dobinson 2000a; Saunders et al. 2001). Coast artillery batteries included anti-motor torpedo boat gun emplacements and larger calibre close defence and counter-bombardment batteries, all supported by specialist architectural infrastructure such as battery observation posts and coast artillery searchlights (Lowry 1996; Maurice-Jones 2005).

Source evidence consulted during this research confirms that coast artillery batteries – in common with other important and/or large static defence installations – were protected by extensive areas of minefields, barbed wire entanglements and gun posts. The coast batteries protected vulnerable docks, harbours and ports, together with their examination anchorages.

Documentary records also demonstrate that additional protection was provided by petroleum warfare sites (ADM 265/3-4), marine minefields and boom defences. Threats were identified from combinations of radar, port war signal stations and visual observation posts.

Beaches and inter-tidal areas defined by the military as being vulnerable to sea and airborne landings (see Table 1.5) were defended by many of the aforementioned defences, together with specific defences such as anti-boat and anti-landing obstacles (WO 199/103) and *Toadstool* minefields (WO 199/94). This research also established that beach defence gun emplacements were established at Pembrey, Ferryside, Pendine and Gower (WO 166/2043, /2044 and /2045).

| Location | Command Area | Source |
|--|--------------|--|
| Towy inlet-Pendine Sands-Saundersfoot-Tenby-Giltar Point | South Wales | Western Command Operation Instruction 13, 22/07/40 (WO 166/94) |
| Llanelly-Pembrey-(excl.) Porthcawl-Mumbles Head | South Wales | Western Command Operation Instruction 13, 22/07/40 (WO 166/94) |
| St Athan and St Donats | South Wales | Western Command Operation Instruction 16, 15/08/40 (WO 166/94) |
| Beaches within five miles of Tenby | South Wales | Western Command Operation Instruction 16, 15/08/40 (WO 166/94) |
| Northern part of St Brides Bay and Whitesand Bay | South Wales | Western Command Operation Instruction 16, 15/08/40 (WO 166/94) |
| Beaches within five miles of Fishguard | South Wales | Western Command Operation Instruction 16, 15/08/40 (WO 166/94) |
| In Anglesey, Holyhead and the beaches within five miles of Cymyran Bay and Red Wharf Bay | North Wales | Western Command Operation Instruction 16, 15/08/40 (WO 166/94) |

Table 1.5: Known vulnerable beaches defended in Wales listed by earliest identified documentary source.

1.5 Research problem

Given that the academic study of Second World War anti-invasion defences in Wales is coming into vogue in archaeological terms and that it does not yet feature to any great extent in current archaeological research frameworks the immediate challenge in a Welsh context concerns how to identify, characterise, use and evaluate the evidential sources for this type of archaeology and the content therein.

As archaeology has contributed relatively little to the debate to date in Wales, the identification and collection of evidential sources and data will start almost from the beginning. The known data will be shown to be slight, subject to pronounced spatial and chronological biases and the source evidence not evaluated robustly. The extent, content, limitations and associative relationships of surviving evidence for Second World War anti-invasion defences in Wales need to be established before any subsequent and meaningful advanced analysis can be undertaken.

1.6 Research questions

The primary aim of this research is to determine to what extent there is evidence for Second World War anti-invasion defences in Wales.

The main research questions are:

- To what extent does evidence survive for Second World War anti-invasion defences in Wales?
- What is the character (content, coverage and availability) of the selected source evidence and the nature of the associative relationships between the different types of evidential source? What are the benefits and pitfalls of their use? Can their authority (value, role and contribution) be established?
- What information is required to use the source evidence effectively? Can the diverse sources be integrated into meaningful narratives?
- Can the choice of official source evidence be useful? Why?

Other subsidiary research questions include:

- To what extent can the selected evidence enable understanding of what was built, where, when, why, by whom and for what purpose in Wales?
- Is an archaeological approach a legitimate form of inquiry when applied across inter-disciplinary source evidence? Why?
- How can case study area boundaries be most effectively framed? Why?

This work will be informed by research themes identified in the wider published literature from the sub-disciplines of historical, documentary and conflict archaeology and the archaeologies of the recent and contemporary past, as defined in Chapter Two.

1.7 Motivations for selecting the research topic

It is important to situate how my interest in this research topic developed so that other researchers can understand the explicit and implicit assumptions therein and identify cultural biases. The prime reasons for undertaking this research are threefold:

1.7.1 Personal experience

In some respects this work is a logical continuation of a long-standing personal interest in this subject which is the result of growing up in Norfolk and Lincolnshire where the large numbers of visible former military sites and structures had a profound influence on the researcher.

Subsequently, family history research identified a series of fascinating stories with significant familial resonance, including the family being twice bombed out of successive homes during the London Blitz.

My paternal and maternal grandfathers were involved in the development of radar and Mulberry harbours respectively, while a great uncle was a Royal Marine Commando involved in the capture of important documentation and personnel in

front of the Allied advance for Berlin during 1945. Similarly, two great aunts were involved with the work of the Secret Intelligence Service and the Imperial Prisoner of War Committee respectively.

All were fortunate to survive the war and collectively their stories, documents and artefacts handed down through generations contributed to an interest in the Second World War; this awareness is characterised by a remarkable diversity of involvement and experience on the one hand – demonstrating the impact of ‘total war’ on a family – and the good fortune not to be shaped by the regret and sadness of tragic personal loss on the other hand.

1.7.2 Professional experience

It is important to acknowledge that my professional career as an Inspector of Ancient Monuments working for Cadw, the Welsh Government’s historic environment service, has a considerable bearing on the conception, undertaking and production of this research. This role includes ongoing responsibility for designing and implementing Cadw’s twentieth-century military sites designation enhancement programme.

This work comprises the commissioning of relevant thematic and threat-related pan-Wales projects, analysis of the results and the subsequent assessment and recommendation of candidate sites for legal designation. This role established close professional relationships with staff at the regional Historic Environment Records (HERs) and the National Monument Record Wales (NMRW) and legitimised beneficial access to numerous Second World War anti-invasion defence sites across

Wales, many of which are not easily accessible to the general public. Collectively, these factors form the basis for the development of a solid grounding for understanding the number, range, location and type of defences that have been identified to date within Wales.

My professional role also involves direct liaison with military and civilian representatives of the armed forces and the Ministry of Defence in Wales, which enabled me to develop a more informed understanding of the organisation and activities of the military. In particular, professional relationships with personnel responsible for the provision of archaeological advice, range safety and estate management facilitated preferential access to the current defence estate in Wales. This enabled privileged admission to controlled and restricted areas that had not been the subject of previous archaeological investigation.

Finally, my professional position also enabled privileged access to some sources of evidence, particularly within Welsh Government and at the RAF Museum, the Cabinet War Rooms and TNA.

Through these statements it is important to record that this research benefits significantly from such fortunate access arrangements. It means that a wider range of official evidence can be examined, which will facilitate more extensive analysis and more informed results and conclusions.

1.7.3 Absence of previous research

My professional work facilitated a close familiarity and understanding of the development and the strengths and weaknesses of modern conflict archaeology in

Wales. This familiarity provides the context within which to identify the significant absence of research into Second World War anti-invasion defences in Wales as an important and meaningful research opportunity.

1.8 Relevance of the research topic

It is necessary to state why this research topic is of interest and why now.

There are eight primary reasons why this academic investigation is relevant:

- **Absence of previous research** – the evidence presented in Chapter Two and the individual case study chapters will demonstrate that only a very minor amount of previous research has been undertaken in this topic area in Wales. At the time of commencing this research very few defence sites are recorded on the NMRW or the regional HERs. This gap offers a legitimate research opportunity.
- **Contribute to the refinement of research objectives** – some references in the literature can be misconstrued as suggesting that the surviving records are thorough and precise enough to record what anti-invasion defences had been built when, where and why, and often how they were used and by whom (Dobinson 1998: 2; Schofield 2005: 72). It is considered important by the researcher to test this assertion for the Welsh evidence to determine if the statement is accurate.

- **Identification and assessment of source evidence** – it is considered important to the researcher to begin to identify and evaluate the relevant sources of evidence available for the study of this topic in Wales, together with their respective merits and demerits, in order to combine and apply the source evidence in a rigorous manner. The informed knowledge and use of the sources will be a crucial first step prior to undertaking any other form of research within this topic area in Wales and will also be useful to others studying this subject in a Welsh context. Examination of the sources will also maximise the identification of anti-invasion defence sites, and their dates, locations and types.
- **Development of historical context** – it is considered important to the researcher to place the archaeological evidence into a wider historical context in order to establish a more informed and holistic evidence-based narrative, which has not been articulated for Wales. The researcher regards this as being particularly important in order to establish a comprehension of the developmental phases of defence provision, and to identify the military operational and administrative organisational structure that the defences were created within. The identification of phasing and organisational evidence is required to inform the methodology and the process of archaeological interpretation. It is also important to identify the military formations and units responsible for authorising, constructing and using the defences so that their war diaries can be identified and consulted to determine whether they retain useful content to inform the answering of

the research questions. This identification process will also start to address the often fundamentally anonymous character of these structures and re-establish their biographical relationships with human agency.

- **Raise awareness of research potential** – at the time of writing very few academic studies of British anti-invasion defences have been undertaken. Research into this topic will establish parity with other themes and topics currently fashionable within modern conflict archaeology-focused studies, and will raise awareness of the significant research opportunities available.
- **Inform archaeological heritage management strategies** – as a known depleted and threatened resource, an enhanced understanding of the character of the physical evidence will inform the development of appropriate archaeological heritage management strategies.
- **Characterising the research resource** – new research will characterise which types of known sources are present or absent for Wales, and how plentiful and informative or otherwise they are. If the source evidence does survive, it is uncertain whether the inter-relationships between the sources are complementary or contradictory in character, or whether one source is dominant leaving the other sources as supporting minor or redundant constituents. The value, role and/or contribution of the sources are also uncertain, as is their thematic, chronological and spatial coverage.

- **Contribute to wider research discussions** – the research is also timely when viewed as part of the wider development of research interests in historical, documentary and conflict archaeology and the archaeologies of the historical and recent past. The presentation of new data, characterisation of the evidence and the examination of pertinent issues could also potentially contribute to wider disciplinary debates regarding the relationships between archaeology and history.

1.9 Research methodology

The methodology and method adopted in this research are described in detail in Chapter Four. A brief overview is provided here. The research approach utilised in this study is archaeologically-based throughout giving equal primacy to each source, irrespective of the type of evidential source being examined. It draws heavily from conflict archaeology and is also influenced by trends apparent within historical and documentary archaeology and the archaeologies of the recent and contemporary pasts. The theoretical trajectory adheres broadly to a qualitative approach, which suits the subjective character of the study. The researcher accepts fully that the results and conclusions reached within this study represent a construct that reflects the individual selection, treatment and interpretation of the data.

The research methodology advocates going back to first principles owing to the virtual lack of published research into this topic in Wales. An evidence-led exploratory approach is adopted that seeks to identify the type, presence/absence, value, role and contribution of the evidential sources. At all times an iterative

approach is utilised and content already identified is re-analysed in the light of findings from new content to ensure that source evidence is treated consistently. The findings are established through a series of incremental iterations.

The topic is scoped to include a limited sub-set of anti-invasion defences as defined in the *Defence of Britain Thesaurus* (Historic England 2015), including terrestrial and inter-tidal defence structures, coast artillery and airfield defence sites (see List of Definitions). The research questions are framed with reference to existing national research agendas.

The method adopted comprises the purposeful selection of a limited number of different classes of source evidence for cross-comparison. Aspects of this are influenced by Dobinson's historical documentary research (1996b, 2000a and 2000d-e) and Foot's methodology for investigating defence areas (2006a-b). Data collection and analysis at a national scale is deemed to be outside the scope of this research. A case study-based approach is used in order to narrow the research field (Travers 2001; Yin 2009).

Archival work is undertaken to identify documentary, cartographic and aerial photographic evidence within the case study areas. Rapid field observation is undertaken within the case study areas to identify new defence sites. The data is collected, organised and subjected to content analysis in order to draw out the information contained within the source evidence. Cross comparison draws out patterning regarding similarities and differences in the datasets.

1.10 Limitations of the study

The limited research undertaken to date within the chosen topic offers an extensive range of potential research directions. Given the constraints of time and resources imposed by the parameters of this study it is necessary to establish research boundaries and to exclude some areas from study. It is recognised that these areas contribute to the overall holistic understanding of anti-invasion defence provision and are worthy of in-depth investigation in their own right by other researchers. In many cases evidence from beyond these boundaries is examined and informs the wider research process, but this broader evidence is not presented within the thesis. Methodological limitations are discussed further in Chapter Four. The areas explicitly excluded from the study are described below:

- **Spatial limitations** – the adoption of a case study-based approach by definition imposes spatial limitations on the geographical extent of the study.
- **Temporal limitations** – this research focuses primarily on the period AD 1940-42. Although some defence sites had existing defence functions prior to the commencement of the conflict in September 1939, the majority of anti-invasion defences were constructed from May 1940 onwards, reaching their zenith by September 1942. From this date other activities were prioritised and large parts of the defence network were removed,

particularly those elements that impeded transport and agriculture.

- **Thematic limitations** – thematic boundaries are applied in order to focus the scope of the research. Themes are limited to terrestrial and inter-tidal anti-invasion, coastal artillery and airfield defence sites, together with the armed forces (Army, Navy and the Royal Air Force) and civilian ministries (War Office, Admiralty and Air Ministry) responsible for them. Research into the Auxiliary Units is considered to be a specialist endeavour best undertaken as a specific research project in its own right and is excluded from this research (but see Atkin 2015; Lampe 2007; Lowry and Wilks 2007; Ward 1997). Similarly, while shore-based Admiralty defence installations are considered, this research does not specifically examine maritime minefields, ship deployments or examination anchorages (but see Davies 2013; Grove 2005; Phillips 2010; Phillips 2011; Wilson 2013).
- **Source evidence limitations** – the types and varieties of source evidence utilised in the research are limited in order to keep the research manageable. These limitations are detailed and justified in Chapter Four.
- **Language** – this research focuses solely on English language material, as English was the official language of the British armed forces and that used in the official records. Wales was a bilingual country during the Second World War and some Welsh language documentary evidence has been identified relating to Home Guard activities in north Wales. It is considered

that this would benefit from specific study outside of this research.

- **Performance and effectiveness of the defences** – a number of studies attempted to model the performance and tactical effectiveness of static anti-invasion defences (Lacey 2003; Rowe 2005). This approach is considered to be a speculative endeavour more appropriate to a thesis on predictive modelling or war-gaming. As the researcher does not possess any direct military experience it is considered inappropriate to comment on whether the built defences were tactically competent or otherwise.
- **Mobile defences** – the archaeological investigation of portable weaponry used by mobile armed forces is conceptually problematic, for example the rifle, the Smith gun used by the Home Guard or the Bison mobile pillbox utilised on airfields. Defence schemes usually reflected generalised initial starting positions prior to an anticipated engagement after which the use of pre-prepared positions would become less important. Subsequent deployment would be determined by the course of the engagement. The modelling of mobile defence provision under battlefield conditions is outside the scope of this study.
- **Data** – the primary research focus is to determine to what extent there is evidence for Second World War anti-invasion defences in Wales, and to explore the inter-relationships between the four selected sources of evidence. The source evidence and defence sites identified are presented

in their respective appendices, but a narrative discussion of the development and significance of the defence sites and military administrative and operational data is omitted. The detailed development of the military administrative and operational organisation in Wales during 1940-42 will be published (Berry forthcoming a). Similarly, detailed discussions of the defence sites located during the case study investigations will be published (Berry forthcoming b-d).

- **Conservation** – notwithstanding my professional background in archaeological heritage management consideration of issues relating to the condition, conservation management or significance of defence sites are excluded from this study. While these are important concerns, the primary research priority is recognised as identifying and analysing the content, character and inter-relationships of the evidential source evidence and the defence-related content therein. Informed conservation decision-making should be undertaken as a separate and subsequent activity.

1.11 Summary of thesis structure

This thesis is composed of nine themed chapters, including this introductory chapter. Chapter One provides an introduction to the research topic and defines the research questions. The motivations for and the relevance of the research have been described. The limitations of the research have been stated and the structure of the thesis is established.

Chapter Two presents the results of the literature review and looks at how the research is situated within the overlapping academic disciplines of historical, documentary and conflict archaeology and the archaeologies of the recent and contemporary past. Influential themes are identified.

Chapter Three provides a descriptive overview of the origination, organisation, content and survival of the source evidence employed in this study.

Chapter Four presents the methodology and methods used in the research.

Chapters Five, Six and Seven introduce the three selected case study areas and presents the results from each. The identified evidence is described and presented in terms of its type, presence/absence, value, role and contribution.

The discussion in Chapter Eight compares and contrasts the results from the three cases and locates the research within the wider field of conflict archaeology. The effectiveness of the methodology is discussed, together with case selection issues. The associative relationships between the four selected classes of evidential sources and wider pivotal themes arising from the research are identified and discussed.

The conclusions and evaluation in Chapter Nine draw upon the entire thesis tying up the various themes. The implications of the findings of the research into this topic are discussed and areas for future research are identified.

2. LITERATURE REVIEW

2.1 Introduction

The academic study of British Second World War anti-invasion defences is an under-developed topic that is situated within the rapidly expanding branch of conflict archaeology. Conflict archaeology can be defined as the study of the material remains arising from past inter-group hostilities spanning the entirety of human history. While firmly rooted in the discipline of archaeology it also incorporates a pronounced interdisciplinary character.

2.2 The wider interdisciplinary context

The study of conflict is not restricted to archaeological approaches and it is important to examine briefly influences from history, military history and military geography.

2.2.1 Second World War historiography

The Second World War was arguably the most important historical event of the twentieth century and its study generates prolific publications, which are mostly historical in character. It is important to review this aspect so that contributions and gaps can be identified.

The majority of recent Second World War historiography is concerned with grand strategy (French 2000; Mackenzie and Reid 1989; papers in Martel 2004; McInnes and Sheffield 1988; Millet and Murray 1988; Reid 1998), with others

concentrating on training (Davis 2008; Liddiard and Sims 2012a), tanks (Larson 1984; Fletcher 1989, 1993; Harris 1995), social history (Gardiner 2005; Harris 1992; Smith 1996; Wills 2007), the Allied strategic bombing campaign (Gray 2013; Overy 2014; Primoratz 2010), the Battle of Britain (Bungay 2009; Overy 2010) or the military campaign in north-west Europe (Gardiner 1994; Hastings 1985; Wilson 1994; Kaufmann and Kaufmann 2003). There has been a recent trend towards rehabilitating the performance of the British army (Harrison Place 2000).

To the author's knowledge there is an almost complete absence of published historical work on British anti-invasion defences, the majority of research being undertaken by professional archaeologists or those from the amateur tradition (see below). A notable exception is the recent research undertaken on the anti-invasion defences of Suffolk (Liddiard and Sims 2012b, 2014a-d). The authors stated that Dobinson's

'recent pioneering work on documentary sources has been focused on the 'macro' level and 'high order' formations: the various army commands, corps and divisions', and that 'there is a pressing need for detailed local and regional surveys utilizing the war diaries of army units from further down the chain of command at brigade and battalion level' (2012b: 404).

Liddiard commented that 'the [documentary] material is so rich I can't believe it has not been rigorously studied by historians before' (pers. comm., 4 November 2014).

The published wartime diaries of the successive Commanders-in-Chief, Home Forces General Sir Edmund Ironside (Macleod and Kelly 1962) and General Alan Brooke (Danchev and Todman 2001) offered vital historical context to the

development of defence preparations, but these works did not focus on the details of defence provision.

The publication of a comprehensive series of official histories recording aspects of the Second World War was a significant government preoccupation during and after the war. Important volumes for the context of this research included the defence provision for the British Isles (Collier 1956), military orders of battle (Joslen 2003), anti-aircraft defences (Ministry of Information 1943), the Air Ministry (Grey 1940), airfield-related construction (Air Ministry 1956) and, works and buildings (Kohan 1952). While comprehensive these sources tended to promulgate a particular perspective and did not provide the detail required for archaeological investigation. They frequently omitted the use of bibliographic citation, relying on their own inherent authority and truth. War Office military training manuals and pamphlets comprised another useful form of official publication (for example War Office 1925, 1933, 1935, 1936, 1938, 1939, 1942 and 1943).

The organisation of the British Army (Ellis and Chamberlain 1976; Forty 1998; Gander 1995), Royal Air Force (Guiver 1994; Wragg 2007) and the Home Guard (Carroll 1999; Longmate 2010; MacKenzie 1995, 1997; Yelton 1994) have been published, but these are often generic works that do not focus on the experience in Wales.

The above discussion highlighted the relative lack of engagement by historians with the subject of local defence arrangements and a complete absence in Wales.

2.2.2 Twentieth-century Welsh conflict historiography

As far as the author is aware the canon of Welsh academic historiography has not engaged substantively with the topic of anti-invasion defences, although there was an increasing interest in the topic from the amateur and local traditions. The author failed to identify any histories regarding the formations and units that served in Wales. Formal academic publication more widely on the subject of the Second World War in Wales has been infrequent, usually examining socio-historical aspects such as women's experience of the munitions factories (Williams 2002), the County War Agricultural Executive Committees (Moore-Colyer 2005), the historiography of wartime industrial mining relations (Gildart 2009) and the development of south Wales's military-industrial complex (Pincombe 2014), rather than the conflict's physical legacy.

Other conflict related research focused on First World War remembrance (Gaffney 2000), and the Welsh experience of life on the Western Front (Richards 2014) and the Spanish Civil War (Stradling 2004). There has also been limited treatment of Cold War era topics including civil defence preparations in north-east Wales (Jones 1998, 2000a-b), communications (Brown 2006) and the Welsh experience of the American military (Whitham 2009).

Johnes recently commented on this deficiency when he stated that writing about the twentieth century 'history of Wales has been dominated by the domestic political sphere... and is firmly skewed away from ordinary life' (2011: 604).

Elsewhere, he attributed the lack of wider twentieth century historical engagement to

an overly narrow definition of welsh history comprising internal politics, nationalism and welsh cultural institutions (Johnes 2012).

This literature review identified an undeveloped historiographical engagement with the material legacy of twentieth century conflict in Wales. Despite the rich and numerous primary sources relating to the Second World War defence preparations in Wales the evidence has been consistently overlooked and the topic cannot be discerned as part of the canon of welsh history. This is considered to be a significant knowledge gap.

2.2.3 Military history

It is not the purpose of this literature review to focus in detail on military history, but the work of Black is pertinent (2004). He observed that much of the military history output has been criticised as being Eurocentric with a technological bias while overly focusing on state-to-state conflict and leading powers at the expense of discussions regarding political 'tasking' and an unhelpful separation between terrestrial and maritime operations.

His analysis of the main themes in military history from 1914 identified the two dominant narratives as the developments in Western-Soviet war-making and the shifts in political control following the decline of European colonial powers. British Home Front preparations and experiences did not feature in his review and it was clear that Second World War anti-invasion defences fell outside of these dominant narratives (2004: 207-219).

Newbold undertook a top-down military historical study of the actions and decisions of the Commanders-in-Chief, Home Forces from September 1939 to September 1940 (1988). He used a combination of primary historical and secondary sources, together with limited oral testimony, to establish the chronological framework of historical events and explain the decisions of Commanders-in-Chief. Newbold also identified the changing disposition of the British Army's formations, their deficiencies in terms of personnel, arms and armour, and presented periodic statistical accounts of their martial capability.

The usefulness of Newbold's study was constrained by five factors. It was geographically restricted to the south and east coasts of England and little of the content was relevant to Western Command or Wales. It was temporally limited, ceasing in September 1940. It focused solely on land forces ignoring Naval and aerial contributions. The thesis was primarily a descriptive narrative account with very limited analysis or discussion. Finally, it provided a limited consideration of the actual anti-invasion defences erected; with one notable exception, Newbold did not utilise any surviving evidence on the ground, despite being in correspondence with Henry Wills. Newbold's thesis remains influential, despite these weaknesses.

Other important Second World War historical research includes Levy's archive-based military historical strategic and operational assessment of the Royal Navy in British waters (2001), Judkins's study of the development of British radar (2007) and Clarke's re-evaluation of the effectiveness of Home Guard weaponry (2010).

Looking more widely across the twentieth century Sparnon utilised an evidential-based, inductive method to establish the parameters of his study of Cold War airfields in East Anglia (2006) and Smith exploited in-depth archival analysis to reveal the more complicated stories behind well-rehearsed debates in her study of Cold War civil defence preparations (2009).

2.2.4 Military geographies

Geographical studies of militarisation, militarism and military activities and landscapes are well-established (Brunn 1987; Pearson 2012; Woodward 2004; 2014). A range of themes of investigation were apparent including the impact of militarisation (Blake 1969; Tivers 1999; Wilson 2011), and the demilitarisation and re-use of former military areas (Doak 1999; Fisher 1993; Havlick 2011; Warf 1997). Beyond familiar themes such as memorial landscapes geographers also investigated environmental and pollution concerns (Dudley 2012; Fonnum et al. 1997; Walsh et al. 1999), the social effects of militarism (Cole 2010b; Robinson and Mills 2012), military cartography (Fedman and Karacas 2012; Maddrell 2008; Rose and Clatworthy 2007) and battlefield tourism (Dunkley, Morgan and Westward 2010). There were also pronounced critical themes regarding gender, protest and anti-militarism (Belkin 2012; Enloe 1990; Megoran 2008, 2011; Williams and McConnell 2011; Woodward 2006).

In an important article Woodward identified emergent agendas for future military geographic research. Her comments regarding the unseen or unseeable character of many military landscapes, and the potential for some types of sites 'to

inoculate us against [their] attention' (2014: 49) were thought-provoking from a methodological perspective. So too, was Woodward's observation regarding

'how landscapes bearing the imprint of now-obsolete military infrastructures, such as the 'coastal crust' fortifications of the Second World War around Britain, continue to assert these places as contributors to the war effort and thus militarize these spaces in the present despite their total obsolescence in military terms' (2014: 53).

2.3 Conflict archaeology as historical and contemporary archaeology

Carman – one of the key thinkers in the field of conflict archaeology – convincingly described the sub-division of conflict archaeology into three distinct periods of study (2013; see also Freeman and Pollard 2001), discussed in further detail below. The study of modern conflict archaeology can also be co-located within the well-established and overlapping sub-disciplines of historical, documentary and text-aided archaeology, and the archaeologies of the recent and contemporary pasts.

This research was influenced by ideas from these traditions, and this chapter arranges these approaches into a hierarchical and nested structure of categories for the purposes of clarity and to review the trends and gaps prevalent within each. It is recognised that the distinctions between different categories were not strictly necessary and that the terms used were convenient labels, which were really part of a much wider and more complex articulated reality of inter-connected and overlapping concepts.

The term historical archaeology is accepted 'to refer broadly to the post-1500 period' (Hicks and Beaudry 2006: 2). In addition, the 'recent past' has been defined as the period from AD 1900 (Schofield and Johnson 2006; Stevenson 2001;

Wilkinson 2001) and the 'contemporary past' has been defined as being from AD 1950 onwards (Harrison and Schofield 2010), albeit noting the caveat regarding chronological mobility with time that defies allocation to a lasting temporal range. The contemporary past is rooted firmly in the developments of the recent past.

As modern conflict archaeology exists simultaneously within the adopted chronological frameworks of historical archaeology and the archaeologies of the recent and contemporary pasts it is appropriate to examine the literature from these wider sub-disciplines before reviewing the literature from conflict – particularly twentieth-century – archaeology.

2.4 Profiling historical archaeology

'Historical archaeology' is the term used for a well-established branch of archaeology. A broad and literal interpretation could include any archaeology that combined both archaeological and textual sources including Greek, Roman, biblical, medieval and post-medieval, but the sub-discipline has imposed an AD 1500 onwards focus.

Orser stated that 'because of the explosion of information and the need for specialization, any overview or assessment of contemporary historical archaeology is destined to be selective' (2010: 112). Consequently, a full literature review of historical archaeology is outside the scope of this research, but some trends can be identified that helpfully set this research within a wider context.

Credited by some as the 'father' of historical archaeology, Noël Hume established a rather awkward relationship between archaeology and history when he

described archaeology as 'handmaiden to history', rather than as a pursuit in its own right (1964). While Cunliffe emphasised that the study of historic cultures had a well-established world pedigree, particularly in Europe since the late eighteenth century (2006: 314-315), much of the development of historical archaeology was undertaken within a North American cultural anthropological-led context.

Hicks defined two brands of North American historical archaeology (2004: 101-102). For many, American historical archaeology was synonymous with the Annapolis school, itself significantly aligned with the archaeology of capitalism through the works of Leone (1988, 1995 and 1999) and Orser (1996). The lesser known alternative tradition was concerned with the 'construction of personal social worlds and broader historical and geographical contexts...' (for example Beaudry et al. 1991; Deetz 1977) and combined, '... diverse sources of evidence to produce fine-grained contextualised and nuanced studies of objects, places and people' (Hicks 2004: 102). This 'Deetzian' interpretative and contextual tradition had much in common with British post-processualism and was insightful for the purposes of this research.

Hicks identified that the study of historical archaeology was shifting away from structure, coherence and political purpose towards messier, incomplete and more complex interpretations, and that British historical archaeology needed to define its own direction (2004). Elsewhere, Hicks argued for the development of situational, multi-vocal and inclusive archaeologies (2005).

Periodic progress summaries identified the main North American research themes as historical supplementation and cultural reconstruction (Deagan 1982),

utilising textual analysis in archaeology and the impact of capitalist analyses (Little 1994), and the influence of post-processual thinking and trends toward power relations, class, race and gender (Paynter 2000a-b).

Orser identified the pressing issues in current North American historical archaeology to be analytical scale, capitalism, vectors of inequality, and heritage and memory (2010: 116). His incitement 'to envision the scale of archaeological research as a continuum that extends from the household to the various interlinked, intra- and transcontinental networks of interaction' (2010: 117) parallels this research.

Little noted that the combination of documents and historical methods with material culture could be difficult, but that the interplay of evidence types was productive and could yield alternative and informed research questions to identify structural issues (2007). Historical archaeology retained the potential to confirm, challenge, correct or redefine history, and to (re-)create broader and more inclusive documentary histories. Her statement that 'archaeological and documentary evidence are not equivalent. They are created over very different spans of time and with very different intentions' (Little 2007: 62) is thought-provoking; the evidential sources utilised in this research were contemporaneous and bound to a very narrow chronological range.

Historical archaeology, Little observed, offered a means to reconstruct the full range of lives and pathways of individuals, particularly from the perspectives of colonialism, migration, slavery and capitalism. Similar methodological approaches may offer insight into the impact of government anti-invasion defences on local

families and communities, which could be considered to be a form of intra-national colonialism – or the extension of the public into the private – in its own right.

Little also stated that ‘historical archaeological studies that contribute to general archaeological method often take the form of cautionary tales to warn colleagues about unexpected complexity in the archaeological record’ (2007: 37). As one of the first specifically methodological studies of this topic, it is anticipated that one of the outcomes of this research will be to establish such advice.

Wilkie argued that although historical archaeologists shared documentary evidence in common with historians, the latter possessed a distinct focus, practice and disciplinary gaze that gave pre-eminence to documentary evidence (2006). In contrast, historical archaeologists gave equal primacy to multiple sources of evidence. Such an approach underlies this research.

While the majority of historical archaeology literature emanated from the North American tradition, Tarlow and West edited the first volume that applied this approach to British post-medieval archaeology (1999), although it was striking that industrial archaeology and technology were deliberately excluded (Tarlow 1999). West criticised British post-medieval archaeology as a traditionalist pursuit focusing on data retrieval and classification to answer low-level questions regarding quantities, origins and typology at the expense of addressing high-level interpretative challenges regarding social identities and multiple meanings within wider research frameworks (1999). As discussed below, this problem is shared with anti-invasion defence studies where most of the published output conforms to similar low-level analysis.

In his study of eighteenth century Bristol in the same volume Leech remarked that one of the strengths of North American historical archaeology was the interplay between material and documentary evidence, but he stated in the context of his research that 'archaeology below and above ground, linked when appropriate to the use of documents, has a vital and as yet hardly fulfilled role in extending our understanding' (1999: 31). Leech also identified that the choice of informative documentation was a key methodological problem. The same observations are applicable to Second World War anti-invasion defences.

Tarlow and West's volume contained one notable conflict archaeology paper (Carman 1999). It addressed 'battlefields as a particular category of place, and... as a locale representing a very particular kind of experience which can in significant ways be considered to differ with time and place' (1999: 234). Carman's 'materialist' analysis focused on the interaction of human flesh, bone and blood (the soldier), technologies brought to the battlefield and the landscape over which the battle was fought. This definition is challenging for the study of British Second World War anti-invasion defences as the defences were prepared, but the battle was not fought.

Another recent overview that took a deliberately wider perspective (Hicks and Beaudry 2006) focused on commonly encountered themes within historical archaeology, including colonialism (Lawrence and Shepherd 2006), capitalism (McGuire 2006), urban archaeology (O'Keeffe and Yamin 2006) and industrial archaeology (Symonds and Casella 2006).

The absence of a dedicated conflict archaeology themed chapter was notable. The few conflict archaeology-based exemplars were referenced within wider chapters

on heritage (Schofield and Johnson 2006), maritime archaeology (Flatman and Staniforth 2006) and memory (Holtorf and Williams 2006). This was perhaps demonstrative of an unfulfilled relationship between conflict and historical archaeologies whereby conflict archaeology was used to illustrate, but was not perceived as a prominent theme in its own right.

Within the context of this literature review conflict archaeology was not identified as a discrete or frequently referenced topic within British or wider historical archaeology. However, much of the methodological and theoretical insights was considered to be relevant to the framework of this research.

2.5 Documentary archaeology

A significant theme of historical archaeology is the examination of how documents should be used in, and integrated with, archaeology. Like much of historical archaeology, the development of documentary archaeology had a strong tradition in North America. Much research was undertaken in a New World context, but the thinking is applicable to the study of UK-based Second World War archaeology. Two early publications by Beaudry (1988) and Little (1992) were influential, as they illustrated how archaeologists could use specific types of texts in particular ways.

Beaudry introduced the term 'documentary archaeology' (Wilkie 2006: 13) and asserted that documentary evidence provided historical archaeology with a significant advantage over prehistory (Beaudry 1988). Rather than utilising historical sites as test cases for prehistoric models or using archaeological evidence to

illustrate history, Beaudry stated that historical archaeologists must focus on the totality of material culture incorporated within both the ground and the documentary evidence. She stressed that 'historical archaeologists must use historical sources critically in order to offer insight into the recent past' (Beaudry 1988: 3); such an approach required different research strategies and problems distinct from prehistoric archaeology and history.

Two of Beaudry's contributors offered works of immediate interest to this research. Seasholes reviewed the information that could be obtained from, and outlined the pitfalls of using, historical maps emphasising issues relating to the purpose, intended audience, compiler bias and cartographic accuracy of such evidence (1988). Further studies assessing the contributions of cartographic evidence within an historical archaeology context were undertaken by Shieles (2007) and Rondelli et al. (2013).

The rare usage of military records by archaeologists, and their usefulness – particularly for identifying patterning in the archaeological record, aiding archaeological interpretation and providing a check on historical representation – was described by Babits (1988). He observed that military documents could be used to provide unique and informed information unavailable elsewhere, but that sometimes insufficient quantities of documentation would make patterning harder to detect.

Babits concluded that 'a combined approach to documentary analysis has distinct advantages for regional site location studies', and that information from military documents provided a successful demonstration that the use of ignored documents could add new dimensions to our understanding of the past (1988: 125).

2.5.1 Text-aided archaeology

Little developed an alternative ‘text-aided archaeology’ approach, which was also North American-based and anthropologically-led (1992). It was more widely defined than documentary archaeology to include documents, oral testimony and ethnographic description. She posited an arena in which texts served archaeology, inverting Noël Hume’s earlier observation. She explored the relationships between different types of sources and addressed how historical documentation was used in archaeology, including the focus on the techniques of data gathering and methodologies to make sense of the data and the critical examination of how historical documentation could be used to inform archaeological interpretation.

A comprehensive account of the wide range of documentary sources available to the archaeologist was provided. Little examined the use of public and official sources, identifying an expansive scope of contributions from the practical identification of functions and organisation to the implicit explication of particular world views.

The argument that the fundamental importance of defining the source and its influence on a document’s intentionality, tone and coverage was persuasive, as different types of documentary evidence embodied different priorities and opinions that would affect the way in which they could be used.

Little also examined the range of potential relationships between documentary and archaeological sources of evidence, observing that the association could be interdependent and complementary or independent and contradictory. Anomalies arising from the use of archaeological and documentary evidence could be used to

challenge existing historical interpretations and to generate further research questions.

In contrast, complementary relationships could be used to create interpretations that blended data from each source to fill the gaps in other sources. Archaeological evidence could add new data that was unobtainable from documentary evidence, and documentary evidence could supplement those aspects unavailable in the archaeological record. Archaeological evidence could also refine knowledge observed in the documentary evidence.

Little demonstrated that archaeology could suggest a more complex, dynamic and accurate version of the past than history and that archaeological evidence could raise questions regarding the purpose of history and selective writing about the past. This complex and situational-specific relationship between archaeological and documentary evidence and the primary need to understand the authority of the sources were influential to this research.

2.5.2 Critiques of documentary archaeology

In a UK context, Moreland criticised the Annapolis School for not recognising the full potential of texts, for perpetuating the subservient relationship between archaeology and history, for an over-focus on the 'poor' and claims made regarding the unique position of archaeology to write the histories of the forgotten (2001). He argued that the major deficiency of historical archaeology was the treatment of archaeology and documents as evidence *about* the past, rather than being seen as

being produced *in* the past and possessing efficacy in the production and reproduction of structures of power.

Moreland's statement that writing was not a neutral means of recording events, perceptions and ideas opened up thought-provoking avenues concerning the social control and restriction of the message and the medium, and the reinforcement of group identity through written, spoken and material discourses. His argument for a form of contextual archaeology with a close and detailed engagement with all types of data and sources was compelling.

Wilkie also reviewed the history of how the relationship between documents and material culture might be conceptualised (Beaudry 1988; Hall 2000; Little 1992; Moreland 2001) and rejected those approaches that imposed 'narrow theoretical or methodological boundaries' (2006: 33). Stating that documentary archaeology shared an anthropological gaze with North American historical archaeology, Wilkie and others (Hall 2000) argued that material culture, oral testimony and texts were linked parts of a collective past that should be considered and interpreted together, albeit understanding that distinct sources of evidence were shaped by varied circumstances and differential preservation.

Key points of relevance in Wilkie's work included the recognition that different temporal and scalar resolutions were offered within the data, and that the diversity of source material was a strength. Navigating between these sources required an iterative approach to enable the researcher to move backwards and forwards in temporal and spatial scale. Wilkie identified two main challenges for documentary archaeology, comprising how to understand the relationships between the different

source evidence and how to integrate diverse sources into meaningful narratives about the past. These were influential in this research.

2.6 Archaeologies of the recent and contemporary pasts

Archaeologists, historians, geographers and many others study the twentieth and twenty-first centuries. During the last decade or so archaeological enquiry into the recent and contemporary pasts has emerged at the disciplinary interfaces between archaeology, anthropology, history and modern material culture studies (for example Harrison and Schofield 2010; Holtorf and Piccini 2011; Tarlow and West 1999).

Two influential edited volumes (Buchli and Lucas 2001a; Graves-Brown 2000) re-oriented research direction away from the dominant North American-led ethno-archaeological approach of historical archaeology described above and established the archaeology of the recent (AD 1900 onward) and contemporary (circa AD 1950 onward) past as a sub-discipline in its own right. Both were rooted in a British post-processual archaeological context and focused on informing contemporary life, rather than creating models for understanding the earlier past (Harrison and Schofield 2010: 30-31).

Contemporary archaeologies have sought to define their approach and parameters, and while they have much in common with historical archaeology there are issues, for example the impact of temporal proximity and the tensions of disciplinary identity, which remain distinctive. This literature has the potential to inform approaches to the investigation of the research questions. While some

authors focused on the primacy of historical documentation (Little 1994; Moreland 2001), others have also acknowledged the important contribution of oral traditions (Lawrence and Shepherd 2006; Yentsch 1998).

Buchli and Lucas (2001b) discussed the development of ethno-archaeological approaches since the 1970s (for example the Garbage Project (Rathje 1977, 2001)) and the renewed focus on modern material culture studies (for example Miller 1988). They asserted that 'archaeologists can bring unique contributions to the study of modern material culture because of their methods and theoretical perspectives – disciplinary divisions really do not matter' (2001b: 8).

They observed that while traditional archaeology was temporally distant and atextual, and the study of the recent past suited historical approaches, the contemporary archaeology of 'now' or 'us' (cf. Gould and Schiffer 1981) was assumed to be over-familiar and obscured by an overabundance of texts and discourse.

Buchli and Lucas established a number of fundamental paired themes that have influenced subsequent research including production/consumption, remembering/forgetting, disappearance/disclosure and presence/absence (2001). Accepting that texts could be deficient in information and excessive in number, they developed the idea of the 'absent present' stating that a key role of contemporary archaeology was the 'presencing' of absence i.e. the materialisation of the contemporary past through the archaeological act. They argued that most contemporary archaeology themes focused 'upon the critical consequences of

presencing absence in the recent past – bringing forward or indeed materialising that which is excessive, forgotten or concealed’ (Buchli and Lucas 2001c: 171).

This argument is compelling and in the absence of historiographical accounts of the preparation and use of anti-invasion defences in Wales one of the aims of this research was to undertake the ‘presencing of absence.’ As such this research falls within a similar theoretical approach to that advocated by Buchli and Lucas, as it seeks to make the non-discursive discursive and to enfranchise the unfamiliar and forgotten.

Graves-Brown’s volume also established influential themes such as how the study of modern material culture can make the familiar unfamiliar and the emphasis on the human experience of technology and materiality (2000).

Given the complex relationships between the present and the recent past Piccini and Holtorf defined contemporary archaeology as the marriage of ‘archaeology *in* the world with the archaeology *of* the modern world’ (2011: 16). The need to convey narrative *through* material culture and not to reduce material culture to an illustrative or explicative role was seen as paramount.

This concept overlapped with Harrison and Schofield’s work, whom argued that an archaeology of the late modern period would allow us ‘to be more self-aware and critically reflexive by understanding the nature of contemporary society and its engagement with the material world, *as well as* our recent and deeper past’ (2010: 282). They further developed this idea by stating that ‘the role of the archaeology of the contemporary past is to start in the present and work backwards in time, being sensitive to the influence of the materiality of the past which constantly intervenes in

the present' (2010: 283), akin to the physical process of excavation, but contrary to the linear chronological interpretational framework commonly utilised in archaeological narratives. A good example of this approach was English Heritage's *Change and Creation* programme which extended the archaeological gaze into the present and assessed later twentieth century themes within the English landscape (Bradley et al. 2004; Penrose 2007).

In examining the recent and contemporary past Stevenson concluded that 'our interpretations will be aided by the wealth of contextual material associated with the contemporary past... [and] that archaeology can be a useful socio-historical tool in telling the stories of the twentieth century' (2001: 61).

Wilkie emphasised the proximity and shared experiences of the twentieth century, observing that 'the archaeology of the early twentieth century is truly the archaeology of 'us' and the social and economic conflicts that have shaped our recent history' (2001: 108). Such an archaeology was multi-vocal and archaeologists working in the recent past would be confronted by multiple voices, as different generations sought to shape the manner in which their individual pasts were constructed. In Wilkie's opinion, the contextualisation of archaeological interpretation facilitated richer social dialogue.

An influential theme emerging from much of the literature of the archaeologies of the recent and contemporary past was the idea of the absent past whereby much of the contemporary past was unknowable, as it was passively forgotten or actively concealed. There was common agreement that archaeological investigation becomes an active and conscious act of remembering.

2.7 Recent trends in conflict archaeology

Some authorities categorise modern conflict archaeology as part of the archaeologies of the recent and contemporary past. Piccini and Holtorf identified the study of twentieth-century conflict and military sites as one of a few overlapping strands that characterised the emergent archaeologies of the contemporary world (2011: 21). They noted both the expansive range of the research and the significant interest of heritage managers in identifying, investigating, recording and preserving these remains.

Harrison and Schofield critiqued the emergence of archaeological approaches to the recent and contemporary past (2010: 21-53) and claimed that the archaeology of the recent past commenced with a concentration on the First and Second World Wars, and then the Cold War era (also Schofield 2005, but see Carman 2013: 5).

While some authors explicitly situated their research within this tradition the results of this literature review would appear to suggest that such engagement was rather more limited and others considered that modern conflict archaeology was evolving as a relatively narrow and poorly connected subject that would benefit immensely from wider academic engagement (Carman 2013: 88).

The most recent overview of conflict archaeology identified an endeavour that was divided into three distinctive periods (prehistoric conflict, medieval battlefield and modern conflict archaeology) and nationalist in focus, with a tendency towards fragmentation (Carman 2013). In particular the characteristic rooting of prehistoric conflict, battlefield archaeology and modern conflict archaeology in anthropological, military historical and heritage management traditions respectively had created a

series of enclosed and self-referencing worlds which defined collectively a non-uniform, dis-jointed and complex branch of archaeology.

Within prehistoric conflict Carman identified consistent themes relating to human trauma (Wakely 1997), weaponry (Bridgford 1997; Randsborg 1995), defences (Oosterbeek 1997) and the origins and practice of warfare (Keegan 1993; Keeley 1996; Wileman 2009). He drew out issues concerning under- and over-visibility of different categories of person in the archaeological record (for example warriors), together with questions regarding what the presence and absence of evidence in the archaeological record meant.

Carman stated that the practitioners of battlefield archaeology 'have in general been more concerned with issues of methodology than other aspects of the field' (2013: 45), as demonstrated by the pioneering investigation of the Battle of the Little Big Horn (Scott et al. 1989) and a recent resource assessment of English battlefields (Foard and Morris 2012). He observed that research had been undertaken through the pairing of archaeological and documentary evidence for seventeenth century onwards battlefields, for example at Palo Alto (Haecker and Mauck 1997) and Edgehill (Foard 2005), but also through primarily archaeological means at pre-seventeenth century battlefields for example at Kalkriese (Rost 2007).

Carman also noted the prevalence of historical evidence as primary selection criteria for site investigation and the dominant functionalist-processual mode of analysis searching for battlefield sites and the patterning within them (Carman 2013). He argued elsewhere as part of the *Bloody Meadows Project* for a purer post-processual-inspired, landscape archaeology approach to facilitate examination of

battlefields as *places* and the underlying cultural imperatives guiding the practice of warfare that created them (Carman 2005; Carman and Carman 2001, 2006).

Carman credited archaeological resource manager's need to identify, record, preserve and manage sites for developing academic interest in modern conflict archaeology (Carman 2013; also Forbes et al. 2009; Schofield 2005). In contrast to earlier periods he observed that battles from the twentieth century 'are not only more extensive than those of earlier periods with fighting persisting over a longer time..., but are simultaneously and disconcertingly everywhere and nowhere, involving everybody both at home and in the front line' (Carman 2002: 17).

Noting the wide research interests he attributed the unhelpful developing trend for the creation of individual archaeologies of internment, confinement, occupation etc. as a reaction to the immediacy of the twentieth century and proposed a unified approach (Carman 2013).

Carman identified that 'conflict archaeology, as it has developed so far, has the capacity to join in this wider endeavour [of historical archaeology]' (2013: 88) and move beyond the narrow study of warfare to engage with wider social relationships that lie behind warfare and its practice. Gilchrist also advocated the development of a 'more holistic social archaeology of warfare' (2003: 5).

Conflict archaeology also undertakes important political and social roles with significant ethical considerations for example the investigation of twentieth-century mass graves (Steele 2008; Sterenberg 2008), and the varying attitudes to recovering the Civil War dead in Spain (Ballbé and Steadman 2008; Ferrándiz 2006), the Disappeared in Argentina (Crossland 2000, 2002) or the consequences of

dictatorship (González-Ruibal 2009). In these circumstances, archaeology functioned as a form of material witness and drew attention to the unarticulated, while also undertaking a therapeutic role and offering the potential to bring healing, reconciliation and closure to contested pasts.

While much of the content of conflict archaeology focused on military structures there is an equally strong drive to investigate places used by non-combatants. There has been a marked upsurge in the multi-disciplinary interest in the materiality of violence relating to places of loss, fear, resistance, incarceration and pilgrimage (for example McAtackney 2014; Purbrick et al. 2007). There has also been an emerging concern with the archaeologies of internment and occupation (for example Myers and Moshenska 2011; Carr 2010), together with interest in the military exercise of social control as both a form of community (Anderton 2002; Goldsworthy and Adams 1999) and the process of making soldiers (Berry 2014a; Brown 2012; Treherne 1995). Social relationships between civilian and military entities are also of interest more widely, including the disruption of civilian space by military activity or its threat (see Cole 2010a; Egoz and Williams 2010; Wileman 2009).

Critiques examining the justifications for the use of particular preservation, management or recording strategies were also prevalent, often authored by those responsible for such activities (e.g. Baker 1993; Cocroft 2009; Fiorato 2007; Lake 2002; Libbrecht et al. 2009; Savini and Petrillo 2009; Schofield 2002, 2005; Talbot and Bradley 2006; Whorton 2002).

In an earlier modern conflict archaeology overview, Schofield (2005) based much of his discussions on the work of Virilio (1994), particularly the interplay between space, memory and experience. He cautioned that researchers 'need to be aware of the benefits and pitfalls of sources' (2005: 38), before concluding that such records complemented the physical archaeological remains and that while the sources were used in combination the approach was essentially an archaeological one.

He went on to establish a binary opposition between Second World War and Cold War archaeology, characterising the archaeology of the Second World War as 'modern', with ready access to archaeological, oral and documentary evidence. In contrast, Schofield defined the Cold War as 'prehistoric' owing to the limiting restrictions of the Official Secrets Act on oral testimony and the extended closure on archival documents (2005: 39-40), albeit amended since his publication. In presenting this paradox of the Cold War as prehistory he would appear to suggest that the Second World War – at least for England – was a known entity, stating that the sources 'cover what was built, where, when, why, and often also how sites were used and by whom' (2005: 72); one of the aims of this research will be to determine how relevant this side of the binary opposition is in a Welsh context.

2.8 Twentieth century or modern conflict archaeology

Without perpetuating the artificial distinction between different conflict archaeologies it is useful to review trends within the discrete archaeologies of the First World War, Second World War and Cold War. The trends within First World

War and Cold War archaeologies are discussed first and then contrasted against those prevalent in Second World War archaeology.

The degree to which modern conflict archaeology is an archaeological or anthropological pursuit has been the subject of some debate. Saunders contrasted modern conflict archaeology with battlefield archaeology (2010, 2012), stating that

‘they embody quite different approaches and agendas, both to the empirical data, and to the presence or absence of an acknowledged theoretical sophistication concerning the nature and meaning of objects and landscapes, and their relationships to people in the past and present’ (2012: xiii).

He located it strongly within an anthropological tradition insisting that it comprised a ‘broader, anthropologically-informed, and theoretically aware approach aimed at capturing many different kinds of evidence’ (2012: xiii). In contrast Schofield argued that modern conflict archaeology was primarily an archaeological concern (2005), while Carman described it as archaeological practice with an anthropological perspective (Carman pers. comm.).

2.8.1 First World War archaeology

The study of First World War archaeology is advanced and embedded within strong theoretical frameworks. Progress was summarised by Saunders (2007; 2009) and Pollard and Banks (2008a). Much Great War archaeology focused on the Western Front (Brown 2009; Brown and Osgood 2009; Fraser and Brown 2008; Hanson 2011; Masters and Stichelbaut 2009; Price 2008; Robertson and Kenyon 2008; Saunders 2002a; Stichelbaut 2009). Research in Britain has examined the

Zeppelin menace (Castle 2008; Faulkner and Durrani 2008), training aids (Berry 2014b; Brown, Kinsey and Nichol 2007; Brown 2012) and memorialisation (Gaffney 2000; King 1998). The centenary of the commencement of the conflict also initiated a significant interest in the diverse archaeologies of the Home Front (Saunders, Schofield and Glass 2014). First World War archaeology is often characterised by a significant anthropological focus on modern material culture studies and memory (Saunders 2001, 2002b, 2003, 2004). Wilson adopted a dedicated ethnographic approach to investigate the archaeology of the Western Front through the concept of 'embodied memory' (2007).

A number of studies observed variable relationships between archaeology and history. Banks's study of the Battle of Kallaya in Libya highlighted the danger of relying on accepted history, particularly when the archaeological data was not strong enough to expose the historiographical limitations (2008: 25-26). In contrast, Fraser and Brown demonstrated that historical research undertaken with forensic archaeological techniques 'can produce striking techniques' (2008: 169-170).

Bagwell explored the interpretation of text by archaeology as material culture through the 'excavation' of a family First World War diary seeking not to obtain accurate historical data, but to connect with the experience of relatives in the past as a form of personal social archaeology (2012).

Winterburn advocated the application of the concept of the 'hierarchy of conflict space' to macro-linear features (i.e. linear features exceeding 50 kilometres in length) in his study of the Hejaz Railway as a First World War defensive barrier in Jordan (2012). He criticised traditional industrial archaeology and military historical

approaches as being too empirical and restrictive, and promoted a hierarchical approach that when used with the concept of 'degrees of freedom' enabled the mobility of forces to be assessed.

This approach was potentially attractive for studying Second World War stop lines, but the classification of pillboxes as 'essentially dimensionless' features with no freedom of movement (2012: 183), linear barriers as one dimensional features with limited freedom of movement and mobile forces as possessing two dimensional and enhanced freedom of movement was too simplistic. Pillboxes and outlying fieldworks operated collectively in networks for defence in depth. Stop lines were not impermeable linear barriers in the classic sense and were porous and complex entities that occupied broad territories incorporating composite and sophisticated troop movements.

In their study of the trenches in western Flanders de Meyer and Pype specifically addressed the question concerning 'what special role can archaeology play in the study?' (2009: 378). They concluded that while the subject attracted much academic interest from historians even some of the best known battles were unclear to scholars. Archaeological excavation was capable of revealing

'a sometimes forgotten material reality... [making] the horrors of soldiers' existence during the First World War more real and immediate than paper relics... [and revealed] a constantly and swiftly changing terrain where trenches and fortifications were continually adapted to new threats and needs...'

in contrast to the narrowly restricted snap shots provided by aerial photographs and trench maps (de Meyer and Pype 2009: 378).

2.8.2 Cold War archaeology

The physical legacy of the Cold War, often comprising vast monumental structures or spaces, proved particularly engaging for undertaking archaeological research (Cocroft 2007; Cocroft and Thomas 2003; Fairclough 2007; Glass 2008; Johnson 2002; Schofield, Klausmeier and Purbrick 2006). Schofield – a key thinker in the field of modern conflict archaeology – emphasised the cultural legacy contributions and reactions to them by consistently placing the study of twentieth century, particularly Cold War, archaeology within the contemporary archaeology project (Klausmeier, Purbrick and Schofield 2006; Schofield 2005, 2009; Schofield and Cocroft 2007a, 2007b).

Fairclough stated that ‘the Cold War provides a particularly valuable and relevant arena for reflexive analysis. This is partly because its study so readily transcends the disciplinary barriers..., but mainly because it is such a recent past’ (2007: 19). It was also ‘the still-forming transition from the past to the future’ (2007: 21), therefore requiring a more conscious analysis to overcome issues relating to a remembered past that was actually more complex, questionable and unknown than anticipated.

Diverse topics such as – but not limited to – test and experimental sites (Beck 2002; Cocroft and Wilson 2006; Delgado 1996; Delgado, Lenihan and Murphy 1991; Johnson and Beck 1998), the space race (Day 2000; Gorman 2011; Gorman and O’Leary 2007), official infrastructure (Catford 2010; Dalton 2011) and the Berlin Wall (Baker 1993; Dolff-Bonekämper 2002; Feversham and Schmidt 2007; Klausmeier and Schmidt 2006) have been assessed through a range of investigative modes.

Nuanced counterpoints have also been developed through the study of protest camps (Badcock and Johnston 2009; Beck, Drollinger and Schofield 2007; Beck, Schofield and Drollinger 2011; Fiorato 2007; Schofield and Anderton 2000; Schofield, Beck and Drollinger 2003) and retrospective artistic analysis of former military sites (Boulton 2006, 2007a, 2007b, 2009; Buchinger and Metzler 2006; Cocroft and Wilson 2006; Watson 2004, 2007; Wilson 2007; Wilson 2011). Such studies were often embedded explicitly in wider themes common to historical archaeology such as colonialism (Smith 2007) and later twentieth century themes of interest to contemporary archaeology such as consumption (Buchli 2007) and remembrance (Fairclough 2007).

2.9 Second World War archaeology

The academic study of this conflict has a well-developed global pedigree, for example being the subject of active investigation in the Pacific Theatre from both field survey (Arnold 2011; Christiansen 2002; Denfeld 1979a, 1979b, 1981, 1988; Dixon, Gilda and Bulgrin 2012; Price and Knecht 2012) and cultural resource management perspectives (Spennemann 1992a, 1992b, 1998).

Many observations would appear to be transferable to the European theatre of war. In his survey of military structures on the Marshall Islands Christiansen commented on the tendency for 'the [existing] material military structures... [to] only represent a small part of what was originally there' (2002: 62), primarily concrete with a complete absence of wooden built defences.

In his study of Australian coastal defence batteries Gojak noted that there were 'significant gaps in the historical sources dealing with the development, design and use of military installations; the physical evidence is in many cases the only source of information about how Australia was defended' (2002: 160).

Within a European context there has been sustained archaeological investigation of landscapes associated with Operation Neptune (Burt et al. 2007; Department of the Navy 2002, 2008; Dobinson 1996b; Everett et al. 2006; Schofield 2001; Searle 1995; Thomas 2004; Wills 1994), Operation Overlord (Passmore et al. 2013; Gaffney et al. 2004) and the subsequent Allied advance (Passmore and Harrison 2008; Rass and Lohmeier 2011). Myles used archaeological and documentary evidence to investigate an Irish munitions factory (2011).

A recent study of Second World War German military supply depots in central Normandy was one of the few studies that focused specifically on earthwork features (Passmore et al. 2013), noting their propensity to survive in afforested areas. It also sought deliberately to broaden the focus of archaeology away from battlefields to the management and organisation of military activities. Such potential for earthwork survival has also been noted in a British context (Crutchley et al. 2009).

Legendre's research into a crashed Lancaster bomber at Fléville, France in 1945 was one of the few explicitly Second World War studies published within the contemporary archaeology literature (2001). Framed as forensic archaeology it sought the truth in terms of the events leading up to the crash and focused specifically on the acts of disappearance and memorialisation.

Myers explored the tension between a text-centric historical approach and a more holistic historical archaeological approach in his study of German concentration camps. He concluded that 'by its very nature narrative that is rooted exclusively in textual sources is destined to be more linear, more univocal, and less equipped to deal with the problematic', instead advocating a 'series of excavations: into the soil, the texts, the imagery, the landscape and the memory' (2008: 243).

2.9.1 British Second World War archaeology

Carr and McAtackney commented recently on 'the wealth of current research being undertaken on World War II' (2011: 176), but this statement is misleading. The subject is characterised by its seeming fragmentation into a series of individual archaeologies of internment (Myers and Moshenska 2011; Mytum 2013, 2014), occupation (Carr 2009, 2010a, 2010b, 2014), the Blitz (Moshenska 2008, 2010a, 2014), the Home Front (Glass 2012; Moshenska 2013) and the Holocaust (Sturdy Colls 2012). All of these works are engaged theoretically, often situating archaeological approaches to modern conflict within historical archaeology frameworks of memory, narrative and oral history (for example Moshenska 2010b; Myers 2008). The majority of studies of the British Home Front tended to focus on the civilian experience of conflict, often adopting an anthropologically informed and modern material culture studies approach.

The subject was also characterised by a virtual absence of explicitly theoretically-grounded academic studies investigating anti-invasion defences. The reasons for this lack of engagement remain unclear, but were perhaps related to

academic fashion or distaste with the actual practice of warfare. They may also be viewed as a folly or an irrelevance, as one of the defining features of British Second World War anti-invasion landscapes was that the defences were not used as intended. This was in strong contrast with almost all other battlefield and modern conflict archaeology (but see Martin 2001). As such they remained preparatory landscapes and perhaps have more in common with studies focusing on military infrastructure (for example Kirby et al. 2013; Sneddon 2008).

In 2008 Pollard and Banks were still able to state that ‘intervention by archaeologists, however, although not unknown, is relatively rare in the case of these [Second World War military defence] sites – at least within the British Isles’ (2008: 134), despite the impact of the Defence of Britain and related projects.

In a British academic context studies of the assessment of defensive arrangements were limited. Rowe completed a study of the Stop Line Green anti-invasion defences around Bristol (2005; 2014). He applied traditional invasive and non-invasive archaeological techniques, a ‘fields of fire’ GIS analysis and a sensorial experiential approach to three case study areas in order to determine whether the archaeological data matched the documentary evidence, and whether they conformed to War Office specifications. He also investigated the siting of defence structures at Weymouth to inform ‘our understanding of the hypothetical strategic effectiveness of these defences’ (2012: 200). Liddiard and Sims have investigated aspects of the Second World War archaeology of Suffolk (2014a-d).

Both Spencer (2002) and Lewis (2013) studied aspects of wartime airfields in Wales, and Lacey applied the use of GIS techniques to investigate the effectiveness

and coverage of specific types of weaponry using the concept of firesheds on a section of the Taunton Stop Line (2003). Moshenska included a brief discussion on the archaeology of stop lines in his recent popular overview of British Second World War archaeology (2012) and Brockman examined defensive provisions at Shooter's Hill, London (2009).

Holyoak has argued that the RAF airfields comprised the front line during the Second World War, as they saw combat unlike the anti-invasion defences, and that in terms of analogy airfields were similar to First World War trenches regarding the scale of human tragedy (2001: 253-4). He also noted that 'although official documentary source material contains some information [pertaining to construction events], unravelling the sequence of development is often only possible archaeologically' (2001: 258). Anderton argued that the British Second World War should be seen as part of the wider *Battle for Britain*, 1939-45 (2001).

2.10 Anti-invasion defence archaeology in the United Kingdom

The relative lack of academic engagement with Second World War anti-invasion defences stands in marked contrast to the two intertwined strands of study emanating from the enthusiast-led tradition and the heritage sector.

2.10.1 Enthusiast-led studies

The enthusiast-led sector pioneered an interest in military and aviation-related sites from the mid- to late-1970s, which predated most professional archaeological

involvement by several decades. The Fortress Study Group (FSG) was founded in 1975 at a time of wider interest in military archaeology (Gander 1979), and its Pillbox Study (sub-)Group was established in 1992 following new interest in anti-invasion defences prompted by Wills' innovative study (1985). Enthusiast interest in aeronautical heritage dated back to the 1950s and recovery activities accelerated from the 1960s (Robertson 1977). Interest in military airfields formalised with the establishment of the Airfield Research Group in 1977.

This interest developed in parallel with a growing number of popular published investigative and historical accounts focusing on the summer of 1940 (Fleming 1957; Gillies 2006; Glover 1990; Longman 1993; Macksey 1980; Parkinson 1977; Ponting 1990; Robinson 2006; Rowe 2010; Smith 2000), its conspiracies (Haining 2004; Hayward 2001) and the potential German invasion (Keiser 1997; Schenk 1990; Wheatley 1958). There was also growing interest in the British resistance movement (Lampe 2007; Lowry and Wilks 2007; Ward 1997; Warwicker 2002, 2008) and a developing literature concerning alternate historical accounts of the fictional German occupation of Britain (Cox 1974; Gilbert 1990; Longmate 2004; Marix Evans 2004; Sheers 2008).

2.10.1.1 The Home Front

A small number of descriptive rather than analytical publications dealing with the Home Front have been published in Wales, including Cardiff (Morgan 1998), Pontypridd (Powell 1999), Chepstow (Chepstow Society 2000), Usk (Barrow 2006) and Swansea (Bowler 2006). Similar works have been published for Wales

(Carradice 2003) and at county level for Anglesey (Chambers-Jones 2008; Dalton 2013), Ceredigion (Davies 2000) and Carmarthenshire (Carmarthenshire County Museum 2006).

With the exception of Dalton's publication on Anglesey, these works focused on the impact of rationing, evacuation and bomb damage rather than on specific defensive arrangements. While the Home Guard was usually referenced, it was rare for organisational or detailed information to be presented, and any photographs included tended to be formally-posed platoon or company images.

2.10.1.2 Anti-invasion defences

Much of the early published research relating to British anti-invasion defences tackled the complex issues of pillbox classification (Burridge 1992; Osborne 1993a-d, 1994, 1995, 1997a, 2003, 2011; Dawes 1995; Ward 2005; Kolonko 2011). The data was brought to a wider audience in four key publications (Lowry 1996; Osborne 2004a, 2008; Ruddy 2003).

Other types of anti-invasion defences received comparatively less investigation (Clifford 1994, 1995, 1996; Dowdall-Brown 1994, 2003). Given that the type and architectural detail of a specific emplacement was determined by the tactical purpose and type of weaponry emplaced within, it is counter-intuitive that comparatively little attention has been given to the armament to be mounted (Ward 1996; Sanderson 1998; Hellis 2002; Walker 2003; Schmidtke 2014).

A variety of analytical scales were demonstrated in the enthusiast-led published literature. A number of studies focused on individual stop lines or parts

thereof, for example the GHQ line (Alexander 1998; Greeves 1993), the Staffordshire stop line (Kerr 1993b), the Oxford canal line (Carvell 2006) and the Northumbrian stop lines (Rudd and Clarke 1994, 1998; Rudd 2005), particularly the Coquet stop line (Lewins 2011a-b, 2012, 2013a-c) and Bamburgh (Lewins 2013d). Other approaches utilised smaller areas, for example around Bristol (Green and Plant 1993a-b, 1994; Green 1999).

In common with many traditional archaeological studies the use of county-based surveys was commonplace and a series of county-based anti-invasion books was prompted by the Defence of Britain and Defence Areas projects (see Table 2.1).

| County-based surveys | Author |
|-----------------------------|--|
| Cambridgeshire | Osborne (2001) |
| East Midlands | Osborne (2004b) |
| Kent | Burridge (1997) |
| Lincolnshire | Osborne (1997b) |
| London | Osborne (2006a) |
| Norfolk | Osborne and Kerr (2008a); Iosson (1990); Bird (1991, 1992, 1995, 1999) |
| Pembrokeshire | PLANED (2007-2010) |
| Somerset | Brown (1999); Dawson, Hunt and Webster (2011) |
| Suffolk | Osborne and Kerr (2008b) |
| Warwickshire | Carvell (2007) |
| West Midlands | Jones, Lowry and Wilks (2008) |
| Worcestershire | Wilks (2007) |

Table 2.1: Published county-based surveys of anti-invasion defences.

In contrast to England, very little was published relating to anti-invasion defences within Wales. Journal articles were published on the stop lines at Rhos Langelier (Glover 1990), and in the Neath (Locock 1994) and the Wye and Usk valleys (Kerr 1994a). Notable concentrations of extant defences were investigated in the Llantwit Major area (Berry 2013), Pembrokeshire (Knight 1995), Anglesey (Chambers-Jones 2008; Dalton 2013; Harding 2001) and the Mawddach estuary

(Parry 2006). PLANED undertook a pioneering approach to describe all of the known defences in Pembrokeshire from the Civil War to Cold War periods using community areas as the basis for description (2007-2010). The results were comprehensive, but larger defence features often crossed multiple communities.

The majority of the works described above were published for a popular audience and provided useful area summaries. However, they were often purely descriptive in character focusing on data retrieval and classification to answer low-level questions regarding quantities, origins, locations and typology. These cannot be considered to be critical works as they invariably did not evaluate or cite the source evidence, and few would appear to have been the subject of critical review (for example Stamper 2010). The use of a traditional county-based approach also introduced false divides, particularly when investigating extensive defensive networks that crossed county boundaries.

Only one work was identified that discussed defensive provision from the more contextually situated perspective of military administrative areas. Lowry's discussion of Western Command's defences (1999) illustrated the difficulty of investigating large numbers of complex defences over an extensive area in a short paper.

The published enthusiast-led anti-invasion defence literature in Wales is much less developed than that in England. What has been published is largely descriptive and illustrative.

2.10.1.3 Military airfields

As noted above, military airfields have long been the subject of enthusiast interest both at a UK level (Smith 1981; McLelland 2012; Willis and Holliss 1987) and within Wales (Jones 2007a-b, 2008a; Phillips 2006, 2012; Pratt and Grant 2002, 2005; Sloan 1991, 1995; Thursby 2002). Many airfields attracted individual publications (see Table 2.2).

| Airfield | Author |
|---|--|
| RAF Aberporth (formerly Blaenannerch) | |
| RAF Angle | Abraham (2002b) |
| RAF Bodorgan | Abraham (2001d, 2001f, 2002a); Dalton (2013) |
| RAF / RNAS Brawdy | Abraham (2002b); Phillips (2009) |
| RAF Carew Cheriton (formerly RNAS Milton) | Brock (1989) |
| RAF Chepstow SLG | Abraham (2001d, 2001f, 2002a) |
| RAF / RNAS Dale | Abraham (2002b) |
| RAF Fairwood Common | Jones (2000) |
| RNAS / RAF Fishguard | Hale (2007) |
| RAF Haverfordwest | |
| RAF Hawarden | Abraham (2007); Barfield (2002); Smith (2005) |
| RAF Hell's Mouth | |
| RNAS Lawrenny Ferry | Abraham (2002c); Hale (1995) |
| RAF Llanbedr | Annand (1983); Mills (2002) |
| RAF Llandow | Abraham (2001a) |
| RAF Llandwrog / Caernarfon | Annand (1986); Dalton (2013); Doylerush (1994) |
| RAF Manorbier | |
| RAF Mona | Dalton (2013) |
| RAF Pembrey | Lewis (2007) |
| RAF Pembroke Dock | Evans (1993, 2001, 2004, 2005) |
| RAF Pengham Moors | Jones (2008b) |
| RAF Penrhos | Annand (1986) |
| RAF Rhoose | Jones, G. (2011) Jones, I. (2008c) |
| RAF Rudbaxton | Abraham (2001d, 2002a) |
| RAF St Athan | Abraham (2001a); Bond (1988); Davies (2007) |
| RAF St Brides SLG | Abraham (2001d, 2001e, 2002a) |
| RAF St David's | |
| RAF Sealand / Broughton | Abraham (2001b, 2001c); Ferguson (1978, 2007) |
| RAF Stormy Down (formerly RAF Porthcawl) | Cottrell (1993); Mansley (1994) |
| RAF Talbenny | |
| RAF Templeton | |
| RAF Valley | Dalton (2013); Pritchard (2001) |
| RAF Wrexham / Borras | Pratt and Grant (1999, 2000) |

Table 2.2: Publications written on Welsh wartime airfields.

The majority of publications did not cite or evaluate their sources and tended to focus on detailing the history of units or operations undertaken from particular airfields. As complex entities a number of publications sought to organise and classify the numerous airfield structures (Clarke 2008; Francis 1993, 1996; Innes 1995, 2000), and it is commonplace for the regional and airfield specific publications to describe the main types of airfield buildings, for example watch offices and hangars. These works routinely ignored airfield defences, although aspects of this provision were detailed in separate publications, somewhat divorcing them from their hosts (Purcell 1993, 1995, 1996 and 1999; Kerr 1993a, 1994b and 1995; Lowry 1998b and 2004; Ruddy 2006; Francis 2010).

The published enthusiast-led airfield literature for Wales is largely historical in focus and does not include detailed archaeological description and analysis, or discussion of airfield defences.

2.10.1.4 Coastal artillery

The study of coast artillery is well established in the UK, both in terms of its history and the defensive capabilities of particular emplacements (Bowden and Brodie 2011; Foster 2004; Hamilton-Baillie 2003; Hill 1999; Hogg 1974; Maurice-Jones 2005; Saunders 1989, 1997). Wood produced a recent gazetteer of Second World War emplacements in the United Kingdom and Ireland (2012). The defences of the Welsh coast (Phillips 2010) and Welsh coast artillery batteries (Guy and Dorman 2009a-b) have also been reviewed and there is a substantial literature on the Victorian and Second World War forts in the Bristol Channel (Barrett 1992, 2003,

2004; Jones-Jenkins 2001; Jory 1995; Legge 1991; Pinsent 1983; Saunders et al. 2001) and Milford Haven (Berry 2006; Blackwood 2014; Eden 2014; Tomkinson 1978).

2.10.2 Professional archaeological interest

The approaching fiftieth anniversaries of the D-Day landings (1994) and VE Day (1995) prompted significant engagement with the archaeological remains of the Second World War from the British heritage sector in order to understand what had been built, what survived and what deserved designation (Dobinson 1996: ix). This engagement led to a dramatic upsurge of interest in modern conflict archaeology and established twentieth-century military archaeology as a major theme within conflict archaeology. Professional archaeologists initially engaged with the established amateur archaeological investigators, particularly through the Defence of Britain project, but professional and enthusiast activities appear to be divergent now and there is less interchange.

Historic Scotland undertook a systematic regional survey of surviving twentieth century defences in twelve Scottish regions during 1992-2000 (Guy 1993a-b; 1994; 1995; 1997; 1999a-c; 2000; 2001a-b; 2002; Historic Scotland 2011) and the results informed Barclay's archaeological survey of the Cowie line (2005).

The Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) followed up the survey work with rapid photographic and measured drawing surveys of the defences in Orkney and the Firth of Forth. The Cape Wrath

Military Training Centre was also investigated in 2008-10 as part of the Defending the Past project.

Barclay recently published a comprehensive study of Scottish anti-invasion defences based on archaeological and documentary evidence (2013). The national boundary was co-terminous with the command administrative area, but it was uncertain whether the use of the latter was planned or coincidental.

In England the Royal Commission on the Historical Monuments of England (RCHME) commissioned the FSG to undertake a pilot survey project on Holderness (FSG 1992; RCHME 1993; Stell and Guy 2014), which was the forerunner of the Defence of Britain project. The RCHME and English Heritage undertook a range of projects in response to MOD disposal requests, designation work and the Monuments Protection Programme (MPP), which sought to review and evaluate England's archaeological resource (English Heritage 2002, 2003a). The RCHME undertook recording at RAF Flyingdales and its explosives-based project led to interest at RAF Spadeadam (RCHME 1994). The recording of MOD disposals initiated English Heritage's Cold War project.

The initial phase of English Heritage's investigations focused on airfields, dockyards and barracks (Dobinson et al. 1997). MPP was the driver for work on the MOD ranges at Otterburn and Okehampton and for publication of *Monuments of War* (Schofield 1998a) and *Twentieth-Century Military Sites* (English Heritage 2000, 2003a). The former articulated the MPP's methodology (Dobinson 1998), the importance of aerial photography (Schofield 1998b), the RCHME's recording activity

(Thomas 1998), reviewed the MOD's estate (Whitehead 1998) and discussed the concept of 'hot interpretation' for Cold War sites (Uzzell 1998).

In 1994 English Heritage's Monuments Protection Programme commissioned:

'a large-scale survey of documentary records of the modern defence heritage... [consulting] papers of the armed forces and their parent ministries... [with] particular emphasis on WW2 but extending back to WW1 and before for selected categories of site and forward into the Cold War (to 1969) for others' (Dobinson 1998: 2).

The work, known collectively as the *Twentieth Century Fortifications in England* series, produced an in depth historical analysis across eleven themes and resulted in dedicated grey literature reports with extensive site gazetteers (see Table 2.3). Each volume sought to quantify the original site populations, assessed the structural character of the sites as built and set the sites in their historical context. This was pioneering research and presented new sources, information and site typological and distributional frameworks to a wider audience.

Funded by English Heritage by necessity the overwhelming majority of information and sources presented were Anglo-centric in character and direct references to Wales were few in number. The volumes identified many developments and trends apparent in England, but the extent to which Dobinson's statements could be applied to Wales remained uncertain. Dobinson claimed that 'in reality, surviving records for most site types [in England] are thorough and precise: sufficient to tell us what was built, when and why' (1998: 2).

| Phase | Subject | Report | Publication |
|--------------|---|------------------|---------------------|
| 1: 1994-1996 | Anti-aircraft artillery, 1914-46 | Dobinson (1996a) | Dobinson (2001) |
| 1: 1994-1996 | Anti-invasion defences, 1939-45 | Dobinson (1996b) | |
| 1: 1994-1996 | Bombing decoys, 1939-45 | Dobinson (1996c) | Dobinson (2000i) |
| 1: 1994-1996 | Operation Diver sites, 1944-45 | Dobinson (1996d) | Dobinson (in press) |
| 1: 1994-1996 | Operation Overlord embarkation sites, 1944-45 | Dobinson (1996e) | |
| 2: 1996-2000 | Coast artillery, 1900-56 | Dobinson (2000a) | |
| 2: 1996-2000 | Acoustics and radar, 1937-45 | Dobinson (2000b) | Dobinson (2010) |
| 2: 1996-2000 | Civil defence, 1939-45 | Dobinson (2000c) | |
| 2: 1996-2000 | Airfield themes | Dobinson (2000d) | |
| 2: 1996-2000 | Airfield ground defences, 1939-45 | Dobinson (2000e) | |
| 2: 1996-2000 | The Cold War | Dobinson (2000f) | |
| 2: 1996-2000 | Searchlight sites | Dobinson (2000g) | |
| 2: 1996-2000 | Experimental and training sites | Dobinson (2000h) | |

Table 2.3: List of grey literature reports and publications arising from Colin Dobinson's archival research for the English Heritage Monuments Protection Programme (after Dobinson 1998).

In order to complement Dobinson's historical research for England, Neil Redfern was co-commissioned by Cadw to create thematic reviews out with England (1998a) with specific site gazetteer volumes for Wales (1998b), Northern Ireland (1998c) and Scotland (1998d-e). The work was narrower in scope and shallower in depth than Dobinson's reports, and lacked the historical narrative accounts that made the latter so pioneering. Although this work was primarily historical in character the brief and output were entirely archaeological in intention. The results were not formerly published, although an overview was produced (Redfern 1999).

Almost in parallel with Dobinson's work, the four UK historic environment agencies participated in the HLF-funded and CBA-led *Defence of Britain* project (1995-2001). It was described as an interdisciplinary project that aimed to 'produce a consistent record of Britain's 20th century defences' (Defence of Britain Project 1996: 2). Its objectives were to:

- a) 'Identify accurately the military structures of the 20th century;
- b) Provide evidence of the range of sites that survive, to enable a representative selection to be identified and managed for future preservation;
- c) Establish recording methods of adequate standard to ensure consistency in survey at whatever level of detail is necessary;
- d) Enable better – in some cases new – comprehension of the range and phases of construction of military sites, and their historical significance; and
- e) Stimulate public interest and foster widespread participation' (Defence of Britain Project 1996: 3).

It was initiated as 'primarily an archaeological survey, recording and evaluating what still survives and in what condition' (Saunders 1998: 7). With regard to the opportunities offered by primary sources the revised project design stated that:

'The potential contribution of original written sources was uncertain and (in some quarters) underestimated before the Project's launch. The exploitation of documentary evidence was nevertheless provided for in the methodology of the original (1994) Project Design, although provisions for the resourcing of such work was not.

Documentary research has since proceeded under the aegis of English Heritage's Monuments Protection Programme [i.e. Dobinson's work]. This has confirmed that a large body of sites can be identified, located and dated via original records. Following completion of reports on the first five categories of site to be researched (expected July 1996), the results of the archive project will be available to inform the Defence of Britain's fieldwork' (Defence of Britain Project 1996: 7).

Despite the size of the project, it has not been subjected to formal academic scrutiny, although an internal completion review document was published (Council for British Archaeology 2002). Periodic project updates were published (Denison 1995; Earle 1997; Lowry 1998a; Foot 1998, 2000), together with a brief report for Wales (Parry 2002).

At a UK level the project was hindered by the late realisation that helpful primary historical documentation survived and the subsequent lack of integration of fieldwork and archival projects which were run as separate projects until 1998 (Council for British Archaeology 2002: 6-8). Dobinson's anti-invasion defences report for England was published in 1996, but the other relevant reports on coastal artillery and airfield defences were not published until 2000.

It was also clear from the Defence of Britain database records that the volunteer recorders had limited access to the results of Dobinson's research, which was available as hard copy reports in restricted circulation. Had the site gazetteers been more readily available and earlier it is reasonable to suggest that the incidence of new site identification by the Defence of Britain project would have been even greater.

As the project itself conceded, it was only in 1998 that 'the Project was accordingly put on a new footing... [and] primary archive research was incorporated' (2002: 8).

The project identified initially 12,499, 733 and 595 anti-invasion sites in England, Scotland and Wales respectively (Council for British Archaeology 2001; and see Table 2.4 for Welsh results).

| Unitary authority | 1940-41 anti-invasion sites | Non anti-invasion sites | Total |
|--------------------|-----------------------------|-------------------------|--------------|
| Anglesey, Isle of | 11 | 1 | 12 |
| Blaenau Gwent | 0 | 1 | 1 |
| Bridgend | 10 | 5 | 15 |
| Caerphilly | 0 | 1 | 1 |
| Cardiff | 3 | 2 | 5 |
| Carmarthenshire | 170 | 14 | 184 |
| Ceredigion | 43 | 9 | 52 |
| Conwy | 4 | 7 | 11 |
| Denbighshire | 4 | 9 | 13 |
| Flintshire | 17 | 16 | 33 |
| Glamorgan, Vale of | 26 | 6 | 32 |
| Gwynedd | 40 | 22 | 62 |
| Merthyr Tydfil | 0 | 2 | 2 |
| Monmouthshire | 30 | 12 | 42 |
| Neath Port Talbot | 7 | 3 | 10 |
| Newport | 2 | 2 | 4 |
| Pembrokeshire | 201 | 24 | 225 |
| Powys | 13 | 24 | 37 |
| Rhondda Cynon Taff | 3 | 3 | 6 |
| Swansea | 11 | 6 | 17 |
| Torfaen | 0 | 1 | 1 |
| Wrexham | Not recorded | Not recorded | Not recorded |
| Totals | 595 | 170 | 765 |

Table 2.4: Numbers of defence sites identified per unitary authority in Wales excluding Wrexham as of 14/09/2001 (after Council for British Archaeology 2001).

A number of counties in England far exceeded the national total number of defence sites identified in Wales (see Table 2.5).

| County | 1940-41 anti-invasion sites | Non anti-invasion sites | Total |
|---------|-----------------------------|-------------------------|-------|
| Kent | 1486 | 116 | 1602 |
| Norfolk | 884 | 110 | 994 |
| Surrey | 810 | 42 | 852 |

Table 2.5: Numbers of defence sites identified for three counties in England as of 14/09/2001 (after Council for British Archaeology 2001).

The Defence of Britain project was succeeded in England by the *Defence Areas* project (2002-04), which sought to look in detail at a number of specific 'defence areas' across England (Foot 2001; 2003; 2006a-b; 2008). This created an enhanced (2006) version of the Defence of Britain's anti-invasion database, with

some additional records and considerable revision and updating of many other records.

Interrogation of the enhanced Defence of Britain dataset clearly demonstrated that data cleansing had been undertaken on the data for Wales, including the addition of the Wrexham data (Archaeological Data Service 2014). The results for almost half of the unitary authorities in Wales were amended, including downwards in two cases (see Table 2.6). The overall number of anti-invasion sites in Wales was reduced by 7.56% to 550 sites.

| Unitary authority | Anti-invasion sites | Non anti-invasion sites | Total |
|--------------------|---------------------|-------------------------|------------|
| Anglesey, Isle of | 25 [+14] | 6 [+5] | 31 |
| Blaenau Gwent | 0 | 1 | 1 |
| Bridgend | 10 | 5 | 15 |
| Caerphilly | 0 | 1 | 1 |
| Cardiff | 4 [+1] | 2 | 6 |
| Carmarthenshire | 112 [-58] | 14 | 126 |
| Ceredigion | 26 [-17] | 9 | 35 |
| Conwy | 7 [+3] | 7 | 14 |
| Denbighshire | 4 | 9 | 13 |
| Flintshire | 17 | 16 | 33 |
| Glamorgan, Vale of | 26 | 9 [+3] | 35 |
| Gwynedd | 46 [+6] | 22 | 68 |
| Merthyr Tydfil | 1 [+1] | 2 | 3 |
| Monmouthshire | 30 | 12 | 42 |
| Neath Port Talbot | 7 | 3 | 10 |
| Newport | 5 [+3] | 2 | 7 |
| Pembrokeshire | 187 [-14] | 24 | 211 |
| Powys | 13 | 24 | 37 |
| Rhondda Cynon Taff | 3 | 3 | 6 |
| Swansea | 11 | 6 | 17 |
| Torfaen | 0 | 1 | 1 |
| Wrexham | 16 [+16] | 8 [+8] | 24 |
| Totals | 550 | 186 | 736 |

Table 2.6: Numbers of defence sites identified per unitary authority in Wales as recorded on updated 2006 database. +/- change from 2001 results indicated in square brackets (Archaeological Data Service 2014).

From 1999 English Heritage's Military and Naval Strategy Group took oversight of much of this military work in England (English Heritage 2004a) and was

responsible for co-publication of the *Modern Military Matters* research agenda (Schofield 2004). A wide range of investigation was undertaken which utilised archives, field survey and new thematic research, expressed as internal reports and publications (see Table 2.7 for an indicative list).

The Defence Areas project built on the results of the Defence of Britain project and Dobinson's archival research attaining a more significant level of evidential integration and holistic overview than had been achieved before. The project adopted a similar multi-evidential and case study-based approach, but deployed it in a different way with some important differences in terms of the number, size and selection of cases, and the types and volumes of evidence used.

The project examined sixty-seven small-scale defence areas in England. This approach was partly influenced by the need to assess distinct areas for statutory protection. Foot stated that:

'the defence areas were selected using the Defence of Britain Project data to identify discrete areas of good anti-invasion defence survival. An initial list of some 300 such areas was identified to which the following English Heritage criteria were then applied:

- Areas representing a particular coherent defence construction, e.g. the GHQ Line;
- Areas with good surviving documentary (or published) sources;
- Areas with good inter-visibility, where the defence works can be seen within clear viewsheds;
- Areas with very good survival of defence works, enabling them to be understood easily in their landscape context;
- Areas with differing types of defence works;
- Areas including rare types of defence works; and
- Areas representing the different strategies of anti-invasion defence.

| Year | Origin | Subject | Internal report | Publication |
|-------------------------|----------------------------------|--|---|--|
| 1994-2000 | MPP | Dobinson reports | See Table 2.4 | See Table 2.4 |
| -1995 | Thematic listing / MOD disposals | Pre-WW1 barracks | Douet (1995) | Douet (1998) |
| -1998 | Thematic listing / MOD disposals | Military airfields | Temple and Francis (1994) | Lake and Francis (1998) |
| -1998 | Thematic listing / MOD disposals | Pre-WW1 Naval dockyards | Lake and Douet (1998) | |
| -1999 | MOD disposals | Explosives | Cocroft (2003) | Cocroft (2000) |
| 1999-2001 | MPP / Dobinson | Aerial photographic assessment of radar, bombing decoys, AA sites, Operation Diver and coast artillery | Anderton (1998a-c, 1999 and 2000) | - |
| 1999-2000 (update 2003) | Thematic listing / MOD disposals | Thematic study of military airfields | Lake (2000a) | English Heritage (2003b); Lake (2000b, 2002, 2003a); Lake and Schofield (2000) |
| | MPP | Military aircraft crash sites | | English Heritage (2002); Holyoak (2001, 2002, 2003) |
| | Designation / MOD disposals | Cold War | Cocroft (2010); Tuck and Cocroft (2004) | Cocroft (2007); Cocroft et al. (2003) |
| 2000-2003 | Designation | Ordnance yards Magazine depots Steam Navy | Lake (2003b) | Evans (2004; 2006); English Heritage (2005); Firth (2003) |
| 2002 | MPP | Surviving military airfield defences | Francis (n.d.) | - |
| 2002-2004 | Designation / DoB influenced | WW2 defence areas | Foot (2004) | Foot (2003, 2006a, 2006b, 2008) |
| 2003 | Designation / MOD disposals | Typological study of military airfields | Francis (n.d.) | Lake et al. (2005) |
| 2003 | Designation / MPP | Prisoner of War camps, 1939-48 | Thomas (2003a) | Thomas (2003b) |
| 2003 | MPP | Drill halls | | Osborne (2006b) |
| 2003-2004 | Thematic listing | Bletchley Park survey and assessment | Monckton et al. (2004); Lake (2005) | - |
| 2004-2005 | MPP / Characterisation | Army camps (Phase 1 UK historical overview) | Evans (2005) | Schofield et al. (2006) |
| 2004-2005 | MPP / Characterisation | Army camps (Phase 2 England site visits) | Foot (2005) | Schofield et al. (2006) |
| 2004 | | War art | English Heritage (2004b) | Cocroft et al. (2006) |
| 2001-2004 | NMP | Suffolk coast | Hegarty and Newsome (2005) | Hegarty and Newsome (2007) |
| | NHPP | Coast war channels | | Firth (2014) |
| 2013 | MNSG/NHPP | Wartime airfields for England | Francis, Flagg and Crisp (2013) | - |
| 2014 | NHPP | ARP railway control centres | Francis, Bellamy and Crisp (2014) | - |
| | MNSG/NHPP | Support for the Fleet | | Coad (2014) |
| In press | NHPP | Civil defence | | |

Table 2.7: Indicative list of key modern conflict reports commissioned by English Heritage (after English Heritage (2004) and Roger JC Thomas pers. comm.).

The project was also interested in creating a selection of areas that included different regions of England; different types of landscape and topography; and those with good public access' (2006a: 35).

The defence areas focused on coastal areas, small parts of stop lines and other defence lines and area defences. Each entry included statements regarding the landscape, defences, significance, public access, sources and a site gazetteer. The smallest case study area measured approximately 300 square metres (Breamore Mill, Hampshire), while the most extensive areas measured 3-4 square kilometres (Saltfleetby, Lincolnshire and Semington-Whaddon, Wiltshire).

The defence areas selected by Foot included many areas of similar character as covered by the cases in this research. The coastal areas included a variety of scenarios such as invasion beaches (Cuckmere Haven, East Sussex), coastal bays (Studland Bay, Dorset), rural beaches (Dunster Beach, Somerset) and docks (Barrow Island, Cumbria). They also included river mouths (Walberswick, Suffolk), coastal towns (Winterton-on-sea, Norfolk) and flood defences (Holbeach, Lincolnshire). None of the cases included major coast artillery batteries.

The inland defence areas included a range of settlement types ranging from hamlets (Wadbrook, Devon), villages (Weycroft, Devon) to small towns (Acle, Norfolk). Only two defence areas dealt with urban or peri-urban environments (Bromborough Pool, Wirral and Farthingloe, Dover respectively), and none covered large urban settlements. Foot's defence area selection included specific contexts such as bridges (Chequers Bridge, Hampshire) and canals (Dunmill Lock, Berkshire), all chosen for their ability to illustrate particular tactical challenges.

Elsewhere English Heritage utilised historic characterisation techniques to record RAF Scampton (Atkins Heritage 2004), together with more traditional archaeological photographic recording to record the closure of RAF Coltishall (Cocroft and Cole 2007).

The National Mapping Programme (NMP) rapid coastal zone assessment surveys undertaken at locations such as the Severn estuary (Crowther and Dickson 2008; Chadwick and Catchpole 2013) and the Suffolk coast (Hegarty and Newsome 2005) were notable for identifying extensive defence landscapes (Hegarty and Newsome 2007; Newsome 2003; Newsome and Hegarty 2004).

Similar aerial photographic-based NMP work inland, for example in the Forest of Dean, also identified the remnants of defence landscapes (Small and Stoertz 2006). The survey was based upon the interpretation of aerial photographs supported by documentary sources and archives. A small number of new Second World War sites was identified, which highlighted the weakness of not utilising military records and undertaking archaeological survey, as a number of key sites known to exist in documentary evidence were not identified.

The intensity of English Heritage's military programme lessened considerably recently and ongoing work is focused on supporting designation relating to the First World War centenary commemorations and under-investigated Cold War topics (pers. comm. Roger J.C. Thomas and Wayne Cocroft, Historic England).

In Wales there was no synthetic archaeological overview of the medieval, post-medieval or contemporary eras (cf. Arnold and Davies 2000; Lynch, Aldhouse-Green and Davies 2000). The standard texts on Welsh industrial archaeology did not

include any discussion of the wartime military-industrial archaeological contribution (Rees 1969 and 1975). Cadw co-commissioned Roger J.C. Thomas to undertake an investigation of nineteenth and twentieth century defences in Pembrokeshire (Knight 1993; Thomas 1993, 1994) using a methodology based upon the architectural surveys of the Urban Development Corporation Areas (RCHME 1989). The objective was to complete an assessment of the location and status of all of the known disused military buildings, to identify their function, create a written and photographic record and to assess their significance. This was ground-breaking work in a Welsh context and was commissioned at a similar time to the FSG's Holderness study and Historic Scotland's regional surveys of Scotland.

The low penetration of the Defence of Britain project in Wales did not generate much momentum in terms of encouraging wider professional defence investigation. A limited amount of archaeological defence recording and publication was undertaken in Pembrokeshire (Thomas 1995a-b) and by Glamorgan-Gwent Archaeological Trust (Locock 1994; 1995; 1996; 2000) and Cadw (Berry 2005, 2006, 2007, 2009, 2010, 2011a-b).

At the completion of the Defence of Britain project, the Ancient Monuments Board for Wales adopted twentieth-century military sites as its annual theme in 2002-03 in order to inform designation work (2003), leading to the publication of a 'caring for' booklet (Cadw 2009). Significant building surveys were undertaken at the former Royal Naval Propellant Factory, Caerwent (Tuck 2005a-b; Tuck and Riddett 2006) and the former Ministry of Supply, Valley mustard gas facility at Rhydymwyn (Bone et al. 2007; Litherland 2007 and Nichol; Litherland 2007). The former military rocket range at Ynyslas was also archaeologically recorded (Parry and Groom 2010).

More recently Cadw commissioned the Welsh Archaeological Trusts to undertake pan-Wales surveys on military aircraft crash sites (Huckfield and Burton 2013; Hankinson and Spencer 2014; Sage, Page and Pyper 2013; Steele 2012), airfields (see Table 2.8) and WWI scoping projects (Crawford 2014; Evans 2014; Pyper 2013, 2014; Spencer 2013, 2014).

| Airfield | Author |
|---|--|
| RAF Aberporth (formerly Blaenannerch) | Pyper and Page (2012, 2014) |
| RAF Angle | Pyper and Page (2012, 2014) |
| RAF Bodorgan | Evans and Steele (2012); Evans (2013) |
| RAF / RNAS Brawdy | Pyper and Page (2012, 2014) |
| RAF Carew Cheriton (formerly RNAS Milton) | Pyper and Page (2012, 2014) |
| RAF Chepstow SLG | Huckfield (2012a) |
| RAF / RNAS Dale | Pyper and Page (2012, 2014) |
| RAF Fairwood Common | Huckfield (2012a, 2013) |
| RNAS / RAF Fishguard | Pyper and Page (2012, 2014) |
| HMS Harrier / RNAS Kete | Pyper and Page (2012, 2014) |
| RAF Haverfordwest | Pyper and Page (2012, 2014) |
| RAF Hawarden | Spencer and Hankinson (2012); Hankinson and Spencer (2013) |
| RAF Hell's Mouth | Evans and Steele (2012); Evans (2013) |
| RNAS Lawrenny Ferry / HMS Daedalus II | Pyper and Page (2012, 2014) |
| RAF Llanbedr | Evans and Steele (2012); Evans (2013) |
| RAF Llandow | Huckfield (2012a, 2013) |
| RAF Llandwrog / Caernarfon | Evans and Steele (2012); Evans (2013) |
| RAF Manorbier | Pyper and Page (2012, 2014) |
| RAF Mona | Evans and Steele (2012); Evans (2013) |
| RAF Pembrey | Pyper and Page (2012, 2014) |
| RAF Pembroke Dock | Pyper and Page (2012, 2014) |
| RAF Pengham Moors | Huckfield (2012a, 2013) |
| RAF Penrhos | Evans and Steele (2012); Evans (2013) |
| RAF Rhoose | Huckfield (2012a, 2013) |
| RAF Rudbaxton | Pyper and Page (2012, 2014) |
| RAF St Athan | Huckfield (2013) |
| RAF St Brides SLG | Huckfield (2012a, 2013) |
| RAF St David's | Pyper and Page (2012, 2014) |
| RFC Shotwick / RAF Sealand / Broughton | Spencer and Hankinson (2012); Hankinson and Spencer (2013) |
| RAF Stormy Down (formerly RAF Porthcawl) | Huckfield (2012a, 2013) |
| RAF Talbenny | Pyper and Page (2012, 2014) |
| RAF Templeton | Pyper and Page (2012, 2014) |
| RAF Valley | Evans and Steele (2012); Evans (2013) |
| RAF Wrexham / Borras | Spencer and Hankinson (2012); Hankinson and Spencer (2013) |

Table 2.8: Cadw-funded reports written by the Welsh Archaeological Trusts on Welsh wartime airfields.

2.11 Summary

This chapter emphasised the interdisciplinary character of conflict archaeology. Key outcomes were the recognition that very little has been published on anti-invasion defences in Wales, and that Schofield's assertion that archaeologists are able to define what was built, where, when, why and often how sites were used and by whom from documentary evidence should be tested in a Welsh context. The review demonstrated that the material response to this conflict has not been studied in detail in Wales and only infrequently and through other means in a British context. There has been no systematic description or evaluation of the sources or their interaction and how this affects methodological considerations. The knowledge gap identified by the review represents a genuine research opportunity and can contribute new insight into these areas.

The literature review situated conflict archaeology within historical archaeology for its methodological insights, particularly the concept of equal primacy of all evidence types and the requirement to move beyond low-level description. These themes link through to the idea of the need to create situational archaeologies within historical archaeology (Hicks 2005), a critical focus on source evidence (Beaudry 1988; Little 2007) and the validity of using an archaeological approach across different types of source evidence (Leech 1999; Wilkie 2006).

Within the documentary and text-aided archaeology traditions, the review identified how to integrate disparate types of evidence and the fundamental prerequisite to ascertain the purpose, intended audience, compiler bias and coverage of the evidence to identify bias. In particular, Little demonstrated the academic

acceptability of the critical use of official sources and signposted a framework for characterising the interaction of disparate sources (interdependent/complementary or independent/contradictory). Wilkie's assertion that the different forms of evidence are linked parts of a collective past that requires an iterative approach to analyse was an influential concept.

The literature review also identified modern conflict archaeology as part of the movements of the archaeologies of the recent and contemporary past. This research is seen as part of the longer trajectory of heritage management-based interest in this topic. At a broader level it links strongly with contemporary archaeology ideas of the presencing of absence (Buchli and Lucas 2001) and conveying narrative through material culture, not just history (Piccini and Holtorf 2011). The impact of temporal proximity is acknowledged.

Finally, a (re-)focusing of research effort onto defensive structures will harmonise British Second World War research with that elsewhere in the world, and a more critical approach to evidence and methodology will synchronise the research topic with those more theoretically-informed topics within modern conflict archaeology.

The next chapter provides a descriptive overview of the origination, organisation, content and survival of the source evidence employed in this study.

3. SOURCES

3.1 Introduction

One of the characteristics of conflict archaeology is the diverse range of sources utilised. Given the research questions established in Chapter One it was considered important by the researcher to critically assess the evidential sources used in a dedicated chapter. The assessment in Chapter Two demonstrated that background reading around the topic needed to be undertaken prior to evidential source selection. The reasons for selecting specific classes and types of evidence are outlined in Chapter Four.

Critical evaluation of sources was strongly emphasised within documentary and text-aided archaeology (Beaudry 1988; Little 1992). Documentary sources required rigorous assessment to establish their purpose, intended audience, compiler bias, accuracy, trustworthiness and selectivity, as well as the author's priorities and opinions.

Following Little's statement that 'credible research judges the credibility of its sources' (2014: 422) this chapter seeks to establish the credibility of the evidence used through a critical assessment of the sources. This is established by applying a refinement of Little's suggested criteria regarding author, audience and social setting, format, content, purpose, status, treatment and contemporary meaning (2014: 422-23).

The assessment in this chapter is based on the researcher's experience and reflection of using the different types of source evidence. As official military and governmental sources, the researcher assessed the evidence as documents

produced in the past rather than documents produced about the past (Moreland 2001), and was mindful of their efficacy in reproducing particular structures of power within a non-typical socio-political period.

3.2 Overview of research sources

The term ‘source’ is used to include any type of archaeological, documentary, cartographic and aerial photographic item that is used to address the research questions. No priority or preference is given to any particular type or class of source. The specific evidential sources used for each case are discussed in Chapters Five, Six and Seven.

There is no known published description and evaluation of the source evidence for Wales, although Dobinson provided quite comprehensive and insightful descriptive and evaluative summaries of the English sources for anti-invasion defences (1996b: 3-9), coast artillery (2000a: 5-8), airfield themes (2000d: 8-11) and airfield defences (2000e: 3). Redfern’s comments on the Welsh sources in *Twentieth Century Fortifications in the United Kingdom* were very brief. He concluded that ‘official documents for Western Command do not survive in the quantity as they do for other Commands’ at TNA and that ‘sources for Wales are limited’ (1998a: 39).

3.3 Archaeological evidence

The known archaeological evidence comprised the historic environment datasets held by the RCAHMW’s NMRW and the Welsh Archaeological Trusts’

HERs. The specific characteristics of the datasets are assessed in the case study chapters. This section provides a general assessment.

3.3.1 Author, audience and social setting

The anti-invasion defence-related records in the NMRW and the HERs were composite collections derived from multiple authors. The majority of the NMRW data originated from diverse volunteer recorders associated with the Defence of Britain project and the data was edited to ensure conformity. In contrast the data recorded in the HERs originated with professional archaeological curatorial or project staff.

3.3.2 Format

The diverse content incorporated into the NMRW and HERs was edited and catalogued into a standardised series of database fields conforming to accepted curatorial standards. It was rare for all of the fields to be completed and some fields were sparsely populated.

3.3.3 Content

The content was restricted to a common set of field headings comprising name, location, community, unitary authority, period, site type and NGR coordinates. The remarks field was rarely completed. These datasets recorded the results of primary fieldwork research, desk-based assessment and examination of published

secondary sources. The digital data was supported by physical archives comprising original recording forms, reports, documents, notes, plans and photographs.

3.3.4 Purpose

The HERs provide a preserved record of investigation and an educational resource of what has been found where; the information forms the basis for management and development control advice and decisions. The information also addresses objectives to improve access and engagement with the historic environment and to foster public understanding.

The aim of the NMRW is to collect, maintain and make available a comprehensive record of the archaeological, architectural and historical monuments of Wales, including its territorial waters, from the earliest times to the present day.

3.3.5 Status

The information contained within the HERs comprises an official and curated record of the known information about the historic environment in Wales. The data is maintained for long-term public access and availability. The NMRW archive was designated an approved place of deposit under the Public Records Act 1958.

Funded and enhanced through varying degrees of national and local government support these records comprise some of the main resources for those seeking information about the historic environment.

3.3.6 Treatment

In order to advance public understanding of archaeology and meet accepted standards the HER records are created, maintained, updated, repaired, kept safe and disseminated. To comply with the conditions of its Royal Warrant the NMRW is obliged to care for, preserve, and add to the records in its charge, and to make these collections available to the public. The care of its records must meet professional archival standards and the records must be stored in optimum conditions.

3.3.7 Contemporary meaning

The content of the NMRW and HERs is edited and authorised by curatorial staff. These staff were typically not in close proximity to the primary field data when it was collected or the secondary sources when they were written. As consumers of primary and secondary material the archives represent tertiary sources. The acts of editing and selecting data from primary and secondary sources may highlight or suppress data, which would influence interpretation.

3.4 Documentary evidence

The lack of published sources discussing the wartime military presence and organisational structures in Wales meant that the source evidence needed to be examined in detail. In order to assess the primary documentary evidence and develop the administrative and operational narrative a sustained period of in-depth archival research was undertaken at archives, museums and libraries. The pieces

consulted are recorded in the List of Primary Sources. Original place name spellings are used.

3.4.1 Records preserved at The National Archives

The records can be categorised into war diaries and operational record books, registered files, and miscellaneous papers. The individual documents are too numerous to assess here and are assessed as appropriate in Chapters Five, Six and Seven. An assessment of the principal categories of documentation is presented below.

Contrary to early claims (Glover 1990; Wills 1985) relevant documents do survive and those for Western Command were preserved from 1939-45. They are of fundamental importance for understanding the context in which anti-invasion defences were constructed. As observed by Redfern Western Command-related records were less plentiful than the records for other Home Forces commands.

However, Redfern stated that the sources were limited, but the experience of this research found the situation to be more positive. Redfern's rapid review of the Welsh material was undertaken in parallel with surveys of the Scottish and Northern Irish material in a short period of time. The experience of this research identified that while some classes of anticipated records were missing or depleted, other sources could be brought into play that made up for deficiencies. It is suspected that Redfern went straight to the obvious sources and on discovering an absence of material concluded that the information was not present.

As different aspects of the same actions, decisions and events were routinely recorded in multiple documentary locations, a widening of the search parameters to connected diaries and files often located helpful information. Redfern did not have the time or opportunity to undertake this and his conclusions were premature. This research identified that a more exhaustive search was capable of bearing more useful and nuanced results. Additional effort was required to 'presence absence' (Buchli and Lucas 2001). As Bird observed, the problem was in fact one of an over rather than an under supply of documentary material (1995).

3.4.2 War diaries preserved at The National Archives

An overview assessment of war diaries and operational record books (ORBs) is provided here. The Western Command area was the subject of record making across a large number of war diaries and ORBs.

3.4.2.1 Author, audience and social setting

War diaries and ORBs represented the corporate memory of a particular formation or unit. Entries were added on a daily basis by a junior officer and were signed off by the Officer Commanding. Usually the signatures were illegible meaning that unit identity subsumed individual identity. Completion of the task was a daily and routine occurrence.

The command headquarters of an Army formation (command, corps, division or brigade) was divided into different branches – General Staff, Chief Engineer,

Royal Artillery, Signals, etc. – and each bore responsibility for their respective functions within the headquarters territory. Each branch was required to keep its own war diary. At a unit level, all combat and combat support units were also required to keep war diaries during wartime.

Much like the Army's war diaries, the ORBs were created by commands, groups, stations, wings, squadrons and all miscellaneous units of the RAF for the Air Ministry. Completion and submission of the document was also a routine official process.

There was a considerable expectation regarding the maintenance of a war diary, which was codified as part of the military doctrinal obligation. Non-compliance would result in disciplinary action, so the stationery can be seen as a physical expression of social control.

3.4.2.2 Format

During wartime, war diaries were kept in duplicate from the first day of mobilisation of an Army formation or unit. Entries were added to a standard stationery recording form entitled Army Form C2118 (Plate 3.1). Supplies of this form became scarce during 1940 and many headquarters replicated the forms on available paper supplies.

The ORB was a formal piece of pre-printed official stationery that was designed to receive a record of daily events for each RAF squadron or unit. It was known as RAF Form 540. It recorded details of place, date and time and a summary

of events. Supporting appendices could be added. The reports were a mix of handwritten and typed formats that are now bound into books available at TNA.

3.4.2.3 Content

War diaries contained information relating to formal military decisions made and actions undertaken, rather than recording future plans. Detailed instructions were issued by the War Office for the compilation of war diaries. Typical war diary entries referred to conferences, visits, staff transfers, exercises, inspections, courses and lectures. The assumption and relinquishment of posts was also recorded in detail. It was also to include the detailed accounts of operations and exercises, together with the nature and description of field engineering works constructed. Changes in military establishment or strength and meteorological reports were also included.

Specific guidance was also provided concerning the addition of appendices, which had to include complete copies of orders, instructions and reports, together with relevant sketches and maps. Each appendix was numbered sequentially and submitted with the monthly war diary return (Plate 3.2). The evidence discussed in the cases will demonstrate that the contents of the appendices (Appendix 3.1) were some of the most informative documents used in this research.

The content of the ORBs is variable reflecting the diverse range of activities across the RAF. It can include details of operational sorties, lists of aircraft, operational orders, reports and telegraphed messages. They can include nominal

rolls, officer lists, and details of promotions, transfers and awards. Supporting appendices might contain reports, orders, photographs and plans.

Dobinson stated that 'key sources are the ORBs of stations, whose appendices often contain successive copies of the station defence scheme, often accompanied by plans of varying quality' (2000e: 3).

War diaries and ORBs can be difficult to use. The text can be technical and obscure, with frequent use of acronyms. It can be difficult to read and interpret, compounded if it was written in difficult long hand rather than typed. The entries are typically codified and formulaic, and sometimes very brief. As a general record detailed information is rarely included, but the entries can give a good indication of the major preoccupations of the time.

3.4.2.4 Purpose

Spencer stated that 'from 1907, units on active service were required by the Field Service Regulations Part II to keep a daily record of events. These records were called War Diaries, or occasionally, Intelligence Summaries' (2008b: 126). It aimed to furnish a daily historical record of operations, recording important orders, instructions, reports, messages, despatches and decisions taken.

As part of King's Regulations of the RAF it was a requirement that all units completed RAF Form 540 (Spencer 2008a). The Air Ministry's ORBs were created to keep an entire record of a RAF unit's operations and activities from the time of its formation.

3.4.2.5 Status

The war diary and ORB were an important and central record for every Army and RAF formation and unit. Like most military documentation, the content was sensitive and the documents were classified 'secret.' Used for internal business purposes it was the main articulation of a unit's activities.

The degree of self-censorship and restriction of the message on behalf of the originators was difficult to determine. The entries were not neutral and were consciously selective. They did not provide a full record of activity, so the possibility of active suppression of a message through the medium is a potential weakness.

The monthly returns were submitted for purposes of historical record, and while they were not used directly for propaganda purposes the content was used to inform official histories and may have been used for other propaganda purposes. Given that the entries were used to inform regimental and squadron histories, there is the possibility that entries could have been written to present the unit's activities in a more favourable light.

3.4.2.6 Treatment

Monthly returns were sent to the Under Secretaries of State at the War Office and Air Ministry for central filing and a receipt returned to acknowledge deposition. Custody of records was the responsibility of a series of military Record Offices established for groups of regiments and arms. The records were transferred to the Public Records Office in regular tranches for official preservation.

The large numbers of military records produced that survived deliberate destruction, lack of interest and inadequate storage to be transferred to the PRO needed to be managed (Roper 1998: 284). Increasing controls for document disposal were codified in a succession of schedules of proscribed rules. The Lord Chancellor made use of special powers under the Public Records Act 1967 to open all of the operational records from the Second World War in January 1972 (Roper 1998: 288).

3.4.2.7 Contemporary meaning

The authors were in close chronological, functional and spatial proximity to the phenomena that they recorded. The diary entries were prepared as part of routine service business. The authors had privileged intellectual access to the subject being recorded and were expected to produce standardised records for operational purposes.

As artificial constructs not all aspects that researchers are interested in were recorded, or were not recorded to the required level of detail. It is clear from the brevity and formulaic character of the war diary daily entries that they included intentional bias. The content was highly selective. Significant amounts of activity were not subject to formal reporting. Despite these shortcomings, their content represents a direct, unique and authoritative account not available elsewhere.

The completion and submission of Army Form C2118 and RAF Form 540 was a service requirement and comprised a form of social control that reproduced and reinforced structures of power and social positions within a hierarchical framework on

a daily basis. The documentation is representative of both a collective and individual maintenance of belief in an institutional goal and indicative of individual and group willpower, self-discipline and obedience. This function also meant that the war diary was active in reinforcing group identity and developing esprit de corps.

SECRET

ORIGINAL

WAR DIARY *G BRANCH*

Army Form C.2118

Instructions regarding War Diaries and Intelligence Summaries are contained in F. S. Regs. Part II, and the Staff Manual respectively. Title pages will be prepared in manuscript.

INTELLIGENCE SUMMARY *HQ WESTERN Command*

(Brass heading not required.)

| Place | Date | Hour | Summary of Events and Information | Remarks and references to Appendices |
|---------|--------|--------------|--|--------------------------------------|
| CHESTER | July 1 | 2355 | 5 H.E. bombs in outlying districts of BARRY and one unexploded bomb in CADOXTON caused minor damage. | |
| " | 3 | 0100 | 3 H.E. bombs dropped near MUCH MARCLE, near LEDBURY, causing slight damage. | |
| " | 4 | | Op. Inst. No. 6 and Admin. Inst. No. 4 issued. See Appendices A & B. | |
| " | 5 | | Op. Inst. No. 7 issued. See Appendix C. | |
| " | 9 | 0030 to 0230 | 19 H.E. bombs dropped on GOWER PENINSULAR and caused slight damage and 6 minor casualties. | |
| " | 9 | | Op. Inst. No. 8 issued. See Appendix D. | |
| " | 9 | 1500 | 4 H.E. bombs dropped in daylight raid on CARDIFF docks area caused some damage to railway sidings and several casualties. | |
| " | 9 | 1925 | 4 H.E. bombs dropped on PENRHOS aerodrome caused damage to hangars and 2 aircraft. Two officers killed and 7 O.Rs injured. | |
| " | 10 | 1045 to 1200 | Two daylight raids on CARDIFF and one on SWANSEA caused slight damage and several casualties. 4 H.E. bombs dropped on PEMBROKE DOCKS caused some damage to oil tanks. Bombs dropped on R.O.P. PEMBREY caused slight damage and several casualties. Slight damage to oil tanks LLANDARCY. | |
| " | 10 | | Op. Inst. No. 9 and Admin. Inst. No. 5 issued. See Appendices E & F. | |
| " | 12 | 1700 | Daylight raid on NEWPORT caused minor damage. | |
| " | 12 | 0333 | 4 H.E. bombs dropped near NEWBRIDGE near UPTON-ON-SSEVERN caused some damage to houses and telephone wires. | |
| " | 13 | 0015 to 0040 | 8 H.E. bombs vicinity of NEWPORT caused slight damage, 1 killed and 3 wounded. 2 H.E. bombs dropped at BEDWAS damaged electric cables. 3 H.E. bombs dropped CASERPHILLY caused some damage to houses. Bombs dropped on outskirts of CARDIFF caused some damage to houses and cut electric cable at RUMNEY. | |

Plate 3.1: Army Form C.2118. Western Command General Staff War Diary entry for 1-13 July 1940. Operation Instruction No. 7 of 5 July ordered the construction of the anti-invasion stop lines in Wales. TNA Ref. WO 166/94.

| References: 1" Ordnance Survey. | | | APPENDIX "A". |
|----------------------------------|--|--|---------------|
| WESTERN COMMAND DEFENSIVE LINES. | | | |
| NO. | DESCRIPTION OF LINE. | | |
| C.M. & N.W. 1. | Line of R. SEVERN (Sh. 103 9803) from TEWKESBURY (Sh. 92 3453) - SHREWSBURY (Sh. 60 9534) - LLANDRINDO (Sh. 60 7439) | | |
| C.M. 2. | Line of R. AVON (Sh. 92 3453) from TEWKESBURY - neighbourhood of COVENTRY. | | |
| C.M. 3. | COVENTRY - NUNATON - TAMWORTH (Sh. 62 8624) | | |
| C.M. 4. | STRATFORD-ON-AVON Northwards along best stopping line to TAMWORTH. | | |
| W.L. 5. | TAMWORTH - BIRMINGHAM-ON-TRENT (Sh. 62 7043) thence by R. DOVE (Sh. 53 5754) to ASHPORTE (Sh. 53 6467). | | |
| W.L. 6. | TAMWORTH by TRENT VALLEY (Sh. 62 7040) - EAST side of STON (Sh. 52 8486) - MACELESTFIELD (Sh. 44 5894) and STOCKPORT (Sh. 36 3610) 6 miles S.E. of MANCHESTER (Sh. 36 3118.) | | |
| W.L. 7. | WOLVERHAMPTON (Sh. 61 3719) STAFFORD (Sh. 61 3844) by the CANAL. | | |
| S.W. & L. 8. | SHREWSBURY - NEWPORT (Salop) (Sh. 61 2040) - NANTWICH (Sh. 52 1173) (a) CHESTE (Sh. 43 8788) - CONNAHS QUAY (Sh. 43 7691) (b) East of CREWE (Sh. 44 1776) - MIDDLEWICH (Sh. 44 7007) - RUNCORN (Sh. 43 9804) | | |
| W.L. & E.L. 9. | MANCHESTER SHIP CANAL (Sh. 36 0707) | | |
| W.L. 10. | WARRINGTON (Sh. 36 0710) - ST. HELENS (Sh. 55 9717) - FORMEY (Sh. 35 7729) | | |
| E.L. 11. | LETTLEBOROUGH (Sh. 30 4137) (N.F. of ROCHDALE) - TODMORDEN (Sh. 30 4145) - BURNLEY (Sh. 30 3135) - COLNE (Sh. 36 3660) | | |
| E.L. 12. | BURNLEY - PRESTON (Sh. 30 1050) | | |
| E.L. 13. | SALFORD (Sh. 36 2919) - WIGAN (Sh. 36 0526) - PRISTON. | | |
| E.L. & W.L. 14. | WIGAN (Sh. 36 - 0526) - BURSLOUGH (Sh. 35 9133) - FORMEY. | | |
| E.L. 15. | PRESTON - LANCASTER (Sh. 24 9583) (Essential to prevent rupture of communication by main road from either E. or W.) | | |
| E.L. 16. | LANCASTER via R. LUNE (Sh. 24 9583) to SEDBERGH (Sh. 20 1513) | | |
| E.L. 17. | Rd. Junct: 2½ miles S.W. of KIRBY STEPHEN (Z.22) (Sh. 13 2530) - BROUGH (Sh. 13 2735) | | |
| E.L. 18. | ULLSWATER (Sh. 12 9142) - FENRITH (Sh. 9 0052) thence via R. BEEN (Sh. 9 8878) - BRAMPTON (Sh. 5 0182) | | |
| E.L. 19. | Triangle formed by Rivers ESK and LUNE (Sh. 18 5518) | | |
| E.L. 20. | General line of the railway CARLISLE (Sh. 9 8977) - KIRKBRIDE (Sh. 9 7178) - ABBEY TOWN (Sh. 9 6672) - MARYPORT (Sh. 8 5358) | | |
| N.W. 21. | RHYL (Sh. 42 4703) - CORWEN (Sh. 50 5465) - BALA (Sh. 50 3958) - DOLGELLY (Sh. 68 1840) - MACHYNLLETH (Sh. 68 2023) | | |
| N.W. 22. | CORWY (Sh. 42 2401) - BETTWS-Y-COED (Sh. 42 2679) - HARLECH (Sh. 49 0453) | | |
| N.W. 23. | BANGOR (Sh. 41 0494) - CAPEL CURRIG (Sh. 42 1818) - FORTMADOC (Sh. 49 0361) | | |
| C.W. 24. | CARDIGAN (Sh. 88 6369) - TENBY (Sh. 99 5823) | | |
| C.W. 25. | Line of the R. LOUGHOR (Sh. 100 0120) - LLANDILO (Sh. 89 0844) - LLANDOVERY (Sh. 90 2256) | | |
| S.W. 26. | Line of the R. USK (Sh. 90 4950) - BRECON (Sh. 90 4950) | | |
| S.W. & N.W. 27. | Line of R. WYE from its mouth (Sh. 80 6864) - HERFORD (Sh. 60 9661) - HAY (Sh. 30 6864) | | |
| C.M. & N.W. 28. | Line of R. TEE (Sh. 81 3073) from its junction with SEVERN to LUDLOW (Sh. 70 9796) | | |

Plate 3.2: Appendix A to Western Command Operation Instruction No. 7 of 5 July 1940 listing the command stop lines to be constructed. TNA Ref. WO 166/94.

3.4.3 Registered files

There were a significant number of registered files preserved at TNA that contained defence-related papers of relevance to Western Command in Wales. They usually focused on specific aspects of defence policy and practice. Their content expanded on information held in the war diaries and ORBs.

3.4.3.1 Author, audience and social setting

The registered papers recorded the routine business of government. They were created by civilian officials and military personnel within the relevant ministry. The signing of certain types of letter making decisions or authorising actions or payments was restricted to higher level officials and personnel. The details of the sender and recipient of the correspondence and their departmental affiliations were usually clearly identified. The correspondence of senior civil servants and officers can be addressed using only forenames or nicknames, which can make identification difficult.

3.4.3.2 Format

The papers mostly comprised foolscap paper in hand written or typed format within registry file covers. The format can also include copies of papers produced through the carbon paper, blue print, teleprinter, camera-based photocopying and reflex copying processes. Many papers used standardised headed and printed

templates, and were stamped with the date and time of receipt. Some papers can be faded and physically damaged i.e. incomplete.

The papers were organised in the traditional governmental registry file fashion with documents such as incoming papers and draft replies numbered in date sequence and fixed to the right-hand side of the file. The minutes conveying the correspondence were hand written on specific minute sheets. Each was sequentially numbered and cross referenced to the relevant document(s), and fixed to the left-hand side of the file. Registry files have to be read in the particular manner in which they were compiled. They cannot be read from front to back. Inter-document referencing can be complex and the development of an idea or subject can be difficult to reconstruct. This problem was compounded when pages have been removed or are missing, or if the order of the papers was changed.

3.4.3.3 Content

These papers comprised correspondence, papers and minutes created by and circulated amongst civilian and military branches of the War Office, Admiralty and Air Ministry. The content ranged across all of the governmental department business and activities. It could range from formalised letters to technical documents and personal notes. The content can be highly technical and abbreviated which can make it difficult to use. Some content was also drafted for a knowledgeable recipient and abbreviations, oblique references, assumptions and/or omissions in understanding and content were made that are difficult to interpret today.

3.4.3.4 Purpose

The papers recorded the full scope of proposals, reports, actions and decisions relating to routine government business. The purpose of the files was to keep linked information together in one place to improve efficiency and allow effective evidence-based decision making.

3.4.3.5 Status

The records and their content dealt with highly confidential communications, information and decisions pertaining to works of defence that were categorised as prohibited places under the provisions of the Official Secrets Acts 1911-39. The papers formed the basis for formal civil service advice to the British wartime government, including the prime minister, cabinet and the treasury. Their access and circulation was strictly restricted.

3.4.3.6 Treatment

The papers were organised by theme or subject through a registration system operated by central registries. Each file was registered with a unique code and codes were grouped into administratively linked series. The papers were transmitted within and between departmental branches according to business requirements. The registered papers were subject to the same custodial, selection and public access processes as other official wartime documents.

3.4.3.7 Contemporary meaning

The papers were drafted by officials or service personnel who had intimate and detailed knowledge and privileged access to the topic discussed. The content was protected by the Official Secrets Act and was not anticipated to be made public, so the content was not constrained. It was routine practice for draft correspondence and reports to be amended and re-drafted by higher staff, but the draft and final versions were preserved making the decision-making transparent.

3.5 Aerial photographic evidence

The use of wartime aerial photographic evidence is a common occurrence within modern conflict archaeology. The history of the development of aerial photography is well published (Nesbit 1996; Leaf 1997; Staerck 1998; Barber 2012), as are accounts of the benefits and dis-benefits of using aerial imagery (Lueder 1959; Stanley 1991; Newsome and Hegarty 2004).

The use of the imagery would appear to be automatic in many cases and without a clear critical basis. It might be used to illustrate context, add drama or to illustrate a particular issue or structure. As with other evidence types, there is a danger that research commences with a site in an image and tries to fit an archaeological interpretation around it. A more critical approach is required.

3.5.1 Author, audience and social setting

Wartime aerial photography required collection and processing through very specific channels, often involving inter-service cooperation. Imagery capture was expensive, technical and time-consuming, and was consequently commissioned at senior level for very specific purposes to address particular military issues.

The sorties employed in this research represented the combined activities of Army Air Cooperation squadrons, Photographic Reconnaissance Units and from February 1944 photographic reconnaissance undertaken by the USAAF. Individual pilots were not identified, but their squadron identities were normally cited. The imagery used in this research appears to have been used purely for internal military purposes.

3.5.2 Format

The imagery was captured through aircraft-mounted cameras on wet film which was developed into contact sheets and plates. The imagery could be collected vertically at higher altitude (Plate 3.3) or in oblique format usually at low-level (Plate 3.4) to depict the subject in plan form. Often vertical imagery was collected at time intervals that allowed sufficient overlap between prints to enable stereoscopic viewing.

The imagery from each sortie is accompanied by a RAF Medmenham Central Interpretation Unit report that stipulates the sortie number, date, time, altitude, scale and GSGS map reference(s). The card also provided a cartographic depiction of the location and extent of each frame (Plate 3.5).

The Operation Revue post-war RAF national aerial photographic survey comprised vertical black and white imagery at a nominal 1:10,000 scale. It provided near-complete coverage for Wales, albeit taken between the months of March and July from 1945-52 rather than a single point in time (CRAPW n.d.).

3.5.3 Content

Plate 3.6 is a distribution plot of the extent of wartime sorties for Wales. It demonstrated that Wales was not subjected to blanket wartime reconnaissance, but rather very focused and small-scale coverage to collect imagery for specific purposes. A catalogue of the sorties is presented in the List of Primary Sources.

Sorties collected imagery that could comprise single frames of subjects or a series of continuous frames for an area. The imagery used in this research was all monochrome.

3.5.4 Purpose

The purposes of military intelligence imagery are well described (Bewley 1994; Hegarty and Newsome 2007) and can be used to select bombing targets, determine bombing accuracy, assess bombing damage, determine orders of battle, analyse equipment capability, pin-point defence positions or to search for indications of initiatives or intentions over enemy territory.

The aerial reconnaissance over Wales was taken for other reasons including stop line and coastal crust reconnaissance and heavy anti-aircraft gun site survey.

The subject of the visual content was dependent on the operational task required, but could also include unintended content.

The Operation Revue imagery was undertaken by the RAF for the Ministry of Town and Country Planning to aid post-war planning and reconstruction in the absence of reliable up-to-date mapping (CRAPW n.d.).

3.5.5 Status

Detailed aerial photography would have been extremely sensitive. It was kept in securely controlled environments and its status as a restricted medium would have curtailed its access, availability and circulation. Most of the imagery was not censored as it was for an internal military audience, although some frames had sensitive installations highlighted by wartime censors. It was uncertain whether the imagery had been subjected to screening and selection prior to public access at places of archival deposit. The researcher is aware of modern day sensitivities regarding access to wartime imagery of MOD establishments that are still in use on security grounds. As far as can be determined no examples were used externally for their propaganda value.

3.5.6 Treatment

All of the wartime aerial photography was commissioned for internal military use. The results of aerial reconnaissance sorties across Wales are preserved at the Welsh Government's Central Register of Aerial Photographs for Wales (CRAPW).

The register was established to avoid duplication of aerial coverage by local and national government in the immediate post-war time period. The original prints were professionally scanned as high resolution digital files.

3.5.7 Contemporary meaning

The photographers, through the instantaneous character of the technique, were in close chronological, functional and spatial proximity to the phenomena that they recorded. The imagery was produced as part of routine service business. The photographers had privileged physical and intellectual access to the subject being recorded.

The pilot, subject to atmospheric and technical constraints, was responsible for consciously selecting the subject and composing the image. The image once exposed contained less intentional bias than other evidence types as it captured the subject as presented. The imagery represented a single moment in time, although additional value could be obtained from working with successive iterations in order to demonstrate site development and phasing.



Plate 3.3: Example of the detail captured by a high quality vertical aerial photograph of East Blockhouse coast battery, Pembrokeshire taken with a camera with a 5-inch focal length at 6,000ft. Frame 10483, sortie 61/1, 24 June 1940.

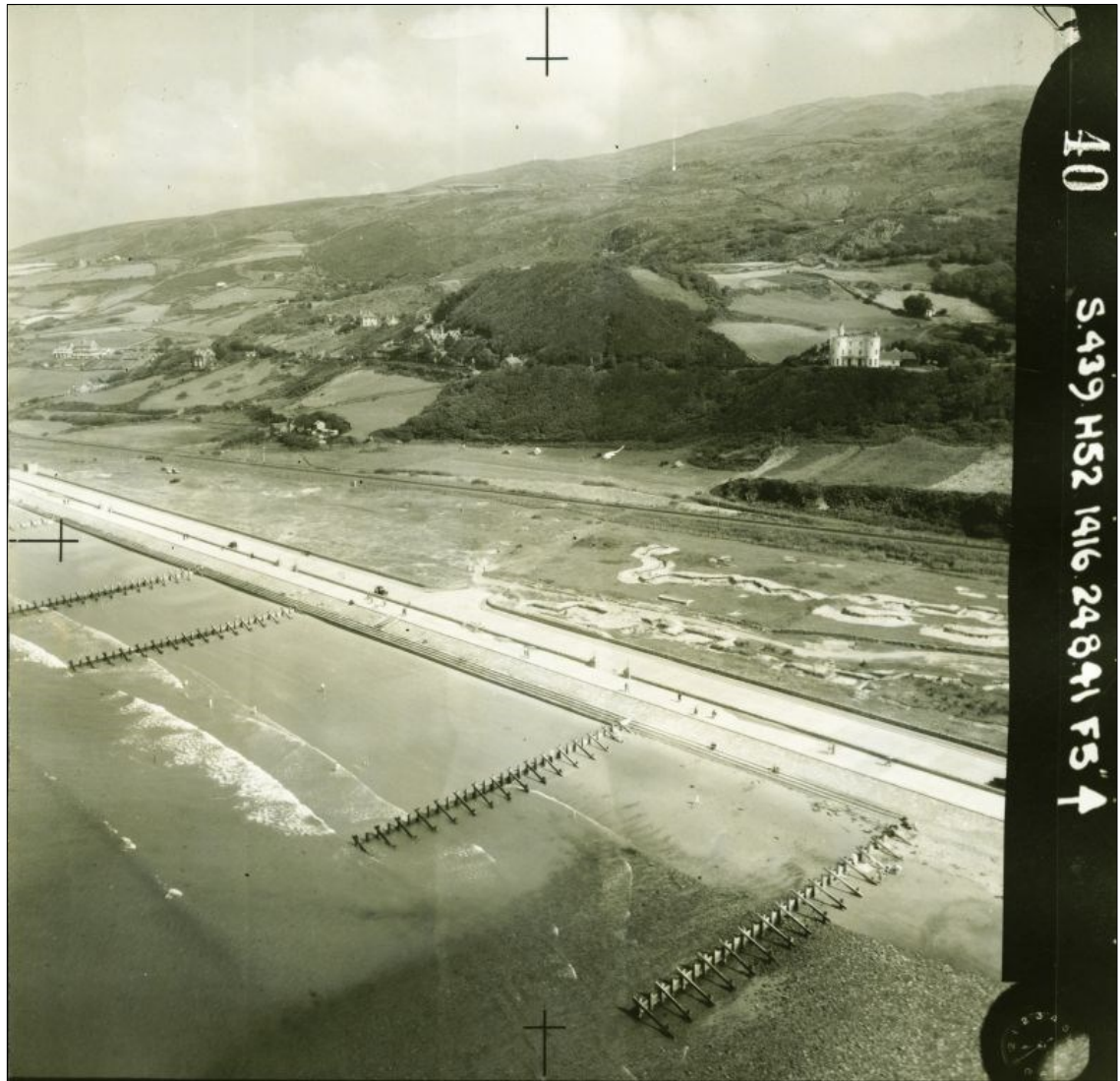


Plate 3.4: Low-level oblique aerial photograph of a freshly excavated trench system at Barmouth, Merionethshire taken with a camera with a 5-inch focal length. Frame 40, sortie S/439, 24 August 1941.

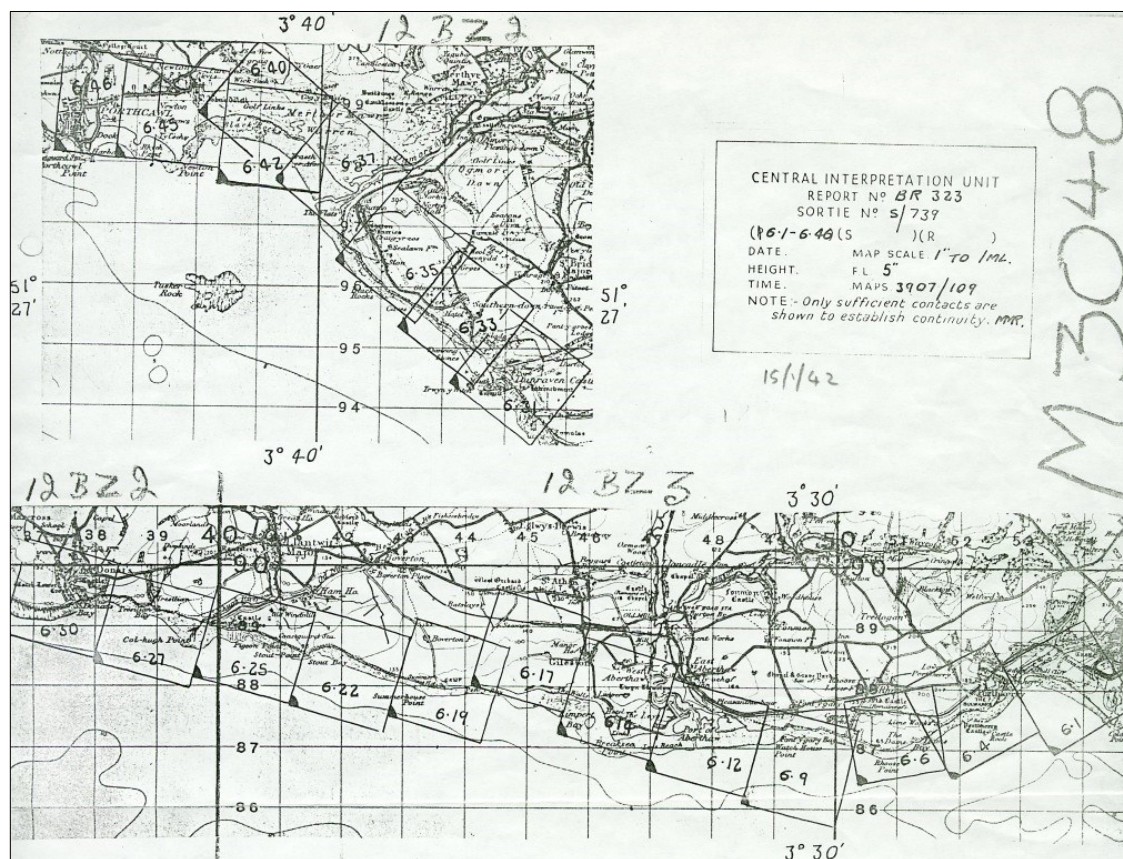


Plate 3.5: Example of a Central Interpretation Unit plot showing the geographic footprint of each vertical image between Porthkerry and Porthcawl, Glamorgan. Sortie S/739, 15 January 1942.

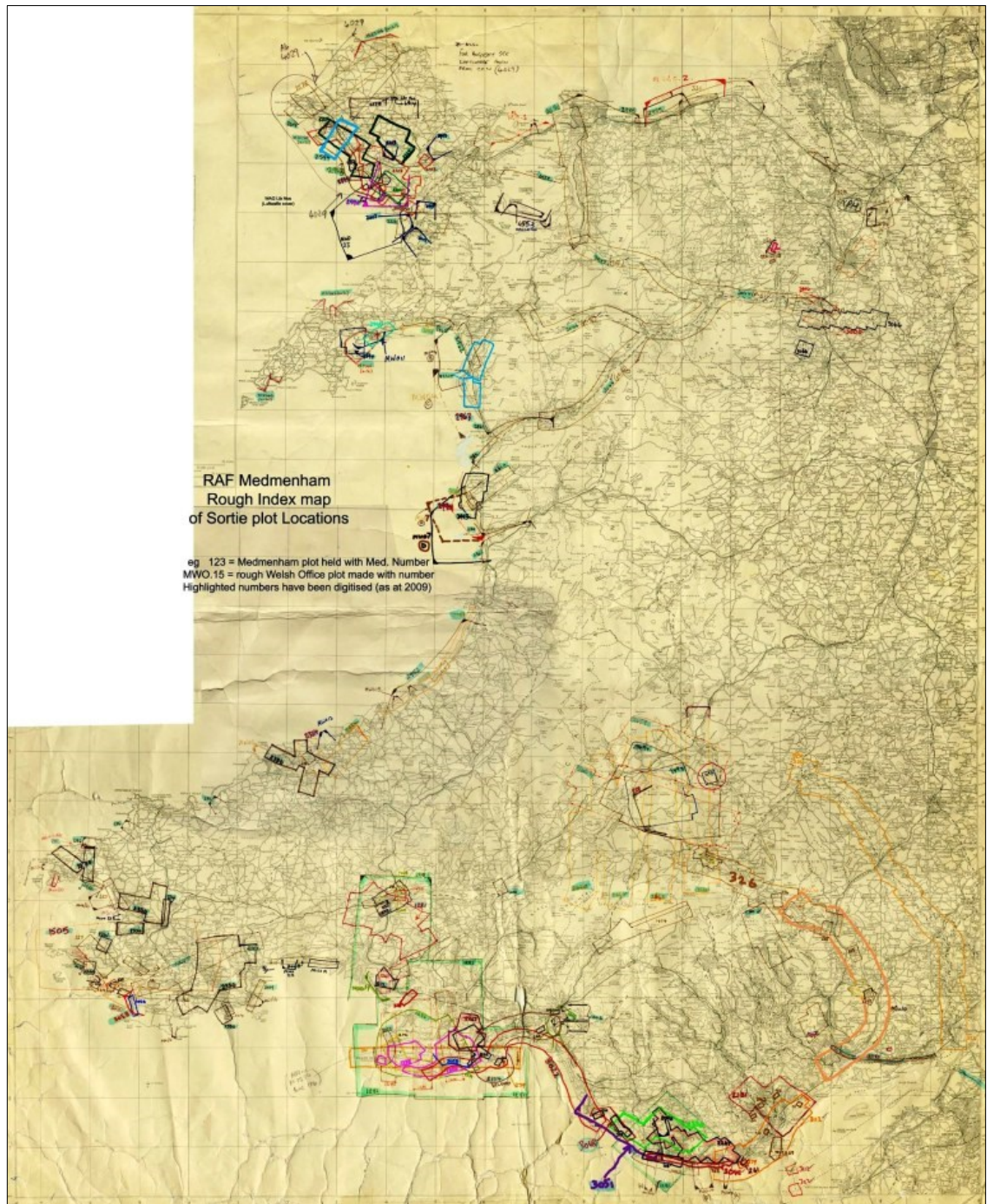


Plate 3.6: A distribution plot of wartime reconnaissance sorties and aerial photographic coverage held by CRAPW.

3.6 Cartographic evidence

The military has a longstanding interest in accurate mapping and their respective histories are closely intertwined, as they both are with archaeological field recording (Harley 1975; Phillips 1980; Oliver 1993; Hodson 1995; Ordnance Survey 2010). No known maps survived that depicted the locations of all anti-invasion defence sites in Wales. TNA's research guide on military maps of the Second World War stated that 'unit war diaries of the British Army often include maps, plans and tracings, usually as appendices to the narrative' (2013c: 3). This evidential class incorporated a variety of different types of maps and plans, including:

- Ordnance Survey one-inch to one-mile maps with military information overprinted (GSGS3907 series maps)
- Ordnance Survey six-inch to one-mile mapping reproduced at 1:25,000 scale by the Royal Engineers (GSGS3906 series maps)
- Annotated overlays to the above
- Site specific scaled site layout, building or engineering plans
- Informal sketch plans

3.6.1 Author, audience and social setting

All military mapping was intended for use by service personnel in headquarters and in the field for use in official military business. Work with maps was a fundamental and commonly occurring military activity. Map creation was undertaken at the request of military commanders in order to illustrate orders and reports or provide a record. The formal measured maps and plans were produced or

amended by professional military cartographers or surveyors. Informal sketches were produced by those parts of the military such as the Home Guard that wished to convey a lot of detailed information quickly, but without the means to formalise it. The names of individual cartographers were rarely recorded, but their unit identities were sometimes stated.

3.6.2 Format

Military mapping was created in a large variety of sizes ranging from foolscap to oversized documents measuring many metres in size for use in single or group formats. The size of the map was determined by the scale required and subject size, and also by practicalities such as the place of intended use. Larger maps tended to be used at headquarters and smaller maps were used when mobility was required. Maps were printed on specific chart paper, cloth-backed paper or grease-proof paper. The map content could be depicted in multiple press colour inks, duo-chrome or monochrome. Sketch plans could be very simple consisting of pencil on the back of letter paper.

3.6.3 Content

Military cartography contained a variety of content, which was determined by its intended purpose and user. Content ranged from simple colour civilian maps that were overprinted with the War Office False Origin (WOFO) Cassini grid reference system (GSGS3907 series mapping) to enable military orders to be interpreted and installations located to more specialised versions of similar content at a larger

1:25,000 scale (GSGS3906 series mapping). The latter was monochrome with contours depicted in brown to enable better comprehension of terrain.

The majority of military documents such as war diaries and operation instructions cited locational references to the WOFO grid reference system, also known as the Cassini or purple grid (Crawshaw 1991; Dobinson 1996b). The latter name arose following the military practice of over-printing a purple coloured grid onto civilian Ordnance Survey maps. The Geographical Section, General Staff (also known as MI4) operated to the Director of Military Operations and Intelligence, and was responsible for producing these secret maps (Hellyer and Oliver 2004). Systems for manual transformations have been published (Burridge 1995; Redfern 1998a; Penny 2000).

Other pre-existing civilian mapping was utilised by the military by the addition of annotated symbols and text to show defence installation and organisational boundaries.

Layout plans depicted the extent, location and identity of buildings and structures at military installations such as airfields, camps and coast artillery emplacements, usually accompanied by a numbered schedule of buildings. These plans were usually at 1:2,500 scale. Location plans depicted the general geographical location of a military establishment, often defining the formal boundary with the civilian world. Technical and engineering plans depicted the information required by tradesmen to maintain, alter and repair various types of infrastructure such as telecommunication or sewerage systems.

The use of annotated semi-transparent overlays was often used as a means of sending information through secure communications. These maps included specifically marked grid line cross hairs that could be rectified with a base map to convey the required information. This type of mapping only worked in combination with the base map and was harder to interpret on its own.

The Air Ministry Record Site Plans dated to 1944-45 and omitted reference to the majority of defensive structures from the beginning of the war. The richest source of military cartography was preserved within the coast artillery Fort Record Books.

Where maps were identified they were usually whole and complete. The content of the war diaries and registered files made it clear that many maps cited in those documents were no longer attached to those documents. It was not certain whether the missing maps had been removed by the military prior to deposition or whether archival staff separated material following deposition into other collections.

3.6.4 Purpose

Mapping commonly accompanied all aspects of military communication, particularly issued orders and submitted reports. They were utilised for planning work, monitoring progress and recording the presence and identity of military sites and infrastructure. They were used for recording operational and tactical decision-making and organising and delivering training.

The plans also formed part of the official documentation that was used in the acquisition and requisition of civilian property and eventually formed part of the

considerations for repayment of war damages. Architectural, technical and engineering drawings were used to identify, locate and characterise different aspects of military infrastructure.

3.6.5 Status

The maps examined were classified documents and were originally kept securely. They were often marked 'secret'. The number of copies, access, circulation and usage were restricted, often to officers and NCOs. Subordinates were often ordered to destroy maps by fire when they were outdated or no longer needed. Mapping was often earmarked to be issued on the event of an invasion to retain control and avoid accidental losses or exposure.

The mapping was not censored as it was for an internal military audience, but it was uncertain whether the mapping had been subjected to screening and selection once opened for public access at places of archival deposit. In particular there might be modern day sensitivities regarding free access to wartime mapping of MOD establishments that are still in use on security grounds.

As pictorial representations of military planning, actions and records used by the military for internal business purposes the mapping did not appear to have an overt external propaganda value.

3.6.6 Treatment

The mapping was created first and foremost for military use. As a relatively rare commodity during the early years of the war mapping was used sparingly and often copied. Huge volumes of maps came to be produced and consumed by the military as an everyday tool accompanying most tasks. As mentioned above, while maps were restricted items, they were considered disposable through the correct controlled channels unless they were specifically produced to create a permanent record.

The majority of the maps that were accessed in this research were officially deposited by the Ministry of Defence through established archival selection and retention schedules that identified government business records for archival deposit at the Public Records Office. Following deposit the maps were made publicly accessible in 1972.

The large-format Air Ministry Record Site Plans are preserved at both TNA in albums compiled by the Air Ministry during 1945 and the RAF Museum, Hendon.

3.6.7 Contemporary meaning

The cartographers were in close chronological, functional and spatial proximity to the phenomena that they recorded and produced the maps as part of routine service and official government business. They had privileged physical and intellectual access to the subject being recorded and were expected to produce professional and accurate records for operational purposes.

As artificial constructs not all aspects that researchers are interested in were recorded or not recorded to the required level of detail. Apparently obvious content was routinely omitted from military mapping if it did not form part of the intended requirement. As consciously composed entities they were highly selective representations and contained intentional bias. They recorded aspects of a fixed point in time, although additional value could be obtained from working with successive iterations in order to demonstrate site development and phasing.

3.7 Summary

This chapter provided a critical focus on the main categories of sources of evidence to be used in this research (Beaudry 1988; Little 2007, 2014). It highlighted a rich and diverse range of evidential sources that will support robust analysis and facilitate nuanced results and interpretation. The assessment demonstrated that sufficient amounts and types of evidence survive and that it will be possible to undertake a comparative review of the role, value and contribution of the different evidential classes. It also demonstrated that a comprehensive understanding of the coverage, strengths and weaknesses of the origination, purpose and post-depositional processes is required to use the source evidence critically.

The critical assessment identified a significant range of primary and unedited official sources for internal government and military use. The documentary, cartographic and aerial photographic evidence comprise a unique and informed evidential base that is not available elsewhere. The content is useful and relevant to the research questions. The preserved content is near-complete, although it is

uncertain to what extent the known evidence is representative of the original totality as evidence for selectivity during record management and archiving was identified.

The authors, and their intentions, points of view and intended audience can be determined. Compiler and selectivity bias were identified and assessed, but no evidence of formal censoring or propaganda use was identified.

Mindful of the caveats above, the sources are regarded as a significant, authoritative and authentic evidential base. The identified official sources are important, reliable and trustworthy sources of data.

4. METHODOLOGY

4.1 Introduction

This chapter presents the methodology and method utilised in this study. A mixed research methodology was used to induce concepts and theoretical propositions from the datasets in order to maximise the creation of informed and nuanced findings. The use of a grounded theory approach to frame the research and a case study method to select and analyse data is explained and validated.

The methods of data identification, selection, collection, organisation and analyses for the different types of source evidence are described and justified. The potential weaknesses of the methods are identified and the tests to ensure reliable and rigorous results are defined. The limitations of the study are presented together with a statement of the researcher's ethical position regarding fieldwork practice and the investigation of conflict.

4.2 Methodology

Travers defined methodology as the 'assumptions you have as a researcher, which can be epistemological or political in character, or mean that you support the view of the world promoted by a particular theoretical tradition' (2001: vi).

As stated in Chapter One, the research approach utilised in this study was archaeologically-based throughout giving equal primacy to each source, irrespective of the type of evidential source being examined. This is an important distinction from historical approaches which emphasise the primacy of the written record above other

types of evidential source. The approach drew heavily from conflict archaeology and was also influenced by trends apparent within historical and documentary archaeology and the archaeologies of the recent and contemporary pasts.

The theoretical trajectory adhered broadly to a mixed mode of enquiry of observation and content analyses, which suited the subjective character of the study. The approach arose out of aspects of archaeological heritage management. The literature review identified that heritage management was a principal driver behind much modern conflict archaeology (Carman 2013: 16-17; Schofield 2005). In contrast, much of the anti-invasion study literature lacked an explicit foregrounding of serious archaeological theoretical discourse, and adopted either a semi-atheoretical or an implied empirical approach.

Travers described four main epistemological traditions comprising positivism, interpretivism, realism and post-structuralism (2001: 9-12). All offered different views on how or whether it is possible to obtain certain or objective knowledge about the world, and as a doctoral study it was important for the researcher to be self-conscious about epistemological assumptions made during the research process.

The literature review demonstrated that much of conflict archaeology was positivist in character applying scientific empirical methods to establish quantitative counts or distributions of site types or other occurrences to establish objective insight into the world (see, for example Foard and Morris 2012). This work fell partly within this tradition given the concerns to collect large amounts of data, to apply established criteria, to undertake comparisons, and to ensure reliability and robustness. The use of case study method and grounded theory adopted in this research were compatible

with this approach. However, some elements of this study were subjective in character and had more in common with archaeological post-processual approaches.

Realist traditions such as Marxism and Feminism are popular and often take up overtly critical political positions seeking to reveal concealed realities (Travers 2001: 10). In this researcher's opinion this can lead to the over-applied assumption that all phenomena are contested and a rather cynical view of the world. Although conflict possesses strong explicit links with political and ideological considerations and a number of studies discussed in the literature review have successfully adopted this stance, the researcher did not assume this epistemological perspective as the research questions address other issues that required a different outlook.

Interpretivist perspectives focus on how members of society understand their own actions. This approach was not utilised as the 'preference for conducting in-depth ethnographies in one social setting' (Travers 2001: 11) was not deemed compatible with undertaking comparative studies on a greater range of settings. This approach also raised questions concerning respondent selection within a society.

In contrast to the traditions above, post-structuralist interpretations contended that 'there is no such thing as objective truth' and that knowledge was a means of exercising power, and that method and reason were delusory (Travers 2001: 153). This approach profoundly influenced archaeological thinking during the 1990s (post-processualism), particularly developing emphases on subjectivity, agency and multi-vocalism. Certain aspects of this approach such as an emphasis on context and foregrounding the identity of human agency in relation to material culture were influential to the thinking behind this research. As will be demonstrated throughout

the thesis, a major driver of this research is to place the evidence within its proper historical context, albeit not necessarily through standard historical methods, and to identify the military formations and units responsible for conceiving, building and using the anti-invasion defences.

4.2.1 Grounded theory method

Much of this research was informed by the grounded theory approach that is utilised in a number of academic fields including the social sciences, medicine and management (Strauss 1987; Strauss and Corbin 1998). This approach seeks to develop concepts and theories that are firmly grounded in data from which it has been systematically gathered and analysed (Myers 2013). Strauss stated that:

‘the methodological thrust of grounded theory is toward the development of theory, without any particular commitment to specific kinds of data, lines of research, or theoretical interests... Rather it is a style of doing qualitative analysis that includes a number of distinct features... and the use of a coding paradigm to ensure conceptual development and density’ (1987: 5).

Myers identified six advantages of utilising this methodology (2013: 111-113). The approach immerses the researcher in the data at a detailed level at an early stage. It encourages systematic and detailed analysis and provides evidence to substantiate claims. The iterative character of the approach is valuable as the constant interplay between data collection and analysis enables known data to be re-evaluated and developed in the light of findings from new data. The ability of the method to allow for the emergence of original and rich findings that are closely tied to the data is a recognised strength. Myers also states that grounded theory method is

especially useful for undertaking research that describes repeated procedures within organisations; in this case the evidence embedded within different types of communications processes (physical, textual, cartographic and photographic) between different parts of the military and related ministries.

4.3 Method

Travers defined method as 'the techniques used in collecting data' (2001: vi) i.e. how the research was carried out. This study adopted a mixed method design of qualitative and quantitative approaches to collect a richer and stronger array of data from diverse primary and secondary sources of evidence.

Case study method was used to define case boundaries, select evidence and present results in a rigorous manner (Travers 2001; Yin 2009). Grounded theory method (Strauss and Corbin 1998) was used to induce theory from the data as it was collected and explored;

'a distinctive feature of the method is that the collection and analysis of the data takes place simultaneously, with the aim of developing general concepts to organize data and then 'integrating' these into more general, formal set of theories' (Travers 2001: 44).

Traditional archaeological desk-top and field survey methods were used to identify surviving evidence of anti-invasion defences in the case study areas.

Documentary, cartographic and photographic evidence was subject to content analysis and coding. The results within and between cases were cross-compared to

assess to what extent evidence survives for Second World War anti-invasion defences in Wales.

The method adopted comprised the purposeful selection of a limited number of different classes of source evidence for cross-comparison. Aspects of this were influenced by previous practice identified within the literature review, particularly Dobinson's historical documentary research (1996b, 2000a and 2000d-e) and Foot's methodology for investigating defence areas (2006a-b). Data collection and analysis at a national scale was deemed to be too big to undertake within this research.

4.3.1 Preparation

Careful preparation was required for data collection. Establishing an informed understanding of the military and the identification of military units present in Wales were key primary tasks, as the data identification and analysis would be poor without a thorough contextual comprehension of the phenomenon being investigated.

4.3.1.1 Contextual research

The importance of developing a contextual understanding of the general organisational structures, roles, terminology and inter-relationships of the wartime armed forces and their parent civilian ministries was realised from the commencement of the research. This information was obtained from a number of sources (Davies 2013; Dobinson 1996b, 2000a, 2000d-e; Ellis and Chamberlain 1974; Forty 1998; Joslen 2003; Mills 2010; Wragg 2007). The development of this

understanding was of fundamental importance for being able to later identify the content, position and significance of individual sources.

4.3.1.2 Establishing military formation and unit presence and identity

In the absence of a published military historiography for Wales one of the first tasks was to establish an understanding of the way in which the military services organised themselves in Wales, how this changed over time and to reconstruct the identity of the formations and units present. In part this could be identified through published orders of battle (Joslen 2003; Mills 2010), but few had been published and the periodic statements only summarised the organisational structure and formation/unit identity on a particular date.

The identity of the principal Army formations based in Wales was developed for the period 1939-42 (see Table 4.1). More detailed timelines were established for the cases that included administrative, static and mobile field army functions.

| Formation name | Date from | Date to |
|---------------------------------|----------------|----------------|
| 53 (Welsh) Infantry Division | September 1939 | April 1940 |
| 38 (Welsh) Infantry Division | September 1939 | September 1940 |
| III Corps | June 1940 | April 1941 |
| 2 (London) Infantry Division | July 1940 | November 1940 |
| 36 Independent Infantry Brigade | July 1940 | February 1941 |
| 5 Infantry Division | October 1940 | March 1941 |
| 47 (London) Infantry Division | November 1940 | February 1941 |
| 18 Infantry Division | April 1941 | November 1941 |
| 53 (Welsh) Infantry Division | December 1941 | April 1942 |
| 49 Infantry Division | April 1942 | December 1942 |
| Royal Marine Division | June 1942 | December 1942 |

Table 4.1: Principal Army formations located in / responsible for Wales from September 1939 to December 1942 inclusive.

These were established by examining the high level General Headquarters and Western Command general operations, Royal Artillery and Royal Engineers war diaries. These diaries included periodic lists that published the locations of all formations and units within a particular administrative area at the time of publication. The distribution lists attached to orders and correspondence, and the operational instructions issued to particular formations also aided the identification of the military administrative and operational organisational structure and identities of formations/units in Wales and how this evolved through time.

The work to identify subordinate formations and units was undertaken in a top-down hierarchical fashion, establishing as best as possible the identities, locations, functions and durations of service within Wales. Once a new entity had been identified, the war diary for that entity was sought and searched for evidence of additional units. This was repeated again and again until all of the leads had been exhausted. A partial complete organisational biographical framework was established, which identified the administrative, static and field forces in a given location at a given time. This work served two purposes: it identified relevant evidential source material and provided an understanding of who was responsible for authorising, constructing, using and decommissioning the anti-invasion defences.

4.3.2 Case study method

The case study method was used to organise the identification, selection, and collection of data, undertake some analysis and report the results. This method framed the research and facilitated the comparison of the content, coverage and

availability of the different evidential sources and their value, role and contribution within and between cases in order to induce theories that addressed the research questions.

4.3.2.1 Justification

Yin identified a range of different research methods that were suitable for investigating phenomena in different situations, including experimentation, survey, history and case studies (2009: 5-13). Each method suited a particular combination of conditions regarding '(a) the type of research question posed, (b) the extent of control an investigator has over behavioral events, and (c) the degree of focus on contemporary as opposed to historical events' (2009: 8).

Following Yin's analysis a case study method was adopted in this research for five reasons:

- **Fit** – this method possessed the best fit with the 'how' and 'why' format of the research questions.
- **Control** – the researcher had little or no control over the behavioural events under investigation. The evidential source material had already been created and subjected to a variety of post-depositional processes. Case study method was well-founded to investigate these circumstances.
- **Contemporaneity** – case study method was well-placed to investigate contemporary phenomena and events. Although the documents were

historic and situated in the recent past, the study was investigating to what extent evidence survives for Second World War anti-invasion defences in Wales, which was a contemporary issue/event.

- **Boundaries** – the selection of cases imposed spatial boundaries on the source evidence, enabling effective and efficient focusing of research effort and time, and a deeper investigation of data within the boundaries. Evidence beyond the boundaries was not ignored and could inform the cases, but the evidence was not directly presented or considered.
- **Informing** – the case study method informed the design and the implementation of the research. It did not limit the number of cases that could be investigated and could be applied to quantitative and qualitative sources of evidence. The use of data triangulation made the conclusions more robust and the method directly informed the research evaluation. The method also offered the ability to set up comparisons and contrasts within and between cases to identify similarities and differences.

The case study method was useful as it enabled exploration of complex and commonly occurring phenomena in a real world context. It was a frequently used and rigorous social science methodology for developing valid inferences for qualitative and quantitative research from events outside of the scientific laboratory (Yin 2009). Other methods of inquiry such as experiments, modelling, surveys and

histories were not considered to be as appropriate for addressing the research questions.

The method also benefited from the ability to be robustly integrated with fundamental best practice common to most research by being informed by a thorough literature review, framed by carefully constructed research questions, the definition of and adherence to formal procedures, maintaining an audit trail, and seeking alternative explanations (Yin 2009). The use of cases also fitted well with Mills' recommendation that archaeological data collection should be multi-staged and regionally-based in order to address pronounced biases in existing samples of archaeological datasets including bias towards certain areas and types of site type (1985).

4.3.2.2 Critique

Yin described four common concerns regarding the use of case study research (2009: 14-16). He stated that a primary concern was the lack of rigour, failure to adhere to systematic processes and the difficulty of removing bias from the results and conclusions. Other concerns were that case studies provided a poor foundation for scientific generalisation, took too long to complete and were unable to examine causal relationships.

Early recognition of these potential weaknesses enabled the research method to be constructed and reviewed in a manner that foregrounded these issues and sought to ensure that they were addressed in a clear and robust manner.

4.3.2.3 Design

In contrast to other types of research method 'case study research designs have not been codified', but careful design can enable more rigorous and methodologically sound case studies to be established (Yin 2009: 26). The cases in this research provided sufficient access to review documentation and make field observations. The research questions cited in Chapter One were developed from the literature review in Chapter Two, and the cases were selected to illuminate the research questions.

Cases can be studied in singular or multiple manifestations. It was important for the researcher to justify the number of cases used in order to establish their purpose. A multiple-case design of three cases was adopted in this study. This design required greater effort, resources and time, but benefited from the ability to undertake replication between cases in order to compare and contrast, which provided more compelling evidence and made the study's findings more robust than with the use of a single case (Yin 2009: 53). Three cases also enabled close study of evidence over large spatial areas, but the addition of further cases was beyond the scope of this study.

4.3.2.4 Unit of analysis

It is important to establish the unit(s) of analysis used in the cases in order to justify them and to allow researchers to understand the parameters of the study. The unit of analysis in this study was the case, which was used to narrow considerably the available data and to establish a distinction between the phenomenon under

study in the cases and the wider external data that formed the background context. Care was taken to ensure that the definition of the case was aligned with the phenomenon being studied and did not slip focus (Yin 2009: 30).

The primary analysis sought to explore the dynamics of the inter-relationships between the different evidential sources. In order to ensure that the cases were efficacious, they were defined to address a real-life phenomenon, appropriate sources of evidence were selected, and the cases were given strong time boundaries to define the beginning and end of the case (Yin 2009: 32). The cases were also similar to those identified in the literature review and were therefore comparable with the findings from previous research.

The spatial, temporal, thematic and evidential limitations introduced in Chapter One essentially formed embedded units of analysis within the cases regarding selected areas, period, entity (anti-invasion defences) and sources. The following case boundaries were adopted:

- **Areas** – case study areas were purposefully selected on the basis of known concentrations of archaeological, documentary, cartographic and aerial photographic evidence identified during preliminary research to ensure that the research questions can be illuminated. Case boundaries were coterminous with known military administrative boundaries where available or otherwise arbitrary areas that focused on known defensive networks and their immediate environs.

- **Period** – cases were temporally defined from September 1939 to December 1942 inclusive, with the caveat that defence preparation prior to and defence clearance operations subsequent to this period had important contextual impact and consequences.
- **Theme** – cases were thematically defined with regard to the preparation of terrestrial and inter-tidal anti-invasion defences prepared by the three armed services and their parent civilian ministries.
- **Sources** – the sources used in this research were limited to contemporary primary documentary, cartographic and aerial photographic evidence and the surviving known archaeological resource. The use of sources was primarily limited in scope by the spatial, temporal and thematic limitations described above, but also by secondary decisions to focus on particular sub-sets of evidence within the four categories.

4.3.2.5 Quality

It is important for the researcher to demonstrate that the research is valid, credible and reliable, and not anecdotal or unsubstantiated. Different opinions exist concerning which tests to use to establish criteria for judging the quality of the case study design to ensure that the study is valid and robust.

Yin suggested reliability, internal and external validation and construct validation as tests for empirical research (Yin 2009: 40-45). Rudestam and Newton

preferred credibility, transferability and dependability as tests for naturalistic research (2014: 112). Three of Yin's four common tests to establish the quality of case study research were used as they best suit empirical research:

- **Construct validity** – this concerns the failure of a researcher to establish operational sets of measures and the subjective judgements used to collect data. Yin stated that construct validity can be increased by the use of multiple sources of evidence that demonstrate converging lines of inquiry and the establishment of a chain of evidence during data collection.
- **Internal validity** – this test was used for explanatory studies seeking to explain causal effect. This test was not appropriate for this study, which was exploratory in character.
- **External validity** – Yin observed that external validity i.e. whether a study's findings are generalizable beyond the immediate case study was a major barrier in case study research (2009: 43). He advocated the use of replication logic to provide stronger support in which results were replicated through the use of multiple case studies.
- **Reliability** – this test concerned a later investigator being able to achieve the same results for the same case with the same procedures and evidence. Yin stated that the reliability test could be established through

the detailed documentation of procedures, adherence to the same protocol across case studies, and the use of case study databases. Consistency could be achieved through careful coding of data and content analysis.

The measures for construct validity, external validity and reliability are discussed in further detail below and were employed and demonstrated in this study.

4.3.2.6 Case selection

The selected cases were purposefully chosen to illuminate the research questions. Random selection was not used as the identified cases frequently did not map onto discrete defence networks; this limited the ability of the method to answer the research questions and constrained the usefulness of the study.

Some parameters relating to date, theme and period were established above, but it was necessary to apply further selection criteria in order to identify the cases. Three key issues related to the focus, location and spatial size and shape of the cases.

Wales offers an infinite range of potential case study areas, covering a wide variety of topographical environments. Such areas might be further characterised by the presence of contiguous defence networks, the extent of previous investigation and the availability of source evidence. The utilisation of original wartime military administrative and/or operational area boundaries was also a possibility.

Table 4.2 presents the range of considered different scenarios available prior to case selection, although as a simplification of real-world complexity influenced by multiple factors compound combinations of the expressed geographic, evidential and military attributes were more likely to form the cases.

The purposive selection of cases followed on from the preliminary contextual work detailed above and contained a series of assumptions concerning the likely presence or absence of evidence, expressed as advantages and disadvantages. The areas selected were those with a greater incidence of evidence. Each case was representative of a different type of defensive arrangement, within broadly similar kinds of landscape.

Three in-depth case studies were selected. Table 4.3 identifies the chosen cases and summarises their selection attributes (see Chapters Five, Six and Seven for further details). They reflect areas with varying Defence of Britain project data coverage and two where there were no existing archaeological syntheses. It is important to acknowledge that the selected cases have a south and south-west Wales lowland and coastal bias. As such, the adopted method may not automatically transfer to the mountainous inland areas of mid and north Wales.

| Scenario | Type | Examples | Advantage | Disadvantage |
|--|------------|--|--|---|
| Urban / Industrial populated area | Geographic | Cardiff, Newport, Swansea etc. | Higher chance of evidence creation | Lower chance of evidence survival |
| Rural under-populated area | Geographic | Most of Wales | Higher chance of evidence survival | Lower chance of evidence creation |
| Upland area | Geographic | Snowdonia, Brecon Beacons | Moderate chance of evidence creation | Higher chance of evidence survival |
| Coastal area | Geographic | Coastal fringe | Moderate chance of evidence creation | Higher chance of evidence survival |
| Estuarine area | Geographic | Severn, Carmarthen Bay, Mawddach | Higher chance of evidence creation | Higher chance of evidence survival |
| Riverine area | Geographic | Wye, Usk, Taff, Tywi, Dee etc. | Higher chance of evidence creation | Moderate chance of evidence survival |
| Port / deep water harbour | Geographic | Cardiff, Newport, Barry, Port Talbot, Swansea, Milford Haven, Holyhead | Higher chance of evidence creation | Lower chance of evidence survival |
| Existing synthesis | Evidential | Pembrokeshire, Anglesey | Data available | Not detailed or self-critical |
| Unknown areas | Evidential | Most of Wales | Not researched | No data |
| Known defence archaeology | Evidential | Various types and combinations of anti-invasion defence | Data available | Not complete coverage |
| Known documentary coverage | Evidential | War diaries, orders, instructions, lists, correspondence | Data available | Not complete coverage and not characterised |
| Known cartographic coverage | Evidential | Official military maps and maps of defence installations | Data available | Not complete coverage and not characterised |
| Known aerial photographic coverage | Evidential | Black and white vertical and oblique coverage | Data available | Not complete coverage and not characterised |
| Known stop line | Defensive | 20 known examples | Higher chance of evidence creation | Only representative of one defence type |
| Known airfield | Defensive | 36 known examples | Higher chance of evidence creation | Only representative of one defence type |
| Known coastal defences | Defensive | Selected bays and beaches | Higher chance of evidence creation | Only representative of one defence type |
| Known anti-tank island, centre of resistance, or defended area | Defensive | Focus on towns and villages, but few known examples | Higher chance of evidence creation | Only representative of one defence type |
| Known vulnerable point | Defensive | Power stations, lock gates, factories etc. | Higher chance of evidence creation | Only representative of one defence type |
| Known military administrative or operational area | Defensive | Swansea, Gower, some airfields | Informed case. Opportunity to try new analysis | Few known |
| Combinations of the above | All | Compound | Meaningful cases for research | Complexity |

Table 4.2: Different types and examples of cases considered for this research.

| Name | Attributes | | |
|--|---|--|--|
| | Geographical | Evidential | Defensive |
| St Athan-Llandow (Chapter Five) | Coastal / Estuarine Lowland Rural (towns / villages) Near a port | Presence of archaeological, documentary, cartographic and aerial photographic data | Two airfields Beach defences Vulnerable points |
| Swansea-Gower (Chapter Six) | Urban / rural Coastal / Estuarine Lowland Port / Industrial | Presence of archaeological, documentary, cartographic and aerial photographic data | Port defences Beach defences Airfield Stop line Vulnerable points Known military administrative or operational area |
| Carmarthen Stop Line (Chapter Seven) | Coastal / Estuarine Rural Lowland / Upland Riverine | Existing synthesis Presence of archaeological, documentary, cartographic and aerial photographic data | Stop line Two airfields Beach defences Vulnerable points |

Table 4.3: Summary of chosen case study areas and their selection attributes.

Case size and therefore the scale of the cases was considered to be critical to the success of the investigations. The case study areas selected were large enough to contain the known extent of contiguous defensive entities such as stop lines, airfields and military administrative areas. The Swansea-Gower case took advantage of the known boundary of Swansea Garrison and Gower Sector.

4.3.3 Data identification

The literature review and Chapter Three identified a range of potential sources that could be employed. This section describes the range of data sources identified and how they were recognised.

To inform the development of the research design a preliminary pilot study was undertaken to identify the location, type, content and availability of potential datasets. The pilot involved reviewing guides to archival sources (Cantwell 1998; RAF Museum 2005; Roper 1998; Spencer 2008a-b; Wilson 1982) and examining the electronic catalogues of national and regional archives, museums and libraries.

Much of the published best practice guidance for archaeological archives focused on archaeological assemblages (Brown 2011; Perrin et al. 2014). One paper was identified that re-emphasised the value of archaeological documentary material (Hicks et al. 2009).

Catalogues held by the Imperial War Museum, regimental museums in Wales, the National Museum Wales, the National Archives, local record offices in Wales, the Welsh Archaeological Trusts, the Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW), the British Library and National Library of Wales were consulted. The catalogues of specialist aerial photographic collections held by Welsh Government, RCAHMW, the Aerial Reconnaissance Archives (TARA), Cambridge University and the American National Archives were also consulted.

The catalogues were queried with a common set of search terms [airfield; anti-invasion; army; battery; defence; emplacement; Home Front; Home Guard; Navy; RAF; Royal Air Force; Second World War; stop line; World War Two; WW2].

A number of smaller repositories did not possess electronic catalogues, so visits were made to undertake assessments of the collection holdings.

4.3.4 Data selection criteria

During the pilot study undertaken to identify the identity, content, location, availability and restrictions of a diverse range of evidential source material an open selection strategy was adopted in order to ensure a non-prejudicial approach.

As the study proceeded to the main survey the researcher utilised a more selective and purposive selection strategy in order to increase the scope and range of the data collected and in order to overcome the issue of suppressing deviant cases or data outliers often encountered with qualitative random sampling. This involved the use of selection criteria and carefully chosen subject evidential source material that closely matched the spatial, temporal and thematic criteria of the topic and the specific choice of case study areas. A deep level of investigation was undertaken in order to saturate the cases and so that the emerging concepts and their relationships to others could be explored comprehensively in a theoretically meaningful manner.

It is important to review the reasons why particular types of source material were used and why others were not. Two key decisions informed the selection of the type of source evidence to utilise within the study. The first comprised the choice of physical type of source evidence. The pilot study described above identified a diverse and comprehensive range of potential types of primary and secondary source evidence. These included written documentation such as official war diaries and registered files, personal diaries and written archives, media, art, film, photography, mapping, oral history testimony together with primary and secondary archaeological site, artefactual and other archival evidence.

The decision to choose archaeological, documentary, cartographic and aerial photographic types of source evidence was based on three reasons. The first reason reflected the familiar and long-held use of this combination of evidence types within the tradition of archaeology. The second reason focused on the expectation that the chosen evidence could provide a strong methodological fit and lent itself to corroborative triangulation (see 'Data collection' below). The inter-play of evidence from different disciplines might also enlighten inter-disciplinary debates and provide an illustrative case study in its own right. The third reason was a pragmatic response based on a variety of factors including presence/amount of material, location, ease of access, degree of cataloguing, format, ease of data capture, copyright and other restrictions.

The second key decision comprised which specific collections to utilise within the chosen types of evidence. Careful selection was necessary given the comprehensive abundance of potential collections. The reasons for selecting each evidence type are stated below.

4.3.4.1 Use of official sources

The pilot study identified a number of documentary, cartographic and photographic classes of evidence that originated from official sources. These records are a subset of those created by the civilian and military authorities responsible for planning, commissioning, using and abandoning the anti-invasion defences. The records were authoritative and presented a privileged means of investigating activities that constituted controlled knowledge. As official records they

also benefited from transference to recognised places of archival deposit for long-term preservation and public access.

As primary documentation, the data had not been subject to formal selection and re-presentation as official history and was less susceptible to associated weaknesses regarding objectivity (suppression), balance (distortion) and independence (partisan) (Blumenson 1962-3; Spector 1990; Spiller 2006; Trask 1989). The writers of the documentary evidence were reporting/recording their own activities and while the extent to which events were misrepresented or suppressed is unknown, the evidence does not suffer from a preoccupation of one society commenting upon and explaining another (Kaplan 2002). Kaplan identified methodological concerns regarding the underpinning of archived state documents and advocated exposure of the underlying social, political and cultural assumptions, knowledge and meaning. Awareness of these issues informed this research.

At a time of restrictive and secretive wartime conditions, these official archive collections were considered to represent the most informed, extensive and available data for answering the research questions regarding to what extent evidence survived and what type of anti-invasion defences were built where, when and by whom. The content of the archival collections was anticipated to be complementary, reflecting different perspectives of a common actuality. The use of official sources also reflected the researcher's employment as a civil servant and his inherent familiarity with the practice, organisation and content of government records.

4.3.4.2 Archaeological data

The available secondary archaeological site data was very limited in terms of quantity and diversity; the known data is self-selecting within the cases. Existing site data was held at the NMRW and the Welsh Archaeological Trusts' HERs. No unique sources of archaeological site data were identified outside of Wales. Rapid field observation was undertaken to identify new primary site data and supplement the existing secondary data.

4.3.4.3 Documentary data

Dobinson (1996b, 2000a, 2000d-e), Redfern (1998a-b) and Foot (2004, 2006a-b) had all undertaken previous documentary based studies, which included brief discussions of the type and value of source evidence used. This research was informed by their work. Dobinson's and Foot's evaluations were the most thorough, but did not extend to Wales; Redfern's discussion included Wales, but was comparatively underdeveloped and lacked the useful prepared archival lists of pertinent archival pieces.

4.3.4.4 Cartographic data

Very few specific military map archives of relevance were identified. The RAF Museum possesses a collection of airfield record site plans, but otherwise plans, maps and sketch maps were identified on an individual basis primarily when looking

at other documentary collections. The pilot study identified very low numbers of maps and the known examples found within the case study areas were self-selecting.

Incomplete collections of War Office GSGS3906 and 3907 series maps were identified at the British Library and TNA. The primary value of these maps was the inclusion of the WOFO grid that enabled the Cassini grid references in the documentary sources to be located.

Copying restrictions at the former and access issues at the latter prompted the researcher to purchase complete sets of the relevant sheets for each case study area from cartographic dealers. These are held in the research archive.

4.3.4.5 Aerial photographic data

The pilot study identified a number of large aerial photographic archives. The Aerial Photography Archive (TARA) held by RCAHMS is one of the largest collections in the world, but it was not utilised as the service's online catalogue did not indicate any relevant content for Wales. Further enquiries were deterred by the commercial fees required to commission imagery searches and to purchase digital imagery.

An important repository of Luftwaffe aerial photography is held at the American National Archives. Its exact coverage and significance for Wales was not determined owing to the considerable costs associated with obtaining the imagery.

The national collections of aerial photography pertaining to Wales are held by the RCAHMS and the Welsh Government. Both repositories hold duplicate collections of the wartime RAF Medmenham prints taken by the RAF and USAAF,

and the subsequent Operation Revue imagery taken during the national post-war aerial photographic survey. The Welsh Government's collection was selected as it had been digitised to professional standards and was available without copyright and access conditions.

4.3.4.6 Discounted forms of evidence

The literature review demonstrated that a wide range of methods and forms of evidence had been employed to investigate the phenomenon of modern conflict archaeology. Oral history testimony was widely adopted within historical archaeology and by some conflict archaeologists. Moshenska advocated an interdisciplinary approach 'combining archaeological, historical and memory work on a specific location to create and foster a public discourse of memory' (Moshenska 2007: 91).

Irrespective of the perceived advantages or disadvantages of the method (Barclay 2013; Hobsbawn 1997; Lan 2013; Moshenska 2007, 2010b), this type of data was not collected for this study. This was a pragmatic decision, as to include a fifth type of evidential source would have reduced the resources available to research the other sources.

Further, Moshenska also stated that oral history was best employed at a site scale, which did not match the intended scope of this study. The potential value of this method to supply background research and complementary data is not disputed, but this was considered best achieved outside of this study.

4.3.4.7 Final subject source selection

The process described above established a focus on official sources and resulted in the selection of four types of source evidence: primary and secondary archaeological site evidence, official wartime primary documentary evidence comprising war diaries and registered files, official wartime cartographic evidence and military wartime and post-war aerial photographic imagery.

These forms of evidence were considered to be the best placed to inform the research questions. The implicit biases within the sources are acknowledged. The evidence was formed for different purposes and by different audiences, albeit all contemporary to the subject in question. It was more informed and participatory than many other sources. The data used is considered appropriate and justified.

4.3.5 Data collection

This section describes how the data was collected and recorded in a systematic manner. The process is described in detail so that it can be replicated.

4.3.5.1 Principles of data collection with reference to the case study method

Yin identified three principles of data collection (2009: 114). He stated that the ability to use multiple sources of evidence was a major strength of case study research. Multiple sources of evidence enabled data to be triangulated: facts supported by more than one source of evidence facilitated converging lines of inquiry

that provided multiple measures of the same phenomenon. Findings are therefore more convincing and accurate.

The use of triangulation in order to provide cross-checking and corroboration of data and emerging themes, was an integral part of the research design. This method was particularly informative regarding how much credibility to place on an individual source of evidence. Sometimes it was uncertain whether a documentary or cartographic reference was citing a proposed or extant defence post.

Triangulation with aerial photographic and field evidence could often, although not in all cases, provide visual confirmation of a defence post's existence.

Yin also advocated the use of a case study database to increase the reliability of the case. A record of all stages of the process of the study was maintained in a database, which forms part of the research archive. This included the raw data, together with its modified forms through various stages of analysis and synthesis. A journal of critical self-reflection was also maintained and used to record thoughts, insights, suspicions and failures. Analysis of the content informed internal biases and assumptions.

In this study, a GIS workspace within ESRI ArcGIS 10.0 was used to collect, store and organise the data collected from the four different types of source evidence. The records were organised spatially by unique defence post entries and the citation of source evidence occurrences enabled the presence and/or absence of a particular source evidence and the presence of triangulation to be established. As an organisational tool the GIS tables also enabled the process of data collection and analysis to be continued to the point of data saturation.

4.3.6 Collection: archaeological data

Secondary archaeological site data was collected from existing archaeological data repositories and primary data was obtained from fieldwork.

4.3.6.1 HER/NMRW data

The HERs and NMRW were approached for copies of their digital datasets pertaining to twentieth-century military sites during 2011. The data was exported and supplied as Microsoft Excel spreadsheets using industry agreed ENDex data exchange fields and standards. The NMRW dataset was provided in November 2011. Glamorgan-Gwent Archaeological Trust's dataset was provided in January 2012. Dyfed Archaeological Trust's dataset was provided in February 2012.

4.3.6.2 Fieldwork

The fieldwork was undertaken in discrete blocks of three to four week periods on a case by case basis. Fieldwork for the St Athan-Llantwit Major, Swansea-Gower and Carmarthen Stop Line case studies was undertaken in June 2012, August 2012 and March 2013 respectively. Additional site visits were undertaken at other times when opportunities arose.

A desktop study of the known sites was undertaken for each case study area and Ordnance Survey 1:25,000 maps were marked accordingly for use in the field. Fieldwork was organised on an area basis and targeted areas of known and/or suspected defences. Landowner permission was sought prior to undertaking visits

and these conversations often established multiple new leads. Site data was collected on recording forms – similar to those used by the Defence of Britain project – to a Level One standard, comprising a basic visual record supplemented by minimal textual information sufficient to identify the site, location, age, type and group affiliation (English Heritage 2006, 2007).

Fieldwork practice was organised and undertaken following well established practice (Jesensky 1998; Ordnance Survey 1963; Royal Commission on the Ancient and Historical Monuments of Scotland 2011; Taylor 1974). Rapid field observation was undertaken to identify the presence or absence of Second World War anti-invasion defence archaeological features or structures (Chartered Institute for Archaeologists 2014). Each identified site was described textually, measured, sketched, photographed and located using a handheld GPS device accurate to +/- 10m (Ainsworth and Thomason 2003).

The content of the recording sheets was added to the existing case Microsoft Excel spreadsheet, with each new defence post forming a new record.

4.3.6.3 Data organisation

The archaeological site data from digital repositories was organised into a separate Microsoft Excel spreadsheet for each case. All spreadsheets used common fields and recording parlance. The data from the regional and national repositories for a specific case were merged into a common format and field structure. The datasets were ordered by national grid reference and assessed for

duplicates, errors and omissions. The reconciled data was then purged to remove all non-anti-invasion defence record entries.

4.3.7 Collection: documentary data

The documentary evidence was sourced from a number of collections. The largest collection was from TNA. Data collection was undertaken during a three week period during 2009-10, identifying potentially relevant files, undertaking preliminary sifts and recording. In total 394 files were examined and 161 files were recorded digitally, comprising 8,629 pages (19.59 GB). These files are cited in the List of Primary Sources.

Small batches of military war diaries and registered files were ordered following identification on *Discovery*, the online search catalogue. Each file was subject to an initial rapid visual sift to determine whether there was relevant content within. Each page containing content pertaining to defence policy and practice, and military operational and administrative organisational structure in Wales was digitally recorded in colour using a twelve megapixel camera in JPEG format and a copy stand. Authorisation to copy was obtained in advance from staff at TNA and a copyright statement for academic use was completed. The digital files were backed up in multiple locations.

Smaller amounts of documentary source material were obtained from local records offices and local history society archives using the same data collection method. Four files were obtained from Carmarthen Archives, two from West

Glamorgan Archives and one from the Llantwit Major Local History Society. No relevant material was located at Ceredigion Archives or Glamorgan Archives.

4.3.7.1 Data organisation

The digital photographs of textual content were organised sequentially into a file structure reflecting the organisation and naming conventions of the originals. The photographs were printed onto A4 paper and stored in individual lever arch files for ease of reference and manual coding.

4.3.8 Collection: cartographic data

The pilot study did not identify any specific collections of relevant cartographic evidence. A small number of maps, plans and sketches were identified amongst the documentary collections at TNA and were collected as described for that category above. The greatest number were identified amongst the papers of the Fort Record Books (WO 192), and a small number were identified within administrative war diaries (WO 166). A very important series of large scale Record Site Plans for some airfields were identified within Welsh Office files (BD 54). Oversized plans were photographed in multiple sections to avoid distortion.

Although collections of original hardcopy wartime GSGS maps were identified at the British Library and elsewhere, copyright restrictions limited opportunities for digital recording. Instead the relevant sheets were identified and purchased from cartographic dealers. Entire sets were obtained for two of the case study areas; the

Swansea-Gower case study was supplemented with 1:1 scale photocopies from the National Library Wales. All of the known RAF Record Site Plans for the airfields within the case study areas were purchased.

4.3.8.1 Data organisation

The cartographic evidence comprised a mix of digital photographs of original archival maps, photocopies of original archival maps and actual wartime maps. All physical maps were digitised using an A0 scanner as TIFF files. Oversized archival maps subjected to multiple photographic recording were reassembled using functionality and controls within Adobe Photoshop software.

4.3.9 Collection: aerial photographic

The overwhelming majority of the aerial photographic data was obtained from the Central Register of Aerial Photography at Welsh Government in 2011. The prints from each wartime sortie had already been scanned to a professional standard and this data was obtained as high resolution TIFF files. Each sortie was accompanied by a digitised version of the RAF Central Interpretation Unit's record card which recorded the sortie number, date, time, height, focal length, GSGS map reference and scale together with a black and white cartographic plot of the sortie coverage. The aerial photography was entirely monochrome in character, and the majority of this data was vertical in coverage, with a small amount of oblique coverage particularly of coastal areas. The Welsh Government collection was organised into 106 folders comprising 10,816 files (203 GB) compliant with published standards

(Bewley et al. 1999). The specific coverage of each case is described in the relevant chapter.

Small amounts of additional aerial photographic data were identified within the Fort Record Books series at TNA (WO 192). Each volume contained a small number of unique wartime prints of coastal artillery batteries which were not contained in the Welsh Government collection. The prints were digitally recorded as detailed for documentary evidence above.

4.3.9.1 Data organisation

The aerial photographs were utilised solely in digital format. The original Medmenham file structure and naming convention utilised by Welsh Government was maintained. Selected elements of the Central Interpretation Unit sortie plot cards (sortie ID name, date and location) were drawn together to create a catalogue covering each sortie frame (see List of RAF Medmenham Aerial Photographs). Anti-invasion defences visible on the frames were noted in each record entry as appropriate.

4.3.10 Analysis

The different forms of data required different types of analysis that respected their inherent characteristics. The first stage of analysis was to create case study area boundaries for each case and to import all of the data into ArcGIS 10.0. The methods are described below.

4.3.11 Analysis: archaeological data

The combined primary and secondary archaeological data for each case was imported into ArcGIS 10.0 as separate Microsoft Excel tables and saved as the primary data table to which other records from other sources would be added for that case. This table formed the case study database.

Point data was spawned from the attribute table in order to provide a graphical distribution and coded to enable different site types to be distinguished. Linear defences such as anti-tank obstacles were created as separate polyline layers.

4.3.12 Analysis: documentary data

The documentary evidence represented a large and complex body of data that had not been the subject of previous in-depth archaeological or historical research in a Welsh context. Rather than approaching the dataset with pre-conceived ideas using historical or textual analysis methods, a more open form of qualitative analysis was undertaken.

4.3.12.1 Coding

Coding is a form of content analysis. Content analysis is a broad term for a range of quantitative and qualitative methods for obtaining valid and trustworthy information from documents: 'content analysis has been defined as a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding' (Stemler 2001). It is a rigorous way of

extracting standardised information from large datasets and allows contextualised interpretation of documents (Krippendorff 2004; Neuendorf 2002). It involves analysis of documentary content through categorisation and classification of selected terms. Validity is assured by ensuring intra-coding consistency within and between cases.

Content analysis was used to describe and make inferences about the characteristics of communications in order to answer what?-type questions (Holsti 1969). It was also used to describe trends in communication content, relate known characteristics of sources and compare communication content (Berelson 1952).

The successful compression of text into fewer content categories was based on consistent application of appropriate coding. The coding employed in this research involved the identification and recording of the occurrence of certain types of vocabulary. This process was applied manually. Each page of text was examined for references to the following information:

- military administrative and operational organisational structures, particularly formal names, roles, hierarchical relationships, locations, spatial extents and boundaries, and dates
- citations of formation/unit identity, including location, hierarchical relationships, dates, duration and role
- defence structures, including name, type, location, form, role, group identity, association with military units
- citations of Cassini grid references for defence posts, and Ordnance Survey national grid references within Royal Artillery documentation

The data extracted from the content analysis via coding was added to the case study database within ArcGIS 10.0 either as a new record, or adding additional information to an existing record. All War Office False Origin (WOFO) grid references within contemporary documents were transformed into Ordnance Survey national grid references and added as point or polyline data into ArcGIS (Penny 2000).

4.3.12.2 Critique

Myers identified a number of potential disadvantages of adopting this approach. The use of coding can be confusing and overwhelming, and rigorous coding can be time consuming. Codes need to be applied consistently across documents and cases to ensure consistency. An addition or evolution to the coding structure usually requires re-assessment of previously viewed documents. Given the large volume of data and the detailed analysis, it can also be difficult to induce concepts (Myers 2013: 111-113).

4.3.13 Analysis: cartographic and aerial photographic data

The digital cartographic and vertical aerial photographic data was imported as separate raster imagery layers within ArcGIS 10.0. The imagery was transformed into new geo-referenced raster imagery using the geo-referencing function. The transformation was undertaken to third-order polynomial standard.

The new imagery was geo-referenced onto modern Ordnance Survey MasterMap base mapping at a scale of 1:400 using well-defined objects common to both base mapping and imagery, such as the corners of buildings. Control points were added until the RMS error was acceptable at which point the raster dataset was permanently transformed using the rectify function.

Detailed visual inspection of each frame using the magnification function enabled visible anti-invasion defences to be transcribed as point, polyline or polygon features and recorded in attribute tables within the case study database. Large areas such as airfields and administrative boundaries were added as polygons in separate layers.

4.3.14 Intra-case comparison

In order to address the research questions the relative role, value and contribution of the different types of evidence within a case were assessed. Gaps in the evidence were also identified. Once all of the data from the different cases had been imported into the GIS and added to the case study database an analysis was undertaken in order to qualify values for these attributes on an evidence sub-type by evidence sub-type basis.

Simple quantitative counts of presence or absence were not used as this did not enable the significance of the content to be assessed or allow informed and detailed concepts to be induced from the data. Instead judgement based on personal experience and observation and interpretation of the data was employed to award each type of evidence sub-type a rating on grading scales as shown in the

assessment schema in Table 4.4. Care was taken to include grades for all types of data occurrence and the preliminary identified grades evolved in an iterative manner as the data was processed into their final form. Consistency was ensured by re-assessing grades following schema changes.

Although this was not an objective method the experience gained in handling the evidence enabled this subjective method to attribute relative scores based on the subtle details observed, which were summarised in tabular form. This process was similar to that used to identify the value of assets in heritage impact assessments for cultural world heritage properties (ICOMOS 2011).

The subjective nature of the analysis enabled nuances and absences to be observed in the data and enabled results and theoretical insights to be induced. A prime purpose of the assessment was to determine the presence or absence of data that would address the research questions. This included data that contained information relating to military identities, administrative and operational arrangements and defence posts within the cases. Items such as complete defence schemes would have high value, whereas brief or incomplete references in war diary returns would have low value. The assessment of role was based on a wider analysis of the overall evidence for that class. The evidence with significant quantities, detailed and/or unique data was assessed as having a primary role, whereas evidence with tangential or minor data was scored lower. The contribution was a qualitative response that enabled the different types of data occurrence to be described in a standardised manner that facilitated cross-comparison.

Making use of subjectivity within a research setting can be problematic, particularly as many methods seek to control or eliminate this variable in order to achieve objective science. Risks included subjective projection on behalf of the researcher and limitations owing to unseen blind spots.

The researcher aimed to maximise the provision of informed, rich and nuanced understanding and viewed subjectivity analysis as a valuable approach as it could help understand the object under study, as such impressions were a representation of the object of study. It also gave the researcher better leverage in order to understand the object of study. In this sense the research process was constructionistic (Smith and Heshusius 1986). Valid controls were imposed through the use of triangulation and multiple-case testing to ensure that subjectivity was explored and penetrated as much as possible.

| Scale | Attributes | | |
|-------------------|---|---|--|
| | Value | Role | Contribution |
| Grading structure | Very high High Medium Low Negligible Mixed | Primary Moderate Minor Negligible None Variable Enabling Retrospective Illustrative Contextual | Qualitative textual response based on evidence |

Table 4.4: Grading scales for categorising the value, role and contribution of evidence types and evidence sub-types.

4.3.15 Inter-case cross-comparison

The decision to examine the standardised types and sub-types of evidence between cases allowed direct comparison and contrast between cases. This enabled trends, gaps, similarities and differences to be observed in terms of evidential availability and content, and their value, role and contribution. These observations are discussed in Chapter Eight.

4.4 Limitations/Delimitations

The series of self-imposed deliberate restrictions on the research design were described in Chapter One. These delimitations comprised spatial, temporal, thematic, and source limitations which were implemented to focus the study within the available time and resources. The imposition of such delimitations restricted the populations to which the results of the study can be generalised.

There were a number of limitations on the study over which the researcher had no control. The primary limitation within the chosen source evidence categories was the availability of source evidence. For the documentary, cartographic and aerial photographic forms of evidence the availability was determined by a combination of major factors including the specific individual act to record and therefore create evidence, subsequent decisions regarding whether the source was deliberately destroyed or preserved, and the ability to identify relevant data within an archived collection.

A number of minor factors also limited the use of particular types of evidence. The ability to undertake content analysis on aerial photographic evidence for

example was the result of a subtle inter-play of factors including the presence or absence of physical damage, obscuration by cloud, smoke, shade, camouflage/concealment and/or vegetation, and recording artefacts such as image resolution, exposure and negative scratching.

The primary limitations when undertaking the rapid field observation was obtaining landowners' consent to enter the land and undertake field survey, and the time required to undertake intensive reconnaissance. In a small number of cases landowners were content to admit access, but prohibited photographic recording.

4.5 Ethical statement

4.5.1 Fieldwork practice

This study did not involve human subject research, although it did include interaction with landowners and tenants during fieldwork. Efforts were undertaken to identify and contact owners prior to visitation. If owners could not be contacted the sites were not visited. Sites that were visited were investigated and photographed; forced access to closed structures was not attempted following the non-maleficence 'do no harm' principle.

4.5.2 Ethical dimensions to the archaeological study of warfare

Coates stated that 'military affairs are more heavily burdened with ethical and moral concerns than most other areas [of life]' (1989: 149). Although the ethical challenges of undertaking research with human subjects in conflict or post-conflict

environments (for example Campbell 2010; Goodhand 2000; Wood 2006), military-funded research (Rizzuto 2003; Vitale 1985), military medical ethics (Gordon 2014; Jotkowitz 2008) and the relative merits of research for the development of weapons of mass destruction (Cole 1989; Liebman 1989) have been the subject of ethical review, the explicit ethical discussion concerning the role of archaeology and its wider relationship with military affairs would appear to be limited.

Evans, when referring to archaeology, stated that 'there has been little recognition of the degree to which 'militarism' influenced it' (2014: 1). This might be considered counter-intuitive given the well-known military careers of many famous archaeologists (for example Major-General William Roy, General Augustus Pitt Rivers and Brigadier Sir Mortimer Wheeler).

There has been a significant recent focus on the impact of contemporary military activities on cultural property by archaeologists provoked by wars in Afghanistan, Iraq, Libya and Syria (Emberling 2008; Hamilakis 2009; Piscopia 2013; Price 2011; papers in Rush 2010 and Stone 2011). Piscopia, for example, explored if, when, and under what circumstances, archaeologists should get involved with the military to protect cultural heritage. In contrast, Hamilakis openly rejected archaeological collaboration with the military describing the relationship in critical terms as participation in the 'military-archaeology complex.'

The issue continues to be politically and morally divisive and prompted a passionate but relatively limited ethical debate without permeating the wider discipline. As far as could be determined the explicit treatment of the ethical relationship between archaeology and the wider study of warfare appears to remain

peripheral to the discipline, although it is discussed within the context of other cognate disciplines such as military geography (Coates et al. 2011) and anthropology (Lucas 2009; Network of Concerned Anthropologists 2009).

It is considered important to define the researcher's ethical position given that this study focuses on, and is permeated throughout by, military matters, and that it is facilitated in part by access to the military estate. It is believed impossible to adopt a rational or objective distance from the situation, even though the researcher has no direct personal experience of military service or conflict. Inexorably, this 'otherness' creates an intellectual detachment between actuality and academic speculation.

The adoption of the research topic, and a wider interest in conflict archaeology, does not infer an automatic indifference to – or endorsement of – the brutality of conflict and its consequential human suffering. In the author's opinion, research into conflict does not provide academic legitimisation of the prosecution of conflict. At the other extreme it should seek to avoid a nostalgic, overly romanticised and nationalistic perspective driven by 'our finest hour' type interpretations.

Rather it demonstrates a commitment to, and an informed comprehension of, the diverse array of fundamental effects and consequences arising from conflict situations that are actively represented within the archaeological record and therefore a legitimate subject of archaeological inquiry.

Irrespective of the legality or justness of any particular conflict, the dogmatic adoption of a strongly critical and ideologically-informed anti-conflict position is deemed to be theoretically restrictive and ethically unjustified. A constructive and non-ideological approach designed to maximise engagement and maintain a critical

openness to all perspectives while still maintaining moral integrity underlies this research.

Consequently, the researcher's personal moral value system focuses on continuous critical evaluation and evolves informed by experience and reflection. All academic decision-making is informed by a strong sense of moral awareness and an ongoing open approach towards the appropriate management of ethically sensitive situations.

4.6 Summary

This chapter described the methodology and methods used in this investigation. It established that case study method can be used to address the research questions and induce concepts about the phenomenon under study. This approach can be applied in a robust manner that meet established tests, particularly the use of multiple sources of evidence, data triangulation and multiple-case replication. Each type of data can be described and analysed to facilitate discussion concerning how each piece of evidence contributes to the overall condition. Thoughtful design, self-reflection and continuous questioning and improvement of research practice is required to undertake effective research.

It asserts that official wartime primary source evidence is an important and useful source of data providing that the author's intention, its purpose and intended audience can be established, and that it can be combined effectively with archaeological fieldwork sourced data. These sources should be seen as different forms of communication representing diverse manifestations of the same entity.

The adoption of a method that emphasises deep investigation of a defined number of limited sources of evidence within a small number of case study areas is considered to be sufficient to ensure that adequate data is obtained, confirmed and understood.

The purposeful selection of cases and the types of source evidence together with the comprehensive and consistent sampling of the data through coding and content analysis ensure that the data is saturated and confirms emerging concepts. The theoretical requirements of the study are appropriate.

Case study research offers the opportunity to utilise a wide range of source evidence from different environments. It involves the development of bespoke data identification, selection, collection and management protocols that respect the characteristics of different types of data and the recognition of bias in order to standardise data collection across the three case studies, thereby maximising the reliability of the research. The content of different forms of evidence can be analysed and combined into useful conceptual models that inform the research questions.

Themes in this chapter reprised issues identified in the literature review, and establish that a critical focus on source evidence is required (Beaudry 1988; Little 2007) and that there is validity in using an archaeological approach across different types of source evidence (Leech 1999; Wilkie 2006). The results obtained from the analysis of the evidence in the three cases are presented in the next three chapters.

5. CASE STUDY 1: ST ATHAN-LLANDOW

5.1 Introduction

This chapter presents the evidence and results of the first case study. It is divided into four sections. The first section describes the case study's characteristics, the second section reviews the known source evidence, the third section presents the newly identified source evidence and the final section analyses the value, role and contribution of the evidential sources.

5.2 Case study description

The case comprised an arbitrary rectangular shape within the county of Glamorgan, now the Vale of Glamorgan unitary authority (Figure 5.1 and Table 5.1). It measured twelve kilometres north-south by ten kilometres transversely, covering an area of 120 square kilometres, although at least seventeen square kilometres of this total comprised the Bristol Channel. The area was bounded by the coastal margin to the south, the River Thaw to the east and the Afon Alun and its tributaries to the north-west. It included the towns of Cowbridge and Llantwit Major, together with significant villages such as Wick, St Hilary and St Athan (see Map 1 in end papers).

| Location | National Grid Reference |
|-----------|-------------------------|
| NW corner | 292000, 175000 |
| NE corner | 304000, 175000 |
| SW corner | 292000, 165000 |
| SE corner | 304000, 165000 |

Table 5.1: St Athan-Llandow case study area corner co-ordinates.

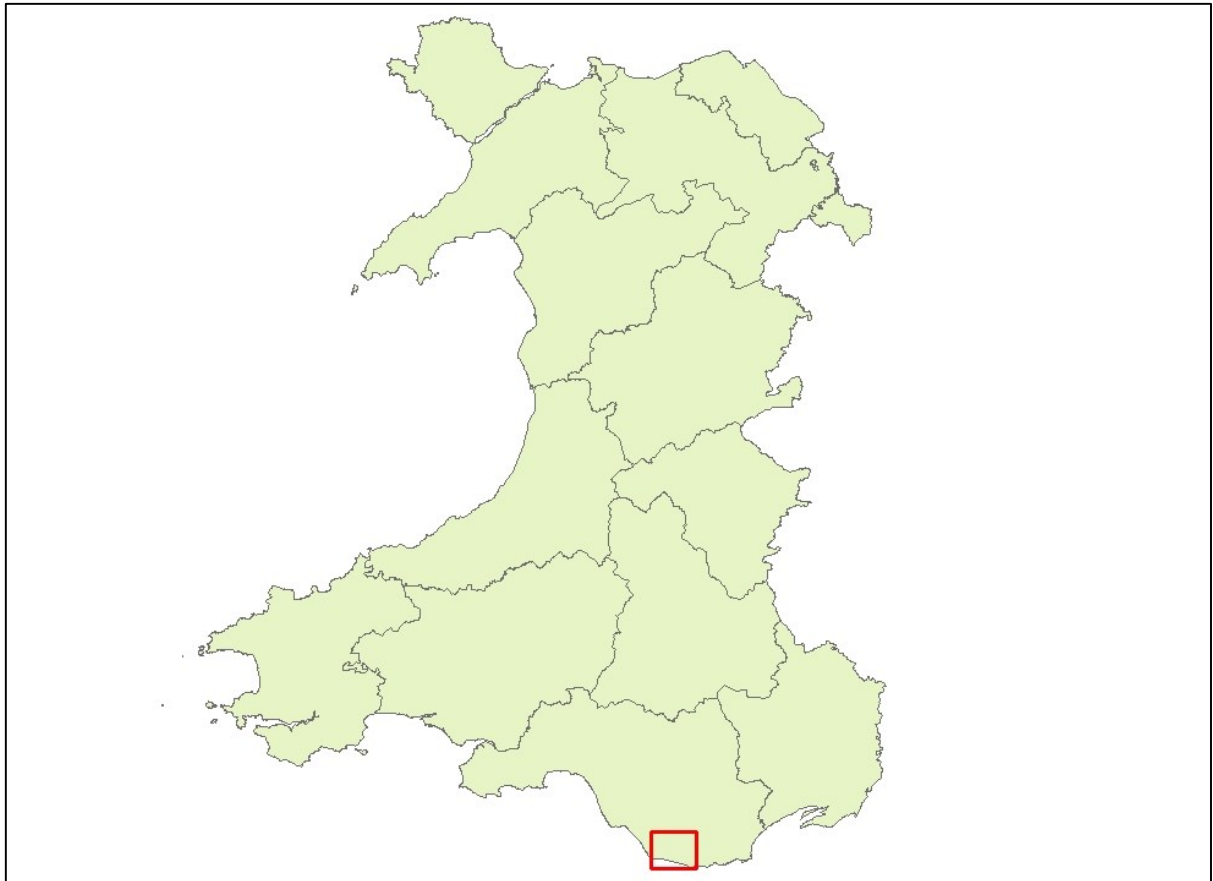


Figure 5.1: St Athan-Llandow case study area location. Base map depicts administrative counties of Wales as of 1931. Scale = 1:1,250,000.

5.2.1 Topography, hydrology, geology and human geography

The RCAHMW described the Vale of Glamorgan as ‘a dissected plateau, within which streams and small rivers create an undulating landscape of low hills and valleys’ (1988: 3). The regional Landscape Character Area entry for the Vale of Glamorgan described the area as ‘an undulating lowland landscape between adjacent uplands, coastline and urban areas... largely comprising a rolling plateau of Blue Lias limestone... [with] melting piedmont ice deposited glacial till across the landscape... [and] rivers fringed by alluvial deposits’ (Countryside Council for Wales 2009: 37).

The former Countryside Council for Wales's LANDMAP database recorded nine geological aspect areas within the case study (Table 5.2).

| Area Unique ID | Area Name | Classification |
|----------------|----------------------|------------------------------------|
| VLFGGL221 | Ogmore-Nash-Breaksea | Erosional coastline |
| VLFGGL863 | Llantwit-St Athan | Lowland, dissected coastal plateau |
| VLFGGL953 | Llanbethery | Blue Lias plateau |
| VLFGGL614 | Coed Hills | Blue Lias plateau |
| VLFGGL514 | Thaw-Waycock | Dendritic river-flood plain system |
| VLFGGL658 | Penllyn Moor | Upper river-flood plain system |
| VLFGGL282 | St Hilary | Undulating lowland hill and valley |
| VLFGGL492 | Ewenny-Penllyn | Low, broad limestone ridge |
| VLFGGL885 | Alun-Ewenny | Lowland river and drainage system |

Table 5.2: Countryside Council for Wales's LANDMAP geological evaluation classification data for the St Athan-Llandow case study area.

LANDMAP recorded the indented coast between St Donat's and Breaksea Point as part of the erosional 'Ogmore-Nash-Breaksea' coastline, comprising a narrow band of tall, sheer cliffs of alternating limestone and shales of the Portkerry Member of the Lower Lias Formation, with dominantly rocky foreshore. They were incised by small, steep-sided river valleys known as cwms with occasional wider and gentler bays (see Map 4 in end papers for exemplar of historic mapping).

The area north of the coastline comprised the 'Llantwit-St Athan' plateau of lowland hills and valleys, which occupied the majority of the case study, including the two RAF airfields. It consisted of a broad, lowland, dissected coastal plateau underlain by Blue Lias (Lower Jurassic) geology. The plateau continued into the 'Llanbethery' and 'Coed Hills' areas, which were located on the eastern edge and north-eastern corner of the case study respectively. The latter possessed distinctive tabular hills with scarp faces.

The 'Thaw-Waycock' dendritic river-flood plain system of steep-sided narrow valleys occupied the east side of the case study. The Rills Valley penetrated the south-east corner of RAF St Athan. The wartime estuary of the River Thaw featured salt marsh and burrows, but was significantly modified by industrial activity into a non-natural estuary. The upper course of the 'Penllyn Moor' river-flood plain system flowed south through Cowbridge on the northern edge of the case study.

The 'St Hilary' area of undulating lowland hill and valley terrain on the northern edge of the case study comprised a continuation of a Carboniferous massif ridge within the Cowbridge Anticline, with an Old Red Sandstone (Devonian) core and flanking Triassic-Jurassic marginal deposits. The 'Ewenny-Penllyn' low, broad ridge of Carboniferous limestone extended westwards along the northern edge of the case study.

The north-west corner of the case study was penetrated by the 'Alun-Ewenny' lowland river and drainage systems. Its upper reaches extended southwards to the northern side of RAF Llandow.

5.2.2 Landscape change

Arable and pastoral agricultural practices continue to be the predominant land use within the case study. The landscape was enclosed by field systems of varying patterns and sizes, usually bounded by hedgerows, and with a marked occurrence of limestone-built walls towards the coast.

The landscape depicted in wartime imagery was subjected to considerable post-war land use change. The fundamental infrastructure of settlement,

communications and topographic features remained intact, but the towns of Cowbridge and Llantwit Major, and their outlying villages grew in size due to development. Both towns were bypassed, extensive suburbs constructed and unoccupied areas infilled. The field boundary network changed markedly with fields being agglomerated into a smaller number of larger fields reflecting increased mechanisation. Many hedgerows increased in width following the change from manual to mechanical cutting.

The RAF airfields changed through extensive post-war re-modelling. RAF Llandow closed and was broken up into light industrial estates and a karting track, or returned to agriculture. The extensive dispersed sites to the south-west of the airfield were mostly removed.

In contrast, RAF St Athan remained a Ministry of Defence facility and the majority of the wartime layout and many of the buildings and features survived. Changes included several phases of demolition and re-building on East Camp, runway extensions, construction of additional hangarage and a change to Army usage on West Camp. The RAF hospital and the dispersed sites were demolished. Extensive developments of service family accommodation were constructed at Eglwys Brewis, West Camp and East Camp.

Elsewhere, the Royal Army Service Corps camp at Gileston was demolished and there was little evidence of the temporary headquarters associated with St Donat's Castle. A number of searchlight and anti-aircraft gun emplacements were built within the study area, but none survived intact.

Transport-related developments can also be identified. The Vale of Glamorgan Railway was utilised by the Air Ministry when selecting airfield locations during the 1930s and the railway's embankments and cuttings were absorbed into the defences on the west and south sides of RAF Llandow and the south side of RAF St Athan. Subsequent maintenance altered many of the railway bridges, which would have been the location for airfield defences.

The Taff Vale Railway Cowbridge-Aberthaw section comprised a single-line branch and linked Aberthaw with the Great Western Railway at Llantrisant (Barrie 1980; Chapman 1984). The Cowbridge-Aberthaw section closed in 1932 and the track was lifted in 1947 (Barrie n.d.). The railway ran north-south along the Thaw valley and its cuttings, embankments and bridges were utilised in defence schemes.

The main St Athan-Llantwit Major road that passed through the southern grounds of RAF St Athan was diverted south of the airfield perimeter in 1951 as the modern B4265. The road corridor, including new cuttings, embankments and junctions, possessed a significant footprint and a number of defence structures were demolished in advance of construction.

Elsewhere, the widening, straightening and re-surfacing of roads and associated junction improvements removed, reduced or hid evidence of defence sites, particularly roadblocks and fieldworks.

The predominant wartime industry within the case study was the Aberthaw and Bristol Channel Portland Cement Company works at Aberthaw (Harris 2001; Tofton 2012). It provided much of the cement utilised in local defence construction. The associated quarry subsequently grew significantly in size.

The most significant post-war industrial development was the construction of Aberthaw ‘A’ Power Station by the Central Electricity Generating Board at the Leys in 1956. Construction of Aberthaw ‘B’ followed in 1963 (Etherington 2001). Located between Gileston and West Aberthaw, the development levelled all of the existing features on the site’s footprint and involved the canalisation of the River Thaw. A large ash mound was established to the east of the power station.

5.3 Existing source evidence

5.3.1 Known archaeological evidence

Existing archaeological datasets for the case study were identified at GGAT’s HER and the RCAHMW’s NMRW. The latter incorporated the Defence of Britain Project data.

| Source | Total No. of C20 Military Records | No. of C20 Military Records in Vale of Glamorgan | No. of C20 Military Records in Case Study Area |
|-------------|-----------------------------------|--|--|
| GGAT HER | 186 | 56 | 30 |
| RCAHMW NMRW | 569 | 31 | 29 |

Table 5.3: Summary of twentieth century military records held by GGAT and the RCAHMW.

Table 5.3 demonstrated that GGAT’s HER held more site records for the Vale of Glamorgan, but that both the HER and NMRW held comparable numbers of records for the case study.

GGAT’s HER data for the Vale of Glamorgan unitary authority was restricted regarding the number of sites and range of site types recorded. Only two site types were recorded within the case study, comprising a misidentified air raid shelter and a

number of pillboxes, including an anti-tank emplacement (Table 5.4). This was surprising given the known militarisation of the area.

The dataset suggested that GGAT's identification and recording practises to that date were the result of opportunistic identification and recording of hardened defence structures as part of regional studies rather than dedicated thematic investigation. Fieldworker familiarity with this type of archaeological evidence was acknowledged to be limited (Paul Huckfield 2012 pers. comm.).

| GGAT Site Type | No. of Site Type Records in Vale of Glamorgan | No. of Site Type Records in Case Study Area |
|------------------------------|--|--|
| Anti-Aircraft Emplacement | 3 | 0 |
| Searchlight Emplacement | 3 | 0 |
| Air Raid Shelter | 3 | 1 |
| Gun Battery | 2 | 0 |
| Pillbox | 37 | 28 |
| Sea Defences | 3 | 0 |
| Bombing Decoy | 1 | 0 |
| Camp | 1 | 0 |
| Military Aircraft Crash Site | 1 | 0 |
| Building [Unspecified] | 2 | 1 |
| Total | 56 | 30 |

Table 5.4: Summary of twentieth century records held by GGAT for the Vale of Glamorgan and case study area by Site Type.

The RCAHMW's NMRW dataset recorded a similarly narrow range of defence site types, particularly if the four pillbox-related categories were agglomerated together (Table 5.5). Most of the RCAHMW's records originated from the Defence of Britain project. Pillboxes comprised 83% of the examples recorded, again reflecting bias in fieldwork collection methodologies.

The virtual absence of new records being added to the NMRW for the case study in the decade since the cessation of the Defence of Britain project in 2002 was

indicative of the RCAHMW's traditional subject interests and survey coverage bias (Medwyn Parry 2012 pers. comm.).

| RCAHMW Site Type | No. of Site Type Records in Vale of Glamorgan | No. of Site Type Records in Case Study Area | No. of Records in Case Study Area Identified by Defence of Britain |
|-------------------------|--|--|---|
| Pillbox (Variant) | 6 | 6 | 6 |
| Pillbox (FW3/22) | 5 | 5 | 5 |
| Pill Box | 12 | 12 | 11 |
| Pickett Hamilton Fort | 1 | 1 | 1 |
| Tank Trap | 1 | 1 | 0 |
| Cube | 4 | 4 | 4 |
| Searchlight Battery | 1 | 0 | 0 |
| Fort | 1 | 0 | 0 |
| Total | 31 | 29 | 27 |

Table 5.5: Summary of twentieth century records held by the RCAHMW for the Vale of Glamorgan and case study area by Site Type.

GGAT and the RCAHMW recorded fifty-nine records in the case study, but thirteen were duplicates providing a total of forty-six unique records (Table 5.6). This was a low baseline given the existence of two airfields and coastal defences.

| Defence Groupings | No. of HER Records | No. of NMRW Records | Records in Common |
|--------------------------|---------------------------|----------------------------|--------------------------|
| RAF Llandow Defences | 1 | 8 | 1 |
| RAF St Athan Defences | 8 | 8 | 2 |
| Tresilian Bay Defences | 6 | 6 | 6 |
| Limpert Bay Defences | 7 | 6 | 3 |
| Anti-tank Sites | 1 | 1 | 1 |
| Other | 7 | 0 | 0 |
| Total | 30 | 29 | 13 |

Table 5.6: Comparison of HER and NMRW records for major defence groupings within St Athan-Llandow case study area.

5.3.2 Published sources

The case study was rich in previous archaeological investigations that focused on traditional prehistoric, Roman and medieval research (RCAHMW 1976; Driver 1995; Evans 2001; Sherman and Evans 2004; Gwilt, Lodwick and Deacon 2006). The absence of defence-related research was associated with the self-imposed traditional boundaries of the discipline of archaeology, notwithstanding several projects in restricted areas (Fox 1943; Barber, Cox and Hancocks 2006).

The published literature in the case study was meagre, dominated by airfield-focused sources, with few details regarding defence arrangements or units.

5.3.2.1 Military airfields

Willis and Hollis included both airfields in their national gazetteer (2002). It noted the airfields' technical and domestic facilities, location, plan and recorded personnel strength on 1 December 1944, but not the defensive arrangements. Published guides and surveys of Glamorgan's military airfields ignored defensive arrangements, focusing instead on squadron histories or airfield buildings (Jones 2007a; McLelland 2012; Phillips 2006; Smith 1981; Thursby 2002).

One publication focusing on RAF St Athan was identified. None were identified for RAF Llandow. Bond published a history of RAF St Athan to celebrate its fiftieth anniversary (1988). It stated that 'ground defence consisted of a handful of [RAF] volunteers, who... had a number of lorries fitted with three Lewis gun mountings, and manned by a gunner and loader, who had been given a short Lewis course' (Bond 1988: 15). The grass-covered E-Type hangar roofs were utilised as

elevated defence positions. Bond also noted the arrival of the first RAF Regiment detachment at RAF St Athan in early 1943 (1988: 28). They taught battle drill to the station staff and South Wales Borderers. The author did not date these occurrences and it was difficult to attribute them to particular locations or phases of airfield defence.

Both airfields had a RAF Regiment home defence presence, subsequently being retrained in a LAA role. Barrass noted that No. 847 (2847 from 1 February 1942) Squadron formed at Llandow on 19 December 1941 and No. 2850 Squadron moved to St Athan in 1942 (Barrass 2014). Both units converted to a LAA role in May 1943 and October 1942 respectively. Oliver stated that No. 2955 LAA Squadron was formed at RAF St Athan in June 1943 for home defence purposes (2002: 32).

Kerr published an article dealing with airfield defensive structures (1994b), noting eight pillboxes at RAF St Athan and four pillboxes at RAF Llandow. Locational grid references were provided. Those at Llandow were identified, but only four pillboxes at RAF St Athan were recognised. The author conceded that the locations of the remaining pillboxes were erroneous (Alastair Graham Kerr 2010 pers. comm.).

Aspects of airfield infrastructure were published, including the system of inter-connected dispersals between the two airfields (Abraham 2001) and a survey of wartime buildings prior to their demolition (Davies 2007). Brief histories also featured in local history publications (Awbury 1959; Breverton 2000) and specialist articles focusing on radar (Kendal 1993; Putley 1985; Zimmerman 2008).

5.3.2.2 Anti-invasion defences

The only anti-invasion defence-related publications identified comprised a brief mention of two pillboxes being built in St Hilary, one of which was extant (Thomas 2000) and an article written on the anti-invasion defences for the area as part of this research (Berry 2013).

5.3.3 Unpublished reports

A number of grey literature reports were identified, including the results of archaeological research, desk-based assessments and fieldwork.

5.3.3.1 Grey literature research from Public Record Office sources

Redfern's documentary research for Wales at the Public Records Office (PRO) (1998a) and associated site gazetteer (1998b) identified a narrow range of site types pertinent to the case study (Table 5.7). His research was limited, but confirmed that documentary evidence survived and could contribute understanding. The results were not circulated widely and few sites were added to archaeological records.

| Location | Site Type | Date | Source | Notes |
|---------------------------------------|---------------------------|----------|---------------------------|---|
| St Athan | Beach defences | 15/08/40 | WO 166/94 | Ordered built in <i>Western Command Operation Instruction No. 16</i> |
| St Donat's | Beach defences | 15/08/40 | WO 166/94 | Ordered built in <i>Western Command Operation Instruction No. 16</i> |
| St Athan at crossing of River Thaw | 6-pdr A/T gun emplacement | 14/12/40 | WO 166/1314 | Recorded as being emplaced in <i>Severn Sub-Area Home Defence Scheme No. 2</i> |
| Gigman Mill at crossing of River Thaw | 6-pdr A/T gun emplacement | 14/12/40 | WO 166/1314 | Recorded as being emplaced in <i>Severn Sub-Area HDS No. 2</i> |
| RAF St Athan environs | LAA gun emplacements x8 | 14/12/40 | WO 166/1314 | Recorded as Vulnerable Point No. 443 in a General Staff letter from Severn Sub-Area Gun site nos. 30-37 |
| Boverton, south of RAF St Athan | HAA gun emplacements x4 | 22/06/41 | WO 166/1314 AIR 2/4768 | Known as site K1 from AA Cmd. letter AAC/40265/G/Ops |
| Tresilian Bay | Canadian Pipe Mine | 12/07/41 | WO 199/52 | Recorded as projected for emplacement in <i>ACRWC NoS/2945/G(O)</i> |
| Limpert Bay | Canadian Pipe Mine | 12/07/41 | WO 199/52 | Recorded as projected for emplacement in <i>ACRWC NoS/2945/G(O)</i> |
| Col-Hugh Point | Canadian Pipe Mine | 12/07/41 | WO 199/52 | Recorded as projected for emplacement in <i>ACRWC NoS/2945/G(O)</i> |

Table 5.7: Defence sites in St Athan-Llantwit Major case study area identified by Redfern (1998b) in records at the PRO.

5.3.3.2 Ministry of Defence commercial archaeological reports

Archaeological reports were commissioned by the Ministry of Defence to inform proposed developments at RAF St Athan. A heritage assessment was undertaken at St Athan, Flemingston, Llanmaes, Gileston and part of Llantwit Major/Boverton (Cotswold Archaeological Trust Ltd 2001). Investigations examined Eglwys Brewis (Cotswold Archaeology 2002; Stratascan 2003a; Cotswold Archaeology 2003a) and the DARA site (Stratascan 2003b; Cotswold Archaeology 2003b). No new wartime defence sites were identified.

Many surveys were commissioned following the Defence Training Review Rationalisation Programme's decision to open a defence training academy at RAF St

Athan in 2007 (abandoned in 2010). Reports included preparation of a development brief (Entec UK Ltd 2006), an archaeological desk-based assessment (Cotswold Archaeology 2007), a geophysical reconnaissance survey (Geotec 2008; Young 2009) and archaeological investigation project designs (Entec UK Ltd. 2009a and 2010), subsequently undertaken by Wessex Archaeology (2010). An historic environment baseline formed part of the planning application Environment Statement (Entec UK Ltd. 2009b). No new wartime defence sites were identified.

Following the decision to build the training academy, Cadw undertook an extensive field survey of the surviving defences (Berry 2008). It identified nineteen extant, two destroyed and eight tentative defence structures. The majority comprised pillboxes from the inner and outer defensive perimeters (Dobinson 2000e: 47-55), and two of the three Pickett-Hamilton forts.

5.3.3.3 Cadw-funded twentieth century military designation projects

In 2011 Cadw funded the Welsh Archaeological Trusts to survey military airfields. The 2011-12 projects focused on the airfield core and technical buildings as depicted on Air Ministry Record Site Plans.

GGAT surveyed the former RAF airfields in south-east Wales except for RAF St Athan and reported a number of previously unrecorded defences (Huckfield 2012a-b). The survey identified four pillboxes within the Air Ministry site boundary, together with the probable site of the Battle Headquarters at RAF Llandow. The pillboxes were incorrectly identified as War Office FW3/22 type or variant pillboxes, but were Air Ministry designs.

The 2012-13 GGAT project focused on the hinterlands of the military airfields surveyed in 2011-12 (Huckfield 2013). Huckfield visited six pillboxes on the western and southern sides of RAF Llandow. Three, forming part of the outer external defensive ring, comprised War Office FW3/24 designs, but the pillboxes described as FW3/22 designs were Air Ministry designs. No other defence sites were identified.

5.3.3.4 Unpublished academic research

A thesis focusing on the dispersal areas and the St Athan-Llandow taxiway was identified (Lewis 2013), but it did not identify any new defence posts.

5.4 New source evidence

This section presents new information obtained from the archaeological, documentary, aerial photographic and cartographic source evidence.

5.4.1 New archaeological results from rapid field observation

Rapid field observation identified new defence sites and established new understanding of known defences. A range of anticipated defences were not identified.

5.4.1.1 New defence sites

Rapid survey successfully identified fifty-two new defence sites, which clustered into four groups. The first group comprised the surviving pillboxes erected

as part of the coastal crust defences. Two concentrations were identified at Tresilian Bay and Limpert Bay. Established above the high tide mark and associated with linear anti-tank obstacles or cliffs these sites were easily identified.

The second group comprised the outer ring defences at RAF Llandow and RAF St Athan. As Class 1 airfields they were equipped with the highest densities of pillboxes. The original population was incomplete. These were identifiable as concrete FW3/24 pillboxes, usually set in open locations and sometimes associated with defence party huts.

The third group comprised the inner ring airfield defences. These were Air Ministry-pattern pillboxes of various shapes and sizes, but sharing common features such as red clay brick shuttering, Turnbull mountings and wide stepped embrasures. They were often located in hedge boundaries and were difficult to locate.

The final group consisted of specialist defences such as Pickett-Hamilton forts, roadblocks and a FW3/28 anti-tank emplacement. The recognition of the backfilled roadblock sockets at Gileston Bridge due to differential frost thaw demonstrated the ephemeral character of some of the surviving evidence.

The number, extent and variety of the original defences was partly determined and it is anticipated that future research will identify additional defences.

5.4.1.2 New understanding of existing sites

As large sites of strategic importance located close to the sea the airfields were equipped with large numbers of defences to provide defence in depth. Unlike

other airfields in Wales such as Pembrey, the pillboxes at St Athan and Llandow did not possess dual-function ground and LAA defence roles. The pillboxes were of an infantry type for rifles and machine guns. Given the importance of the airfields, they were equipped with their own LAA emplacements.

Only 20% of the identified pillboxes conformed to designs issued by the War Office's Directorate of Fortifications and Works or the Air Ministry's Works Directorate. The majority were of unknown designs, possibly indicating the work of a localised design office.

The surviving coastal crust pillboxes at Limpert Bay possessed an unusual spatial arrangement deployed along the line of the anti-tank defences. In some cases the pillboxes actually incorporated the anti-tank cubes into their construction, indicating that the anti-tank cubes were in place prior to the pillboxes being built. In one unusual case a FW3/22 pillbox was built in front of the anti-tank cube alignment to cover dead ground where the beach was greater in height.

This arrangement did not provide defence in depth and may be illustrative of the scarcity of construction materials within Western Command during 1940 (WO 199/48, Defence Works, June 1940-February 1941). Other examples of this form of construction were known elsewhere for example at Swansea Bay, Fairbourne and Rhos-Llangel. This direct association may reflect a pragmatic arrangement specific to Western Command.

The surviving defences represented the activities of the regular Army and RAF defence forces. Home Guard established defences were not identified suggesting that they were less formal structures.

5.4.1.3 Sites not identified

The discussion demonstrated a bias towards the survival and identification of hardened defence structures around the perimeters of the airfields and along the coast. Few examples were identified outside of these areas and no fieldworks were identified. Anticipated defences associated with airfields such as seagull trenches and Allan William turrets were not recognised. The cartographic and secondary sources indicated defence posts established within the interior of RAF St Athan, but none were identified. The RAF Llandow internal defence arrangements beyond the Pickett-Hamilton provision was not identified.

The research did not recognise evidence for later airfield defence types such as spigot mortars at either airfield (cf. RAF Carew Cheriton). With the exception of Old Mill, the locations of the 6-pdr and 13-pdr artillery emplacements described in the war diaries at St Athan were not identified.

5.4.2 New documentary source evidence

An abundance of primary documentary evidence for the case study was identified at TNA (Table 5.8), comprising registered files and war diaries and their associated appendices.

5.4.2.1 Missing files

A number of anticipated registered files were not identified at TNA, including those for the Glamorgan coastal defences and anti-landing obstacles. Other files

were preserved, but did not include relevant information, for example the RAF Llandow and St Athan ORBs, which did not preserve the station defence schemes.

5.4.3 Military administrative geography, formations and units

The military administrative geography was partially reconstructed from documents held at TNA. This in-depth archival work established an incomplete chronological, spatial and functional framework of the higher and lower administrative formations that operated in the case study from 1939-42. The establishment of the locations, movements and roles of regular Army formations and units within the case study was more successful.

5.4.3.1 Military administrative geography: South Wales Area/District

The case study was contained entirely within Western Command's South Wales Area and Severn Sub-Area. The latter covered the counties of Glamorgan and Monmouthshire, and was established in September 1940; it remained unchanged until the end of the research period. The preceding Sub-Area was difficult to characterise in the absence of a war diary and other documents had to be utilised to understand the organisational arrangements. The 53 (Welsh) Infantry Division's war diary recorded that South Wales Sub-Area existed in September 1939 with its headquarters at Newport (WO 166/655). On its relocation to South Wales Area in June 1940, 2 (London) Infantry Division set out the existing chain of command, identifying the presence of South Wales Sub-Area, comprising Glamorgan and Monmouthshire, with its headquarters at Porthcawl (WO 166/566).

| Piece No. | Title | Content |
|-------------|--|-----------------------------------|
| AIR 2/4768 | Decoy sites: operational co-operation with Anti-Aircraft Command | Listed RAF St Athan HAA site |
| WO 166/94 | Western Command (G) War Diary, 09/39-12/40 | Listed defended beaches |
| WO 166/103 | Western Command (G) War Diary, 01-12/41 | Operation Instructions |
| WO 166/204 | III Corps GS War Diary, 01/40-12/41 | Army defence arrangements |
| WO 166/465 | 18 th Inf. Div. GS War Diary, 01-12/41 | Army defence arrangements |
| WO 166/482 | 38 th Inf. Div. GS War Diary, 09/39-12/41 | Army defence arrangements |
| WO 166/566 | 2 nd (London) Inf. Div. GS War Diary, 06-12/40 | Army defence arrangements |
| WO 166/605 | 49 th Inf. Div. GS War Diary, 08-39-04/41 | Army defence arrangements |
| WO 166/655 | 53 rd Inf. Div. GS War Diary, 09/39-12/40 | Army defence arrangements |
| WO 166/656 | 53 rd Inf. Div. GS War Diary, 01-12/41 | Army defence arrangements |
| WO 166/971 | 73 rd Ind. Inf. Bde. War Diary, 03-12/41 | Army defence arrangements |
| WO 166/1314 | Severn Sub-Area HQs War Diary, 12/40-12/41 | Home Defence Scheme |
| WO 166/2043 | 959 th Defence Battery, RA HQ War Diary | Gun emplacement positions |
| WO 166/3655 | 179 Tunnelling Coy, RE War Diary, 1940-41 | Locations of CPOs |
| WO 166/3768 | 502 Field Company, RE War Diary, 10/39-12/41 | Anti-invasion defence preparation |
| WO 166/3769 | 503 Field Company, RE War Diary, 09/39-12/41 | Anti-invasion defence preparation |
| WO 166/6025 | Western Command (G) War Diary, 01-12/42 | Operation Instructions |
| WO 166/6771 | Severn Sub-Area HQs War Diary, 01-12/42 | Counter Invasion Scheme |
| WO 192/321 | Nell's Point Coast Battery, RA FRB, 1939-55 | Landward targets |
| WO 199/37 | Defences: Anti-tank Minefields, 07/40-03/44 | Locations of minefields |
| WO 199/38 | Anti-tank Mines: Clearance, 02-08/44 | Correspondence |
| WO 199/52 | Roadblocks: McNaughton Piping, 08/40-10/42 | Locations of CPOs |
| WO 199/103 | Charting of Obstructions on the Foreshore, 02/43-01/45 | Locations of pole ALOs |
| WO 199/336 | Obstruction of Landing Grounds, Western Command, 05/40-05/42 | Correspondence |

Table 5.8: Documentary sources of relevance to St Athan-Llantwit Major case study area preserved at The National Archives.

Severn Sub-Area's Counter-Invasion Scheme of September 1942 detailed the Sub-Area's organisation (WO 166/6771). Appendix A recorded that Glamorgan was sub-divided into Neath, Pontypridd, East Glamorgan and South Glamorgan Sectors. Garrisons were located at Cardiff, Barry and Swansea. The defence scheme for 'B' Company, 10 (Cowbridge) Battalion, Glamorgan Home Guard cited the continued existence of South Glamorgan Sector in April 1943. The South Glamorgan Sector and Barry Garrison war diaries were not identified at TNA.

5.4.3.2 Military units available for defence

A variety of military units were available for defence duties in the case study between September 1939-December 1942, changing significantly through time. Regular army formations and units were present from June 1940-May 1941. They covered extensive geographical areas as counter-attack forces, and were mobile to reinforce static troops and Home Guard units. As the latter improved and airfields established their own arrangements defence organisation became more localised and regular forces were located further afield.

Severn Sub-Area's war diaries were an important source of documentary evidence. While the Sub-Area's 1940 war diary that would have contained a copy of Home Defence Scheme No. 1 dated 9 September 1940 was not preserved at TNA, Home Defence Scheme No. 2 of 14 December 1940 was preserved in the 1941 war diary, together with its appendices and ten of the twelve amending documents (see Appendix 5.1 for the defence scheme text). It was detailed, but not fully comprehensive.

The appendices and updates provided detailed information regarding the presence of regular forces under Severn Sub-Area's command or located within the Sub-Area. These included field force, static, mobile columns and aerodrome guards in the case study. Tables 5.9 and 5.10 demonstrated that the airfields possessed their own RAF defence forces, but were also reliant on local Royal Artillery and Pioneer Corps units, with mobile column support from Porthcawl and St Donat's Castle via a succession of regular army battalions responsible for the defence of the coast between the River Ogmore and Cold Knap Point.

| Unit | Location / Role | Date | Reference |
|--|--|-------------------|----------------------------------|
| RAF Defence Coy. | RAF station: Aerodrome guard | 14/12/40-24/06/41 | SSA HDS No. 2. |
| 959 Bty., RA | RAF station and to NE and SE: artillery support and aerodrome guard | 14/12/40-12/04/41 | SSA HDS No. 2. |
| 164 LAA Tp., LAA | In RAF station environs: LAA and aerodrome guard | 14/12/40-12/04/41 | SSA HDS No. 2. |
| 70 Bn., Welch | Unknown: Aerodrome guard | 14/12/40 | SSA HDS No. 2. |
| 16 Bn., Welch | Unknown: Aerodrome guard | 14/12/40 | SSA HDS No. 2. |
| AMPC Det. | Unknown: Aerodrome guard | 14/12/40 | SSA HDS No. 2. |
| Royal Dutch Det. | Unknown: Aerodrome guard | 14/12/40 | SSA HDS No. 2. |
| 1 Coy, 18 Bn. Welch | Mobile Column from St Donat's Castle | 14/12/40-22/01/41 | SSA HDS No. 2. |
| 72 Coy, Pioneer Corps, 17 (HD) Gp. | Unknown: Aerodrome guard | 22/01/41-01/06/41 | SSA HDS No. 2, Amendment No. 2. |
| Det. 178 Pioneer Corps | Unknown: Aerodrome guard | 22/01/41-27/02/41 | SSA HDS No. 2, Amendment No. 2. |
| 1 Coy, 18 Bn. Royal Fusiliers | Mobile Column from St Donat's Castle | 27/02/41-01/06/41 | SSA HDS No. 2, Amendment No. 3. |
| 960 Bty., RA | RAF station and to NE and SE: artillery support and aerodrome guard | 01/06/41 | SSA HDS No. 2, Amendment No. 6. |
| 166 Tp, 63 LAA Bty, RA | In RAF station environs: LAA and aerodrome guard | 01/06/41 | SSA HDS No. 2, Amendment No. 6. |
| 1 Coy, 70 Bn. Royal Warwicks. | Mobile Column from St Donat's Castle | 24/06/41 | SSA HDS No. 2, Amendment No. 7. |
| 2 Bn. South Staffs, 31 Ind. Inf. Bde. | Mobile Column from St Donat's Castle | 11/09/41-09/01/42 | SSA HDS No. 2, Amendment No. 10. |
| 1 Bn. Belgian Fusiliers / Belgian Fd. Arty. Bty. | Mobile Column from Crickhowell to support 31 Inf. Bde. Gp. to relieve RAF St Athan and Llandow | 11/09/41 | SSA HDS No. 2, Amendment No. 10. |

Table 5.9: Units located at RAF St Athan as described in Severn Sub-Area Home Defence Scheme No. 2, 14 December 1940 and subsequent amendments (TNA WO 166/1314).

Amendment No. 12 to Severn Sub-Area's Home Defence Scheme No. 2 of 9 January 1942 ordered the deletion of all references to the 2 Battalion South Staffordshire Regiment. The identity of the unit responsible for the defence of the coastline in the case study area and the occupying unit of St Donat's Castle from this date could not be determined.

The Sub-Area did not issue further instructions following Amendment No. 12 and while the monthly diary returns recorded significant changes to the defences

within the case study, it was harder to identify the field force and static military units undertaking defence duties.

| Unit | Location / Role | Date | Reference |
|--|--|-------------------|-----------------------------------|
| RAF Defence Coy. | Unknown: Aerodrome guard | 14/12/40-24/06/41 | SSA HDS No. 2. |
| 16 Bn., Welch | Unknown: Aerodrome guard | 14/12/40 | SSA HDS No. 2. |
| 18 Bn., Welch | Unknown: Aerodrome guard | 14/12/40 | SSA HDS No. 2. |
| 1 Coy., 10 Bn. Glosters | Mobile Column from Porthcawl | 14/12/40-22/01/41 | SSA HDS No. 2. |
| 24 Coy., Pioneer Corps, 17 (HD) Gp. | Unknown | 22/01/41-01/06/41 | SSA HDS No. 2, Amendment. No. 2. |
| 1 Coy., 18 Bn. Royal Fusiliers | Mobile Column from St Donat's Castle | 27/02/41-01/06/41 | SSA HDS No. 2, Amendment. No. 3. |
| 1 Coy., 70 Bn. Royal Warwicks | Mobile Column from St Donat's Castle | 24/06/41 | SSA HDS No. 2, Amendment. No. 7. |
| 2 Bn. South Staffs, 31 Ind. Inf. Bde. | Mobile Column from St Donat's Castle | 11/09/41 | SSA HDS No. 2, Amendment. No. 10. |
| 1 Bn. Belgian Fusiliers / Belgian Fd. Arty. Bty. | Mobile Column from Crickhowell to support 31 Inf. Bde. Gp. to relieve RAF St Athan and Llandow | 11/09/41 | SSA HDS No. 2, Amendment. No. 10. |

Table 5.10: Units located at RAF Llandow as described in Severn Sub-Area Home Defence Scheme No. 2, 14 December 1940 and subsequent amendments (TNA WO 166/1314).

Severn Sub-Area issued the replacement Counter-Invasion Scheme No. 1 on 15 September 1942. It was a much less helpful document than the Home Defence Scheme when trying to identify the identity, presence and role of the field force and static military units within the case study as it did not contain location statements.

It was informative that the Home Guard did not appear to possess a formal role in the defence of the airfields in 1940 (although the Home Guard took over the 6-pdr anti-tank emplacements in 1941 and companies of the Home Guard were allocated to the specific defence of the airfields by 1943).

5.4.3.3 Regular mobile Field Force troops

Table 5.11 summarised the regular field force provision for the case study identified from war diary records at TNA. It demonstrated that defence was initially the responsibility of local Welsh Infantry Divisions until June 1940. Thereafter defence became the responsibility of the 2 (London) Infantry Division, particularly its 5 (London) Infantry Brigade. The formation's war diary record was piecemeal, but illustrated the work undertaken. The brigade came under the temporary direct command of South Wales Area until the divisional headquarters was established at Whitney-on-Wye, Herefordshire in August 1940.

The division's RE companies were responsible for the construction of defence works within the case study, but the exact works were not identified. It was considered a strong probability that the 503 Field Company, Royal Engineers was the unit responsible for the construction of the coastal defences at Limpert Bay and Tresilian Bay during August-October 1940.

This field force formation was replaced by 212 Independent Infantry Brigade (with static defence duties) from October 1940-February 1941 and then by the newly raised 73 Independent Brigade from March-May 1941.

Thereafter regular army formations with direct defence duties ceased to be located within the case study and defence became the responsibility of static troops and Home Guard units with a number of absentee Infantry Divisions given roles to provide mobile counter-attack columns from afar if required.

| Formation | Location | Role | Date | Reference |
|---|---|--|-------------------|----------------------------|
| 53 (Welsh) Inf. Div. | Pan-Wales. HQs. at Saundersfoot. | Home defence duties. | 09/39-04/40 | WO 166/655 |
| 38 (Welsh) Inf. Div. | Pan-Wales. HQs. at Cardiff. | Home defence duties. | 04/40-06/40 | WO 166/482 |
| 2/47 (London) Inf. Div. | South Wales Area | WC mobile reserve force countering enemy landings. | 06/40-02/41 | WO 166/566 |
| III Corps | Pan-Wales. | War training. | 07/40-04/41 | WO 166/204 |
| 5 (London) Inf. Bde., 2 (London) Inf. Div. | Porthcawl-Cowbridge area. | Order for relief of 113 Inf. Bde, 38 (Welsh) Inf. Div. by the 5 (London) Inf. Bde. | 31/07/40 | OI No. 1, WO 166/566 |
| 503 Fd. Coy., RE | Glamorgan. | Engaged on unspecified coast defence works. | 04/08/40-14/10/40 | WO 166/3769 |
| 5 (London) Inf. Bde. | Glamorgan. | Defence of beaches and RAF St Athan and Llandow. | 12/08/40 | HDS No. 4, WO 166/566 |
| 212 Ind. Inf. Bde. | Porthcawl-Cowbridge area. | Relief of 5 Lon. Inf. Bde. Defence of beaches held. | 10/40-02/41 | WO 166/566 |
| 18 Bn. Welch, 212 Ind. Inf. Bde. | Beaches from Loughor Bridge to Cold Knap Point. | Defence of beaches with 2-in mortars, A/T rifles and .300 Vickers. | 14/12/40 | SSA HDS No. 2, WO 166/1314 |
| 689 Gen. Con. Coy., RE | 71 Eastgate St, Cowbridge. | Part of Royal Engineer presence. | 14/12/40 | SSA HDS No. 2, WO 166/1314 |
| 178 Coy., AMPC | 71 Eastgate St, Cowbridge. | Part of Royal Engineer presence. | 14/12/40-11/04/41 | SSA HDS No. 2, WO 166/1314 |
| 502 Fd. Coy., RE | Porthcawl area. | Unspecified defence works. | 01/12/40-10/02/41 | WO 166/3768 |
| 31 Inf. Bde. Gp. | Hereford-Monmouth-Pontypool-Hay-on-Wye area. | WC mobile reserve force countering enemy within Severn Sub-Area, chiefly in Swansea and Gower. | 02-12/41 | SSA HDS No. 2, WO 166/1314 |
| 73 Ind. Inf. Bde. | Porthcawl, Glamorgan. | Assist SWA with training and defence preparation. | 03-05/41 | WO 166/971 |
| 18 Bn. Royal Fusiliers, 73 Ind. Inf. Bde. | St Donat's Castle. | Defence of beaches. Mobile column relief of RAF St Athan and Llandow | 27/02/41-01/06/41 | SSA HDS No. 2, WO 166/1314 |
| 50 Inf. Div. | Gloucestershire, Southern Comd. | Reinforce troops in SWA against enemy landings. | 03/41-? | WO 166/605 |
| 18 Inf. Div. | Role in SW and S Wales from 08/41. | Counter enemy landings. | 04/41-10/41 | WO 166/465 |
| 70 Bn. Royal Warwicks | St Donat's Castle. | Beach Defence. Mobile column relief of RAF St Athan and Llandow | 24/06/41 | SSA HDS No. 2, WO 166/1314 |
| 2 Bn. South Staffs, 31 Ind. Inf. Bde. | St Donat's Castle. | Mobile column relief of RAF St Athan and Llandow | 04/09/41-09/01/42 | SSA HDS No. 2, WO 166/1314 |
| 1 Bn. Belgian Fus. / Belgian Fd. Arty. Bty. | Glanusk Park, Crickhowell. | SWA mobile reserve to aid 31 Inf. Bde. Gp. to relieve RAF St Athan and Llandow | 11/09/41 | SSA HDS No. 2, WO 166/1314 |
| 54 Inf. Bde. Gp. | Hereford-Ross-Monmouth area. | Offensive action in Severn Sub Area as required. | 11/09/41 | SSA HDS No. 2, WO 166/1314 |
| 53 (Welsh) Inf. Div. | Pan-Wales. | 160 Inf. Bde. Gp. to defend Severn Sub-Area. | 11/41-? | WO 166/656 |

Table 5.11: Field Force provision in St Athan-Llandow case study area, 1939-42.

5.4.3.4 Static troops

Static troops were those allocated to a particular geographical locality, often a military camp, headquarters or fixed gun emplacement and with responsibility for defence of that area. Table 5.12 summarised the static troops identified as present within the case study from a combination of records held by TNA and the Welch Regimental Museum. The Western Command General Staff War Diary for 1940 included periodic lists of static troops within South Wales Area (WO 166/94).

From October 1940-February 1941, 212 Infantry Brigade was responsible for static defence duties in the Llantwit Major-Swansea area and the brigade's 18 Battalion, The Welch Regiment was located at St Donat's Castle and Llantwit Major. This included the defence of the coast between the River Ogmore and Cold Knap Point, Barry, together with providing a company-sized mobile column to relieve attacks against RAF St Athan. Other Welch Regiment Home Defence Battalions were also active in the case study from 1939-42.

The 10 Battalion, The Gloucestershire Regiment was not located within the case study, but was responsible for sending a company-sized mobile column to relieve attacks against RAF Llandow.

During February 1941, 212 Independent Infantry Brigade left the case study and 18 Battalion, Royal Fusiliers, 73 Independent Infantry Brigade took over 18 Battalion, The Welch Regiment's location at St Donat's Castle and its beach defence and mobile column duties.

| Unit | Location | Role | Date | Reference |
|---|---|---|-------------|--|
| Group 106 National Defence Company | South Wales | Home defence duties guarding airfields, HQs etc. | 1939 | Army Council Instruction No. 742 of 02/11/39 |
| 1/5 Bn., Welch Regt. | Cowbridge | Regular infantry unit training | 09-10/39 | Welch Regiment Museum records |
| 2/5 Bn., Welch Regt., 113 Inf. Bde., 38 Inf. Div. | Llantwit Major-Porthcawl coastline | Coast defence duties | 09/39-05/40 | Welch Regiment Museum records |
| 16 (Home Defence) Bn., Welch Regt. | Rifle Coy. each at RAF St Athan and RAF Llandow | Home defence Bn. for airfield defence | 11/39-40 | Welch Regiment Museum records |
| 15 (Home Defence) Bn., Welch Regt., 113 Inf. Bde., 38 (Welsh) Inf. Div. | Bn. HQs at Llantwit Major. Two rifle Coys each at RAF St Athan and RAF Llandow | Home defence Bn. for airfield and coast defence and beach patrols | 06-08/40 | Welch Regiment Museum records |
| 1 Bn., 12 Trg. Gp. [9 Bn, Royal Sussex Regt?] | To relocate from Ross-on-Wye to St Donat's | Static SWA Troops | 09/40-? | Western Command Operation Instruction No. 20 of 05/09/40 |
| 212 Ind. Inf. Bde. (Home) | | Regular Home Defence under SWA command | 10/40-02/41 | SSA HDS No. 2, WO 166/1314 |
| 18 (Home Defence) Bn., Welch Regt., 212 Inf. Bde. | Bn. HQs and Coy. at St Donat's Castle. Other Coys. in Llantwit Major-Porthcawl area | Home defence Bn. prepared coastal defences. | 11/40-02/41 | Welch Regiment Museum records |
| 18 Bn. Royal Fusiliers | St Donat's Castle | Beach defence; Mobile column relief of RAF St Athan and Llandow | 02/41-06/41 | SSA HDS No. 2, Amendment. No. 3, WO 166/1314 |
| No. 32 DID; No. 20 Fd. Bakery; Nos. 8 & 12 Fd. Butchery | Gileston RASC camp | Service and combat duties | 02/41 | SSA HDS No. 2, Amendment. No. 3, WO 166/1314 |
| Nos. 20 & 33 Fd. Bakery; No. 8 Fd. Butchery | Gileston RASC camp | Service and combat duties | 03/41 | SSA HDS No. 2, Amendment. No. 4, WO 166/1314 |
| 70 Bn. Royal Warwicks. | St Donat's Castle | Mobile column relief of RAF St Athan and Llandow | 24/06/41 | SSA HDS No. 2, Amendment. No. 7, WO 166/1314 |
| Nos. 5 & 6 Base Petrol Filling Centres; Nos. 60 & 73 DID | Gileston RASC camp | Service and combat duties | 04/09/41 | SSA HDS No. 2, Amendment. No. 8, WO 166/1314 |
| 2 Bn. South Staffs, 31 Ind. Inf. Bde. | St Donat's Castle | Mobile column relief of RAF St Athan and Llandow | 04/09/41 | SSA HDS No. 2, Amendment. No. 8, WO 166/1314 |
| 60 (Welch) Holding Bn. 30 Bn., South Wales Borderers | 1 Coy. at Cardiff 1 Coy. at Newport | Mobile column relief of RAF St Athan and Llandow | 13/06/42 | WC OC No. 42, Amendment No. 23 |

Table 5.12: Provision of static troops in St Athan-Llandow case study area, 1939-42.

5.4.3.5 Home Guard

The number of Home Guard battalions and the locations of their inter-battalion and company boundaries were not determined from the documentary evidence. The presence of the 10 (Cowbridge) and 5 (Barry) Battalions of the Glamorgan Home Guard were identified in the Severn Sub-Area war diaries respectively for 1940-42, but the earlier and later arrangements were not observed except for the company arrangements described below.

5.4.3.6 10 Battalion Glamorgan Home Guard Defence Scheme

The Llantwit Major Local History Society's archive contained the entire Defence Scheme for 'B' Company, 10 (Cowbridge) Battalion, Glamorgan Home Guard. It included a detailed list and annotated map of the defence posts, allocated weaponry and troops located in the Llantwit Major-Boverton-St Athan village area in April 1943 (Berry 2013). The written text of the defence scheme is presented in Appendix 5.2.

This document was important as it described the defensive arrangements between the coastal crust defences and the airfields at this time. These avoided the airfields and coastal areas, suggesting strongly that these remained the responsibility of other regular army or RAF and Home Guard units. The earlier and later defence iterations for the 'B' Coy defence area remain unknown.

The document also described the company and platoon arrangements for Llantwit Major, Boverton and St Athan village. It recorded that 'A', 'D' and 'E'

Companies were responsible for the defence of Cowbridge, Llandow aerodrome and St Athan aerodrome respectively.

5.4.4 New documentary source evidence: sites

Redfern's PRO-based study was the only known account of documentary source evidence in the St Athan-Llandow case study (1998b). During this research, additional documentary sources were identified that provided both new and additional site information. Most sources were located at TNA, but valuable information was also located at the Llantwit Major Local History Society. No new site data was identified at Glamorgan Archives.

5.4.4.1 Severn Sub-Area Home Defence Scheme No. 2

Severn Sub-Area's Home Defence Scheme No. 2 of 14 December 1940 and its associated appendices and amendments identified the additional defence sites presented in Table 5.13. The civilian infrastructure such as the ROC post and the coast guard stations were not armed, but undertook observation and reporting functions. The searchlight and anti-aircraft batteries created individual defence schemes for areas around their emplacements.

| Date | Name | Location | Cassini Ref. | Site Type | Source |
|----------|-----------------------|-------------------|--------------|-------------------------------|---|
| 14/12/40 | F2 | Llantwit Major | 415909 | ROC Post | SSA HDS No. 2, Appendix G |
| 14/12/40 | Llantwit Major | Llantwit Major | | HM Coast Guard Station | SSA HDS No. 2, Appendix I |
| 14/12/40 | Breaksea Point | Breaksea Point | | Auxiliary Coast Guard Station | SSA HDS No. 2, Appendix I |
| 14/12/40 | Monastery | Nash Manor | 400950 | Searchlight Emplacement | SSA HDS No. 2, Appendix J |
| 14/12/40 | Llancaldo [Llancadle] | Llancadle | 475903 | Searchlight Emplacement | SSA HDS No. 2, Appendix J |
| 14/12/40 | Cowbridge | Beaupre | 448954 | Searchlight Emplacement | SSA HDS No. 2, Appendix J |
| 14/12/40 | Boverton | N of Boverton | 420905 | Searchlight Emplacement | SSA HDS No. 2, Appendix J |
| 14/12/40 | St Donat's | St Donat's | 376901 | Searchlight Emplacement | SSA HDS No. 2, Appendix J |
| 27/02/41 | K1 | Boverton | 422896 | Heavy Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 2, Appendix K |
| 27/02/41 | K38 | Nash Manor | 410943 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 2, Appendix K(2) |
| 27/02/41 | K39 | Siginston | 414935 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 2, Appendix K(2) |
| 27/02/41 | K40 | Pwll-helyg | 407928 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 2, Appendix K(2) |
| 27/02/41 | K41 | Brynsych | 400923 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 2, Appendix K(2) |
| 27/02/41 | K42 | Six Wells | 399936 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 2, Appendix K(2) |
| 27/02/41 | K43 | Railway | 394927 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 2, Appendix K(2) |
| 27/02/41 | K44 | Tyn-y-cau | 390943 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 2, Appendix K(2) |
| 27/02/41 | K45 | Rectory | 397949 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 2, Appendix K(2) |
| 11/04/41 | CLO1/2 | Summerhouse Point | 435881 | Searchlight Emplacement | SSA HDS No. 2, Amendment No. 5, Appendix J |
| 01/06/41 | K30 | Flemingston | 452914 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 6, Appendix K |
| 01/06/41 | K31 | Eglwys Brewis | 461909 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 6, Appendix K |
| 01/06/41 | K32 | Beggars Pound | 460900 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 6, Appendix K |
| 01/06/41 | K33 | West Orchard | 453893 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 6, Appendix K |
| 01/06/41 | K34 | Batsley | 443889 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 6, Appendix K |
| 01/06/41 | K35 | Boverton | 430899 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 6, Appendix K |
| 01/06/41 | K36 | Fisher's Bridge | 431909 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 6, Appendix K |
| 01/06/41 | K37 | Picketston | 435914 | Light Anti-Aircraft Battery | SSA HDS No. 2, Amendment No. 6, Appendix K |

Table 5.13: Locations of defence sites cited in Severn Sub-Area's Home Defence Scheme No. 2 and subsequent amendments (TNA WO 166/1314).

Severn Sub-Area's 1942 war diary contained Amendment No. 12 to Home Defence Scheme No. 2, and Counter-Invasion Scheme No. 1 and its subsequent amending document. None of the documents contained lists of defence sites, other than the anti-aircraft, coast watching and ROC posts in the area. The documents' appendices provided policy statements on the use of mobile columns and the defence of airfields, but did not retain data on defence posts.

5.4.4.2 10 Battalion Glamorgan Home Guard Defence Scheme

This 'B' Company, 10 (Cowbridge) Battalion, Glamorgan Home Guard defence scheme was the sole identified defence scheme for the case study. It recorded defence sites (Table 5.14) and characterised the defending force (Table 5.15). The defence scheme was assessed as being of primary significance in the context of the case study, as it was the only example of its type identified, and of the thirty-five defence posts recognised, twenty-six (74%) were unique citations to the written defence scheme.

The defence scheme contained inherent weaknesses and contradictions. It named two different locations for the No. 2 and No. 3 platoon headquarters in Appendix A and Appendix C. As the Cassini grid references were not provided it did not prove possible to identify which location was correct or the reason for the difference between the two appendices. The Cassini grid reference for the 'B' Coy Signal Station at the Old Watch Tower, Boverton was erroneous and could not be located.

| Site | Location | Cassini Grid Ref | Source |
|---------------------------------|---|------------------|--------------------------|
| 10 Bn. HQs. & BHQs. | 44 High Street, Cowbridge | | Appendix A, C |
| 'A' Coy, 10 Bn. HQs. | 71 Eastgate Street, Cowbridge | | Appendix C |
| 'B' Coy, 10 Bn. HQs. & BHQs. | Town Hall, Llantwit Major | | Appendix A, C |
| No. 1 Pl, 'B' Coy, 10 Bn. HQs. | Town Hall, Llantwit Major | | Appendix A, C |
| No. 1 Pl, 'B' Coy, 10 Bn. BHQs. | Great House, Llantwit Major | | Appendix A |
| No. 2 Pl, 'B' Coy, 10 Bn. HQs. | Boverton Place or Boverton Castle | | Appendix A Appendix C |
| No. 2 Pl, 'B' Coy, 10 Bn. BHQs. | Boverton Castle | | Appendix A |
| No. 3 Pl, 'B' Coy, 10 Bn. HQs. | Stratford Café, St Athan or Co-op Shop, St Athan | | Appendix A Appendix C |
| No. 3 Pl, 'B' Coy, 10 Bn. HQs. | Three Horse Shoes Inn, St Athan | | Appendix A |
| 'C' Coy, 10 Bn. HQs. | Unemployed Hall, Llantrisant | | Appendix A |
| 'D' Coy, 10 Bn. HQs. | Llandow Aerodrome | | Appendix A |
| 'E' Coy, 10 Bn. HQs. | St Athan Aerodrome | | Appendix A |
| Cowbridge Rd Roadblock | Llantwit Major | 408909 | Appendix B |
| Wick Rd Roadblock | Llantwit Major | 406908 | Appendix B |
| Dimlands Rd Roadblock | Llantwit Major | 405904 | Appendix B |
| Boverton Roadblock | Boverton | 424900 | Appendix B |
| St Athan Roadblock | St Athan | 458894 | Appendix B |
| Searchlight post | Summerhouse, Boverton | 448949 | Appendix C |
| Fougasse emplacement | Gileston Rise | 459886 | Appendix C |
| McNaughton Tube | Colhugh Point | 398891 | Appendix C |
| McNaughton Tube | The Leys | 464877 | Appendix C |
| McNaughton Tube | Limpert Bay | 462878 | Appendix C |
| HM Coast Guard Llantwit Major | Coast Guard Station, Llantwit Major | | Appendix C |
| HM Coast Guard St Athan | Breaksea Point | | Appendix C |
| Royal Observer Corps Post | | 415909 | Appendix C |
| Minefield | Colhugh Point | 3989 | Appendix C |
| Minefield | Summerhouse Point, Boverton | 435830 | Appendix C |
| HG Explosive Shed | Cowbridge Road | 409908 | Appendix D |
| HG Explosive Shed | Boverton | 424898 | Appendix D |
| HG Explosive Shed | St Athan | 458897 | Appendix D |
| Battalion Signal Station | Stalling Down | 456954 | Appendix I |
| 'B' Coy Signal Station | Old Watch Tower, Boverton | 429000 | Appendix I |
| Vital Undertaking | Llantwit Major Telephone Exchange | | Appendix K |
| Vital Undertaking | St Athan Telephone Exchange | | Appendix K |
| 'B' Coy POW Collecting Station | Old Place Ward, Llantwit Major | 408907 | Appendix M |

Table 5.14: Locations of defence sites cited in 'B' Coy 10 Battalion, Glamorgan Home Guard Defence Scheme document, April 1943.

The description of roadblocks was inconsistent. It did not cite three additional roadblocks depicted on the defence scheme map, and cited two roadblocks that were not depicted. The text and map were not in direct conflict in terms of the numbers

and locations of the roadblocks, but they did not equate and this inconsistency introduced an element of doubt concerning use of the evidence.

| Defence positions | Pl. No. | Quota | BB | NP | LMG | HMG | F | StG | SmG | FT | Rifle | E.Y. Rifle |
|---|---------|----------------------|----|----|-----|-----|---|-----|-----|----|-----------------------------|------------|
| Roadblocks: Cowbridge Road, Wick, Dimlands Road; Mobile Section, Reserve Company; 10 OR in charge of CSM at Company HQs | No. 1 | 2 officers 100 OR | 2 | 3 | 2 | 1 | 0 | 14 | 1 | 0 | .300 x 51 .303 x 3 | 7 |
| Roadblock, Boverton; No. 2 Section Company Reserve | No. 2 | 1 officer 48 OR | 0 | 1 | 2 | 0 | 0 | 8 | 0 | 2 | .300 x 16 | 5 |
| Roadblock, St Athan; Canadian Pipe Mine | No. 3 | 1 officer 46 OR | 2 | 0 | 2 | 1 | 1 | 8 | 0 | 2 | .300 x 16 | 5 |

Table 5.15: Disposition of 'B' Company, 10 Battalion Glamorgan Home Guard troops and weaponry in April 1943 as described in Defence Scheme documentation [BB = Blacker Bombard; NP=Northover Projector; LMG=Light Machine Gun; HMG=Heavy Machine Gun; F=Fougasse; StG=Sten Gun; SmG=Smith Gun; FT=Flame Thrower; E.Y. Rifle= Rifle grenade launcher].

The scheme was published in 1943. The Home Guard was a well-equipped and trained force by this date, but the nature of the threat had changed from dealing with a potential invasion to nuisance and diversionary raids. It was questionable how much of the scheme and the defences therein could be projected back to earlier years of the war.

It could be argued that the defence scheme was a source of moderate rather than primary importance as it focused on the area between the airfields and the coast in a small part of the case study. This assessment contended that the defence

scheme area occupied an important location that an invading force attacking RAF St Athan from the coast had to cross. It was an important source, albeit rather late.

5.4.4.3 Airfield defence schemes

As the largest military installations in the case study, the station commanders of RAF St Athan and RAF Llandow approved Airfield Defence Schemes for extensive areas of land. They exercised local command of all available forces and influenced adjacent defence schemes throughout the case study.

The ORBs detailed in Table 5.16 were examined at TNA to determine whether airfield defence schemes were preserved for RAF St Athan and RAF Llandow. No airfield defence schemes were identified.

| Airfield | Document Title | Dates | Reference |
|--------------|--|-------------|-------------|
| RAF St Athan | Air Navigation School, Andover, became School of Air Navigation at Manston and St Athan; moved to Port Albert, Canada, in 09/40. | 09/19-09/40 | AIR 29/598 |
| RAF St Athan | No. 19 [Maintenance Unit], St Athan | 02/39-12/45 | AIR 29/979 |
| RAF St Athan | No. 32 [Maintenance Unit], St Athan | 08/39-12/45 | AIR 29/995 |
| RAF St Athan | 5 Air Stores Park including 2 Supply and Transport Section, Advanced Air Striking Force; formed at St Athan and moved to France 09/39. | 09/39-06/40 | AIR 29/781 |
| RAF St Athan | RAF Hospital, St. Athan. | 07/40-12/45 | AIR 29/944 |
| RAF St Athan | 31 Air Navigation School. Moved from St Athan to Port Albert (Canada) in 10/40. | 10/40-11/44 | AIR 29/600 |
| RAF St Athan | RAF Czechoslovak Depot. Moved to St Athan in 02/42. | 12/40-04/44 | AIR 29/495 |
| RAF St Athan | 4 School of Technical Training, Henlow and St Athan. | 01/41-12/49 | AIR 29/737 |
| RAF St Athan | 2850 Squadron RAF Regiment. Reformed in 06/43 at St Athan from 4216, 4266 and 4288 Anti-Aircraft Flights. | 04/42-10/43 | AIR 29/114 |
| RAF St Athan | 2955 Anti-Aircraft Squadron RAF Regiment. Formed at St Athan from 4154, 4158 and 4163 Anti-Aircraft Flights. | 06/43-04/45 | AIR 29/136 |
| RAF St Athan | 12 Radio School, St Athan. | 09/43-06/44 | AIR 29/726 |
| RAF St Athan | 14 Radio School, St Athan. | 06/44 | AIR 29/502 |
| RAF Llandow | No. 38 [Maintenance Unit], Llandow | 04/40-12/45 | AIR 29/1000 |
| RAF Llandow | 53 Operational Training Unit (OTU). Formed at Heston in 02/41. Moved to Llandow in 07/41 and Kirton-in-Lindsey in 05/43. | 02/41-05/45 | AIR 29/681 |
| RAF Llandow | 2847 (Anti-Aircraft) Squadron RAF Regiment (previously 847 Defence Squadron). Formed at Llandow in 02/42, then moved around other UK stations. | 12/42-12/45 | AIR 29/113 |
| RAF Llandow | RAF Station Llandow, later became 3 Overseas Aircraft Preparation Unit (OAPU). | 05/43-09/45 | AIR 29/472 |

Table 5.16: Operations Record Books for RAF St Athan and RAF Llandow preserved at The National Archives.

5.4.4.4 Minefields

Regular returns throughout October-November 1940 charted the installation of a minefield at Limpert Bay-Breaksea Point (Table 5.17). They recorded the presence of Mushroom and anti-tank minefields.

| Date | Location | Comment | Source |
|----------|--|--|---|
| 01/10/40 | N/A | No minefields laid, being laid or for recce completed in case study | <i>Mushroom Minefields Return</i> , 01/10/40, WO 199/37 |
| 16/10/40 | Limpert Bay and Breaksea Point 464870 to 462876 | Set No. 6 – 500 Mushroom mines laid or being laid in two or three rows to the south-east of the anti-tank blocks | <i>Return of Mushroom Minefields</i> , 16/10/40, WO 199/37 |
| 19/11/40 | Limpert Bay and Breaksea Point | In Serial 6 Limpert Bay and Breaksea point Anti-Tank Mines are being laid instead of Mushrooms | <i>Mushroom Minefields</i> , 19/11/40, WO 199/37 |
| 25/11/40 | Limpert Bay and Breaksea Point 463877 to 464874 | Set No. 1 – 500 A/T mines, Mk II laid or being laid | <i>Return of Anti-Tank Minefields</i> , 18/11/40, WO 199/37 |
| 30/11/40 | Limpert Bay and Breaksea Point 463877 to 464874 | Set No. 1 – 500 A/T mines, Mk II laid and completed | <i>Return of Anti-Tank Minefields</i> , 30/11/40, WO 199/37 |

Table 5.17: References to minefields within the St Athan-Llandow case study area, 1940 preserved at The National Archives.

Correspondence dated 19 November 1940 stated that ‘recent storms accompanied by unusually high tides have shown that certain sites which had been selected for these minefields have now been found to be unsuitable... [and] had to be modified’. The mushrooms at Limpert Bay-Breaksea Point were replaced with the A/T Mine G.S. Mk II version.

Beach minefields were cleared from 1944 and following clearance an official certificate was issued (WO 199/38). While some clearance certificates were preserved at TNA, that for Limpert Bay-Breaksea Point was not, so the date of final removal remains unknown.

5.4.4.5 Canadian pipe mines

The war diary for 179 Special Tunnelling Company, RE recorded that Nos. 1 and 3 Sections were ordered to move to South Wales Area on 9 May 1941 (WO 166/3655). Diary entries noted that there were very few regular troops in the area

and that the Home Guard undertook most defensive duties. Extracts of the Officer Commanding's monitoring visit reports are presented in Table 5.18.

| Date | Location | Comment | Source |
|----------|---|--|---|
| 12/07/41 | Tresilian Bay 389894 Col-Hugh Point 398891 Limpert Bay 462878 | Actual locations of work either in hand or projected | Canadian Pipe Obstacle, C.R.W.C. No. S/2943/G(O), 12/07/41, WO 199/52 |
| 17/11/41 | Col-Hugh Point Limpert Bay | Work had been completed on the 40ft obstacle at Col Hugh Point. A projected 30ft obstacle was to be installed at Limpert Bay | Memorandum No. 8: Visiting Sections, STC/SEC/P/9, 19/11/41, WO 166/3655 |

Table 5.18: References to Canadian pipe mines within the St Athan-Llandow case study area, 1941 preserved at The National Archives.

5.4.4.6 Obstruction of landing grounds

Given the German success of utilising transport aircraft and glider-borne troops to facilitate invasion in Belgium in 1940 and Greece in 1941, the obstruction of potential landing grounds in the UK was a significant concern (WO 199/336). HQ Western Command wrote to all Area Commands in May 1940 and instructed that:

‘All possible steps will be taken immediately... to make possible [aircraft] landing grounds other than recognised RAF and civilian aerodromes difficult or unusable, priority being accorded to open spaces within a few miles of really vital objectives [original emphasis].’ (Home Security, C.R.W.C. No.S/440(G), 30/05/40, WO 199/336).

This was achieved by sub-dividing possible landing areas so as to preclude a landing run of more than 250 yards through the positioning of old cars, farm machinery and wire fences on short poles.

A second wave of obstructing possible landing grounds commenced in February 1941 on landing sites within five miles of a RAF station. Twelve vulnerable

RAF stations were identified in Wales. The report confirmed that three possible landing grounds identified for RAF Llandow and four identified for RAF St Athan had all been obstructed, but did not cite the locations (Obstruction of Landing Grounds, C.R.W.C. No.S/1210/G(O), 26/02/41, WO 199/336).

5.4.4.7 Coast artillery

Although located outside of the case study, the Nell's Point coast artillery battery Fort Record Book contained a list of land targets which the battery's two six-inch guns could engage (Land Targets, undated, WO 192/321). Two targets were located within the case study (Table 5.19).

| Target | Location | Range (Yards) | Bearing |
|--------|--------------|---------------|---------------------|
| No. 1 | Limpert Bay | 13,000-10,500 | 270° 02' - 268° 13' |
| No. 2 | Thaw Estuary | 10,500-6,500 | 265° 45' - 264° 36' |

Table 5.19: Land targets for engagement by six-inch guns at Nell's Point.

5.4.4.8 Defence batteries

The 959 Defence Battery, RA war diary for 1940-41 (WO 166/2043) stated that the battery was present in the St Athan area from November 1940-April 1941 (Table 5.20). During this period it operated four six-pounder Hotchkiss gun emplacements that were tasked to fire across RAF St Athan's landing ground (Nos. 1 and 2 guns) and to command bridges over the River Thaw (Nos. 3 and 4 guns).

The Nos. 1 and 2 6-pdr Hotchkiss guns were replaced by 13-pdr guns, which were tasked with firing upon key road junctions around RAF St Athan. Operational

responsibility for Nos. 3 and 4 guns was transferred to Home Guard detachments after a brief period of training.

This documentary evidence was significant as it described the level of artillery defence for RAF St Athan and indicated their roles and targets. Much of this information was previously unknown. The war diary illustrated the trend identified in formation war diaries for the regular army to be replaced by the Home Guard once trained and competent during the first half of 1941.

| Date | Activity | Artillery emplacements |
|-------------|--|---|
| 22/11/40 | Battery relocated to St Athan | |
| 23/11/40 | Battery took over four 6-pdr Hotchkiss gun emplacements from 387 (QOY) Battery, RA | No. 1 Gun at St Athan 439897 No. 2 Gun at Eglwys Brewis 446907 No. 3 Gun at Old Mill 469893 No. 4 Gun at Gigman Mill 456931 |
| 30/11/40 | South Wales Area Defence Regiment renamed 14 Defence Regiment, RA | |
| 06/12/40 | Two 13-pdr guns stored at RAF St Athan | [Location unknown] |
| 14/01/41 | 13-pdr gun mounted next to No.1 6-pdr | |
| 20/01/41 | 13-pdr gun mounted next to No. 2 6-pdr | |
| 02-06/01/40 | 6-pdr guns at Nos. 1 and 2 removed and replaced by 13-pdr guns | |
| 11/03/41 | 10 Bn. Glamorgan HG trained on use of No. 4 6-pdr gun | |
| 14/03/41 | 10 Bn. Glamorgan HG took over No. 4 6-pdr gun | |
| 28/03/41 | No. 1 13-pdr gun given target co-ordinates | No. 1 Gun at 343850 189790 Target A1 at 346850 193340 Target A2 at 348130 190340 Target A3 at 347360 189330 Target A4 at 347626 188990 Target A5 at 345150 189700 to 345800 189800 Target A6 at 345920 191530 |
| 28/03/41 | No. 2 13-pdr gun given target co-ordinates | No. 2 Gun at 344580 190740 Target B1 at 342360 191560 Target B2 at 342290 191014 Target B3 at 341260 191520 Target B4 at 341390 191250 Target B5 at 341790 190940 Target B6 at 343270 190660 to 342740 190300 |
| 01/04/41 | 5 Bn. Glamorgan HG took over No. 3 6-pdr gun | |
| 02/04/41 | 959 Defence Battery, RA absorbed into 960 Defence Battery, RA | |
| 12/04/41 | 959 Defence Battery, RA disbanded | |

Table 5.20: Activities and artillery emplacements of the 959 Defence Battery, RA in case study area during 1940-41 as described in the unit's war diary.

5.4.4.9 Uninformative records

Table 5.21 lists the archival pieces at TNA that were examined, but found to contain no site evidence pertaining to the case study.

| Document Title | Dates | Reference |
|--|-------------------------------|------------|
| Construction of Concrete Pillboxes | August 1940 - July 1944 | WO 199/36 |
| Anti-tank Minefields: Clearance | February - August 1944 | WO 199/38 |
| Barbed Wire and Other Obstacles | August 1941 - November 1944 | WO 199/41 |
| Concrete Defences: Policy | July - September 1941 | WO 199/44 |
| Anti-tank Mines | October 1939 - June 1944 | WO 199/47 |
| Defence Works | June 1940 - April 1942 | WO 199/48 |
| Roadblocks: Hindrance to Traffic | June 1940 - July 1941 | WO 199/51 |
| Inundations: Flooding Schemes for Various Areas | May 1940 - January 1943 | WO 199/53 |
| Scheme of Anti-tank Obstacles for Defence of Great Britain | June 1940 - March 1943 | WO 199/54 |
| Beach Mines | June 1940 - July 1944 | WO 199/94 |
| Beach Defences: Scaffolding | December 1941 - November 1944 | WO 199/95 |
| Beach Defences: Scaffolding | January - March 1945 | WO 199/96 |
| Charting of Obstructions on the Foreshore | February 1943 - January 1945 | WO 199/103 |
| Roadblocks | May 1940 - October 1942 | WO 199/479 |
| Keeps and Fortified Villages, Nodal Points and Anti-tank Islands | September 1940 - October 1942 | WO 199/544 |

Table 5.21: Records examined at The National Archives that did not yield information for the St Athan-Llandow case study area.

5.4.5 Aerial photographic source evidence

The case study was the subject of infrequent wartime aerial photographic spatial and chronological coverage. Ten reconnaissance sorties were identified within the Central Register for Aerial Photography Wales imagery between 1940-46, totalling 152 prints (Tables 5.22 and 5.23).

| Year | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 | 1946 | Totals |
|---------------------|------|------|------|------|------|------|------|------|--------|
| No. of RAF Frames | 0 | 31 | 0 | 81 | 0 | 0 | 24 | 4 | 140 |
| No. of USAAF Frames | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 12 |
| Totals | 0 | 31 | 0 | 81 | 0 | 12 | 24 | 4 | 152 |

Table 5.22: Summary of quantities of aerial photographic frames collected for St Athan-Llandow case study area by year and by source.

| Location | Type | WG APU Reference | Sortie | Date | No. of Frames |
|-----------------|----------|------------------|-------------------|------------|---------------|
| Case study area | Vertical | M1281 | US 7PH GP Loc 212 | 08/03/1944 | 4 |
| RAF St Athan | Vertical | M2267 | RAF HLA/429 | 26/03/1942 | 19 |
| RAF St Athan | Vertical | M2330 | RAF HLA/495 | 24/04/1942 | 9 |
| RAF St Athan | Vertical | N/A | RAF 106 G UK 844 | 25/09/1945 | 11 |
| RAF St Athan | Vertical | N/A | RAF CPE UK 1871 | 04/12/1946 | 1 |
| RAF Llandow | Vertical | M2267 | RAF HLA/429 | 26/03/1942 | 16 |
| RAF Llandow | Vertical | M2330 | RAF HLA/495 | 24/04/1942 | 5 |
| RAF Llandow | Vertical | M1281 | US 7PH GP Loc 212 | 08/03/1944 | 8 |
| RAF Llandow | Oblique | M2070 | 106G/LA93 | 05/01/1945 | 6 |
| RAF Llandow | Vertical | N/A | RAF CPE UK 1871 | 04/12/1946 | 3 |
| Limpert Bay | Oblique | MWO 14 | RAF Unknown | 20/06/1940 | 5 |
| Limpert Bay | Vertical | MWO 13 | RAF Unknown | 12/10/1940 | 9 |
| Limpert Bay | Vertical | M3048 | RAF S/739 | 15/01/1942 | 9 |
| Limpert Bay | Vertical | M328 | RAF 109/1 | 30/08/1942 | 4 |
| Limpert Bay | Vertical | N/A | RAF 106 G UK 844 | 25/09/1945 | 7 |
| Llantwit Major | Vertical | MWO 13 | RAF Unknown | 12/10/1940 | 6 |
| Llantwit Major | Vertical | M3048 | RAF S/739 | 15/01/1942 | 6 |
| Llantwit Major | Vertical | M328 | RAF 109/1 | 30/08/1942 | 5 |
| Tresilian Bay | Oblique | MWO 14 | RAF Unknown | 20/06/1940 | 1 |
| Tresilian Bay | Vertical | MWO 13 | RAF Unknown | 12/10/1940 | 2 |
| Tresilian Bay | Vertical | M3048 | RAF S/739 | 15/01/1942 | 2 |
| Tresilian Bay | Vertical | M328 | RAF 109/1 | 30/08/1942 | 2 |
| St Donat's | Oblique | MWO 14 | RAF Unknown | 20/06/1940 | 5 |
| St Donat's | Vertical | MWO 13 | RAF Unknown | 12/10/1940 | 3 |
| St Donat's | Vertical | M3048 | RAF S/739 | 15/01/1942 | 2 |
| St Donat's | Vertical | M328 | RAF 109/1 | 30/08/1942 | 2 |
| Total | | | | | 152 |

Table 5.23: Summary of aerial photographic evidence for St Athan-Llandow case study area.

The majority of the sorties were vertical in character. The airfields and their immediate environs comprised 53.9% of the subject coverage, coastal attention constituting the remainder. It was noticeable that except for two sorties recording the coast in June and October 1940, the majority of photographic evidence was from 1942 onwards. In contrast to the other two cases, the later coverage was not dominated by the USAAF.

5.4.5.1 Coverage

Over 95% of the case study was subjected to coverage during at least one photographic event. Only small areas at Tair Onen in the north-east corner and South Lodge and the sea around the caisson in the south-east corner of the case study were not subjected to any aerial photography. The coastline was the most frequently recorded area.

There was no aerial photographic coverage in the case study during 1941 or 1943. The 1942 coverage extended across approximately 80% of the case study area except for the Stalling Down, Llantwit Major and St Athan village areas. The USAAF coverage in 1944 provided almost complete coverage of the case study.

5.4.5.2 Wartime low-level oblique

Only two sorties recorded low-level oblique photography, comprising 11.2% of the total. Discrete areas around St Donat's and Limpert Bay-East Aberthaw were recorded in June 1940 (MWO14). No specific anti-invasion defences were identifiable at Breaksea Point, but the RASC Camp at Gileston was visible. A large number of military tents were visible at St Donat's Castle, together with possible defensive structures in the fields to the north and east. The pillboxes at Tresilian Bay had not been constructed.

The oblique coverage of RAF Llandow in January 1945 (M2070) captured a lot of detail related to the airfield, including a number of previously known defence posts, but did not lead to the identification of any new defences.

5.4.5.3 Wartime vertical (all scales)

The entire coast line in the case study was subjected to vertical coverage in October 1940 (MWO13). The photographs captured the coastal crust defences in construction and early completion. The pillboxes on the cliffs on either side of Tresilian Bay were recorded, together with the searchlight battery north of St Donat's Castle. A further searchlight emplacement was visible at Summerhouse Camp. The pillbox and anti-tank block alignment at Limpert Bay had been fully constructed by October. Frame A19 showed a mechanical excavator digging the anti-tank ditch immediately west of Ocean House Hotel. The anti-tank ditch at the west end of the anti-tank block alignment had not been excavated. The former lime kiln converted into a machine gun post was clearly defined to the north-west of Ocean House Hotel and the now ruined octagonal-shaped pillbox on the beach was visible as a bright spot beyond the south end of the anti-tank ditch.

The January 1942 sortie of the coastal area (M3048) was taken through haze and light cloud, which obscured much of the finer detail. The frames showed the completed section of anti-tank ditch from the west end of the anti-tank block alignment to Summerhouse Point. The emplacements at Summerhouse Point and St Donat's Castle had been removed. St Donat's Castle was recorded again at the end of the same month (M3051), but no further defence posts were identified.

An extensive sortie around the central and northern parts of the case study in March 1942 (M2267) identified sets of simple earthwork anti-landing obstacles on Flemingston Moor (frame 6029) and east of Nash Manor (frame 6057). The HAA battery at Boverton was also captured (frame 6045). A further sortie in April (M2330)

revealed a third set of anti-landing obstacles south-east of Ysgubor y Parcau (frame 1012).

Of the four vertical frames taken by the USAAF in March 1944 (M1281) three of the frames suffered from over-exposed elements, but frame 1003 provided almost complete coverage of the case study area. Taken from 30,000 ft. through haze the resolution was not sufficient to identify small defence works, although the airfields were captured well.

5.4.5.4 Operation Revue (1945-1952)

The vertical Operation Revue imagery covered the entire case study, but additional defence sites were not identified. The coverage of Limpert Bay in September 1945 (RAF 106 G UK 844, frames 3094-3100) appeared to show the eastern anti-tank ditch by Ocean House Hotel in a backfilled state, indicated by a bright white linear anomaly indicative of freshly disturbed sand.

5.4.6 Cartographic source evidence

Seven collections of cartographic evidence were identified in the case study (Table 5.24). The majority were preserved at TNA, but pieces were located in other local and national collections. The defensive arrangements for RAF St Athan and the surrounding area were best evidenced, particularly by information held in the 'B' Company, 10 (Cowbridge) Battalion, Glamorgan Home Guard Defence Scheme plan and the four large-scale sheets of the Air Ministry Works Directorate's No. 19 Works

Area plan SA.2215-8 for RAF St Athan. Less evidence for RAF Llandow and the coastal defences was identified. Most identified maps were viewed.

| Source | Title | Date | No. of Plans | Reference |
|--------------------------------------|---|---------|--------------|---------------------|
| RAF Museum | Air Ministry Record Site Plans | 1945 | 3 | N/A |
| The National Archives | Air Ministry Works Directorate's No. 19 Works Area plans | 1942-45 | 2 5 | BD 54/6 BD 54/15 |
| Llantwit Major Local History Society | 'B' Company, 10 (Cowbridge) Battalion, Glamorgan Home Guard Defence Scheme plan | 1943 | 1 | N/A |
| Welch Regiment Museum, Cardiff | Annotated One-Inch Map of Great Britain, Cardiff Sheet 154 | Unknown | 1 | N/A |
| Personal collection | GSGS3906 1:25,000 maps | 1943 | 2 | N/A |
| Personal collection | GSGS3907 1 inch to 1 mile maps | 1942 | 1 | N/A |

Table 5.24: Summary of cartographic evidence identified for St Athan-Llantwit Major case study area.

5.4.6.1 Air Ministry Record Site Plans

A number of measured record site plans relating to the RAF airfields were identified at TNA (Table 5.25) and the RAF Museum (Table 5.26). The plans from the former were preserved in Welsh Office files and were produced by the Air Ministry Works Directorate's No. 19 Works Area depot at St Mellons, Cardiff. They pre-dated the better known series of generic Air Ministry plans preserved at the RAF Museum.

The LW.902 and LW.903 plans for RAF Llandow and its dispersed sites pre-dated the generic Air Ministry plans 5098/45 and 5099/45 by two months and contained the same cartographic information.

| Title | Date | Scale | Source | Notes |
|--|----------|----------------|-----------------------------|---|
| St Athan: Location Plan | 21/11/42 | 6ins to 1 mile | SA.2076 [TNA Ref. BD 54/15] | Depicted location and boundary of airfield and dispersed sites. |
| St Athan: Record Site Plan Sheet No. 1 | 05/44 | 1:2,500 | SA.2215 [TNA Ref. BD 54/15] | One of four plans. Covered West Camp, the landing ground, 'C' Site and 'D' Site. Included schedule of buildings. Depicted 12 gun posts at West Camp and 1 gun post at 'D' Site. |
| St Athan: Record Site Plan Sheet No. 2 | 05/44 | 1:2,500 | SA.2216 [TNA Ref. BD 54/15] | One of four plans. Covered East Camp, Site 'B', Communal Site, Site Nos. 1 and 2. Included schedule of buildings. Depicted 20 gun posts on East Camp and 1 gun post at Communal Site. BHQ located S of main East Camp entrance. |
| St Athan: Record Site Plan Sheet No. 3 | 05/44 | 1:2,500 | SA.2217 [TNA Ref. BD 54/15] | One of four plans. Covered Site 'A' and the R&D Park. Included schedule of buildings for Sheets Nos. 3 and 4. Depicted 1 gun post on 'A' Site and 1 gun post at R&D Park. Depicted 3 gun posts around the BHQ, but not the BHQ site itself. |
| St Athan: Record Site Plan Sheet No. 4 | 05/44 | 1:2,500 | SA.2218 [TNA Ref. BD 54/15] | One of four plans. Covered the dispersals area north of Llanmaes. |
| Llandow: Record Site Plan. Aerodrome Site | n.d. | Unknown | LW.873 | Cited in LW.902, but drawing not seen. |
| Llandow: Record Site Plan. Aerodrome Site (superseded Drg. No. LW.873) | 04/10/45 | 1:2,500 | LW.902 [TNA Ref. BD 54/6] | Depicted locations and extent of airfield site. 3 pillboxes, 3 Pickett-Hamilton forts and Type 11008/41 Battle Headquarters depicted. |
| Llandow: Layout of Dispersed sites | N.d. | Unknown | LW.872 | Cited in LW.903, but drawing not seen. |
| Llandow: Layout of Dispersed sites (superseded Drg. No. LW.872) | 29/09/45 | Unknown | LW.903 [TNA Ref. BD 54/6] | Depicted 13 dispersed sites, but no defence posts. |

Table 5.25: Summary of cartographic evidence produced by the Air Ministry Works Directorate's No. 19 Works Area identified for RAF St Athan and RAF Llandow at The National Archives.

It would appear that the plans drawn up by No. 19 Works Area depot and preserved at TNA were published as generic Air Ministry plans, before being transferred to the RAF Museum. Plans LW.902 and LW.903 superseded earlier drawings, but they were not located.

| Title | Date | Scale | Reference | Notes |
|--|---------------|------------|-----------|--|
| St Athan: Record Site Plan | Unknown | Not stated | 96&97/45 | Scaled plan. Depicted extent and boundary of airfield and disperse sites. |
| St Athan [title unknown] | Unknown | Unknown | 4360/46 | Not seen: content unknown. |
| St Athan [title unknown] | Unknown | Unknown | 4369/46 | Not seen: content unknown. |
| St Athan [title unknown] | Unknown | Unknown | 4370/46 | Not seen: content unknown. |
| Llandow: Record Site Plan. Airfield Site | November 1945 | 1:2,500 | 5098/45 | Scaled plan. Depicted locations and extent of airfield site. 3 pillboxes, 3 Pickett-Hamilton forts and Type 11008/41 Battle Headquarters depicted. |
| Llandow: Record Site Plan. Dispersed Sites | November 1945 | 1:2,500 | 5099/45 | Scaled plan. Depicted 13 dispersed sites, but no defence posts. |

Table 5.26: Summary of cartographic evidence identified for RAF St Athan and RAF Llandow at the RAF Museum.

Both sets of record site plans for the airfield and dispersed sites retained their building schedules, but did not offer any additional information. No defence posts were depicted on the dispersed sites plans, and only seven defence posts were depicted on the airfield record site plans. These comprised three machine gun posts (West Site Building No. 76, Site 'A' Building No. 130 and Site 'D' Building No. 91), the Type 11008/41 Battle Headquarters building and three Pickett-Hamilton forts (West Site Buildings Nos. 79-81).

The RAF Museum was known to retain a number of plans for RAF St Athan, but because it remains an operational site only one plan was released on request. Of unknown date, it was an amalgam of two earlier 1945-dated plans, which were not seen. This plan was of limited use as although the buildings depicted were numbered it lacked the schedule of buildings. Buildings could not be identified,

although the identity of three structures were confirmed at locations known to be occupied by extant pillboxes.

The three 1946-dated Record Site Plans held by the RAF Museum were not released. The large linen-backed Air Ministry plan of the airfield of unknown date and retained by Defence Infrastructure Organisation at MOD St Athan was not seen. The content of these plans was not considered in this research.

The identification of five plans relating to RAF St Athan in Welsh Office files preserved at TNA was fortuitous, as they made up for deficiencies in other cartographic sources. The series did not appear to have been identified by other aviation researchers and the content was presented here for the first time. A locational plan did not retain any defence post information. Given the large size of RAF St Athan the airfield was covered by a series of four large 1:2,500 plans. The schedule of buildings and structures was preserved, allowing confident identification.

The plans described a level of defence post provision that was suspected, but previously unevidenced by any other source. The locations of thirty-nine 'gun posts' (denoted by 'G.P.') were illustrated, comprising a ring of posts around the boundary perimeter together with a number of posts amongst the dense concentrations of buildings on East and West Camps. The Pickett-Hamilton forts were not illustrated.

The known Type 11008/41 Battle Headquarters was not shown, but a second Battle Headquarters (local Drg. No. SA.2063; building No. 13) was depicted south of the main East Camp entrance, suggesting that the original structure had been abandoned.

The plans were published late in the war and illustrated the 1944 defence arrangements. It was uncertain to what extent this layout represented earlier phases of defence provision. Some defence posts were located at positions known to have existed at earlier periods through the survival of archaeological and aerial photographic evidence, but many others were not and their dates of construction, occupation and abandonment, and their constructional detail remain unknown.

5.4.6.2 'B' Company, 10 Battalion, Glamorgan Home Guard plan

The only identified defence plan was that attached to the 'B' Company, 10 Battalion, Glamorgan Home Guard Defence Scheme of April 1943 (see Plate 5.1). Preserved in the Llantwit Major Local History Society archives it comprised a pen sketch that had been traced from a contemporary map. It depicted the road and railway network for Llantwit Major and the villages of Boverton and St Athan. Annotations marked the defence posts and roadblocks. A key recorded the weapon types, map references, platoon allocations and annotations (Tables 5.27-29).

A wide range of different types of weaponry were described, but this undated sketch plan did not contain all of the defensive provision for the area, as additional information regarding minefields etc. was contained in the defence plan document itself. Conversely, the defence scheme sketch plan identified eight roadblocks compared to the five listed in Appendix 'B' of the Defence Scheme. Each source identified a range of new defence posts, but the overall totality and an understanding of the map's date was only achieved by using the sources in a complimentary fashion.

| Pl. No. | Map Ref. | Location | Map Marking | Designation | Remarks |
|---|----------|----------------|-------------|---|--|
| 1 | 409908 | Llantwit Major | 1 | No 1 Platoon Battle HQs | Great House, Cowbridge Rd. 1 Blacker bombard |
| 1 | 408910 | Llantwit Major | X2 | Roadblock | With defence post and trip wire |
| 1 | 407909 | Llantwit Major | 3 | LMG Lewis | Under control of above detachments |
| 1 | 406908 | Llantwit Major | 4 | 3 Northover Projectors with slit trench | Covering Wick Road approach |
| 1 | 406906 | Llantwit Major | 5 | Browning HMG | Covering open ground to west |
| 1 | 407904 | Llantwit Major | 6 | 2 Blacker Bombards | Covering road junctions |
| 1 | 409903 | Llantwit Major | 7 | Mobile Smith Gun | Behind Company HQs with reserve mobile section |
| 1 | 409890 | Llantwit Major | 8 | Ham-Colhugh crossroads | Unmanned second point of defence |
| 1 | 413903 | Llantwit Major | 9 | Station Yard, Boverton Road | Unmanned second point of defence |
| 1 | 412905 | Llantwit Major | 10 | Railway Bridge, Llanmaes Road | Unmanned second point of defence |
| Roadblocks were also depicted at the north side of the railway bridges at Downcross covering the two roads leading northwards | | | | | |

Table 5.27: No. 1 Platoon defence post information contained within key of 'B' Coy 10 Bn Glamorgan Home Guard Defence Posts sketch plan, April 1943.

| Pl. No. | Map Ref. | Location | Map Marking | Designation | Remarks |
|--|----------|----------|-------------|---------------------|--|
| 2 | 423900 | Boverton | 1 | Flame thrower | Covering approaches to roadblock |
| 2 | 424899 | Boverton | 2 | LMG Lewis | Covering open ground to west |
| 2 | 425899 | Boverton | 3 | LMG Lewis AA | Covering Boverton Road and cross roads |
| 2 | 425899 | Boverton | 4 | Northover Projector | Covering cross roads |
| Roadblocks were also depicted at the east end of Llantwit Road west of St Athan Halt bridge, at the south end of Eagleswell Road and Boverton Road west of the river bridge. | | | | | |

Table 5.28: No. 2 Platoon defence post information contained within key of 'B' Coy 10 Bn Glamorgan Home Guard Defence Posts sketch plan, April 1943.

| Pl. No. | Map Ref. | Location | Map Marking | Designation | Remarks |
|---|----------|----------|-------------|--------------------|---|
| 3 | 458895 | St Athan | 1 | Platoon Battle HQs | Pillbox covering roadblock |
| 3 | 459893 | St Athan | 2 | 2 Blacker Bombards | Covering the cross roads |
| 3 | 459893 | St Athan | 3 | Browning HMG | Covering open ground to east |
| 3 | 458892 | St Athan | 4 | LMG Lewis | Covering cross roads and approach south |
| 3 | 459890 | St Athan | X5 | Roadblock | Covered by rifle section at 4 |
| 3 | 458888 | St Athan | 6 | Fougasse | Operated from X5 |
| Roadblocks were also depicted at the north end of Gileston Road by the Methodist Church, St Athan and the west end of Llantwit Road, Higher End | | | | | |

Table 5.29: No. 3 Platoon defence post information contained within key of 'B' Coy 10 Bn Glamorgan Home Guard Defence Posts sketch plan, April 1943.

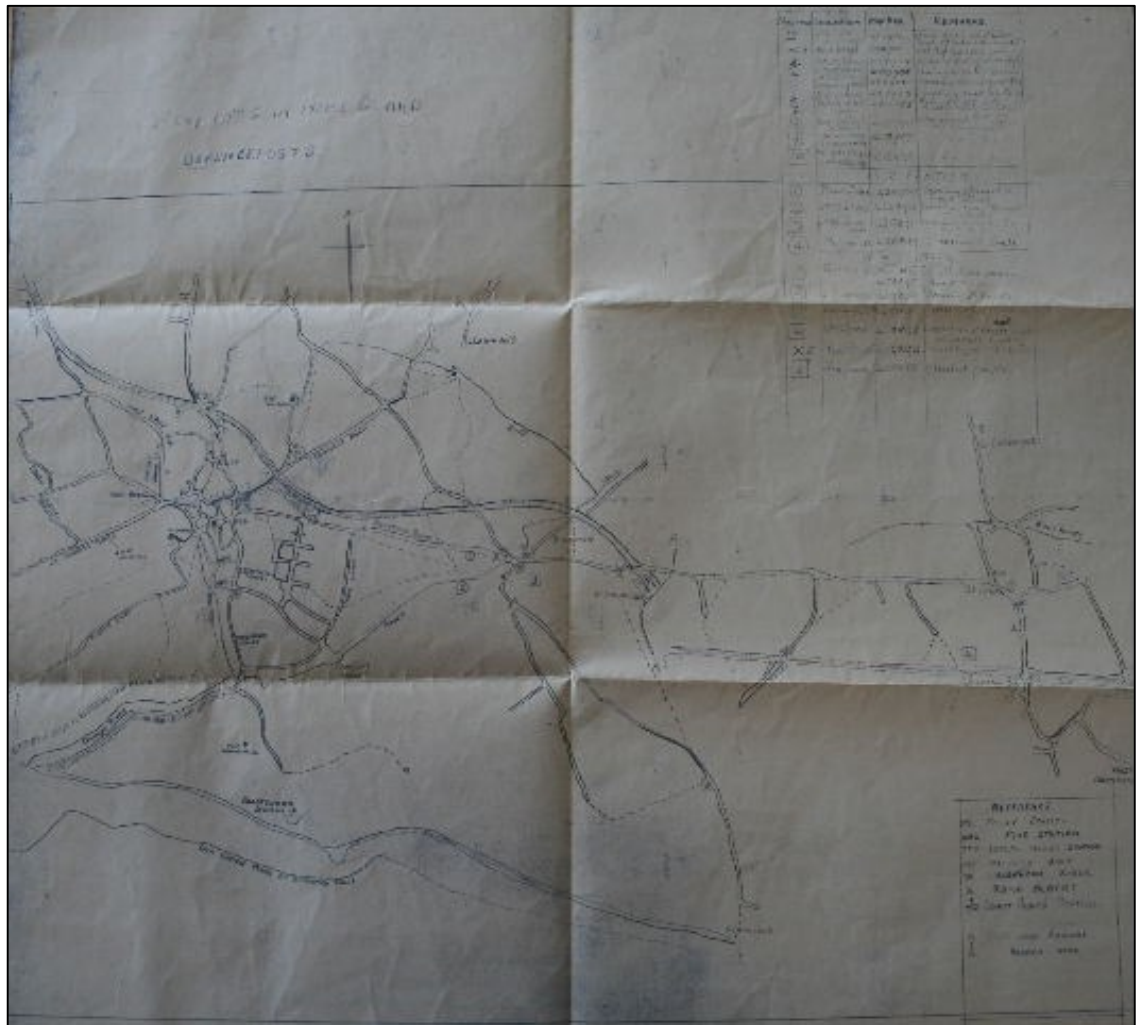


Plate 5.1: Defence Posts sketch plan from 'B' Coy, 10 Bn Glamorgan Home Guard Defence Scheme, April 1943.

5.4.6.3 Welch Regiment Museum Home Guard Battalion areas plan

The archive of the Welch Regiment Museum at Cardiff Castle (now at Brecon Barracks) held an undated One-Inch Map of Great Britain, Cardiff Sheet 154 annotated with the Glamorgan Home Guard battalion areas. It demonstrated that the bulk of the case study area was occupied by the southern portion of the 10 (Cowbridge) Battalion, Glamorgan Home Guard. The area to the west of an approximate line north from Tresilian Bay via the railway along the west side of RAF Llandow was occupied by the 3 (Bridgend) Battalion, Glamorgan Home Guard. The area to the east of the river Thaw from the coast north as far as Gigman Mill and then north-east to St Nicholas was occupied by the 5 (Barry) Battalion, Glamorgan Home Guard.

The plan was the sole example that provided information regarding the military organisational structure for the case study. Although it was an important survival its significance should not be over-stated as it was not dated and had lost its specific historical context.

5.4.6.4 War Office Cassini mapping

The fourth major collection of cartographic evidence comprised the GSGS3906 1:25,000 and GSGS3907 one-inch to one mile (1:63,360) scale maps. A complete series of both sets of mapping was identified for the case study (Table 5.30). None of the individual map sheets were annotated with any form of defensive depiction and other than providing geographical context their chief importance was in facilitating the identification of the locations of defensive structures cited using the

Cassini grid overlay in registered files at TNA and Home Guard records at the Llantwit Major Local History Society.

| Sheet No. | Title | Series | Scale | Edition | Notation |
|-----------|--------------------|----------|----------|-------------------------------------|----------------------|
| 32/18 NE | [Cowbridge] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | N/A |
| 32/18 SE | [St Athan] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | 3070/5/43/14 RE/(45) |
| 109 | Pontypridd & Barry | GSGS3907 | 1:63,360 | War Revision 1940 | WO 10,000/2/42.A |

Table 5.30: Summary of GSGS3906 and GSGS3907 maps identified in case study area.

5.4.6.5 Missing plans

Cartographic research for this case study identified relatively few maps, plans or sketches. This was unexpected given the presence of two large airfields, the complex coastal defences, and the presence of static camps that would have required specific defence schemes. It was routine military procedure for mapping to be produced to record all manner of general and specific defence arrangements. This absence must be the result of specific disposal and/or archival accessioning policies. While every war diary and ORB that could be located was searched for relevant cartographic evidence, there is a strong possibility that further mapping survives unidentified in archives or private collections.

5.5 Contribution and role of evidential sources

This section analyses the value, role and contribution of the evidential sources.

5.5.1 Archaeological evidence

| Type | Value | Role | Major + contribution | Major - contribution |
|------------------------------|--------|--|---|--|
| GGAT HER | Medium | Moderate | Identified a reasonable number of defence sites; Provided a summary of the subject as understood by the regional curatorial body | Did not record many obvious defence structures known from other sources; Illustrated how little previous research had been undertaken |
| RCAHMW NMRW (incl. DoB data) | Medium | Moderate | Identified a reasonable number of defence sites; Provided a summary of the subject as understood by the national curatorial body; Incorporated the results of the DoB project | Did not record many obvious defence structures known from other sources; Illustrated how little previous research had been undertaken |
| Rapid field observation | High | Primary role where visible resource survived (buried resource potential unknown) | Identified second highest number of new defence sites from all categories of source evidence; Surviving remains provided unique information not available elsewhere | Constrained by extensive clearance; Constrained by access issues; Clear chronological, spatial and site type bias in results |

Table 5.31: Summary of value, role and contribution of archaeological evidence for the St Athan-Llantwit Major case study area.

Table 5.31 summarises the value, role and positive and negative contributions of the archaeological evidence. Earlier archaeological reconnaissance had identified a reasonable number of defence sites. Given the close proximity of the two airfields

and the known coastal crust defences it was surprising that the area had not been the focus of greater archaeological research. Field observation associated with this research identified a further thirty-six defence posts. Collectively, archaeological evidence contributed the second highest number of new defence site identifications.

Archaeological fieldwork was a primary source of new defence site identification, but successful research could not rely on the sole use of archaeological evidence to identify the original anti-invasion defence site population. Many of the hardened defence sites had been comprehensively demolished and cleared following disuse. The fieldworks had either been marked out but not excavated, or had been excavated and backfilled as impediments following disuse. These post-depositional factors meant that these structures could not be recognised during the observation survey.

Field observation confirmed that the Defence of Britain project had a minor impact within the case study and that many visible defence sites were not observed. The defence provision inland away from the coastal crust defences and the airfields and in urban areas remained poorly understood and it was not certain whether this reflected an original lower density of defence sites, aggressive post-depositional factors or poor survey methodology.

Where defence sites survived, the archaeological evidence took on a primary role in terms of its ability to provide a physical constructional and spatial expression of the defence site by providing a level of detail and comprehension rarely obtainable from the other source types. In this case study it was clear that archaeological

evidence had to be combined with other forms of evidence in order to successfully identify the maximum number of defence sites.

5.5.2 Primary documentary evidence

| Type | Value | Role | Major + contribution | Major - contribution |
|------------------------|-------|------------|---|--|
| TNA: admin war diaries | High | Primary | Strategic overview; Operation Instructions; location lists | Lack of RAF and Naval files; Lack of earlier content; Lack of Sector and Garrison war diaries |
| TNA: unit war diaries | High | Primary | Operational data; Identification of units and formations in the case study area; Identification of site locations & dates | Identification of the unit at a specific location & time; Identification of the units responsible for building specific defence works |
| TNA: registered files | High | Primary | Detailed data for specialist defence works | Many files did not include data relevant to case study area |
| Local History Society | High | Primary | Source of unique information detailing type and locations of defence posts | Only available for one HG company for 1943; earlier and wider provision unknown |
| Local Record Offices | Low | Negligible | Brief contextual | Lack of data for case study |

Table 5.32: Summary of value, role and contribution of primary documentary evidence for the St Athan-Llantwit Major case study area.

An abundance of war diaries and registered files was identified and examined at TNA, but the overall range and extent of the documentation was found to be strongly biased in terms of period, scope and geographical coverage (Table 5.32). The documentary sources were important in combination with each other, but this collective strength did not make up for the absence of other key types of documentation.

The documentation provided a partial understanding of the military administrative and operational organisation arrangements from 1939 to 1942. While the establishment of a limited narrative must be considered a significant success in contrast to the previous lack of any description, it was recognised that there was considerable opportunity for future enhancement of the arrangements.

The research of documentary sources achieved a good understanding of the dates and roles of the regular army formations and units present and/or with responsibilities within the case study. The data facilitated understanding of detailed nuances such as the division between field force and static troops and the trend through time whereby regular forces handed over responsibility for defence to Home Guard units and were required to function in a counter-attack role from increasingly distant geographical locations. It was anticipated that further research would refine this narrative further.

In contrast the role, development and territorial responsibilities of the Home Guard units was not satisfactorily determined from the documentary sources examined. The key source identified in the archives of the Llantwit Major Local History Society was dated April 1943 and it was uncertain how far back the detail in the defence scheme could be projected. A greater understanding of the three Home Guard battalions present within the case study would be beneficial.

The 'B' Company, 10 Battalion Glamorgan Home Guard defence scheme recorded a significant number of newly identified defence sites located within the area between the coastal crust defences and the airfield perimeter defences. Unfortunately the Home Guard defence site data could not be integrated together

with the coastal crust and airfield defence data, as the chronological span differed.

The presence of a sophisticated defence scheme in 1943 could not be taken to infer elements of the scheme in 1940-41.

The most significant weakness identified within the documentary sources was the absence of the defence schemes for the coastal crust and airfield ground defences between mid-1940 and the end of 1942. As the most important components of the regional defence scheme within the case study the lack of this documentation meant that the number, extent and role of the defence posts could not be identified. Similarly, their tactical intention was not clear, although the brief references preserved within the Western Command and South Wales Area war diaries and the coast artillery and defence battery documentation hinted at the complexity of the arrangements.

5.5.3 Aerial photographic evidence

| Type | Value | Role | Major + contribution | Major - contribution |
|-------------------------------|-----------------|--|--|---|
| Wartime low-level oblique | Low | Usually non-contributory, but a primary role where present | Where present can provide high levels of detail and 3D perspective | Significant lack of spatial and chronological coverage |
| Wartime vertical (all scales) | High - Moderate | Primary source of evidence & context | Almost complete spatial coverage. Sole source for identifying some defence posts or characterising extent of part destroyed defences | Lack of chronological coverage Not able to capture small defence works |
| Operation Revue (1945-1952) | Moderate | Important retrospective source | Complete coverage for case study area | Too late – major post-War reconstruction underway |

Table 5.33: Summary of value, role and contribution of aerial photographic evidence for the St Athan-Llantwit Major case study area.

Aerial photographic sources were highly variable in their role and contribution depending on their type, date, quantity, quality and coverage (see Table 5.33). Early wartime (1940-41) coverage of the case study was extremely limited and restricted to coastal areas prior to anti-invasion defence construction. This type of evidence was of low value and made a minor contribution. Few areas were photographed on more than one occasion, limiting the evidence type's ability to aid phasing and dating.

Wartime oblique photography, with the advantage of being taken from low altitudes and offering the prospect of unrivalled detail, made a negligible contribution, constrained by the lack of coverage. New sources identified in the future may improve the value, role and contribution of this evidence type.

The vertical photography was the most commonly occurring and extensive type and made important contributions for a number of defence site types either in a unique or complementary supporting role.

It was the unique source for identifying the presence, extent and construction of the anti-tank ditches at Limpert Bay. It was the sole authority for identifying the location, extent and form of anti-landing obstacles in the case study, particularly as these features were quickly backfilled.

It was the only source to identify the original location, form, complement and extent of the anti-tank block alignment and pillboxes at Limpert Bay, and demonstrated that the extant remains were considerably remodelled. Aerial photography also provided the spatial layout for the HAA battery at Boverton, otherwise only known from documentary sources.

There were a range of defence site types that the aerial photography did not identify, despite the defences being known to have been constructed. These included minefields and fieldworks. The resolution of the photography was insufficient to be able to identify small individual fieldworks and this must be accepted as a limitation of this form of evidence. Larger structures such as pillboxes were hard to detect, even when their presence was known on the ground. Pillboxes tended to display most clearly when the upper surfaces were depicted as white tonal 'spots' that contrasted with their surroundings or stood proud and cast a shadow.

The later wartime American vertical photography was often captured from higher altitudes in order to gain a wider field of view and while utilising improved technology, the output was not found to offer any particular advantage in use, other than covering most of the case study. Despite careful examination additional defence structures were hard to identify. The post-war RAF vertical photography offered the capacity to be more useful as it was taken from lower altitudes facilitating better image resolution, but its contribution was limited as it recorded post anti-invasion defence landscapes after many of the defences had been cleared away.

For some defence posts, this source of evidence was fundamental, while for others that were known to have been built the method was unresponsive. This form of evidence was akin to geophysical survey results and must be treated with the same caveats. It was considered that aerial photographic evidence would have to be present in much greater spatial and chronological quantities in order to assume a more significant role for this case study.

5.5.4 Cartographic evidence

| Type | Value | Role | Major + contribution | Major - contribution |
|---|----------|--------------|---|---|
| GSGS3906 (1:25,000) | High | Enabling | Could not locate defence sites in documents without this source | Hard to obtain; Not annotated with defence sites or military administrative boundaries |
| GSGS3907 (1 inch to 1 mile) | Low | Contextual | Provided geographical context | Scale too small to plot sites accurately |
| 'B' Company, 10 (Cowbridge) Battalion, Glamorgan Home Guard Defence Scheme 'Defence posts' sketch plan | High | Primary | Precise site location and informative annotations; Included information not available in Defence Scheme document | Very limited spatial and chronological scope; Did not contain all of the defence post information in the Defence Scheme document |
| RAF Museum Air Ministry Record Site Plans | Mixed | Variable | 'As built' evidence of defence posts cited on plans | Chronologically late; a marked tendency not to record presence of defensive posts |
| TNA AMWD Record Site Plans | High | Primary | The key known source for identifying inner ring and internal defence posts at RAF St Athan | Chronologically late and ignored outer ring of Army defence posts; Did not include many defence posts on RAF Llandow plans |
| Glamorgan Home Guard Battalion areas map | Moderate | Illustrative | Defined exact location and course of Home Guard inter-Battalion area boundaries | Undated; No other defence sites marked |

Table 5.34: Summary of value, role and contribution of cartographic evidence for the St Athan-Llantwit Major case study area.

Four types of military cartography were identified (Table 5.34). The War Office GSGS3906 series of maps were of fundamental importance in terms of their contribution as the defence sites identified in the documentary sources could not be located without access to the incorporated Cassini military grid overlay. The maps did not contain any implicit defence information and their value was as a vital

enabling locational tool in a complementary role with documentary resources. The GSGS3907 maps were less useful as they were a smaller scale.

The second type of cartographic evidence comprised the sole identified example of a defence scheme-related map. The plan was co-produced with the associated textual defence scheme and the two sources were highly cross-referenced, creating a strongly collaborative pairing. The plan's strength was as the sole visual expression of the location of a wide range of different defence site types demonstrating how strongly defended the area covered was. It also retained unique defence post information not evidenced in the associated document.

In contrast, the plan's weakness was its spatial limitation to the Llantwit Major-Boverton-St Athan area, as the plan did not detail the defence provision on the coast, at either of the airfields or around Cowbridge. It also did not illustrate the full range of defence posts evidenced in the associated document. These areas would have been the responsibility of other units and their organisation expressed in other plans. For the purposes of understanding defensive arrangements across the case study, a number of such plans would need to be identified from a similar time period, an occurrence considered to be improbable in a large case study.

The third type of cartographic evidence comprised the Air Ministry Record Site Plans preserved at TNA. The annotated plans were of fundamental importance for identifying the location, type, number and extent of individual defence posts within RAF St Athan, allowing part of the defensive arrangements for 1944 to be reconstructed with a high degree of confidence. However, it was uncertain whether the Gun Posts marked recorded all or just the main defence posts and whether any

of these were fieldworks rather than pillboxes. The Army outer defensive ring pillboxes were not depicted on the plan, so our knowledge of the holistic defensive arrangements for the airfield and its immediate environs was incomplete; how incomplete remains unknown.

It was uncertain how the 1944 layout correlated with earlier distributions. Despite these concerns, the RAF St Athan plans were thought to be the most detailed cartographic description of defensive arrangements known to survive from any wartime airfield in Wales. The equivalent plans for RAF Llandow and the generic Air Ministry plans from the RAF Museum collections contained far fewer sites and were consequently of more limited use.

The lack of plans showing the military administrative and operational organisational structures within the case study for the regular army was detrimental to the research process, as the lack of comprehension limited interpretation of sites identified through other sources. In particular, the lack of understanding of army sector and sub-sector boundaries and RAF airfield coverage hindered the identification of authorities responsible for ordering the construction of particular defence posts. The Home Guard battalion areas plan was illustrative, but as it was undated it was of limited use. Collectively, the absence of such plans limited understanding of the military administrative and operational geography of the case study.

Research did not identify a sole map of all of the defences constructed within the case study and the overall contribution of mapping was limited by its low occurrence, intermittent presence, date, purpose, geographical coverage and scale.

The lack of cartographic evidence for 1940-41 was prominent and meant that other evidential sources were required to reconstruct this period.

5.6 Summary

This chapter set out the Second World War defensive arrangements within the St Athan-Llandow case study as known from the assessed evidence. A modest amount of information had been recorded and published prior to this research, but there was no historical narrative, and significant areas were completely unknown.

No previous conflict archaeology research was identified in the case study and earlier archaeological fieldwork had been recorded in an ad hoc manner. There had been no systematic and detailed attempt to assess the surviving documentary sources in local, regional or national archives. The published military historiography was significantly incomplete and no understanding of the military administrative and operational arrangements or the formations and units involved had been published. The composition, site types, location and extent of the defences was not understood.

This research examined and assessed all of the identified evidence. It identified new sources of evidence across all four evidence classes, and combined them to present an original and cohesive understanding of the development of the role and contribution of the different evidential source types, together with a more developed but still incomplete comprehension of the case study's defensive arrangements. The research highlighted complex coastal defence arrangements and the frequent replacement of military units. Significant evidential gaps were identified, particularly concerning the airfield defence schemes, the defensive arrangements

between the coast and the airfields, and urban defence provision during the 1940-42 period.

This chapter reviewed the available evidence for the defensive arrangements prepared within the St Athan-Llandow case study. The next two chapters analyse the situation in the Swansea-Gower and Carmarthen Stop Line areas, which form the second and third case studies respectively.

6. CASE STUDY 2: THE SWANSEA-GOWER AREA

6.1 Introduction

This chapter presents the assessment and results for the second case study. It is divided into four sections. The first section describes the case study's characteristics, the second section reviews the known source evidence, the third section presents the newly identified source evidence and the final section analyses the role, value and contribution of the evidential sources. There is an enhanced discussion of the primary documentation given its dominant contribution compared to the other evidential sources.

6.2 Case study description

The case study comprised an arbitrary shape within the unitary authority of the City and Council of Swansea that was coterminous with the boundary of Headquarters Swansea Garrison in 1942 (Figure 6.1). It comprised the entire Gower peninsula and the town of Swansea (see Map 2 in end papers). The southern, western and north-western boundaries were formed by the coastline. The northern terrestrial boundary ran eastwards from Island House to Cadle where it followed the borough boundary in a north-easterly direction to Pant-lasau and then an arbitrary line east to the Ynysforgan railway viaduct. It followed the borough boundary southwards along the River Tawe and then the railway embankment to the south-east to take in the Peniel railway tunnel at Lonlas. From Lonlas, the boundary followed the borough limit southwards crossing Crymlyn Bog before meeting the coast east of Queen's Dock.

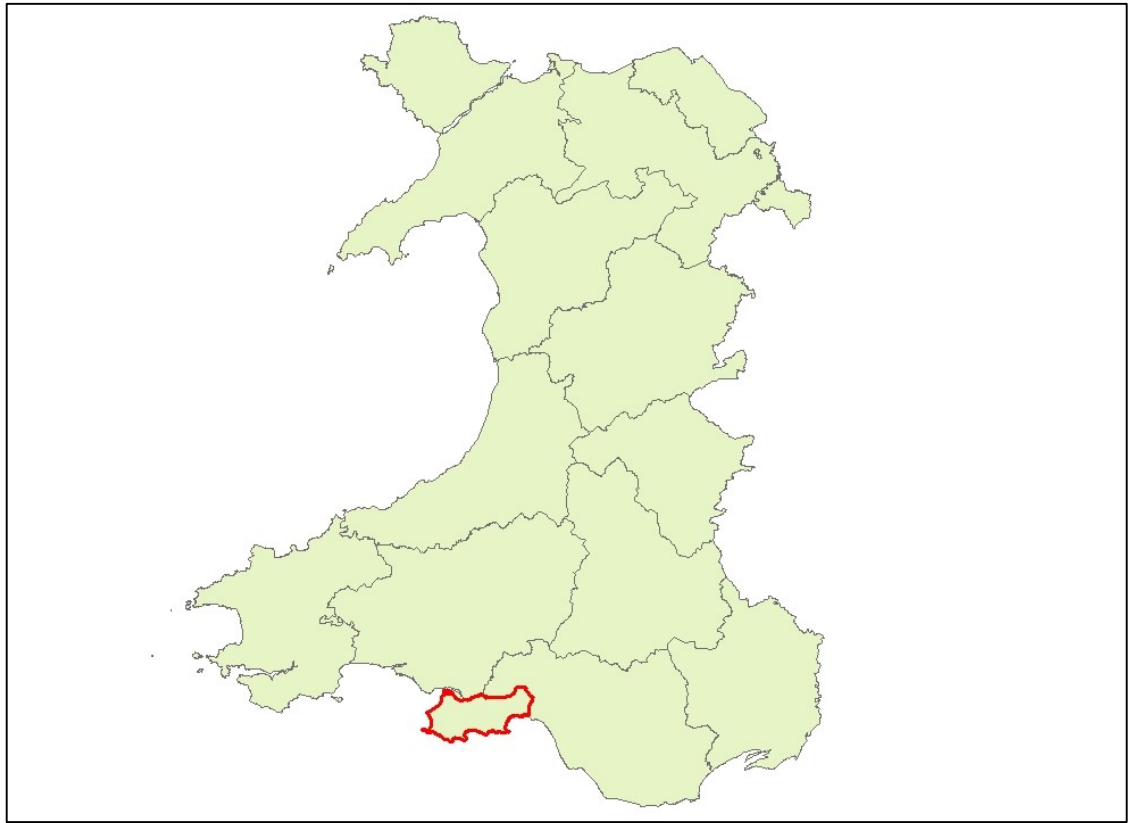


Fig.6.1: Swansea-Gower case study area location. Base map depicts administrative counties of Wales as of 1931. Scale = 1:1,250,000.

6.2.1 Topography, hydrology, geology and human geography

The case study overlies two of CCW's regional Landscape Character Areas (rLCAs) as defined in the draft *Landscape Character Map for Wales*. The Gower rLCA covered the west-facing peninsula to the west of Swansea. The Swansea Bay rLCA covered the west-facing peninsula to the west of Swansea. The Swansea Bay rLCA lies to the north and east of the Gower rLCA and covered the coastline and immediate terrestrial interior from Llanelli to Port Talbot, including the city of Swansea.

6.2.1.1 Gower

Gower comprised a self-contained geographical unit and was described as a 'rural, hilly, agricultural coastal peninsula, with smooth low hills and unenclosed heaths' (Countryside Council for Wales 2009: 40). The dispersed scattered settlements were linked by a network of often straight rural roads. Mixed agricultural practices imposed a strong pattern of medium to large-sized fields bounded by hedgebanks (see Map 5 in end papers for exemplar of historic mapping).

CCW's LANDMAP geological evaluation map divided the Gower into thirty-three aspect areas. It was beyond the scope of this research to describe each area in detail; a summary is presented in Table 6.1 together with a narrative overview.

Gower's geology is dominated by a Carboniferous Limestone plateau that is intersected by a prominent west-north-west – east-south-east aligned lowland escarpment ridge of Devonian Quartz Conglomerate called Cefn Bryn.

The lowland plateau featured well-defined escarpments in the east, and was surrounded by undulating lowland hill terrain. A band of Millstone Grit divided the limestone from the Carboniferous Coal Measures to the north-east.

The northern side of the peninsula, known as Llanrhidian Sands, was bounded by the Burry Inlet, which included extensive areas of mudflats, fringed by saltmarsh and sand dunes that transformed into semi-enclosed flood plain as the inlet narrowed. Sand dunes extended north to Whiteford Point at the mouth of Burry Inlet.

| Area Unique ID | Area Name | Classification |
|----------------|---------------------------------|---------------------------------|
| SWNSGL001 | Oxwich Burrows | Active sand dune |
| SWNSGL002 | Reynoldston | Undulating lowland hill terrain |
| SWNSGL003 | Horton | Lowland plateau |
| SWNSGL004 | Port Eynon Bay, North foreshore | Wave-cut platform |
| SWNSGL005 | Port Eynon Bay | Sand beach |
| SWNSGL006 | Port Eynon Triassic | Other |
| SWNSGL007 | Port Eynon Point | Wave-cut platform |
| SWNSGL008 | Henllys | Lowland plateau |
| SWNSGL009 | Port Eynon – Rhossili Cliffs | Rock cliff |
| SWNSGL010 | Rhossili | Lowland plateau |
| SWNSGL011 | Worms Head | Wave-cut platform |
| SWNSGL012 | Rhossili Down | Scarp slope |
| SWNSGL013 | Llangennith Moors | Saltmarsh |
| SWNSGL014 | Whiteford Sands – Rhossili Bay | Sand dune |
| SWNSGL015 | Burry Holm | Wave-cut platform |
| SWNSGL016 | Coety Green | Undulating lowland hill terrain |
| SWNSGL017 | Llanmadoc Hill | Other |
| SWNSGL018 | Cefn Bryn | Lowland escarpment |
| SWNSGL019 | Llanrhidian | Lowland plateau |
| SWNSGL020 | Llethryd | Lowland plateau |
| SWNSGL021 | Pennard Burrows | Stabilised sand dune |
| SWNSGL022 | Pebbles Beach – Langland | Rock cliff and shore |
| SWNSGL023 | Mumbles Head | Rock cliff and shore |
| SWNSGL024 | Fairwood Common | Lowland plateau |
| SWNSGL025 | Cil Ifor Top | Undulating lowland hill terrain |
| SWNSGL026 | Welsh Moor | Undulating lowland hill terrain |
| SWNSGL027 | Landimore | Coastal slope |
| SWNSGL028 | Llanrhidian Marsh-Loughor | Saltmarsh |
| SWNSGL029 | Penclawdd | Lowland escarpment |
| SWNSGL030 | Cockett | Lowland escarpment |
| SWNSGL031 | Loughor, Lliw | Flood plain |
| SWNSGL032 | Loughor | Lowland escarpment |
| SWNSGL033 | Penllergaer | Lowland escarpment |

Table 6.1: Countryside Council for Wales's LANDMAP geological evaluation classification data for the Gower.

Post-glacial isostatic readjustment created sheer cliffs, shores and raised beaches at Mumbles Head, Langland and between Rhossili and Port Eynon. There were areas of stabilised and active sand dunes, for example at Oxwich Bay. The western side of Gower comprised Rhossili Bay's flat sandy beaches fringed by the Whiteford Sands-Rhossili Bay sand dune system, overlooked by the scarp slope of Rhossili Down. The bay is bounded by the wave-cut platforms of Worm's Head to

the south and Burry Holms to the north. GGAT's historic landscape characterisation for Gower noted that:

'The natural process of coastal erosion and be-sandment has had an overriding impact on Gower; accumulations of windblown sand have formed considerable areas of littoral dunes at a number of points..., with their distribution primarily controlled by coastal topography and by the prevailing westerly winds. They are commonly found in bays; their extent limited by the size of the bay and the relief of the hinterland' (GGAT 2013).

6.2.1.2 Swansea

The eastern side of the case study was dominated by the modern city of Swansea. It overlay the southern central portion of the Swansea Bay rLCA and was characterised as a major urban and industrial region located on the coastal plain and a focus for the region's transportation routes, with upland areas to the north.

CCW's LANDMAP methodology did not extend to urban areas, so the majority of Swansea was not characterised. Two aspect areas intersected with the eastern case study boundary (Table 6.2).

Kilvey Hill comprised a north-east – south-west aligned sandstone ridge of dissected lowland plateau dominated by Productive Coal Measures. It formed the east-facing slopes to Crymlyn Bog, which was a broad low lying marsh area between the Tawe and Neath valleys, located north of the coastal dune belt.

| Area Unique ID | Area Name | Classification |
|----------------|-------------|-----------------|
| SWNSGL047 | Kilvey Hill | Lowland plateau |
| SWNSGL048 | Crymlyn Bog | Coastal flat |

Table 6.2: Countryside Council for Wales's LANDMAP geological evaluation classification data for Swansea.

6.2.2 Industrial Swansea during the Second World War

Wartime Swansea was a large town undertaking strategically important economic functions. It comprised river mouth dock complexes, the heavily industrialised lower Swansea Valley and the pre-industrial agricultural field systems to the west of Swansea at Killay and Dunvant.

Swansea's port developed where the River Tawe emerged from the gorge between Townhill and Kilvey Hill. The lower Swansea Valley to the north comprised a flat marshy plain bounded by hills. The town was compact and nineteenth century urban development was confined to Manselton, Mount Pleasant and Sandfields (Robins 1993: 5). Extensive council estates developed at Morriston, Townhill and Llanerch during the 1930s, together with linear development along arterial roads.

Swansea was renowned for its copper smelting and coal trade. Balchin characterised Swansea at the beginning of the Second World War as 'still retaining a nineteenth-century form [with] coal mining and metal working providing over half the employment and... the new manufacturing industries of the twentieth century... [were] hardly represented' (1971: 255).

The last copper smelting occurred in 1921 (Hughes and Reynolds 1988: 11), but copper rolling was still undertaken at the ICI-owned Vivian and Foster copper works at Hafod and Morfa during the 1940s. Two non-ferrous smelting concerns were also active in 1939 (Balchin 1971: 263).

The Beaufort Tinplate Works was a significant concern at Llansamlet, but government intervention concentrated wartime tin-plate production into a smaller number of productive plants, requisitioning and modifying many of the older works for

the storage of matériel and induced a considerable contraction in activity (Balchin 1971: 263-267; Baber and Thomas 1980: 535).

The coal industry was important and from 1922 the Great Western Railway Company initiated a period of thorough modernisation of Swansea's harbour facilities (Baber and Thomas 1980: 547). They extended over 224 acres (90 hectares). The Anglo-Persian Oil Company refinery at Llandarcy was the first large-scale commercial refinery in Britain and was of vital wartime strategic importance (Baber and Thomas 1980: 535; Balchin 1971: 269). Other industries included limestone extraction (Toft 1988a; Toft 1988b) and brick-making (Baber 1980: 220; Thomas 1969).

The wartime government's policy of industrial dispersal to western Britain prompted the establishment of new factories including a carbon black plant near Swansea docks, aluminium works at Waunarlwydd and Port Tennant, and some chemical production (Balchin 1971: 260). A shadow factory producing pressed metal components was established for the Mettoy Company at Fforestfach and the Ministry of Supply established a depot at Penclawdd (Baber and Thomas 1980: 564).

A number of industrial and transportation facilities were defended as Vulnerable Points, including dock gates, the Ynysforgan railway viaduct, the Llangyfelach and Peniel railway tunnels, the Swansea Gas Company's works at Morriston and the electricity power stations at the Strand and Tir John. The latter was the most advanced in Wales.

6.2.3 Landscape change

Post-war Swansea was extensively redeveloped. By the 1930s much of the heavy industry had contracted sharply (Morgan Rees 1975: 25), and a programme of slum clearance had commenced (Balchin 1971: 186). The town centre was extensively blitzed in February 1941 (Bowler 2006). Public sector-led slum clearance recommenced in the mid-1950s and 290 acres of central Swansea affected by the Blitz was pronounced a Declaratory Area for reconstruction (Balchin 1971: 187).

Post-war redevelopment expanded many Gower villages as dormitory suburbs, while private sector-led housing development schemes significantly expanded the western urban fringe, particularly at Sketty and Killay-Dunvant.

The docks were extensively redeveloped. South Dock was developed during the 1980s into residential accommodation, a marina and commercial businesses. Similar redevelopment occurred at the Prince of Wales Dock. King's Dock remained the principal commercial dock. Large parts of the former industrial area at Jersey Marine were cleared for redevelopment.

The lower Swansea Valley of the 1960s was described by Balchin as, 'probably then the most extensive contiguous area of industrial dereliction to be found anywhere in the United Kingdom', covering 1174 acres (570 hectares) (1971: 368). Hughes observed that,

'the pioneering reclamation of the lower Swansea Valley in the 1960s destroyed many of the then surviving industrial monuments, and the subsequent development of the Enterprise Park, the creation of areas of urban woodland, the construction of housing and roads, and the recovery of derelict land will soon complete the process' (2000: vii).

Subsequent wide-scale reclamation removed millions of tons of industrial debris, restored land and re-developed new facilities. This destroyed much of the original urban fabric and the associated anti-invasion defence landscape.

6.3 Existing source evidence

This section summarises the evidence located prior to undertaking the research for this case study.

6.3.1 Known archaeological evidence

Existing archaeological datasets were identified as being held by GGAT's HER and the RCAHMW's NMRW. The latter incorporated the Defence of Britain project dataset.

| Source | Total No. of C20 Military Records | No. of C20 Military Records in Swansea UA | No. of C20 Military Records in Case Study Area |
|-------------|-----------------------------------|---|--|
| GGAT HER | 186 | 58 | 54 |
| RCAHMW NMRW | 569 | 15 | 11 |

Table 6.3: Summary of twentieth century military records held by GGAT and the RCAHMW.

Table 6.3 highlighted the low number of records held by the HER and NMRW. The majority of these were identified by two recorders during the Defence of Britain project. In both datasets, the records were a mixture of gun emplacements, pillboxes, anti-tank obstacles and anti-aircraft defences. There was little overlap between the two datasets and only four sites were duplicated.

GGAT's HER recorded a few earthwork defences, but overall the range and number of defences was not as anticipated and tended to focus on hardened structures at the exclusion of other types. Only a narrow range of anti-invasion site types were identified and recorded. As with the first case study, the low number of sites was indicative of opportunistic rather than purposeful recording.

6.3.2 Published sources

The published literature relating to wartime Swansea and Gower was modest. It comprised biographical narratives (Bowler 2006; Carter 1988; Elliott, Powell and Powell 2005; Elliott Jones and Cope 2010) or pictorial-led content (Arthur 1988; Robins 1993). The February 1941 Blitz was well documented (Alban 1994; Roberts 2011). Some of the reminiscences were useful as they recorded anecdotal evidence relating to beach defences, and coast and anti-aircraft artillery (Elliott, Powell and Powell 2005).

The literature did not cover the identity or organisation of the military, but did provide reasonable coverage of the Mumbles Island and Mumbles Hill coast artillery batteries. Hogg did not discuss Swansea's provision in his area-based narratives and provided brief details for two batteries in his site gazetteer (1974). Saunders omitted any reference to fortifications in Glamorgan (1989). The RCAHMW provided an historical and architectural description of Mumbles Island and a brief overview of its Second World War occupation (Saunders et al. 2001). Wood's recent coast defence gazetteer (2012) based on fieldwork and archival research by the UK Forts Society cited four coast artillery batteries at Mumbles Island, Mumbles Hill, Swansea

East Battery and Swansea Docks Battery, but each description was very brief. A beach defence flank battery of one or two 6-pdr guns was identified at Whit[e]ford Sands, but no specific location or citation was provided. Arthur referred to a Royal Artillery Proving Range at Salthouse Point, and 'on the high ground above Berth-lwyd a 6-in Coastal Defence gun, set in a concrete emplacement, (which is still in existence) dominated the Burry Estuary and the vast expanse of Llanrhidian Sands' (1988: 16). Wills' gazetteer was contradictory: the map indicated seven pillboxes in the case study, but only two were cited in his gazetteer (1985). Osborne's county-based *20th Century Defences in Britain* series has not covered Wales.

Jones (2007b), McLelland (2012), Phillips 2006 and Smith (1981) discussed the operational history of RAF Fairwood Common and the squadrons based there, but did not provide constructional or architectural histories. The *Airfield Review* bibliography for 1978-2010 (Flagg 2010) indicated one published article on RAF Fairwood Common (Jones 2000), which did not inform this research.

6.3.3 Unpublished reports

The archaeological grey literature for Swansea and Gower was extensive, but twentieth century military sites were referenced infrequently. The National Trust undertook National Archaeological Surveys of its extensive Gower holdings during 1986-87 (Plunkett-Dillon and Latham 1986a-b; 1987a-d) and 2003-04 (Poucher 2003a-b; 2004a-b). GGAT undertook similar archaeological assessment surveys of Gower as part of the Gower Commons Initiative (Howell 2001a-h). From 1999, GGAT undertook historic landscape characterisation of Gower, dividing the area into

eighty-seven historic landscape characterisation areas (Glamorgan-Gwent Archaeological Trust 2014). GGAT also completed a series of archaeological watching briefs at the former RAF Fairwood Common airfield in advance of development (Howell and Lawler 2003, 2004).

Specific twentieth century military grey literature reports were few, but informative when present. Redfern's defence study for Wales (1998b) recognised a range of defence sites including the Gower and Swansea Valley stop lines, coast artillery batteries at Mumbles Island and Mumbles Hill, heavy, light and Z anti-aircraft emplacements, together with bombing decoys. The stop line-related information was brief, consisting of a single line of descriptive text and map co-ordinates for both ends of the stop lines. The positions of two 6-pdr gun emplacements were noted for the Gower stop line. Information for the coast artillery positions was more detailed and included OS NGRs for the individual gun emplacements at Mumbles Island and Mumbles Hill. An additional OS NGR described as 'Swansea – general' located a third emplacement on the Eastern Breakwater of Swansea docks, but provided no further details. The locations and known dates of operation were provided for the anti-aircraft batteries and bombing decoys. The gazetteer served as an effective locational index to a subset of the defence sites in the Swansea region, but lacked the detailed analysis of these complex and extensive sites. Redfern did not provide the detailed chronological and situational narrative placing the sites in their defence context.

GGAT's Cadw-funded study of the wartime airfields of south-east Wales looked specifically at the archaeological evidence of the airfield core and technical buildings at former RAF Fairwood Common, as defined by the Air Ministry's own

record site plan (Huckfield 2012). Although unable to access the operational area of the civilian airport, Huckfield's intensive walk-over survey of the remainder of the aerodrome recognised a range of surviving structures, including extant airfield defences: 'running in a zigzag pattern across the open moorland at the northern end of runway 33/15 are at least seven submerged brick and concrete lined gunpits or infantry trenches' (2012: 52). No other defence features were observed on the airfield.

The second year of the project examined the hinterland of the airfield and Huckfield reported the location of an incomplete network of earthen anti-landing obstacles located around the northern and eastern edges of the airfield and a newly identified infantry slit trench at the west end of runway 29/11 (Huckfield 2013). The anti-landing obstacles may actually represent an earlier bombing decoy site (Ivor Jones *pers. comm.*), as the airfield's perimeter track and taxi ways overlaid the structures.

6.4 New source evidence

This section describes and assesses the new evidence for the case study that was identified during this research.

6.4.1 New archaeological results from rapid field observation

Rapid field observation was undertaken to identify new defence sites and to enhance understanding of known defence sites. The demolition of previously recorded structures was noted to inform assessment of post-depositional factors.

6.4.1.1 New defence sites

Despite extensive rapid field observation during summer 2012 very few new defensive sites were located. Reconnaissance along the Gower stop line identified a number of new pillboxes, which were subsequently confirmed by textual descriptions in the Swansea Defence Scheme No. 2 and a spigot mortar emplacement, which was not. A small roadblock comprising anti-tank cubes was also identified at Swansea Docks. Otherwise, the fieldwork essentially confirmed the existence of defences identified through previous fieldwork or from other evidential sources.

The lack of newly identifiable sites was notable, and contrasted with the other case studies. The phenomenon in urban and peri-urban Swansea must be partly due to the extensive clearance and redevelopment schemes.

The reasons for the lack of evidence on Gower is more perplexing as a better degree of site preservation and therefore identification was anticipated in a rural setting. The documentary and cartographic evidence (see below) suggested that inland Gower defences were strongly clustered around defended localities, but rapid observation demonstrated that the majority of defence sites had been removed, with the surviving examples largely restricted to marginal areas. One reason for this loss

may be the declaration of Gower as an Area of Outstanding Natural Beauty in 1956 and the subsequent campaigns to remove 'eyesores' to improve tourism.

6.4.1.2 New understanding of existing sites

Visits to previously identified sites demonstrated the variety and scope of the defences, but added little to the physical resource's understanding, particularly when compared to the contributions made by other evidential classes of evidence. The key outcome was a powerful testimony of just how many of the defences had been demolished. This recognition meant that the other evidence classes would need to 'presence absence.'

6.4.1.3 Demolition of previously recorded archaeological sites

The fieldwork did not identify any previously recorded defence sites that had been destroyed, although the defences, unless statutorily designated or in sympathetic ownership, remain vulnerable to removal.

The results of the rapid archaeological survey suggested that a more intensive and longer-term investigation would be required to identify further defence sites, perhaps using additional prospective techniques such as geophysical survey and LiDAR around known clusters of defence sites. It is beyond the scope of this research to comment on the survival of buried defence archaeology, but there is strong potential for future archaeological excavations to identify additional defence sites.

6.4.2 New documentary source evidence

An abundance of primary documentary evidence was identified at TNA for the case study (Table 6.4). It comprised a combination of registered files and war diaries together with their associated appendices. A number of registered files known to have been produced do not appear to have been preserved at TNA, including the registered files for the Gower and Swansea Valley stop lines. Other files were incomplete, for example the RAF Fairwood Common ORB which did not preserve the station's defence scheme.

| Piece No. | Title | Content |
|-------------|---|---|
| AIR 13/63 | Siting of Balloons, Swansea | Barrage balloon site positions |
| ADM 265/3 | 'F' Schemes | Location of dock flame defences |
| WO 192/156 | Fort Record Book: Mumbles Island | Armament and defence scheme |
| WO 192/ | Fort Record Book: Mumbles Hill | Armament and defence scheme |
| WO 166/2043 | 959 Defence Battery, RA war diary | Gun emplacement positions |
| WO 166/2044 | 960 Defence Battery, RA war diary | Gun emplacement positions |
| WO 166/6880 | Swansea Garrison HQ war diary | Defence scheme; Administrative structure; Operational structure; Formations and units; Home Guard disposition |
| WO 199/37 | Defences: Anti-tank Minefields | Locations of minefields |
| WO 199/52 | Roadblocks - McNaughton Tubes | Locations of CPMs |
| WO 199/103 | Charting of Obstructions on the Foreshore | Locations of pole ALOs |

Table 6.4: Documentary sources of relevance to Swansea-Gower case study area preserved at The National Archives.

6.4.2.1 Military administrative and operational geography, formations and units

The documentary and cartographic evidence contributed all of the new findings relating to the garrison's administrative and operational organisational structure. Documentary evidence was the sole source of evidence concerning the presence and location of military formations and units. The contemporary aerial

photographic and archaeological site evidence sources did not contribute information to the construction of this narrative.

The Swansea Defence Scheme No. 2 was the primary source for the case study's military administrative geography, given the scope and detail of the information preserved within. The Mumbles Island and Mumbles Hill Fort Record Books made important contributions for understanding Mumbles Sub-Sector. A range of other war diaries and registered files also contributed specialist content.

6.4.2.2 Swansea Defence Scheme No. 2

Swansea Defence Scheme No. 2 was issued by the Garrison Commander on 1 January 1942 and replaced an earlier scheme of 15 January 1941. Its circulation was restricted and the distribution list identified the scheme's military and civilian recipients. It also identified the military administrative and operational forces at the time of issue (Table 6.5).

The Defence Scheme comprised a fourteen-page document that provided an overview of the military situation and current defence arrangements (Appendix 6.1). It explained the defence scheme's coverage and extent, and the roles of the military, Home Guard, civil and police authorities.

It was supported by eighteen subject-based appendices (Table 6.6), although two were not issued or at least preserved at TNA. Four were updated and re-issued. The contents were updated and corrected by nine successively issued amending letters during 1942. The documentation was large and complex to understand.

| Copy No. | Recipient | Status |
|----------|--------------------------------------|----------|
| 1 | HQs South Wales District | Military |
| 2 | HQs Severn Sub-Area | Military |
| 3-4 | E Group Glamorgan Home Guard | Military |
| 5 | 12 Bn. Glam Home Guard | Military |
| 6 | 14 Bn. Glam Home Guard | Military |
| 7 | 15 Bn. Glam Home Guard | Military |
| 8 | 18 (Post Office) Bn. Glam Home Guard | Military |
| 9 | D Sector, Glam Home Guard | Military |
| 10 | Naval Officer, Swansea | Naval |
| 11 | OC Docks Sector | Military |
| 12 | Town Clerk, Swansea | Civilian |
| 13 | Chief Constable, Swansea | Civilian |
| 14 | 559 Coast Regt, RA | Military |
| 15 | Experimental Station, Penclawdd | Military |
| 16 | 35 Group, PC | Military |
| 17 | 294 Coy, PC | Military |
| 18 | Spare | N/A |
| 19 | 'D' Coy. 30 Bn, SWBs | Military |
| 20 | HQs Movement Control, Swansea | Military |
| 21 | RASC (CSD Swansea) | Military |
| 22 | HQs. 61 AA Bde. | Military |
| 23 | RAF Station Fairwood | RAF |
| 24 | 958 Squadron RAF | RAF |
| 25 | District Officer, HM Coastguard | Civilian |
| 26 | Garrison Engineer, Swansea | Military |
| 27 | Camp Reception Station | Military |
| 28 | Tyneside Scottish (Black Watch) | Military |
| 29-30 | War Diary | Military |
| 31 | File | Military |
| 32 | Garrison Commander | Military |
| 33 | Garrison Adjutant | Military |
| 34-37 | Spare | N/A |

Table 6.5: Recipients of Swansea Defence Scheme No. 2, January 1942.

Appendices A-F and their re-issues provided the most information on the defensive arrangements for Swansea Garrison and the content has been presented in Appendices 6.2 (pillboxes and fieldworks), 6.3 (minefields, Canadian Pipe Mines and fougasse sites) and 6.4 (roadblocks). The re-issue of updated appendices covering the list of AA, searchlight and balloon sites (Appendix D, then C) and the location list (Appendix A) were useful as they indicated that the change was sufficiently significant to require the re-issue of an entire appendix rather than the

more usual amendment letter. The provision of two location lists enabled the identification of units and their locations through time.

6.4.2.3 Military administrative geography: Swansea Garrison

The Swansea Garrison HQ war diary was the primary source of information regarding the identification of the military administrative organisational structure in 1942. The upper chain of command comprised: GHQ Home Forces > Western Command > South Wales Area / District > Severn Sub-Area > Swansea Garrison.

| Serial | Appendix Name | Date of Issue | No. of pages | Date of Re-issue |
|--------|--|---------------|--------------|------------------|
| A | Location List | 01/01/1942 | 5 | 11/11/1942 |
| B | Details by Sectors and Sub-Sectors | 01/01/1942 | 35 | |
| C | List of Roadblocks | Unissued | 0 | |
| C | List of AA, Searchlight and Balloon Sites | | | 19/09/1942 |
| D | List of AA, Searchlight and Balloon Sites | 01/01/1942 | 2 | |
| D | List of Roadblocks | 21/05/1942 | 2 | |
| E | Minefields, McNaughton Tubes, Flame Fougasse etc. | 01/01/1942 | 3 | |
| F | List of Coastguard Stations | 01/01/1942 | 2 | |
| G | States of Readiness | 01/01/1942 | 3 | |
| H | Code Words (General) | 01/01/1942 | 1 | |
| I | Intercommunication by Light Signals | 01/01/1942 | 1 | 11/11/1942 |
| J | Intercommunication between Troops and RAF | 01/01/1942 | 1 | |
| K | Intercommunication between Troops on the Ground | 01/01/1942 | 1 | |
| L | Visual Signalling between Navy and Army | 01/01/1942 | 1 | |
| M | Communications (General) | 01/01/1942 | 3 | |
| N | Communications (Detail) | Not recorded | | |
| O | Medical Arrangements | Not recorded | | |
| P | Swansea Police Organisation | 01/01/1942 | 1 | |
| Q | Liaison between Military, Police and Civil Defence | 20/02/1942 | 3 | |
| R | Issue of Code Words | 14/02/1942 | 1 | 09/06/1942 |

Table 6.6: List of detailed appendices for Swansea Defence Scheme No. 2 and date of issue.

Administrative duties included all those military activities undertaken by the garrison staff during non-operational periods, including liaison with higher level formations and lower level units on a wide range of issues including accommodation and personnel matters. Administrative duties also comprised the physical planning, creation and updating of the defence schemes, the arrangement and oversight of the construction and maintenance of the required defensive positions and the training of military personnel to ensure that effective and successful defence would be achieved. Such activity and progress was recorded in the war diary and its appendices, including the definition of roles (Table 6.7). Day-to-day correspondence does not appear to have been preserved at TNA.

| Force | Role |
|---------------|---|
| Army | Defence of Penclawdd Experimental Establishment |
| Army | Defence of Oxwich Point and Rhossili radar stations |
| Army | Defence of coast artillery batteries |
| Army | Defence of HAA and LAA gun batteries |
| Royal Marines | Defence of HMS Lucifer HQ, Swansea docks |
| RAF | Defence of RAF Fairwood Common and its approaches |
| RAF | Defence of Barrage Balloon sites |
| Home Guard | Reconnaissance and defence of platoon and company areas |

Table 6.7: Roles of static forces in Swansea-Gower case study area, 1942.

6.4.2.4 Military operational geography: Swansea Garrison

The Commander, Swansea Garrison was responsible for the operational control of all regular Army troops placed under his command including those Home Guard battalions located in the defence scheme area. The commander possessed a small general staff, including two Garrison Engineers organised on an east-west geographical basis. On receipt of *Action Stations*, the Home Guard would have become an integral part of the Garrison headquarters and defence forces.

The defence scheme stated that the garrison was divided into four Sectors comprising No. 1 Swansea Sector, No. 2 Swansea Sector, Docks Sector and Gower Sector. Each Sector was subdivided into a number of Sub-Sectors, each containing a number of Defended Localities. A Defended Locality comprised an area with fixed defences that was designed to act as a focal point for an allocated defending force and its weaponry. The scheme carefully articulated most of the internal spatial territories and their interfaces, often in detail. Each Sector and Sub-Sector area was commanded and defended by Home Guard personnel, whom were responsible for defending the majority of defence posts. It identified the lower chain of command as: Swansea Garrison > Sector Command > Sub-Sector Command > Defended Locality.

6.4.2.5 Military units available for defence

The scheme also identified four distinct types of troops available for garrison defence (Table 6.8), but the source was not helpful in defining the units' associated spatial territories.

Table 6.8 demonstrated that the majority of the troops comprised static troops, which were those responsible for undertaking a particular task at a fixed location. These troops were responsible for the landward defence of their facilities, but if their primary role was no longer possible they would become part of the primary defence force. The static troops were divided into those under the direct command of Swansea Garrison and those that came under the direct instruction of other commands, for example ADGB and RAF Balloon Command.

| Unit Name | Type |
|---|---|
| Coast Defence guns of 14 Defence Regt, RA | Static troops under operational command |
| 1 Coy. 30 Bn. SWBs | Static troops under operational command |
| 194 Coy, PC | Static troops under operational command |
| 285 Coy, PC | Static troops under operational command |
| Det, 294 Coy, PC | Static troops under operational command |
| Movement Control Personnel | Static troops under operational command |
| RASC, Cockett | Static troops under operational command |
| ADGB Units | Static troops not under operational command |
| Penclawdd Experimental Station | Static troops not under operational command |
| 958 Squadron RAF (Balloon) | Static troops not under operational command |
| 559 Coast Artillery Regt, RA | Static troops not under operational command |
| No. 97 BDS | Static troops not under operational command |
| No. 165 BDS | Static troops not under operational command |
| 12 Bn. Glam HG | Home Guard |
| 14 Bn. Glam HG | Home Guard |
| 15 Bn. Glam HG | Home Guard |
| 18 (Post Office) Bn. Glam HG | Home Guard |
| 1 Troop (75mm guns), 14 Defence Regt, RA | Mobile Field Formations under operational command |
| 1 Coy, Tyneside Scottish (Black Watch) | Mobile Field Formations under operational command |

Table 6.8: List of troops available for defence of garrison area, January 1942.

ADGB units were responsible for attacking the enemy within 800 yards of a HAA, LAA or ZAA emplacement. Searchlight personnel were granted a wider sphere of attack up to one mile from their emplacement. In both cases close operation between ADGB and Home Guard units was encouraged, with the latter acting as guides to the former.

As a largely static force the Home Guard's operational territory was co-terminus with its administrative boundary and much of the force was concentrated in the network of tactically advantageous defended localities organised across the defence scheme area. Table 6.8 also revealed that the garrison had access to very limited mobile field force troops under its direct operational command.

It is notable that Table 6.8 did not include the personnel of RAF Fairwood Common or HMS Lucifer. These forces were responsible for the direct defence of

particular establishments and while the daily war diary entries demonstrate that there was a detailed and ongoing liaison between the Army, RAF and Naval base commanders, ultimate authority for their defence lay elsewhere, hence their omission.

6.4.2.6 Defence arrangements for Swansea and the Gower

The Swansea Defence Scheme No. 2 stated that its intention was 'to resist invasion in all its forms, whether air-borne or sea-borne and to destroy the enemy in detail where-ever he may affect a landing.' The defence plan strategy was articulated in detail:

- (a) 'To prevent the landing of a sea-borne force by defence works along certain beaches, and by defence of the Docks. To prevent the landing of an air-borne force by the external defence of Fairwood Aerodrome and by obstructing possible landing grounds (The internal defence of Fairwood Common is the responsibility of the RAF Station Commander).
- (b) If, however, despite these measures the enemy succeeds in affecting a landing then it will be the duty of the static troops in the area affected to pin them to the ground and hold up their advance until mobile columns, and if necessary and possible, field formations can be brought to destroy them. With this object in view various defensive localities and Stop-Lines have been constructed.
 - I. Gowerton-Blackpill Stop Line - From Island House 022190 - Gowerton-Dunvant-Killay-Blackpill - 063128 all inclusive. (Island House locality will be manned by both 8 and 12 Bns Glam HG.
 - II. Defence of Swansea from the West - Extension of Swansea Valley Stop Line 125220-085192-072183-067155-070134.
 - III. Defence of Swansea from the North - General line Lonlas-Llansamlet-Ynysforgan-Fforestfach-Waunarlwydd-Gowerton-Island House all inclusive.
 - IV. Defence of Gower Peninsula - including the external defence of Fairwood Common.'

The basis of the defence scheme was also described and it is worth presenting this in its entirety:

- (i) 'The basis of defence is a network of defended localities by which the enemy is bound to be contacted no matter in what direction he may seek to advance, so that whichever way he turns he will be met by small arms fire, flame throwers, bombs, tank traps, booby traps and the like in every direction.
- (ii) Pill Boxes are only placed to form the skeleton of the defence. In no case should more than 2 or at the most 3 men remain in pill boxes. The remainder of the garrison of the site should be in houses, slit trenches, behind banks etc., around the pill boxes. All dead ground near pillboxes will be covered by fire or by mines.
- (iii) On enemy paratroops landing they will be engaged with the utmost speed by patrols sent out from neighbouring defended localities. They will be rounded up and prevented from concentrating into larger bodies. The utmost vigour will be employed in dealing with these.
- (iv) It is essential that ground forward of, and between, these localities should be continuously patrolled. It is the responsibility of the Home Guard manning the localities to carry out this patrolling. It will be made impossible for any party of the enemy to approach any defended locality unobserved.
- (v) Where detachments have been given tasks at outposts forward of stop lines or perimeter defences their duty is:- (i) to send back early information of the presence and general direction of advance of the enemy, (ii) to ambush small parties of his leading troops and (iii) to delay the enemy by opening fire on large bodies at long range so as to make him deploy early. It is not intended that outposts should resist to 'the last man and the last round' but if hardly pressed they should retire on the main defences behind them. However, if passed or over-run they should hide and come up again to harass the enemy following the advanced attackers.

If the enemy succeeds in penetrating the defences he will be attacked ruthlessly wherever he appears. House tops, windows, alley ways will be used from which to harry his flanks and rear and he will be engaged mercilessly with every weapon and bomb available. For distribution of men and arms by localities see Appendix 'B'.

This detailed expression of the defence scheme strategy provided an appropriate context in which to consider the defence sites. This was a rare articulation of a defence scheme at a local level, as this degree of information is not usually present in known Welsh sources. The overall strategy identified the principal

defensive locations, but it was clear from the quotation above that while there was an extensive and detailed list of defence sites provided in Appendix B, the totality of defence provision was not recorded in the documentary evidence. In particular, the local networks of additional defensive posts adopted around the immediate vicinity of pillboxes were not recorded in the defence scheme, probably being recorded in specific registered files or in Home Guard records that were not identified.

6.4.3 New documentary source evidence: sites

The Swansea Garrison HQ war diary for 1942 and its associated Swansea Defence Scheme No. 2 and appendices provided the majority of information pertaining to new defence sites within the case study. The source was excellent for reconstructing developments in 1942, but the lack of apparent preservation of Swansea Defence Scheme No. 1 for 1941 and the earlier scheme(s) for 1940 within archival repositories meant that the early character and evolution of the defences could not be described in the same detail. It was difficult to determine at which date the defences described in the 1942 war diary were established.

6.4.3.1 Swansea Garrison war diary

The defence site information cited in the war diary was variable in quality and usefulness (Appendix 6.5), but it remained a fundamental source of evidence as it provided new or additional information on defence sites that had not been located amongst the other evidential sources. The dates of defence site reconnaissance, construction and hand over to a particular unit were often referenced, helping

establish a chronological narrative of defence structure development and evolution throughout 1942. Each reference had to be assessed on an individual basis and used with caution as it was often unclear whether a defence site was being considered, being built, had been established or abandoned.

Defences cited within the war diary entries were routinely described by locality name, for example Dunvant, Rhossili etc., rather than by Cassini grid reference. This meant that defence sites that were uniquely cited by this source could not be located precisely.

Important and unique references to defence posts that did not occur elsewhere included the planned location of rail blocks at Killay, Dunvant and Cockett on 9 March 1942, the presence of a scaffolding barrage at Burry Port on 16 June 1942 and the failing of part of the anti-tank cube alignment at Blackpill, Swansea Bay on 8 July 1942. The planning and construction of a significant number of static Blacker Bombard (spigot mortar) emplacements was also evident throughout the war diary. Emplacements were known to have been constructed at Gowerton, Gorseinon Road and Cockett (and widely beyond the garrison area), but their exact locations were not recorded. The defences of the radar station at Oxwich were recorded as being improved with wire and undefined defence positions on 22 May 1942 and 24 November 1942 respectively. The wiring of the CHL Station at Rhossili was recorded as being held up through lack of Dannert wire on 15 June 1942. The arrival of US troops prompted the use of Defensively Equipped Merchant Ships (DEMS) within Queen's Dock for anti-aircraft duties from 13 August 1942.

The civilian contractors responsible for constructing some of the defence posts were identified (Mr Griff Davies at Llansamlet, Mr Isaac Jones at Mynydd Cadle Common and Mr James for static Blacker Bombard emplacements) and it was interesting to note that there was obvious dissatisfaction from the military authorities concerning the standard of some of the work produced. Nos. 285 and 294 Coys, Pioneer Corps worked across the garrison area producing a wide range of defence posts and slit trenches, but the exact locations and types of defences were not detailed. Specialist works were undertaken by the Royal Engineers; local minefields were established by Nos. 165 and 16 Bomb Disposal Sections, RE and 179 Tunnelling Company, RE constructed the beach flame barrage at Jersey Marine.

The war diary illustrated a close relationship between the Garrison Commander and the station commander at RAF Fairwood Common. Such a preoccupation must partly have been driven by the airfield's vulnerable location to the west of the Gower stop line. The airfield defences were recorded as being under the command of the Local Defence Authority (LDA) who was responsible for the ground defence of the airfield and its approaches. The war diary recorded the presence of a unit of the RAF Regiment, which was to act as a mobile strike force. The airfield's defences were strengthened during summer and December 1942. From August the defences were completely reorganised following the results of Exercise David III, which had tested the airfield's defensive capabilities. The improvements were not detailed. A war diary reference in November 1942 noted arrangements for the passage of military traffic through the airfield in an emergency and identified the presence of road barriers to the north and south of the airfield.

The war diary was silent on a range of issues including the use and location of anti-tank obstacles, roadblocks, gun emplacements and minor fieldworks and coastal defence sites, although many of these categories were mentioned within the Defence Scheme's appendices.

The war diary provided a good overview of the scope and intensity of defence post construction in 1942 and the personal interest that the Garrison Commander and his staff undertook in this matter. It demonstrated conclusively that pillbox defences were still being constructed within the garrison during the first half of 1942, post-dating the GHQ Home Forces order to cease such activity by some margin.

It also demonstrated that Swansea Garrison was able to take advantage of the latest military innovations as they became available, for example the spigot mortar emplacements and the beach flame barrage. For some defences such as the beach flame barrage installation at Jersey Marine, numerous references allowed a picture of the reconnaissance, construction and operational capability of the defence in question to be described in some detail. The value of the diary is that it demonstrated that the defence of the garrison area was still being actively planned, added to and improved throughout 1942.

6.4.3.2 Swansea Defence Scheme No. 2

Swansea Defence Scheme No. 2's Appendix B provided the single most informative account of the number, type, location and distribution of defence sites across the defence scheme area. The list cited the location of 144 pillboxes, seventy fieldworks, five defended or fortified buildings, four loopholed walls and three infantry

posts (Appendix 6.2). It also identified the unit, administrative unit and weaponry allocated to each post. The scope and depth of information preserved in this source is thought to be unparalleled in Wales.

The war diary entries suggested that there was a degree of aspiration within the list, as it cited defence posts not yet built or in the process of survey and construction, for example at Mynydd Cadle Common, Llansamlet and Waunarlwydd. An entry dated 3 February 1942 stated that the agreement on new defences at Mynydd Newydd were 'the first to be commenced under the new Swansea Defence Scheme dated 01/01/1942.' These defences were cited within the defence site list and the associated allocation of grid reference, personnel and weaponry would have been highly convincing of the position's establishment had the war diary not stated otherwise.

The degree the list recorded aspirational or completed defence works was not clear from the documentation. The war diary recorded the reconnaissance and construction of new defence works throughout 1942, but the document did not give the impression that all of the defence posts cited on the list were to be agreed and constructed. Conversely, it did not state which defence posts were pre-existing.

As such the ratio of built to non-built defence sites during 1942 cannot be determined and the inability to accurately characterise the status of the individual defence works introduced a fundamental element of uncertainty in the data's use, particularly as the total population of defence sites was not recorded elsewhere and was known not to survive given the extensive re-development within Swansea. Given that the defence scheme was current for the remainder of the year, it was also

impossible to determine from the documentation which sites were built later, at different locations or not at all.

6.4.3.3 Airfield defence schemes

The airfield defence scheme for RAF Fairwood Common was not identified at TNA. This was problematic as it would have been the definitive source for the defence of the primary military objective on Gower. Other sources provide a much lesser degree of information. Swansea Defence Scheme No. 2 preserved instructions for the defence of Gower Sector as written in January 1942, including the defence of the approaches to the airfield, recounted here in full:

- (a) 'The internal defences of the aerodrome are the responsibility of the RAF Station Commander.
- (b) The external defences will consist of fixed positions from which the fire can be brought to bear on the approaches to the perimeter of the aerodrome combined with mobile troops who will move at once to any locality in which the enemy has landed and destroy them.
- (c) Mobile column - Officer Commanding - OC Penclawdd Coy Tyneside Scottish
 - a. Composition -
 - 1 Coy. Tyneside Scottish (Black Watch)
 - 1 Tp. (75mm) 14 Defence Regt, RA
 - 1 Sec. 2-pdr A/Tk guns from Experimental Stn
 - 3 Secs. Penclawdd Det. 15 Bn. Glam Home Guard
 - b. Primary Role - To assist in the defence of Fairwood Aerodrome by attacking any enemy air-borne troops who may attempt to land on the Gower peninsula.
 - c. Method -
 - i. Prior to 'Action Stations' the area around the 400 contour (Square 9916) will be thoroughly recce'd, defensive posts selected and where possible, fire positions prepared. Accommodation for personnel will be earmarked and sites for cover from view for guns and vehicles selected.

The closest liaison will be established between all units in the column and combined exercises will be staged. The

- OC [Mobile] Column will be thoroughly conversant with the details of the internal defence of the aerodrome.
- ii. On 'Action Stations' OC Mobile Column will send forward a recce group to establish a report centre near cross roads 011164 [Poundffald] to which orders and reports for them can be sent. The Killay Troop, RA will move immediately to this report centre where it will join the Penclawdd Coy. Tyneside Scottish and then proceed together to the area of the 400 ring contour in square 9916.
 - iii. On codeword 'Oliver' being received the Sec. 2-pdr A/Tk guns from the Experimental Station will report to HQs Penclawdd Coy. Home Guard. Together with three Sections of this Coy. they will proceed immediately to join the rest of the Mobile Column near the 400 ring contour.
 - iv. Enemy landing to the north of the Killay-Llanrhidian Road and west of the Gower Stop Line will be immediately engaged so as to assist in the defence of Fairwood Aerodrome. In the event of the enemy being in overwhelming numbers the column will take up a defensive position in the area indicated in i) above and will hamper his means by every means possible.
 - v. The OC Experimental Station has agreed to site 2 25-pdr guns after 'Oliver' has been received so that they can bring fire to bear on the Fairwood Aerodrome area. He will arrange for the OP to be established immediately near the 400 ring contour in square 9916. This OP will be protected by a defended locality established by 3 Sections of the Llanmorlais Home Guard. Telephone communication will be established between the OP and the gun positions and with the OC Mobile Column by instruments and wire provided by OC Experimental Station.
 - vi. The Column will be under the operational control of Commander, Swansea Garrison but in the event of urgent necessity the AOC Fairwood Aerodrome can call direct on the Column, informing the Commander, Swansea Garrison of the action taken.'

Amendment No. 3 of 9 June 1942 deleted the references to 1 Coy. Tyneside Scottish (Black Watch) and 1 Tp. (75mm) 14 Defence Regt, RA suggesting that these units had relocated by this time. The 15 Bn. Glamorgan Home Guard took on the leadership of the Mobile Column. It was interesting to note that grid square 9916 does not contain the 400 ring contour cited in the text. Grid square 9915 contained a

400 ring contour; this was located one kilometre north-west of Fairwood Lodge on the north side of the airfield.

A briefer Gower Sector defence scheme was re-issued on 30 July 1942. The absence of regular army units prompted replacement of an independent Mobile Column concept by the decision to vest all control of military forces in Station Commander, RAF Fairwood. It stated that the following troops would be placed under his command in addition to RAF and RAF Regiment personnel:

- 2 Pls. and 1 Sec. Smith Guns (2) 294 Coy, PC for defence of locality and high ground around 995133 (to be called Quarry Locality).
- 3 Secs. Parkmill Det. 15 Bn. Glam HG for defence of locality round Court House Farm (005123). To be called Court House Farm Locality.
- 2 Secs. Bishopston Det. 15 Bn. Glam HG for defence of locality around old BHQs (019129).
- S/L canopy sites 1-6 within his area.

The documentary evidence demonstrated a simplification of defence planning through 1942 as available resources changed and the Home Guard developed a leading role in the defence of Gower. The RAF Regiment formed on 5 February 1942 and units arrived at RAF Fairwood Common by July demonstrating the perceived vulnerability of the Sector Station.

6.4.3.4 Minefields

The Swansea Defence Scheme described nineteen small minefields that were used, often in clusters, to block beach exits, but also at either end of the Gower stop line and to protect the northern flank of the coastal battery at Jersey Marine (Appendix 6.3). Four linear minefields were deployed to block beach egress at Whiteford Point and Oxwich Bay. The Bishwell Common area was also bisected by a linear minefield located on the west side of the Gower stop line. Other minefields were deployed in coastal dune areas and alongside important roads near roadblocks. Shortages ensured that minefields were constrained both in numbers of sites and extent. They were not as common as anticipated.

A registered file at TNA preserved remarks concerning the preparation of minefields (Table 6.9). It was clear that different types of mine were used, but the evidence is not precise enough to discern the type, number and purpose of the minefields at all locations.

| Date | Serial | Cassini | Location | Remark |
|----------|--------|---------------------|--|--|
| 01/10/40 | - | 101/142148 - 166147 | Jersey Marine Beach from Baldwin's Cottages to River Neath | Mushroom minefield reconnaissance completed. Number not settled |
| 01/10/40 | - | 100/9609 | Oxwich Bay | Mushroom minefield reconnaissance completed |
| 16/10/40 | 7 | 101/142148 | Jersey Marine Beach | 60 Mushroom mines from Baldwin's Cottages 200 yards westward, two rows |
| 16/10/40 | 1 | 100/9609 | Oxwich Bay | Mushroom minefield proposed |
| 22/08/41 | | 100/063125 | Blackpill | Minefield mentioned in correspondence |

Table 6.9: References to Mushroom and anti-tank minefields in the Swansea-Gower case study area (TNA WO 199/37).

6.4.3.5 Barrel flame traps

Twelve barrel flame traps, also known as flame fougasse sites, were recorded in the Swansea Defence Scheme (Appendix 6.3). This was not a high occurrence and reflected the specific topographical circumstances when it would have been used, requiring steep inclines and sharp bends to slow vehicular traffic down. Two-thirds of the defences were located within 7km of the town centre and they were deployed on their own or in combination with other types of defences. They were a feature of the eastern part of the case study. This site type was not identified from other forms of evidence.

6.4.3.6 Roadblocks

The Swansea Defence Scheme was a unique source for the identification of seventy-six roadblocks in the case study (Appendix 6.4). On Gower, the roadblocks were sited either at prominent inland road junctions or blocking beach exits in conjunction with minefields. Roadblocks were not emplaced on western Gower in 1942.

The two most noticeable concentrations of roadblocks were the swathe of thirteen in front of, on and behind the general defensive line defending Swansea from the west and the twelve roadblocks defending the dockyards. Eight roadblocks were also associated with the Gower stop line. Together with pillboxes, the roadblocks were the most commonly occurring defensive site types within urban Swansea. The documentary source did not identify the type of roadblock in use, but did identify the Home Guard unit responsible for operating it.

6.4.3.7 Canadian pipe mines

The Swansea Defence Scheme preserved a list of thirty locations protected by Canadian pipe mines, not known from other evidence (Appendix 6.3). This defence was utilised to block the roads from beaches vulnerable to invasion and to block roads at crucial locations if threatened by AFVs, transport or large parties of the enemy. Additional documentary sources at TNA provided insight into the progress and phasing of installing this form of defence (Tables 6.10 and 6.11).

| Location | Cassini | Remark |
|----------------------|------------|--------------------------|
| Oxwich Bay | 100/947099 | Completed or now in hand |
| Oxwich Bay | 100/946093 | Completed or now in hand |
| Oxwich Bay | 100/945085 | Completed or now in hand |
| Pwlldu Bay | 100/019092 | Completed or now in hand |
| Loughor Bridge | 100/009201 | Work projected |
| Pontarddulais Bridge | 100/033260 | Work projected |
| Pontarddulais Bridge | 100/033259 | Work projected |
| Pontarddulais Bridge | 100/033261 | Work projected |

Table 6.10: References to works regarding installation of Canadian pipe mines in the Swansea-Gower case study area, 12/07/41 (TNA WO 199/52).

| Location | Map Ref. | Tubes Complete | Loaded | Wired | Handed Over | Obstacle | Job No. |
|----------------|------------|----------------|--------|-------|-------------|----------|---------|
| Parkmill | 100/990111 | Yes | Yes | No | No | 30 | 8a |
| Weobley Castle | 100/921149 | Yes | Yes | No | No | 20 | 20 |
| Dunvant Road | 100/138169 | Yes | Yes | No | No | 35 | BP12 |
| Langland Bay | 100/052094 | Yes | Yes | No | No | 35 | LBE1 |
| Langland Bay | 100/049094 | Yes | Yes | No | No | 20 | LBP2 |
| Langland Bay | to | Yes | Yes | No | No | 15 | LBP4 |
| Langland Bay | 100/051094 | Yes | Yes | No | No | 20 | LBP3 |

Table 6.11: References to works regarding installation of Canadian pipe mines by No. 3 Section, 179 Special Tunnelling Company, RE in the Swansea-Gower case study area, 14/11/41 (TNA WO 166/3655).

6.4.3.8 Obstructions on the foreshore

The Swansea Defence Scheme documentation did not refer to defensive foreshore obstruction, possibly as these early installations were not considered part of the 1942 defence arrangements. A registered file at TNA preserved a list of such extant obstructions in Wales (Table 6.12). It indicated that extensive use of vertical poles was made in order to protect gently shelving sand beaches from aircraft and/or glider landings during low tide. Rhossili Beach, which is known to have been defended with vertical pole defences (Paul Huckfield pers. comm.), was not mentioned, demonstrating that such inventories should be used with caution and not treated as definitive lists recording every instance of a particular construction.

The list also referred to two tubular scaffolding installations at the west end of the Burry Inlet, confirming the aerial photographic and archaeological evidence. The document referred to the site location as the Loughor Estuary, demonstrating how naming conventions can be misleading.

| Serial | Location | Cassini From | Cassini To | Type of Construction |
|--------|-----------------|--------------|------------|----------------------|
| 7 | Jersey Marine | 101/168149 | 101/147147 | Vertical Poles |
| 8 | Swansea Bay | 101/105136 | 100/065107 | Vertical Poles |
| 16 | Loughor Estuary | 100/881221 | 100/885216 | Tubular Scaffolding |
| 17 | Loughor Estuary | 100/892188 | 100/888202 | Tubular Scaffolding |

Table 6.12: References to prepared obstructions of the foreshore in the Swansea-Gower case study area, 26/02/43 (TNA WO 199/103).

6.4.3.9 Petroleum warfare defences

A variety of documentary sources referred to the installation of petroleum warfare sites in the case study (Table 6.13). These sites were previously unknown. References to the construction of a beach flame barrage were contained within the

Swansea Garrison HQ war diary, but it would appear that its completion post-dated the end of the 1942 war diary; the subsequent diary was not preserved at TNA. The Admiralty sources were the only evidence for the Heavy 'F' Scheme flame defence installation at Swansea Docks. A site visit and examination of the relevant aerial photography failed to identify this facility. This emphasised the importance of using multiple sources, even of one type, and spending sufficient time in archives to locate small complementary references.

| Location | Type | Source | Remark |
|---------------------|-----------------------------|-------------|--|
| Swansea | 'F' Scheme, Heavy Pump Type | ADM 265/3 | Serial No. 25 |
| Swansea | Beach Flame Barrage | ADM 265/4 | 08/07/42: Visit to installations under construction at Swansea |
| Swansea | 'F' Scheme, Heavy Pump Type | ADM 265/10 | Reference to C.E. in C. Dg. No. 1100/42 showing modifications to pipework in pump house |
| Jersey Marine Beach | Beach Flame Barrage | WO 166/6880 | 26/05/1942: Garrison Comdr. visited Jersey Marine Beach with a view to siting Beach Flame Barrage |
| Jersey Marine Beach | Beach Flame Barrage | WO 166/6880 | 30/06/1942: Mr Cameron 179 Tunnelling Coy, RE visited Garrison Commander and discussed siting of Flame Beach Barrage, Jersey Marine |
| Jersey Marine Beach | Beach Flame Barrage | WO 166/6880 | 18/07/1942: Garrison Commander visited 179 Tunnelling Coy, RE and inspected work on Flame Beach Barrage - Jersey Marine |
| Jersey Marine Beach | Beach Flame Barrage | WO 166/6880 | 17/09/1942: Garrison Engineer visited 179 Tunnelling Coy, RE and inspected progress of work on Flame Beach Barrage |
| Jersey Marine Beach | Beach Flame Barrage | WO 166/6880 | 17/11/1942: Garrison Commander sites OPs for Flame Beach Barrage, Jersey Marine - work to be carried out by 179 (S) Tunnelling Coy, RE |

Table 6.13: References to petroleum warfare defences in the Swansea-Gower case study area, preserved in correspondence at The National Archives.

6.4.3.10 Coast artillery

The identification of the Fort Record Books (FRB) for Mumbles Island and Mumbles Hill at TNA was fortuitous, as only a small number survive for Wales, and

their contribution is enhanced when used with other documentary records. The evidence enabled detailed biographies of the sites' development to be constructed.

The Mumbles Island FRB stated it was occupied by 299 'B' Coast Battery, RA and was armed with two QF 4.7-in BL Mk III guns on Mk IV CP Mountings. Erection of the battery's barbed wire entanglement commenced on 10 September 1939 (Glamorgan Fortress Company, RA war diary, WO 166/3547).

It undertook a Close Defence role for Swansea docks and acted as the merchant shipping examination battery until 299 'A' Coast Battery was operational at Mumbles Hill. When 146 Coast Battery arrived at Mumbles Island, the Mumbles Hill battery was re-named 299 Coast Battery. Thereafter Mumbles Island performed a secondary examination role in poor visibility. It was equipped with two Projectors, Fort 90cm Mk V CASL emplacements, installed by the Garrison Engineer in November 1939 (Glamorgan Heavy Regiment, RA war diary, WO 166/1877). During 1942, the fort undertook landward defence duties and was allocated nine inland transport and infrastructure targets.

Mumbles Hill was an emergency Close Defence coast battery equipped with a pair of 6-in Mk VII Naval guns on Mk II mountings in single emplacements. The FRB recorded that the battery's position was selected by the Inspector of Fixed Defences on 11 June 1940. By 30 June 1940 the holdfasts had been emplaced; Nos. 1 and 2 guns were mounted on 9 and 4 July respectively. Both guns were proofed and operational by 1 August 1940.

It was originally designed to replace the Mumbles Island battery, but given the invasion threat both batteries were left operational. Mumbles Hill battery could bring

fire to bear in Swansea Bay and its approaches within the limits of its depression rangefinder (10,000 yards or 9,144 metres) and within an arc of fire from Swansea Docks to the coastline west of the battery. The battery's CASLs were co-located with the Port War Signal Station and Coastguard Station at Tutt's Head. Five landward targets (King's Dock lock gates and swing bridge, a chemical works, Halfway House road junction and Jersey Marine) were identified. The content of the associated Mumbles Sub-Sector defence scheme map, which described the ground defences of both batteries, is discussed below.

The Mumbles Island FRB described two additional coast batteries at Swansea East Pier and Port Talbot, but did not give precise locations. Swansea East Pier comprised two 75mm guns on fixed mountings operated by 431 Coast Battery. A reconnaissance report for the installation of AMTB defences at Swansea was forwarded to the War Office on 23 November 1940 (WO 166/11).

The second battery was the emergency coast battery constructed at Port Talbot on the east side of Swansea Bay and operated by 422 Coast Battery. A pair of French *Canon de 138mm Modèle 1910* Naval guns was mounted in 1942 to replace the 4-in Naval guns of 401 Coast Battery emplaced in August 1940 (WO 166/11) and the weapon's 11,000 yard (10,058 metre) range included part of Swansea's examination anchorage. The guns were removed in November 1943 (WO 199/1175).

The 559 Coast Regiment, RA war diary recorded the completion of 12-pdr gun emplacements and an observation post at Swansea on 30 November 1941 (WO 166/1758). Work on the searchlight emplacements, engine house and shelters were

noted as progressing. The post was occupied by 431 Coast Battery from 15 December 1941 and regimented with 559 Coast Regiment, RA.

It is uncertain whether the FRB and Coast Regiment documents were referring to one or two coast batteries operated by 431 Coast Battery. Wood (2012) referred to both Swansea Docks and Swansea East batteries. The common unit name and role suggested that these might be different names for the same battery, but it was considered unlikely that there would be such a gap between reconnaissance and installation. The evidence is not definitive. Two batteries were considered most likely, but the location of Swansea East battery is unknown.

6.4.3.11 Defence batteries

The documentary sources discussed the garrison's field artillery provision. The Swansea Defence Scheme No. 2, stated that

'two 4.7 guns and two 13-pdr guns of the 960 Battery, RA, the projectors of 113 AA 'Z' Battery, RA together with strongly defended localities of pillboxes and defence works manned by static units will prevent any attempted landings by sea [in the Docks Sector].'

The two 4.7-in guns were Close Defence static mountings located to the south of South Dock and adjacent to emplacement Q4 on the south side of Queen's Dock respectively. The locations of the two 13-pdr guns were not described, but the 960 Defence Battery, RA war diary recorded the takeover of four 13-pdr guns from 13 Defence Regiment, RA on 17 March 1941. These were mobile anti-tank guns and it

is possible that they formed part of a mobile reserve for deployment to temporary firing positions as required.

The 960 Defence Battery, RA was responsible for a number of 4-in, 4.7-in and 6-pdr positions in Swansea and Gower during 1940-42. The unit's war diary recorded that it was responsible for three single 4-in Close Defence Naval gun emplacements during 1940-41 (WO 166/2044). One extant emplacement was located at Berthlwyd on the north Gower coast. The other two emplacements were located in the Docks Sector. One was positioned immediately to the east of the Anglo-Persian Oil Company's remote oil tank farm to the south of Baldwin's Crescent; it was demolished during the post-war extension of the oil tank farm. The other 4-in gun emplacement was located between the foreshore and the engine shed and railways sidings complex to the south of HMP Swansea. It was demolished in advance of the new council offices. The war diary documented the dismantling of the 4-in guns from these positions and their return to FOGMO, Cardiff by 30 April 1941; the emplacements may have been unarmed during 1942.

The defence battery also operated two 6-pdr anti-tank gun emplacements at Fforestfach and at Stafford Common to protect key approaches to the north of Swansea. Both were in use by November 1940 and were maintained during 1942, but it is uncertain whether the 6-pdr guns were mounted. Two additional emplacements were occupied at Killay and Gowerton in March and April 1941 respectively, but the location, type of weapon or period were not stated.

6.4.4 Aerial photographic source evidence

The case study was the subject of moderate aerial photography during the Second World War (Table 6.14). Nine different reconnaissance sorties were identified between 1940 and 1944, totalling 529 prints. The geographical coverage was heavily biased to Gower, particularly the coastal and estuarine areas. The inland coverage mostly dated to 1944. The seaboard of Swansea and its docks were captured only in 1941, although Mumbles was recorded throughout the wartime period.

| Location | Type | WG APU Reference | Sortie | Date | No. of Frames |
|-------------------------------|----------|------------------|---------|------------|---------------|
| Mumbles Island | Vertical | M279 | 61/1 | 24/06/1940 | 7 |
| Swansea-Mumbles area | Vertical | M2174 | HLA/113 | 10/02/1941 | 52 |
| Swansea docks-S/W Gower coast | Vertical | M3022 | S/632 | 22/10/1941 | 85 |
| SE Gower coast | Oblique | M3058A | S/755 | 10/02/1942 | 35 |
| Mumbles-Pennard-Fairwood area | Vertical | M2267 | HLA/424 | 23/03/1942 | 28 |
| Mumbles Head | Vertical | M262 | AC/42 | 27/04/1942 | 3 |
| South Gower | Vertical | M1255 | LOC 176 | 10/02/1944 | 76 |
| Gower | Vertical | M1274 | LOC 202 | 06/03/1944 | 85 |
| Gower and Mumbles | Vertical | M1281 | LOC 212 | 08/03/1944 | 158 |
| Total | | | | | 529 |

Table 6.14: Summary of wartime aerial photographic evidence for Swansea-Gower case study area. Presented in chronological order.

6.4.4.1 Wartime low-level oblique

Only one sortie (S/755) recorded low-level oblique photographs of the Gower coast between Oxwich Burrows and Pwlldu Head, comprising 6.6% of the total. Taken in February 1942 the images did not depict any readily identifiable anti-invasion defences, other than a possible minefield located in the dunes south of Nicholaston Farm (frame 3_78).

6.4.4.2 Wartime vertical (all scales)

The majority of the sorties were vertical in character. Sortie S/632 in late 1941 was the earliest comprehensive reconnaissance of Swansea and the south-eastern portion of Gower. Frame 34 is the only known visual evidence for the alignment of anti-tank cubes and associated pillboxes running south along the coast from Blackpill, together with an inline pillbox. The southern end of the alignment is tree obscured. It also recorded the ZAA and HAA batteries at Singleton. The results from sortie HLA/113 of a similar area in early 1941 were rendered unusable due to cloud obscuration.

Sortie 61/1 depicted Mumbles Island artillery battery and Mumbles Hill prior to that battery being constructed. Sortie AC42 captured Tutt's Head and Mumbles Hill battery, depicting the barber wire defences and CASL emplacements of the former and part of the barbed wire defences of the latter, including a rare set of trenches above Mumbles Road at Bracelet Bay (frame 2). The HLA/424 sortie captured much of the defensive arrangements at RAF Fairwood Common and Mumbles.

Analysis shows that 60.3% of the frames were collected by US Army reconnaissance sorties in early 1944 (Table 6.15), which reflected the American use of Gower for training prior to D-Day. The American photography was from high altitude and detail was hard to determine. The perimeter defences of the CD/CHL stations at Oxwich and Rhossili were depicted (Sortie LOC 176, frames 7009 and 7014 respectively).

| Year | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | Totals |
|-----------------------|------|------|------|------|------|------|--------|
| No. of RAF Frames | 0 | 7 | 137 | 66 | 0 | 0 | 210 |
| No. of US Army Frames | 0 | 0 | 0 | 0 | 0 | 319 | 319 |
| Totals | 0 | 7 | 137 | 66 | 0 | 319 | 529 |

Table 6.15: Summary of quantities of aerial photographic frames collected for Swansea-Gower case study area by year and by source.

6.4.4.3 Operation Revue (1945-1952)

The immediate post-war aerial photography provided almost complete coverage of the case study. The resolution was not sufficient to identify smaller defence structures, but captured larger structures, particularly those with characteristic linear morphology, where the defences had not already been dismantled. The photography recorded the removal of defence structures, such as the intermittent removal of anti-tank blocks from the Blackpill alignment (RAF 106.GUK1625 frame 2266, 7 July 1946) and then their complete removal (RAF CPE UK 2264, 27 August 1947).

6.4.5 Cartographic source evidence

Four collections of cartographic evidence were identified for the case study (Table 6.16). The majority were preserved at TNA. The FRBs for Mumbles Island and Mumbles Hill coast defence batteries preserved the largest and most relevant collections. All were viewed.

| Source | Title | Date | No. of Plans | Reference |
|------------|----------------------------------|-----------|--------------|-------------|
| RAF Museum | Air Ministry Record Site Plan | 1944 | | N/A |
| TNA | Swansea Garrison HQ War Diary | 1942 | 2 | WO 166/6880 |
| TNA | Fort Record Book: Mumbles Island | 1791-1943 | 9 | WO 192/156 |
| TNA | Fort Record Book: Mumbles Hill | 1939-1955 | 9 | WO 192/320 |

Table 6.16: Summary of cartographic evidence identified for Swansea-Gower case study area.

6.4.5.1 Air Ministry Record Site Plans

Four Air Ministry record site plans for RAF Fairwood Common were identified (Table 6.17), but were dated 1945 and portrayed the airfield at its most developed. No earlier plans were identified. Airfield plans were known not to be definitive, reflecting structures that were actually in use or recently abandoned. The only recorded defence structure was the Type 11008/41 Battle Headquarters. The perimeter defence sites would have been abandoned for a few years before the plans were drafted and it would appear that they were deliberately disregarded.

| Title | Date | Scale | Reference | Notes |
|--|------------|---------|---------------------------|---|
| Fairwood Common: Record Site Plan of Dispersed Sites | April 1945 | 1:2,500 | FC.565 [TNA Ref. BD 54/3] | Scaled plan. Depicted locations and extent of 13 dispersed sites and the operations block. No defence posts depicted. |
| Fairwood Common: Record Site Plan of Aerodrome Site | March 1945 | 1:2,500 | FC.566 [TNA Ref. BD 54/3] | Scale plan. Depicted location of Type 11008/41 Battle Headquarters. No other defence sites. |
| Fairwood Common: Record Site Plan of Aerodrome Site | May 1945 | 1:2,500 | 2056/45 | Scaled plan. Depicted location of Type 11008/41 Battle Headquarters. No other defence sites. |
| Fairwood Common: Record Site Plan of Dispersed Sites | May 1945 | 1:2,500 | 2057/45 | Scaled plan. Depicted locations and extent of 13 dispersed sites and the operations block. No defence posts depicted. |

Table 6.17: Summary of cartographic evidence identified for RAF Fairwood Common.

6.4.5.2 Swansea Garrison Headquarters war diary plans

The second collection comprised the 1942 Swansea Garrison Headquarters war diary, which preserved two important plans (Table 6.18).

| Title | Date | Scale | Reference | Notes |
|--|--------------------------------------|--------------|-------------|---|
| GWR Swansea Harbour & Docks | June 1934, amended 1938 | Not known | Y3484 | Colour scaled plan annotated with locations of defence posts, roadblocks, static guns and HQs |
| Map Showing Defended Localities: Swansea | Not dated but content indicated 1942 | 3" to 1 mile | Copy No. 29 | Depicted Swansea defence area, sub-sector and platoon boundaries and locations of defended localities |

Table 6.18: Summary of cartographic evidence identified from Swansea Garrison HQ war diary, 1942 (TNA WO 166/6880).

The first was a 1934 Great Western Railway plan of its Swansea harbour, railway and dock facilities (Plate 6.1). It was annotated to show defence post locations in January 1942. The defence posts could be cross-referenced with the associated gazetteer, identifying the unit and weaponry. The smaller South Dock Sub-Sector was densely defended in contrast to the larger and sparsely defended East Docks Sub-Sector, which defended perimeter and key transport nodal points.

The second described the organisation of Swansea Defence Scheme area in January 1942 (Plate 6.2). It covered Swansea town and outlying areas where advantageous. It included the Gower stop line, but not Gower Sector immediately to the west of the stop line. Eight sub-sectors were identified within the defence scheme area (A-F, and South Dock and East Docks zones).

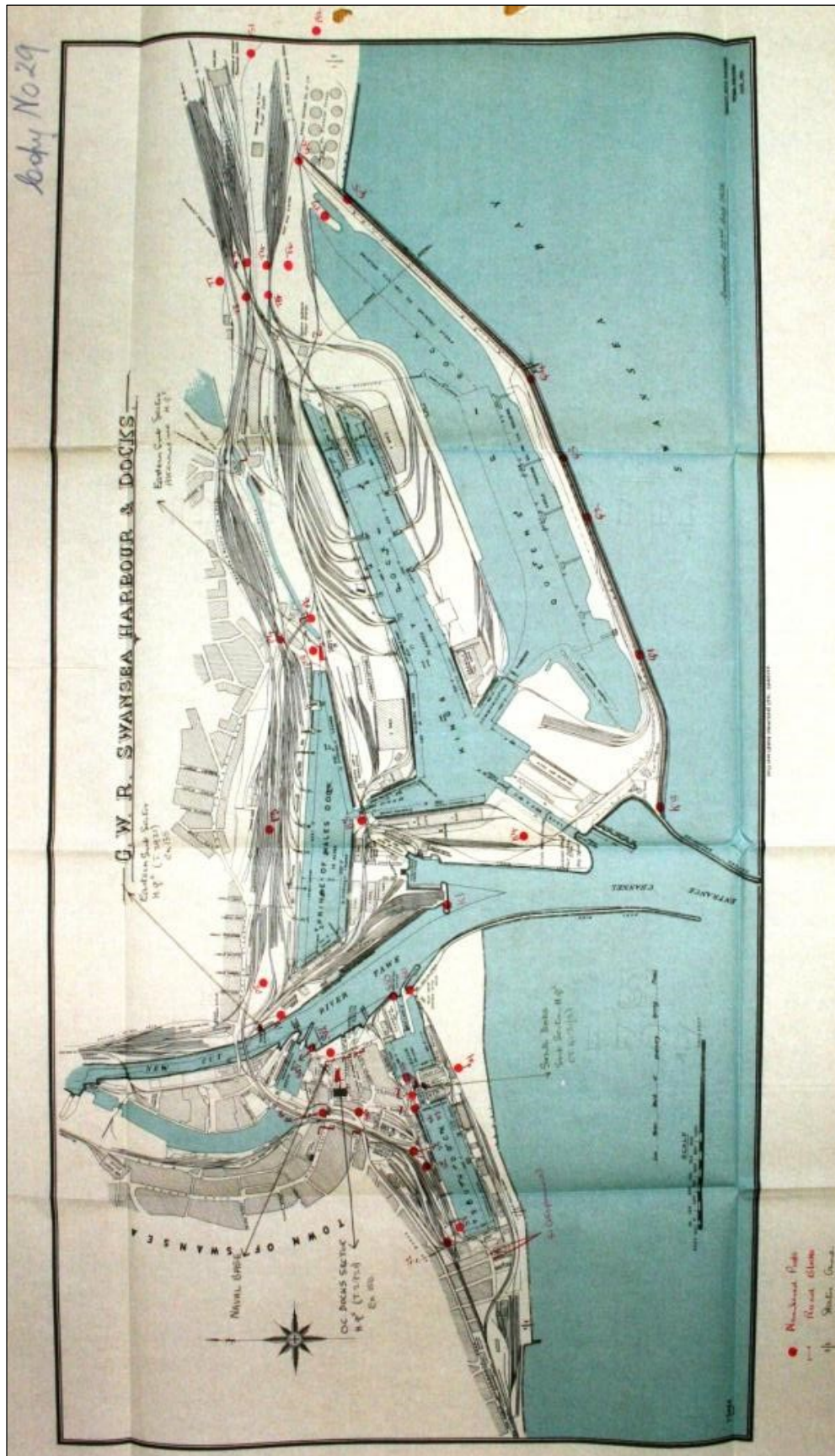


Plate 6.1: 1934 GWR plan of Swansea Harbour and Docks annotated in January 1942 (TNA WO 166/6880).



Plate 6.2: Map showing Swansea Garrison, sub-sector boundaries and defended localities.

Named defended localities were depicted for Sub-Sectors A-E, annotated with section allocations. It recorded that fifty defended localities were defended by 178 sections. These details were not recorded for Sub-Sector F or the dock areas.

6.4.5.3 Mumbles Island Fort Record Book plans

The third collection comprised nine plans preserved within the Mumbles Island coast battery FRB. They encompassed early fort plans, contextual maps, detailed communications schematics and two defence plans (Table 6.19). The first defence plan was a War Office GSGS3906 map of Swansea annotated with nine land targets for 146 Coast Battery at Mumbles Island. The map was undated, but 146 Coast Battery arrived at Mumbles on 28 May 1941 (WO 166/1758), remaining until transferred to Flat Holm on 7 December 1942 (WO 166/7278).

The second plan illustrated the defence scheme for Mumbles Sub-Sector in May 1943 (Plate 6.3). Located within Gower Sector it adjoined the west side of Swansea Garrison. It was of the utmost significance as it located all of the defence posts surrounding Mumbles Island and Mumbles Hill coast batteries and the Tutt's Head Coast Guard Station. Annotations identified the weapons at each defence post and their arcs of fire.

The plan illustrated the intensive defence arrangements organised for the coast artillery emplacements and associated infrastructure located within a relatively small sub-sector of fundamental importance for the anti-invasion defence of Swansea. Areas of Home Guard responsibility were also indicated on the flanks of the main defences.

| Title | Date | Scale | Reference | Notes |
|---|-------------------------------|-----------|------------|---|
| 299 'B' Coast Battery RA: PAD Scheme | 24/04/1942 | N/A | N/A | Annotated plan of battery buildings indicating Passive Air Defence arrangements |
| 299 'B' Battery: Neighbouring Forts | Not known, but 1940+ | N/A | N/A | Map adhered to Part I of Fort Record Book showing neighbouring batteries: 299 A Battery at Mumbles Hill, 299 B Battery at Mumbles Island, 431 Battery (2 x 75mm) at Swansea East Pier and 422 Battery at Port Talbot |
| Communications | July 1942 | N/A | N/A | Schematic of telephone, R/T net, alarm and voice circuits at Mumbles Island battery and with neighbouring batteries |
| Alarm Circuits | Not Known | N/A | N/A | Schematic of alarm circuits at Mumbles Island battery |
| Cable Routes for CASLs | Not known | N/A | N/A | Indicative plan of cable routes for Coast Artillery Search Lights at Mumbles Island battery |
| 146 Coast Battery Land Targets | Period 28/05/1941 -07/12/1942 | 1:25,000 | GSGS3906 | OS map annotated with locations of nine land targets to be engaged by Mumbles Island battery. 146 Battery arrived at Mumbles from Orkney on 28/05/1941 and departed for Flat Holm on 07/12/1942 |
| Mumbles Battery | N/A | 1:500 | N/A | Early plan, section and elevation of Mumbles Island battery |
| Severn Defences: Mumbles Battery, Plan of | 21/12/1904 | 1" to 10' | N/A | Plan and section Mumbles Island battery magazine |
| Mumbles Sub-Sector (Gower Defence Scheme) | 20/05/1943 | 1:2,500 | Copy No. 2 | To scale plan of Mumbles Island, Mumbles Hill and Tutt's Head area showing close defence arrangements for rifle, machine gun, field gun and Blacker Bombard, including pillbox and slit trench positions and directions of fire |

Table 6.19: Summary of cartographic evidence identified from Mumbles Island Fort Record Book (TNA WO 192/156).

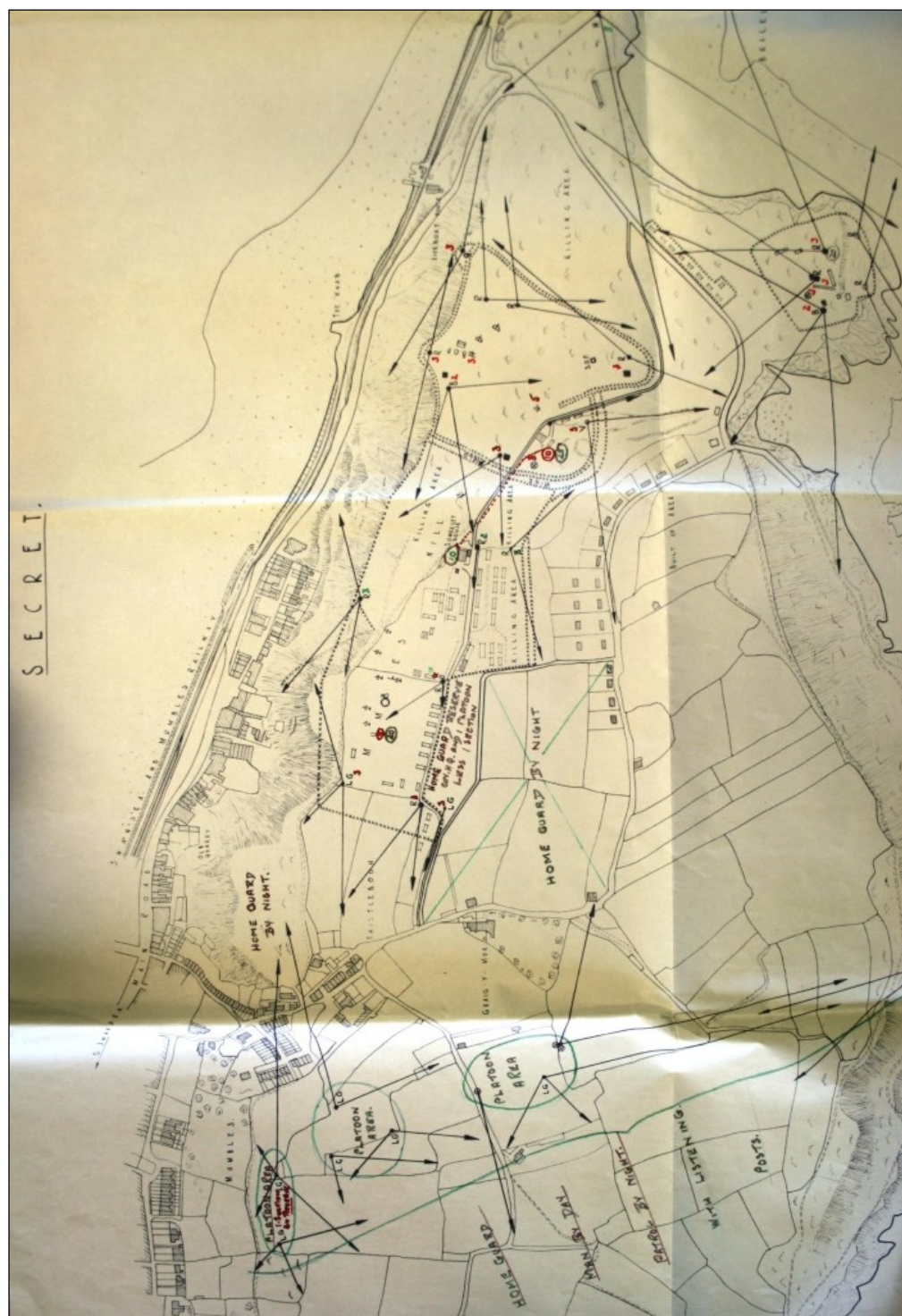


Plate 6.3: Map showing the Mumbles Sub-Sector defences (Gower Defence Scheme), May 1943.

6.4.5.4 Mumbles Hill Fort Record Book plans

The final collection of nine plans was preserved in the Mumbles Hill coast battery FRB (Table 6.20). The contents were similar to those described for Mumbles Island. The key document was an undated measured sketch plan of the 229 Battery defence scheme (Plate 6.4). It provided additional details for Mumbles Hill coast battery and Tutt's Head Coast Guard Station to that depicted in the Mumbles Sub-Sector defence scheme plan. It identified the slit trenches and Blacker Bombard emplacements, but also identified additional pillboxes and defence posts.

| Title | Date | Scale | Reference | Notes |
|---|----------------------|---------------|---|---|
| Communications: 299 Coast Battery RA | Not known, but 1940+ | N/A | None | Indicative wiring plan for Mumbles Hill coast battery |
| Plan of Mumbles Battery | Not known, but 1940+ | Not known | Copy of 13/S/8 V Section K Sheet 1 of 3 | Semi-annotated copy of original scale plan showing battery layout |
| Mumbles Battery | Not known, but 1940+ | Not known | Copy of 13/S/8 V Section K Sheet 2 of 3 | Semi-annotated copy of original scale plan showing close up of battery layout |
| Mumbles Coast Guard Station | Not known, but 1940+ | Not known | Copy of 13/S/8 V Section K Sheet 3 of 3 | Semi-annotated copy of original scale plan showing Coast Guard Station layout at Tutt's Head and Nos. 1 and 2 CASLs |
| 299 Battery Defence Plan | Not known, but 1940+ | Not known | Sketch A | Indicated locations of pillboxes, slit trenches, defence posts and Blacker Bombards |
| Mumbles C.D. Batteries: Signal Communications Circuit Diagram | 10/06/1942 | N/A | FSS DRG No. 304/2 | Indicative wiring plan for Tutt's Head, Mumbles Island and Mumbles Hill |
| Site SA.5 Mumbles Hill | Not known | 1:2,500 | OS Glamorgan Sheets XXXII 3478 | Bespoke OS map extract showing area to be sterilised for further building and camp area |
| Mumbles C.D. Batteries: Cable Route Plan | 17/06/1942 | 25" to 1 mile | FSS DRG No. 315/1 | Scaled tracing showing locations and routes of GPO, mag slip and signals cables |
| Record Plan: CD Battery Mumbles Hill Top | 24/08/1945 | 1" to 30' | DRG No. 396/1 | Scaled tracing showing battery and camp accommodation with schedule and construction history |

Table 6.20: Summary of cartographic evidence identified from Mumbles Hill Fort Record Book (TNA WO 192/320).



Plate 6.4: 299 Battery Defence Plan detailing defence arrangements for Mumbles Hill coast battery and Tutt's Head Coast Guard Station as preserved in Mumbles Hill coast battery Fort Record Book (TNA WO 192/320).

6.5 Contribution and role of evidential sources

This section assesses the value, role and contribution of the evidential sources.

6.5.1 Archaeological evidence

| Type | Value | Role | Major + contribution | Major - contribution |
|------------------------------|-------|--|--|---|
| GGAT HER | Low | Minor | Summary of known information | Too few defence sites recorded Illustrates how little research undertaken |
| RCAHMW NMRW (incl. DoB data) | Low | Minor | Summary of known information | Too few defence sites recorded Illustrates how little research undertaken |
| Rapid field observation | Low | Negligible , but primary role where survives (buried resource potential unknown) | Surviving remains provide unique information not available elsewhere | Lack of visible sites identified Constrained by extensive clearance |

Table 6.21: Summary of value, role and contribution of archaeological evidence for the Swansea-Gower case study area.

Table 6.21 summarises the value, role and positive and negative contributions of the archaeological evidence. This evidence type identified few sites historically and new field observation identified limited additional defence posts. It was a minor source of low value for locating new sites when compared to other types of evidence. It was the only source to identify the specific location of a spigot mortar emplacement on the Gower stop line (the Swansea Garrison war diary mentioned their construction, but not their locations) and a roadblock in Swansea docks that had not

been cited in the documentary or cartographic evidence. The success rate in identifying new defence sites was low.

In this case study it was clear that successful research could not rely on the sole use of archaeological evidence to identify the original anti-invasion defence site population or even a small subset of it. The value of the archaeological evidence in this case study was less concerned with being a primary source of new site identification, but rather in providing information relating to the character of some of the defence sites located through other sources of evidence, for example the gun emplacement at Berth-lwyd.

In these circumstances, field observation confirmed the presence and exact location of these defence sites and where these survived, the archaeological approach then took on a primary role in terms of its ability to provide a constructional and spatial expression of the defence site by providing a level of detail and comprehension rarely obtainable from the other source types. In this case study it was clear that archaeological evidence had to be combined with other forms of evidence in order to successfully address the research questions.

Some historians have reduced archaeology to a subservient role in terms of identifying whether sites mentioned in documentary evidence, were built or not, thereby informing whether the documentary source described sites as built or not yet implemented. In this case study, archaeological enquiry through rapid site observation was not able to undertake this subservient role, given the widespread clearance of anti-invasion defences.

Rather the contribution of the archaeological approach was negative in character as it identified a widespread absence of evidence rather than an evidence of absence. It demonstrated the powerful nature of post-depositional processes and transferred the expectation of holistic understanding to other classes of evidence.

6.5.2 Primary documentary evidence

| Type | Value | Role | Major + contribution | Major - contribution |
|------------------------|-------|------------|--|--|
| TNA: admin war diaries | High | Primary | Strategic overview; Operation Instructions; location lists | Lack of RAF and Naval files; Lack of earlier content |
| TNA: unit war diaries | High | Primary | Operational data; site locations and dates | Identifying the unit at a specific location and time |
| TNA: registered files | High | Primary | Detailed data for specialist defence works | Lack of stop line files |
| LROs | Low | Negligible | Brief contextual | Lack of data for case study |

Table 6.22: Summary of value, role and contribution of primary documentary evidence for the Swansea-Gower case study area.

The numerous, rich and diverse collection of war diaries and registered files at TNA were the key evidence type for understanding the anti-invasion defences in the Swansea-Gower case study (Table 6.22). The Swansea Garrison war diary was of fundamental importance for the positive identification of the majority of the defence works (Table 6.23) and a range of specialist documentary sources provided more detailed information that collaboratively provided an expanded understanding of defence provision. The local records office did not hold relevant content, which emphasised the importance of looking beyond the case study.

| Defence site type | Swansea Garrison | Gower Sector | Total |
|---------------------|------------------|--------------|------------|
| Pillboxes | 119 | 0 | 119 |
| Fieldworks | 66 | 0 | 66 |
| Defended Localities | 0 | 14 | 14 |
| Platoon areas | 53 | 0 | 53 |
| Minefields | 5 | 19 | 24 |
| Canadian Pipe Mines | 8 | 22 | 30 |
| Fougasses | 8 | 4 | 12 |
| Roadblocks | 56 | 18 | 74 |
| Coast artillery | 5 | 1 | 6 |
| Total | 320 | 78 | 398 |

Table 6.23: Distribution analysis of selected anti-invasion defences for Swansea-Gower case study area as identified from Swansea Garrison war diary.

The combination of formation headquarters war diaries and papers with war diaries from those units undertaking the defence work construction provided an unparalleled and comprehensive, but incomplete understanding of defence preparations during 1942. All but a small number of defence posts were cited by the collective documentary sources, but their locations could not be identified without the GSGS Cassini maps. The complementary use of the documentary and cartographic evidence was a pre-requisite for success and without one of the sources the defence posts could not be located.

The documentary sources also provided the fundamental understanding of the military administrative and operational structures, which enabled further war diaries to be identified and the essential military context to be appreciated. They were the key to understanding the changing military unit presence within the case study.

Although the documentary sources were responsible for the identification of the overwhelming majority of new defence sites, there were identifiable gaps that instilled weaknesses in understanding the total population of defence works planned and built, how those built developed and declined over time, and the interactions

between different defence types. The lack of identified Swansea Garrison war diaries for 1940 and 1941 prohibited a longitudinal analysis of the development of the defence schemes and their respective defence posts.

The Swansea Defence Scheme stated that each pillbox and fieldwork was supported by at least two supporting fire trenches. The number and locations were not listed suggesting that another c. 500 earthwork defences were unaccounted for.

The Gower Sector Defence Scheme was inconsistent in conveying the range and number of defence posts constructed. In combination with other specialist registered files it noted the locations of a range of defence sites including defended localities, minefields, Canadian pipe mines, roadblocks and coastal observation posts, but did not list pillbox or fieldwork locations.

6.5.3 Aerial photographic evidence

| Type | Value | Role | Major + contribution | Major - contribution |
|-------------------------------|-----------------|--|--|---|
| Wartime low-level oblique | Negligible | Usually non-contributory, but a primary role where present | Where present can provide high levels of detail and 3D perspective | Significant lack of spatial and chronological coverage |
| Wartime vertical (all scales) | High – Moderate | Primary source of evidence and context | Almost complete coverage | Not able to capture small defence works Infrequent temporal coverage |
| Operation Revue (1945-1952) | Moderate | Important retrospective source | Complete coverage for case study area | Too late – major post-War reconstruction underway |

Table 6.24: Summary of value, role and contribution of archaeological evidence for the Swansea-Gower case study area.

Aerial photographic sources were highly variable in their role and contribution depending on their type, date, quantity, quality and coverage (Table 6.24). Early wartime coverage was intermittent and often of poor resolution. Few areas were photographed on more than one occasion, limiting the ability to date and phase.

Wartime oblique photography made a negligible contribution, constrained by the lack of coverage and number of frames. The vertical photography was the most common and extensive type and made important contributions for a number of defence site types either in a unique or complementary role combined with other evidence types.

It was the unique source for identifying the presence of a number of anti-landing obstacles and bombing decoys, together with the original extent of the anti-tank block alignment and ditch at Blaen-lwyd. It was also the principal source for identifying the location and extent of barbed wire entanglements used around minefields and larger installations.

The later wartime American vertical photography was captured from higher altitudes in order to gain a wider field of view and while utilising improved technology, the output was not found to offer any particular advantage in use, other than covering all of the case study. Careful examination did not identify further defence structures. The post-war RAF vertical photography was more useful as it was taken from lower altitudes facilitating better image resolution, but its contribution was limited as it recorded post anti-invasion defence landscapes after many of the defences had been cleared away.

For some sites aerial photography was of fundamental importance depicting and describing the defences comprehensively in a way that other sources could not achieve. Elsewhere the absence of photography or the existence of poor photography was frustrating. The evidential source cannot be ignored and the photography for each defence structure required appraisal on an individual basis.

6.5.4 Cartographic evidence

| Type | Value | Role | Major + contribution | Major - contribution |
|--------------------------------|-------|------------|---|--|
| GSGS3906 (1:25,000) | High | Enabling | Cannot locate defence sites in documents without them | Hard to obtain and series incomplete for case study area |
| GSGS3907 (1 inch to 1 mile) | Low | Contextual | Provide geographical context | Scale too small to plot sites |
| Defence scheme maps | High | Primary | Precise site location and informative annotations | Very limited spatial and chronological scope |

Table 6.25: Summary of value, role and contribution of cartographic evidence for the Swansea-Gower case study area.

Research did not identify a sole map of all of the defences constructed within the case study and the overall contribution of mapping was limited by its intermittent presence, date, purpose, geographical coverage and scale. The lack of cartographic evidence for 1940-41 was striking and meant that other evidential sources were required to engage this period.

Two types of military cartography were identified (Table 6.25). The War Office GSGS maps were of fundamental importance in terms of their enabling contribution as the defence sites identified in the documentary sources could not be located

without access to the incorporated Cassini military grid overlay. The maps did not contain any defence information and their value was as an enabling locational tool in a complementary role with documentary resources. In one exceptional case, an annotated GSGS3906 map of central Swansea preserved within a FRB depicted landward targets to be engaged by Mumbles Island coast battery, providing information not recorded elsewhere.

The second class of cartographic evidence comprised a small number of defence scheme-related maps, including annotated plans showing defence arrangements at particular establishments and plans depicting the military administrative and operational geography of the case study.

The annotated plans were of fundamental importance for identifying the location, type, number and extent of individual small-scale defence posts within Mumbles Sub-Sector and Swansea Docks, allowing both to be reconstructed with high degrees of confidence. The inclusion in the former of the location of all of the rifle pits and machinegun emplacements suggested that this small sub-sector was the best understood defended area in terms of its defence provision in Wales for any time during the wartime period.

The three inch to one mile overlay plan depicted the spatial extent of the Swansea Garrison HQ area, its boundaries and sub-divisions, together with associated defended localities in January 1942. At the time of writing, this plan was thought to be a unique survival for Wales.

6.6 Summary

This study set out to determine the wartime defensive arrangements within the case study, where very little was known. A low number of defence sites had been identified through archaeological fieldwork, but no attempt had been made to identify and assess the surviving documentary sources. The published military historiography was limited and there was no understanding of the military organisational arrangements and no comprehension of the formations and units involved. Understanding of the development, phasing and use of the defensive schemes and their content, coverage and detail was absent.

This research has drawn together and reviewed all of the identifiable evidence. It identified new sources of evidence, particularly documentary, and combined them with archaeological, cartographic and aerial photographic evidence to present a more sophisticated understanding of the development of the role and contribution of the different evidential source types, together with the case study's defensive arrangements. The evidence indicated variety and sophistication in the defensive arrangements, and challenged the often verbally expressed assertion that the defences were not as refined as those built on the south and east coasts of England. New source evidence increased the number of known defence sites ten-fold. Significant evidential gaps were identified. In particular the evidence identified for 1942 demonstrated the inadequacy of understanding for the 1940-41 period.

This and the previous chapter reviewed the available evidence for the defensive arrangements prepared within the St Athan-Llandow and Swansea-Gower

case studies. The next chapter assesses the situation in the Carmarthen Stop Line area, which forms the final case study assessment.

7. CASE STUDY 3: THE CARMARTHEN STOP LINE

7.1 Introduction

This chapter presents the results and findings of the third case study. It is divided into four sections. The first section describes the case study's characteristics, the second section reviews the known source evidence, the third section presents the newly identified source evidence and the final section assesses the role, value and contribution of the evidential sources.

7.2 Case study description

The case study comprised an arbitrary rectangular shape that bisected the Dyfed peninsula in south-west Wales (Table 7.1 and Figure 7.1). It measures fifty-eight kilometres north-south by twenty-one kilometres east-west, covering a notional area of 1,218 square kilometres, although significant areas in the south-western and north-western regions comprised the sea (see Map 3 in end papers). It incorporated the Ceredigion and Carmarthenshire coastlines and the route of the north-south aligned Carmarthen Stop Line, together with broad areas on either side. It contained the major settlement of Carmarthen (see Map 6 in end papers for exemplar of historic mapping), and the smaller towns of Newcastle Emlyn, St Clears, Kidwelly and part of Burry Port.

| Location | National Grid Reference |
|-----------|-------------------------|
| NW corner | 224000, 256900 |
| NE corner | 245000, 256900 |
| SW corner | 224000, 198900 |
| SE corner | 245000, 198900 |

Table 7.1: Carmarthen Stop Line case study area corner co-ordinates.

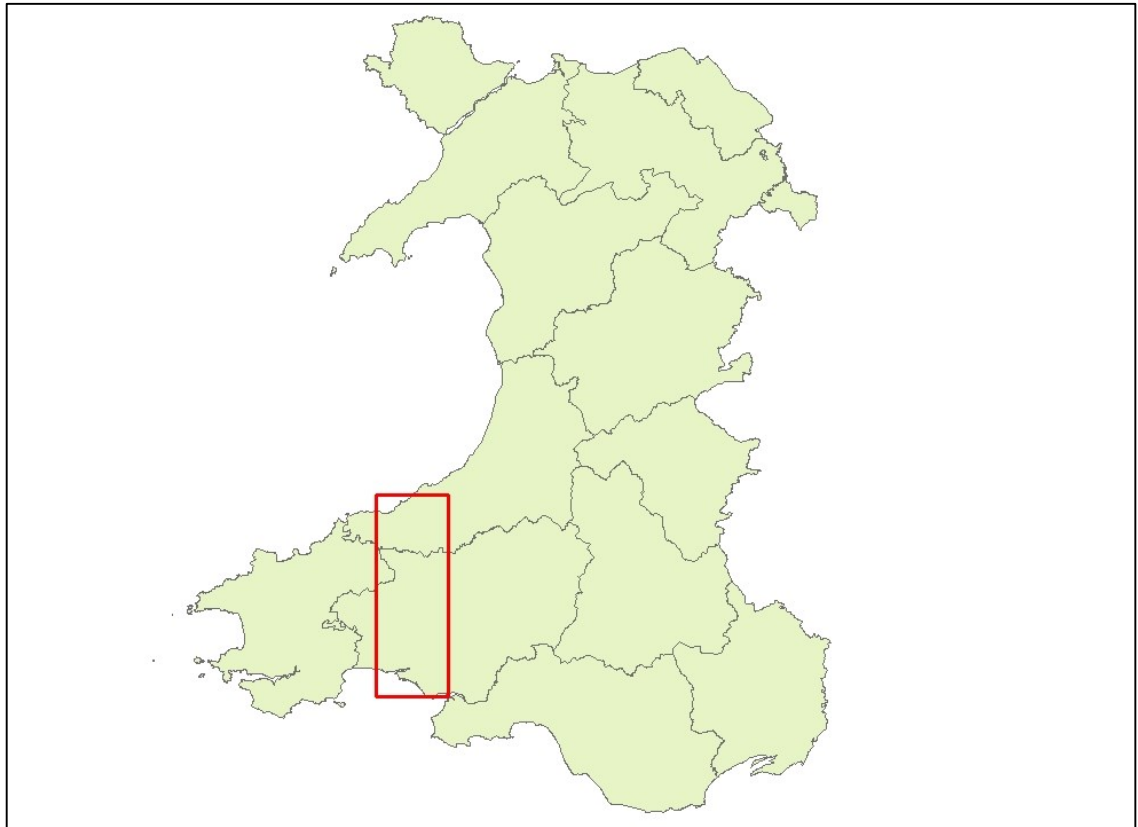


Figure 7.1: Carmarthen Stop Line case study area location. Base map depicts administrative counties of Wales as of 1931. Scale = 1:1,250,000.

7.2.1 Topography, hydrology, geology and human geography

Given the larger size of the case study compared to the other cases, it was beyond the scope of this research to describe in detail every individual aspect area as depicted on CCW's LANDMAP geological evaluation map. A broad summary is provided utilising CCW's regional Landscape Character Areas (rLCAs) as defined in the draft *Landscape Character Map for Wales* (Countryside Council for Wales 2009). The case study incorporated elements of eight rLCAs.

The 'Taf, Tywi and Gwendraeth Estuaries' rLCA covers the southern coastal area and is characterised by the confluence of three major estuaries (Taf, Tywi and

Gwendraeth) and the lower courses of the rivers, which flow south into Carmarthen Bay. The greater part is underlain by Old Red Sandstone formations, with coastal limestone cliffs exposed near Pendine (2009: 46). The estuary mouth is defined by a pair of opposed major sand spit structures at Cefn Sidan and Pendine. The river valleys were drowned by post-glacial rising sea levels and formed a ria. The intertidal zones are dominated by broad and extensive sandy foreshores at Pendine-Laugharne and Cefn Sidan, separated from broad flat areas of saltmarsh and reclaimed marsh by low stabilised dune ridges. The marshes are sub-divided by rectilinear drainage ditches and other boundaries. Settlement pattern is dispersed and often linear in character. An undulating lowland hill terrain dissected by valleys rises sharply from the coast and flanks the estuary as far north as Carmarthen, cut by the broad flood plain of the River Taf.

The south-eastern corner of the case study includes the western extremity of the 'Gwendraeth Vales' rLCA. This is a rolling lowland landscape of settlement, dispersed hills and vales, with medium-sized enclosed fields and small valleys feeding the River Gwendraeth (2009: 34).

The eastern portion of the 'Taf and Cleddau Vales' rLCA is located to the north of the 'Taf, Tywi and Gwendraeth Estuaries' rLCA. It comprises a 'gentle, rolling inland landscape, rural and agricultural... underlain by Ordovician shales, mudstones and sandstones' (2009: 45). Mixed agriculture is practiced amongst a scattered settlement of villages and hamlets, and medium-sized field systems. There is a broad valley system with adjacent side cwms to the west of Carmarthen, with areas of upland and lowland plateaux located to the north-east and north-west respectively.

The major town of Carmarthen is located at the western end of the 'Tywi Valley' rLCA, which is 'a major, rural, lowland valley' (2009: 42), aligned roughly east-west and containing strategic road and rail routes.

The case study's central band is dominated by the 'Pembroke and Carmarthen Foothills' rLCA, which comprises a spine of upland Ordovician formations between the adjacent Cambrian and Mynydd Preseli uplands (2009: 43). The principal land use is livestock grazing, with uplands characterised by open rough grazing. Valley sides are often thickly wooded. The steep-sided and incised lowland gorge of Afon Duad is a distinctive topographical feature between Carmarthen and Cwmduad, and cuts through the undulating terrain of Upper Ordovician slatey-mudrocks around Cynwyl Elfed. To the north lies an extensive upland plateau around Rhos, which is deeply incised by branching river valleys.

North of this the land drops through undulating lowland hill terrain to the active lowland major mature river system of the 'Teifi Valley' rLCA, characterised by a broad flood plain and meandering channel (2009: 41). The valley serves as an important communications corridor with major settlements established at over-bridging points, for example at Newcastle Emlyn and Llandysul.

The 'Ceredigion' rLCA, is located north of the 'Teifi Valley' rLCA and comprises an extensive massif of Ordovician plateau characterised by 'a hilly inland lowland farmland landscape, margining on upland character in places' (2009: 26), with steep-sided dendritic river valleys north of Henllan.

This area drops northwards to an extensive area of undulating lowland Silurian hills and valleys in the Brynhoffnant and Pontgarreg area, comprising the 'Ceredigion

Coast' rLCA. A large number of narrow and wooded river valleys emerge on the gentle sweep of Cardigan Bay, with extensive sea cliffs, exposed headlands, sheltered coves and small coastal villages. The area between Pontgarreg and Llangrannog is defined by a steep-sided coastal L-shaped valley.

7.2.2 The Carmarthen Stop Line

The case study's prime focus is the Carmarthen Stop Line, one of a number of stop lines established throughout Western Command. It measured seventy-eight kilometres in length and was aligned north-south, extending from Llangrannog on the Ceredigion coast south via Rhydlewis, Drefach and Cynwyl Elfed to Carmarthen and then along the River Towy's east bank via Kidwelly to the Pembrey coast.

In May 1942, Carmarthen Sub-Area headquarters described the geography in the following terms:

'The Sub-Area has a Coast Line of 200 miles and covers an area of 2,500 square miles. It is mountainous in the East, sloping gradually to the coast in CARMARTHENSHIRE and PEMBROKESHIRE. It is some 12 to 18 hrs journey by sea from Occupied France and about 200 miles by air from the NORMANDY coast. Airborne landings are possible almost anywhere throughout the Sub-Area. There are however few objectives of military value except MILFORD HAVEN, the industrial area of LLANELLY and the bottle neck for communications at CARMARTHEN and LLANDOVERY... On the South and West Coast lines of the Sub-Area from PEMBREY to ST DAVID'S HEAD there are numerous beaches suitable for seaborne or airborne landings' (Carmarthen Sub-Area Counter-Invasion Scheme No. 2, 29 May 1942, WO 166/6729).

7.2.3 Landscape change

This area is predominantly rural and characterised by pastoralism and forestry. There was limited large-scale post-war landscape change compared to the other cases. The pre-war field system pattern survives largely intact. Post-war changes included the addition of suburbs and retail areas to Carmarthen, together with the creation of infill and small housing estates in small towns and villages. Linear housing estates developed alongside some main roads. The road network was upgraded through widening, provision of bypasses and junction improvements. Elements of the railway network closed. Pembrey and Aberporth airfields were the focus of brownfield re-development.

Landscape change was incremental and piecemeal rather than large-scale, but the cumulative impact of development and clearance significantly reduced the anti-invasion defence landscape to a point where the original population cannot be estimated from physical evidence alone. Extant structures tend to survive in marginal areas, where their presence has not yet required intervention.

7.3 Existing source evidence

This section summarises the evidence located prior to undertaking the research for this case study.

7.3.1 Known archaeological evidence

Existing archaeological datasets for the case study were identified as being held by Dyfed Archaeological Trust's (DAT) HER and the RCAHMW's NMRW. The latter incorporated the Defence of Britain project dataset.

| Source | Total No. of C20 Military Records in Dyfed | No. of C20 Military Records in Case Study | No. of Individual C20 Anti-invasion Defence Records in Case Study |
|-------------|--|---|---|
| DAT HER | 192 | 59 | 58 |
| RCAHMW NMRW | 353 | 170 | 92 |

Table 7.2: Summary of twentieth century military records held by DAT and the RCAHMW.

Table 7.2 revealed the low number of records held by the NMRW and HER for the case study. Both dataset records were a mixture of large gun emplacements, pillboxes, obstacles and anti-aircraft defences.

The NMRW's records derived primarily from Defence of Britain project data. Seventy-nine entries for the stop line were identified by four recorders. Examination demonstrated that seventy-one records were created by Roger J.C. Thomas in seven field visits from 1994-99, with five additional records being created by three other recorders. Only three stop line defence sites were recorded on DAT's HER.

In common with the other cases, very few new records from the case study were added following the completion of the Defence of Britain project. It was uncertain whether the reluctance to record modern defence structures reflected a lack of survey interest/activity or a failure to upload data to the NMRW.

The suggested NMRW figure of 170 known sites for the case study was misleading. Close examination identified the usage of multiple records for single sites, usually linear defences. For example sixty-six records were used to indicate

ten sections of anti-tank ditch. Eleven records were used to indicate three lengths of anti-tank cube alignments. Fifteen records were used to indicate two minefields. The data also included three duplications of site level and collection level entries. Ninety-two unique sites were identified.

A second issue with the NMRW data concerned positional inaccuracy. The locations for the coast defence battery at Burry Port were some forty kilometres north of their true position. Pillboxes at Cynwyl Elfed were also mislocated. Each site was identified and given a correct grid reference obtained from site visit and GIS data.

The fifty-eight unique defence records from DAT's HER were dominated by twenty-seven pillbox records. The remaining records comprised a wider range of site types than those identified by the RCAHMW. There was little overlap between the two datasets and only twenty-five sites duplicate records. The HER dataset recorded a low number of fieldworks.

The HER data possessed strong patterning, recording a cluster of defences along the stop line south of Kidwelly. The area was archaeologically surveyed by DAT (Page 1996). Very few structures were recorded along the stop line north of Kidwelly. It was notable that none of the pillboxes to the west of Carmarthen or any of the anti-tank obstacles to the north of Kidwelly were recorded on the HER. The other recorded sites were prompted by notifications from Cadw's designation activity.

The RCAHMW and DAT's datasets were complimentary with little duplication. In combination, both datasets identified 130 unique sites mostly located along the stop line or associated airfield or coastal crust defences.

7.3.2 Published sources

The published post-war historiography for Carmarthenshire and Ceredigion largely ignored the Second World War, dealing with the subject in a detached manner. Many published accounts overlooked the war entirely (Lodwick and Lodwick 1994; James 1991; Jenkins 2005) or did not engage with its physical manifestation (Rees 2006: 143-45). *Cardiganshire in Modern Times* recorded a positive wartime impact on agriculture, but an adverse impact on the Welsh language (Jenkins and Jones 1998).

Research identified five relevant published articles in addition to specialist works. The Carmarthenshire Antiquarian Society commemorated the fiftieth anniversary of the end of the Second World War by holding a day school on the subject and publishing a summary (Anon 1995). The President's address referred to the existence of, and some of the detail in, the records of the 3 Battalion, Carmarthenshire Home Guard preserved in the then Carmarthenshire Records Office. The focus was on the Home Guard and Auxiliary Units, and the defence infrastructure was not discussed in detail (1995: 102-3). A brief reference to the defences at Pembrey observed that:

'Buried in the sandbanks off Pembrey are the remains of the anti-invasion stockades set up to protect the coast against possible enemy landings. Although the beach defences have long sunk into the sands, there remain a few pillboxes, including one at the junction of Trimsaran Road and Pinged Road' (1995: 115).

It was uncertain whether the stockades were the anti-landing poles erected on the beach or barbed wire entanglements around the dunes.

Carmarthenshire County Museum published a booklet on the county's wartime experience (2006), but no new defence sites were identified. A similar survey based on primary and secondary historical sources was undertaken for Ceredigion (Davies 2000), but it did not refer to anti-invasion defences.

Glover's article on the Rhos Llangeler section of the Carmarthen Stop Line (1990) predated the Defence of Britain project. It was a work of its time, following Wills' erroneous assumption that the Western Command documentation had not survived (1985) and instead inferred from Southern Command documentation. Glover incorrectly located the stop line's northern terminus at New Quay rather than Llangrannog and extended the southern extent to Swansea.

Given that the Carmarthen Stop Line was one of the principal anti-invasion defences in Wales it is surprising that it had not attracted further publication interest until Thomas's brief article for the Fortress Study Group's annual conference in 2013 (2014). The reason for this absence is unknown, but possibly reflects a lack of interest by national and regional archaeological organisations, academia, and enthusiasts.

The specialist military historical literature focused on coast artillery and aviation archaeology. Wills' gazetteer map indicated sixteen pillboxes in the case study, but twenty were cited in the gazetteer list (1985). Osborne's county-based *20th Century Defences in Britain* series has not yet covered Wales.

The Carmarthenshire coastline possessed an emergency coast battery at Burry Port and a number of smaller beach defence emplacements. Hogg did not discuss this provision in his area-based narratives and provided brief details for Burry

Port in his gazetteer (1974). Saunders omitted any reference to fortifications in the case study (1989). Wood's recent coast defence gazetteer (2012) cited four coast artillery batteries equipped with 4-in Naval guns at Ferryside, Llanelly, Pembrey and Pendine, with a fifth potential battery at Laugharne. The information in Table 7.3 was derived from Wood's gazetteer and the incomplete series of FRBs at TNA.

The entry for Pembrey was interesting as it was the sole authority that identified the concrete emplacement at Tywyn Burrows as a 4-in gun battery operated by soldiers from No. 13 Emergency Battery, RA, which was located at Llanelly (Burry Port), and then by the RAF Regiment. The record cited one 4-in gun emplaced at the site.

| Name | Location | Armament | Occupation | Notes |
|------------|-------------------|-------------------------------------|---------------|---|
| St Ishmael | Ferryside | 1 x 4-in BL Mk9 (No. 3652) | 08/40 - ?/41 | Beach defence battery |
| Llanelly | Burry Port | 2 x 4-in BL Mk9 (Nos. 976 and 1101) | 08/40 - ? | No. 13 Emergency Battery |
| Pembrey | Tywyn Dunes | 1 x 4-in BL Mk9 | Uncertain | No. 13 Emergency Battery, then RAF Regiment (Wood) |
| Pendine | Laugharne Burrows | 1 x 4-in BL Mk9 (No. 3657) | 08/40 – 03/43 | Beach defence battery |
| Laugharne | Unknown | Unknown | Unknown | Postulated by Woods but may be a duplication of Pendine |

Table 7.3: Summary of case study area Second World War gun emplacements after Wood (2012).

A number of publications provided operational and squadron histories for RAF Pembrey and RAF Aberporth (Jones 2007b; Phillips 2006; McLelland 2012; Smith 1981), but none commented on airfield defences. The master index list to *Airfield Review* for 1978-2010 (Flagg 2010) indicated only one published article on RAF Pembrey (Lewis 2007).

7.3.3 Unpublished reports

There is an extensive archaeological report literature for the counties of Ceredigion and Carmarthenshire arising from Cadw-funded thematic assessment and development control reporting. The majority make no reference to wartime anti-invasion defences. The sole twentieth century military report arose from the RCAHMS's survey of a former rocket projectile development site at Ynyslas (2010), which was unrelated to this research.

DAT noted that the surviving concentrations of anti-invasion defences contributed to the character of the Taf and Towy Estuary, Towy Valley and Drefach-Felindre historic landscape character areas, but did not describe the defences in detail (Murphy 1999; Murphy and Ludlow 2000).

Redfern's archive-based defence study for Wales (1998b) recognised a range of defence sites within the case study including:

- the Carmarthen (cited as the Rivers Towy and Avon Gwili) and Carmarthen-Ammanford Stop Lines
- a coast artillery battery at Burry Port (recorded as Llanelly)
- heavy and light anti-aircraft emplacements at Pembrey
- bombing decoys at Pembrey
- beach defences at Pembrey Beach and Pendine Sands
- nodal points along the Carmarthen Stop Line in Ceredigion

Redfern's information for the Carmarthen Stop Line was drawn from the Ministry of Agriculture and Fisheries registered file preserved at TNA (MAF112/204). The contents of the file and Redfern's use of it are discussed below. His information

for the Carmarthen-Ammanford Stop Line was brief, and drawn from two documentary references at TNA, dating from July 1940 and May 1942. Redfern's report stated that the stop line formed part of the defences for operations against Milford Haven, Port Talbot and Swansea. The map co-ordinates for both ends of the stop line were provided and the route was described as being from Carmarthen to Ammanford via Llanddarog, Porthyrhyd and Cross Hands. The report noted that a number of unnamed defensive localities were established along the stop line.

The coast artillery battery at Llanelly was cited in Redfern's index of coast artillery (1998b: 52), but not supported by evidence. Redfern cited a GHQ Home Forces letter from March 1943 (letter HF/CRWC No S3050/G (O) in WO 199/103, f 7a), which described that Pembrey Beach and Pendine Sands were the subject of extensive vertical pole type defences.

Redfern also cited the Carmarthen Sub-Area Counter-Invasion Scheme No 2 of 29 May 1942 (in WO 166/6729) as the source identifying three islands of resistance along the Carmarthen Stop Line in Ceredigion at New Inn (Brynhoffnant), Rhydlewis and Henllan.

The gazetteer provided an incomplete summary of the major defensive features within the case study, and omitted airfield, mine and beach defence gun-related defences. The data lacked the supporting detailed analysis and background present in Dobinson's reports.

Cadw funded DAT to undertake a range of twentieth century military projects, including airfields (Pyper and Page 2012), airfield hinterlands (Pyper and Page

2014), military aircraft crash sites (Sage et al. 2013) and World War I (Pyper 2013, 2014).

DAT's study of wartime airfields looked specifically at the surviving archaeological evidence of the airfield core and technical buildings at former RAF Pembrey and RAF Aberporth. The survey of Aberporth's defences identified the pillboxes already designated by Cadw, but did not observe any additional defensive features (Pyper and Page 2012: 10-17). A similar survey at Pembrey (Pyper and Page 2012: 68-77) identified the two known Pickett-Hamilton forts, but again no new defence features were observed.

The second phase of the project included an examination of the hinterlands of the two airfields (Pyper and Page 2014: 7-28 and 111-133), but no new defences were located.

7.4 New source evidence

This section presents new evidence identified from fieldwork, archives, and aerial photographic and cartographic collections.

7.4.1 New archaeological results from rapid field observation

Rapid field observation was undertaken along the length of the Carmarthen Stop Line and provided information on new sites, generated new understanding for known sites and identified the demolition of known defence sites.

7.4.1.1 New defence sites

Fieldwork had the greatest success in identifying new defence sites in areas not previously subject to survey. The coastal dunes and reclaimed salt marsh within the modern Pembrey Air Weapons Range preserved three large machine gun pillboxes, together with the demolished remains of a fourth. They were of a unique type not seen before in Wales. Open slit trenches were also identified in the dunes, which were unusual as most have been backfilled.

South of the range, the road between Tywyn Camp and the Pembrey air bombing range preserved scars in its concrete surface depicting the location of vertical rail roadblocks. Evidence for other roadblocks were located near Werncorgam Fawr, including two metal covers set in concrete foundations at the side of a minor road to block access through a field gate that formed part of the course of the stop line. The remains of a second roadblock were located at the entrance of a track way into Allt Werncorgam wood, comprising fixed vertical set steel rails still in situ with the mobile rails lying adjacent.

An important discovery was the identification of Bron-y-Dre, Penllwyn Park which housed the Carmarthen Sub-Area Headquarters responsible for designing the defences within the case study.

The location of defence sites could also be identified by the remains left behind post-demolition or by the influence that the structure had on its immediate environment. The locations of a number of former pillboxes along the stop line were identified by their remains, for example the neatly stacked bricks from a pillbox that had been used to repair the hole its construction had created in a hedge line to the

north-west of Castell Howell and the broken remains of a pillbox pushed down a steep slope to the east of Clynmelyn. The course of the infilled anti-tank ditch was obvious where it crossed field boundaries, as the hedge would not be as dense or as tall or had been replaced by a different species. Elsewhere the course could be traced as a shallow linear depression.

Rapid field observation also confirmed the survival of a low number of defence structures that had been previously recorded as destroyed, for example two of the Pickett-Hamilton forts at RAF Pembrey and the Type 24 pillbox at the bascule bridge in Carmarthen.

7.4.1.2 New understanding of existing sites

Site visits to known defence structures cast new understanding on their use and purpose. Inspection revealed that the utilisation of different types of linear anti-tank defence was best interpreted as a combination of approaches based on pragmatism, exploitation and available resources. Where possible, existing natural and anthropomorphic features such as river courses, steep valley sides, afforested areas, sand dunes, coastline, railway embankments, cuttings and overbridging points were utilised, particularly in combination to provide defence in depth. Existing natural features with defensive potential such as Swan Pool Drain were enhanced artificially by dredging, widening and side steepening to perform a defensive function. Site visits also hinted that some hill slopes may have been artificially steepened in the Pontgarreg area.

Where a natural or anthropomorphic barrier was not available the usual response was to excavate an anti-tank ditch, even across high-value agricultural land. Approximately twenty-one kilometres of anti-tank ditch defences were excavated along the stop line.

Anti-tank block alignments demanded the most time and resources to construct and a combined length of c. 2.3 kilometres of this obstacle was built. As such they were used sparingly and were located to create tactical advantage, being found at only three locations along the stop line, with the major concentration deployed around RAF Pembrey airfield at the south end of the stop line. At Pembrey anti-tank block alignments of 1,550m were erected to the north, east and south of the airfield. The longest alignment ran in a north-south alignment at the toe of the western side of the railway embankment, serving to reinforce the difficulty of scaling this obstacle. A short length of anti-tank blocks projecting south from the east end of Banc-y-lord was used to reinforce access to a tunnel beneath the railway and were unusual as the blocks were cast incorporating railway lines at their bases in order to provide structural stability on marshy ground. A short alignment of 200m of anti-tank blocks was also utilised to provide flank defence to the northern terminus of the Carmarthen ring anti-tank ditch at its junction with the A484, and 564m was constructed in conjunction with shell-proof walled Type 24 pillboxes and minefields at the road crossing the junction at Carn-Wern.

Field survey also provided an opportunity to examine the boundaries between different forms of linear anti-tank defences. At Banc-y-lord, parallel twin rows of vertical RSJs were utilised between a pillbox and the terminus of the anti-tank ditch to the north, and a similar arrangement of RSJs, albeit in an L-shape in plan form,

was employed to the south where the anti-tank-ditch and block alignments joined. The L-shape enabled the accommodation of the anti-tank ditch, which tucked in behind the anti-tank block alignment, a clear sign of defensive precedence.

7.4.1.3 Demolition of previously recorded archaeological sites

A small number of defence sites recorded through the Defence of Britain project were found to have been demolished, indicating that the slow process of resource erosion was a continuous practice. Lengths of anti-tank ditch had been built over for small housing developments at Bronwydd and a well preserved roadblock at a bridge crossing the course of the stop line to the south of Waundolau, which had retained its steel anti-tank rails set in the hedges to either side of the road, on the eastern side of the bridge, had been completely removed following the construction of a new bridge. Loss at this defence site had been incremental, as first the associated pillbox had been demolished, followed by the obscuration of the original sockets to take the rails in the road surface by road re-surfacing before 1998.

7.4.2 New documentary source evidence

A profusion of primary documentary evidence was identified at TNA for the case study. It comprised a combination of registered files and war diaries together with their associated appendices.

7.4.2.1 Military administrative geography: South Wales Area/District

The General Staff headquarters war diaries for South Wales Area in late 1940-41 (WO 166/1247) and South Wales District in 1942 (WO 166/6840) were preserved at TNA, but they were limited in their size and contribution. The 1940 war diary survived in only the briefest form and none of the contents shed any light on administrative organisation, which was unfortunate as in Western Command's opinion, the area of coast between Pembrokeshire and the Gower was the most likely to witness an enemy invasion within the whole of the Command's area.

The monthly diary returns for South Wales District HQ in 1942 were completely preserved, but no references were made to the issuing of operation instructions, orders or defence schemes. This responsibility would appear to have been delegated to the sub-area level. The war diary contained few appendices and most referred to command area exercises. One useful appendix entitled Appreciation General Officer Commanding, South Wales District of 8 January 1942 set out the expected German objectives and plan, the responsibility of Sub-Area Commanders and the anti-invasion plan. A second appendix entitled GHQ Vulnerable Point Policy of 13 October 1942, recorded the locations of all VPs in the command, together with those units responsible for defending them.

A rudimentary description of the command organisation for the case study in summer 1940 could be ascertained from formation war diaries. The 2 (London) Infantry Division's Home Defence Scheme No. 3 (WO 166/566) was issued on 3 July 1940 to familiarise the Division on its move to South Wales Area, and it highlighted the existence of the Carmarthen-based South West Wales Sub-Area covering

Pembrokeshire, Carmarthenshire and Cardiganshire. The war diary for this Sub-Area had not survived and the 2 (London) Infantry Division's war diary recorded the existence of Carmarthen Sub-Area by 20 July 1940. Given that the territory had not changed, it was assumed that Carmarthen Sub-Area was a re-titled continuity of the predecessor body.

Carmarthen Sub-Area issued Counter-Invasion Scheme No. 2 on 5 June 1942, which recorded that it formed part of South Wales District (WO 166/6729). Appendix A stated that Cardiganshire was sub-divided into Aberystwyth, Aberayron and Aberporth Sectors to facilitate command. Sector commands were responsible for the co-ordination of all counter-invasion plans within their purview. Similarly, Carmarthenshire was sub-divided into Carmarthen, Llandilo and Llanelly Sectors. The Sector war diaries for Carmarthen, Llanelly and Aberporth are not known to survive.

7.4.2.2 Military units available for defence

Archived war diaries provided an insight into the identification of the military formations and units present in the case study through time, together with an indication of their roles. Tables 7.4-8 present selected entries from formation and unit war diaries detailing the presence, chronology, duration, spatial coverage and role of those cited. The tables demonstrated that the 2 (London) Infantry Division and its subservient units were located in and responsible for the defence of Carmarthenshire from August 1940 to February 1941, from which date lesser

formations such as brigades and brigade groups had responsibility often from further afield.

| Date | Note |
|----------|--|
| 29/08/40 | Comd. visited ROF Pembrey with OC 9 Bn. Gloucester Regt. to inspect position of gun emplacements, pillboxes and general defence arrangements |
| 27/09/40 | 1 Coy. Belgians moved from Tenby to Llanelly to be attached to 9 Bn. Gloucester Regt. |
| 30/09/40 | Troops from 1 S/L Regt at Kidwelly |
| 04/10/40 | 2/9 Bn. Manchester Regt. detachment at Pendine |
| 09/10/40 | 9 Bn. Gloucester Regt. left the Sub-Area |
| 12/10/40 | 9 Bn. N. Staffs. Regt. arrived at Carmarthen |
| 15/10/40 | Comd. visited Pendine with OC 9 Bn. N. Staffs. Regt. |
| 21/10/40 | Comd. went to Pembrey to see 19 Bn. Welch Regt. |
| 29/10/40 | Comd. inspected 240 Coast Battery at Burry Port [240 is erroneous; should read 402] |
| 31/10/40 | Comd. visited 38 Coy, A.M.P.C. at Laugharne |
| 18/11/40 | Comd. visited Pendine to see disposition of 72 Coy, A.M.P.C. |
| 28/11/40 | Comd. visited Ystrad Camp, Carmarthen |
| 04/12/40 | Comd. went to Pembrey and Llanelly and visited OC 19 Bn. Welch Regt. |
| 04/01/41 | Comd. visited Pendine with Garrison Engineer and met OC 961 Defence Battery |
| 10/01/41 | 72 Coy, A.M.P.C. relieved by 17 (HD) Bn. Welch Regt. at Pendine |
| 11/01/41 | A Coy, 9 Bn. N. Staffs. Regt. moved to Laugharne |
| 01/02/41 | C-in-C, Western Command visited Llanelly and Pembrey. Called at this HQ, also Comd. 224 Ind. Inf. Bde. and OC 9 Bn. N. Staffs. Regt. |
| 19/02/41 | 224 Ind. Inf. Bde. left the sub-area |
| 19/02/41 | 9 Bn. N. Staffs. Regt. left the sub-area |
| 20/02/41 | 1 Bn. Belgian Fusiliers arrived at Ystrad Camp, Carmarthen |
| 20/02/41 | 12 Bn. Worcester Regt. arrived at Llanelly |
| 21/02/41 | 19 Bn. Welch Regt. left the sub-area |
| 08/03/41 | Comd. went to Pendine to meet Comd. 36 Ind. Inf. Bde. |
| 14/03/41 | Comd. went to Burry port to inspect 402 Battery, R.A. |
| 18/03/41 | 1 Bn. Belgian Fusiliers carried out practice occupation of Carmarthen west defences |
| 27/03/41 | GSO III met Comd. 36 Ind. Inf. Bde. to discuss Belgian Carmarthen west defences |
| 31/03/41 | Comd. met Comd. 36 Ind. Inf. Bde. re Belgian position at Green Castle, Carmarthen |
| 08/04/41 | Comd. visited Ferryside to visit A troop of 961 Bty., R.A. |
| 27/04/41 | Comd. visited 2 Bn. Cardiganshire Home Guard at Rhyd Lewis |
| 30/05/41 | Comd. visited Llanelly to bid farewell to 12 Bn. Worcester Regt. |
| 03/06/41 | Comd. went to Pembrey and called on OC 18 Bn. Royal Fusiliers |
| 23/07/41 | Mr Gwynne Jones, Ministry of Security, called re Urdd Camp, Llangrannog |
| 11/08/41 | Comd. went to Saundersfoot to bid farewell to 36 Ind. Inf. Bde. |
| 19/08/41 | Comd. visited 402 Coast Battery at Burry Port |
| 06/09/41 | OC 6 Bn. RIF and OC 35 Gp. P.C. called to discuss conduct of defence works after 01/10/41. HQ, SWA notified pioneer labour required after 01/10/41 |

Table 7.4: Selected formation and unit related entries from Carmarthen Sub-Area Headquarters War Diary, 08/40-12/41 (TNA WO 166/1270).

| Date | Note |
|-------------|--|
| 19/07/40 | <i>2 London Division Operation Order No. 9</i> ordered 4 (London) Infantry Brigade to relocate to the Carmarthen-Tenby-Saundersfoot-Pembroke area to counteract any attack from Swansea or Milford Haven |
| 20/07/40 | <i>2 London Division Home Defence Scheme No. 3 Amendment No 8</i> order stated that the role of 2 London Infantry Division was to act as Western Command's Mobile Reserve force and clarified that as the Division was spread over such a large geographical area, Brigade Groups were expected to act independently and on their own initiative |
| 12/08/40 | The <i>2 London Division Home Defence Scheme No. 4</i> order stated that 4 (London) Infantry Brigade Group was located in the Swansea-Carmarthen-Pembroke-Tenby area and was prepared to counter an attack from Milford Haven or Swansea |
| 11/11/40 | <i>2 London Division Move Order No. 1</i> ordered that 4 (London) Infantry Brigade Group and 36 Infantry Brigade Group relieve each other in their present areas on 18-19/11/40 |
| 21/11/40 | Letter from the War Office noted that the Division was to be re-designated as the 47 (London) Infantry Division. At the same time, the 4 (London) Infantry Brigade was renamed the 140 Infantry Brigade and the 5 (London) Infantry Brigade was renamed as the 141 Infantry Brigade |
| 13-19/02/41 | 47 (London) Infantry Division replaced by the 31 Infantry Brigade Group |

Table 7.5: Selected formation and unit related entries from 2 / 47 (London) Infantry Division Headquarters War Diary, 08/40-02/41 (TNA WO 166/566).

| Date | Note |
|-------------|--|
| 17/11/40 | The Brigade HQ relocated from Malvern to Saundersfoot and units occupied the surrounding area at Tenby, Haverfordwest, Pembroke and Llandilo |
| 01/12/40 | <i>Home Defence Scheme No. 4</i> published and described the general defence situation in Pembrokeshire as far east as Pembrey, the two stop lines within the Brigade area and the defence of beaches. The composition and location of Brigade units was stated, together with their roles within Carmarthen Sub-Area and the availability of other troops |
| 11/02/41 | <i>Western Command Operation Instruction 41</i> stated that the Brigade was not responsible for defence works, but would take on the command of all troops within Carmarthen Sub-Area if there was an invasion. The Brigade was ordered to be active in Pembrokeshire and Carmarthenshire against landings at Milford Haven |
| 18/04/41 | War diary stated that with the relocation of III Corps to Northern Ireland, the Brigade came under the command of Western Command for operational and administrative purposes |
| 18/04/41 | Brigade became responsible for 1 Bn. Belgian Fusiliers |
| 12-17/08/41 | Brigade replaced by 31 Infantry Brigade Group |

Table 7.6: Selected formation and unit related entries from 36 Independent Infantry Brigade Headquarters War Diary, 11/40-08/41 (TNA WO 166/950).

| Date | Note |
|-------------|--|
| 16/02/41 | Brigade Group arrived in the Monmouthshire-Herefordshire area and established its HQ at Govilon |
| 13-19/02/41 | Brigade Group relieved 47 (London) Infantry Division |
| 17/02/41 | <i>Western Command Operation Instruction 45</i> stated that the Brigade Group formed part of the Field Force and was ordered to move and destroy the enemy within Severn Sub-Area, particularly the Swansea and Gower areas. It was also assigned to aid 36 Independent Infantry Brigade with landings in Pembrokeshire and southern Carmarthenshire |
| 01/08/41 | <i>Western Command Operation Instruction 84</i> stated that the Brigade Group was to relocate to south-west Wales against landings in southern Pembrokeshire, Carmarthenshire and Gower |
| 13/08/41 | Brigade Group relocated to Taliaris near Llandilo |
| 01/11/41 | Brigade Group allocated a new role as an Airborne Brigade and left South Wales Area between 01-10/12/41 |

Table 7.7: Selected formation and unit related entries from 31 Independent Brigade Group Headquarters War Diary, 07/40-12/41 (TNA WO 166/942).

| Date | Note |
|----------|--|
| 05/01/42 | Comd. 70 Ind. Inf. Bde. called re arrival of unit in Carmarthen |
| 20/02/42 | Comd. 70 Bde. called to bid farewell on departure of Bde. from Sub-Area |
| 08/03/42 | Comd. to 402 Coast Battery |
| 04/04/42 | 1 Bn. Belgian Fusiliers arrived at Ystrad Camp, Carmarthen from Hereford |
| 06/06/42 | Carmarthen Sub-Area Counter-Invasion Scheme of 05/06/42 issued |
| 29/12/42 | Units of 49 Div move into Sub-Area |
| 31/12/42 | Advanced parties of 70 Inf. Bde. arrive in the Carmarthen area |

Table 7.8: Selected formation and unit related entries from Carmarthen Sub-Area Headquarters War Diary, 01-12/42 (TNA WO 166/6729).

7.4.2.3 Static troops

The units mentioned above undertook a transient existence as part of the mobile regular field force, as dictated by the needs of training, relief and interchange responsibilities. Units could also perform static duties fixed to a specific location.

The Welch Regiment Museum recorded the existence of the 17/31 (Home Defence) Battalion, The Welch Regiment. Formed as 106C Group National Defence Company in 1939, 'F' Coy. was located at Carmarthen. The unit was transferred to The Welch Regiment and re-designated as the 17 (Home Defence) Battalion on 20 December 1939. The unit undertook roles defending the coast and installations at ROF Pembrey, RAF Pembrey, Towy Bridge (Carmarthen), Llanelli and Aberporth. It was

re-designated as 31 (Home Defence) Battalion on 5 December 1941 and disbanded in 1943. A number of TNA sources illustrated the presence of these units in the case study (Tables 7.9-10).

| Date | Note |
|----------|---|
| 11/09/39 | Anti-Aircraft Practice Camp, Aberporth |
| 05/09/40 | 9 (Garrison) Bn. Gloucester Regt., Llanelly |
| 14/09/40 | 50 Bn. The Welch Regt., Llanelly |
| 07/12/40 | 72 Coy., Auxiliary Military Pioneer Corps, Laugharne |
| 07/12/40 | Anti-Aircraft Practice Camp, Aberporth |
| 07/12/40 | Headquarters, 224 Infantry Brigade, Carmarthen |
| 07/12/40 | 19 Bn. The Welch Regt., 224 Infantry Brigade, Pembrey |
| 07/12/40 | 9 Bn. North Staffordshire Regt., 224 Infantry Brigade, Carmarthen |

Table 7.9: Static troops listed in case study area by chronological date extracted from the Western Command General Staff War Diary from 09/39-12/40 (TNA WO 166/94).

| Date | Note |
|----------|---|
| 13/06/42 | 1 Coy from Anti-Aircraft Practice Camp, Aberporth for relief of RAF Aberporth |
| 13/06/42 | 1 Coy from Anti-Aircraft Practice Camp, Aberporth as required in Aberporth Sector |

Table 7.10: Static troops listed in case study area by chronological date extracted from the Western Command General Staff War Diary from 01-12/42 (TNA WO 166/6025).

7.4.2.4 Home Guard

The Home Guard List for Western Command for February 1941 identified that Carmarthen Sub-Area was divided into three county-based Zones, which in turn were sub-divided into Home Guard battalion areas, usually centred on prominent settlements (Table 7.11). The War Office biography is held at the Imperial War Museum, but was subsequently published (Mills 2003). A third battalion, the 3 (Lampeter) Battalion, Cardiganshire Home Guard was established in February 1942 (Davies and Lloyd 1947).

| Date | Note |
|-------|---|
| 02/41 | Carmarthenshire Zone comprised: <ul style="list-style-type: none"> - 1 (Carmarthen) Bn., Carmarthenshire Home Guard - 2 (Llanelly) Bn., Carmarthenshire Home Guard - 3 (Llanelly) Bn., Carmarthenshire Home Guard - 4 (Llandilo) Bn., Carmarthenshire Home Guard - 5 (Henllan) Bn., Carmarthenshire Home Guard |
| 02/41 | Cardiganshire Zone comprised: <ul style="list-style-type: none"> - 1 (Aberystwyth) Bn., Cardiganshire Home Guard - 2 (Cardigan) Bn., Cardiganshire Home Guard |

Table 7.11: Home Guard battalions cited in the Home Guard List for Western Command for February 1941 (IWM 02(41).95 [Home Guard]/5-2).

It was unusual for Home Guard records to be preserved at TNA; such records tend to be preserved, if at all, at local record offices or in private collections. The northern end of the stop line from Llangrannog to Henllan was located within the 2 (Cardigan) Battalion, Cardiganshire Home Guard area, but no related published or primary documentary Home Guard records other than two formal group photographs taken at Aberbanc in 1943 (Ceredigion Archives ADX/870/7/3/4/2) were located.

In the Carmarthenshire Zone, records preserved at Carmarthen Archives demonstrated that the 1 (Carmarthen), 3 (Llanelly) and 5 (Henllan) Battalions had roles defending the stop line and adjacent areas (Tables 7.12-13). Such references provide an indication of the location of battalion and company headquarters as well as an indication of the territorial areas they were responsible for, although inter-company and battalion boundaries were not often cited. These records can be comprehensive where identified, but insufficient of these documents survived to reconstruct the changing character of all spatial and chronological related change throughout the case study.

| Date | Note |
|----------|--|
| 19/06/41 | <p><i>Battalion locations:</i></p> <ul style="list-style-type: none"> - Carmarthenshire Home Guard Zone Commander at 6 Stepney St, Llanelly - No. 1 Battalion at The Barracks, Carmarthen - No. 2 Battalion at 50 Market Street, Llanelly - No. 3 Battalion at Drill Hall Llanelly - No. 4 Battalion at Drill Hall, Llandilo |
| 19/06/41 | <p><i>Company locations:</i></p> <ul style="list-style-type: none"> - A Coy., Cliffe Cottage, Pembrey - B Coy., Paris House, Kidwelly - C Coy., 3 Brynyfer, Llannon Road, Pontyberem - D Coy., Police Station, Porthyrhyd - E Coy., Y Garreg Lwyd, Drefach - F Coy., Cefncoed, Cross Hands - G Coy., ROF, Pembrey |

Table 7.12: Carmarthenshire Home Guard battalion and company locations identified in 3 Carmarthen Bn., Home Guard Operational Order No. 1, Appendix A: Static Troops Under Operational Comd. of Sub-Area in Bn. Area, 19 June 1941, (Carmarthenshire Archives CDX/429).

| Date | Note |
|----------|--|
| 17/07/43 | <p>Sub-District HQ at Bron-y-dre, Penllwyn Park, Carmarthen</p> <p>Sector HQ at 6 Stepney Street, Llanelly</p> <p>3 Carmarthenshire Home Guard Bn. Commander at Coalbrook House, Pontyberem</p> <p>3 Carmarthenshire Home Guard Bn. HQ at The Drill Hall, Murray St, Llanelly</p> <p>3 Carmarthenshire Home Guard Bn. BHQ at Pentremawr Colliery, Pontyberem</p> |
| 17/07/43 | <ul style="list-style-type: none"> - A Coy. HQ, Bacus Garage, Burry Port - B Coy. HQ, 21 Station Road, Kidwelly - C Coy. HQ, The Square, Pontyberem - D Coy., Pontyates - E Coy., Y Garreg Lwyd, Drefach - F Coy., Oxford House, Cross Hands - G Coy., ROF, Pembrey |

Table 7.13: 3 Bn. Carmarthenshire Home Guard defence site locations identified in Operational Instruction No. 3, Appendix J: Intercommunication, 17 July 1943, (Carmarthenshire Archives CDX/429).

| Date | Note |
|-------|--|
| 02/44 | Platoon headquarters: <ul style="list-style-type: none"> - HQ & Nos. 1, 3 & 4 Pls., A Coy. HQ, 26 Quay Street, Carmarthen, 89.858422 - No. 2 Pl., A Coy. HQ, Mount Hill, 89.864413 - No. 5 Pl., A Coy. HQ, Carmarthen Railway Station, 89.858428 - HQ, B Coy., The Laundry Priory Street, 89.862425 - No. 1 Pl., B Coy. HQ, Tanerdy Guard Room, 89.872433 - No. 2 & 3 Pls., B Coy., Pentrepoeth Schools, 89.858436 - No. 4 Pl., B Coy., Priory Street School, 89.863426 - HQ, C Coy., Arosfa, Conwil - No. 1 Pl, C Coy., Newton Park, 89.818503 - No. 2 Pl., C Coy., Bryn Eryl, Conwil, 89.811477 - No. 3 Pl., C Coy., Danallty-gog Camp, 89.823492 - No. 4 Pl., C Coy., Rest House, Conwil - HQ, D Coy., 18 Water Street - No. 1 Pl., D Coy., Johnstown , 89.846420 - No. 2 Pl., D Coy., Park Pavilion - No. 3 Pl., D Coy., Girls High School - No. 4 Pl., D Coy., 18 Water Street - HQ, E Coy., The Cow & Gate Factory, Carmarthen, 89.847415 - Field HQ, E Coy., The Bungalow, Llanstephan, 100.799325 - No. 1 Pl., E Coy., Rhydygors, 89.850413 - No. 2 Pl., E Coy., The Green, Llanstephan, 100.797334 - No. 3 Pl., E Coy., Plas Stables, Llanstephan, 100.795333 - No. 4 Pl., E Coy., Cow & Gate Factory, Carmarthen, 89.847415 |
| 02/44 | A Coy., 1 Bn. detailed to defend Carmarthen Keep, bridge defences, east side of Bascule bridge and GWR station and junction |
| 02/44 | B Coy., 1 Bn. as Bn. mobile column reserve within Carmarthen Keep at Pentre Poeth School |
| 02/44 | ½ C Coy., 1 Bn. at Conwil Elvet defended locality to undertake delaying action on northern approach to Carmarthen |
| 02/44 | ½ C Coy., 1 Bn. detailed to defend Carmarthen including Abergwili and Tanerdy crossroads |
| 02/44 | D Coy., 1 Bn. detailed to defend Carmarthen including gas works, Trinity College and Girls High School |
| 02/44 | ½ E Coy., 1 Bn. at Llanstephan defended locality to undertake delaying action on Llanstephan approach to Carmarthen and to patrol beaches and OPs on Llansteffan peninsula |
| | ½ E Coy., 1 Bn. detailed to defend Cow & Gate, Rhyd-y-Gors, ammunition dump and bascule bridge |
| 02/44 | 3 Bn. at Llanelly |
| 02/44 | 6 Bn. at St Clears |

Table 7.14: Carmarthenshire Home Guard battalion and company locations identified in Carmarthen Defence Scheme, February 1944 at Carmarthenshire Archives (CDX/629).

7.4.3 New documentary source evidence: sites

A variety of sources provided the majority of information pertaining to new defence sites within the case study.

7.4.3.1 The establishment of the Carmarthen Stop Line

The exact date of establishment of this defensive line was unknown. The first tranche of stop lines for which there was historical evidence in Wales was established by order of Western Command on 5 July 1940 (Operation Instruction No. 7 in the 1939-1940 Western Command 'G' War Diary, WO 166/94). It included an Appendix 'A' that identified six stop lines wholly located in Wales and a further three that crossed the national boundary with England. The Carmarthen Stop Line was not listed although Stop Line No. 24 was established on a similar alignment further west between Cardigan and Tenby. On the matter of stop lines Western Command stated:

'Certain Command lines along which defensive posts, roadblocks and A/Tk obstacles will be constructed under the direction of Area Comdr. concerned are shown on Appendix 'A' hereto. The object is to extend throughout the vulnerable parts of the Command a number of lines which an enemy advancing, with or without tanks, and from East or West, will find no gaps or weak places whatever and against which he will be held firm until mobile troops can attack and destroy him. The selection and arrangements of defensive lines within the above will be so made by Area Comdr. that groups of posts already co-ordinated will be connected to one another. In nearly all cases these lines will have to be manned by L.D.Vs. who will be drawn from villages or portions of towns as close as possible to the posts for which these men will be responsible...

In South Wales the South is considered to be the more dangerous direction; while in North Wales the lines nearer the centre of England are the most important, although the stopping lines in the N.W. require immediate attention.

In the particular circumstances of Western Command and before the enemy has exposed his hand towards Gt. Britain, it is difficult to lay down any priority in the

above, nor is it really needed since work should go on upon the whole through R.E., H.D. Bn., L.D.V. and contractors simultaneously. But if any priority is needed, e.g., such as where labour or material may be insufficient, it is most important that the lines which present immediate ingress into our vital areas must be strong, continuous and backed up by depth in the defence.'

The first reference to the establishment of the Carmarthen Stop Line was recorded in Western Command's Operation Instruction No. 13 of 22 July 1940 concerning the South Wales Area. The instruction stated that 'information from all sources indicates that the South Coast of South Wales is the most likely area in the Western Command for a hostile sea-borne landing.' The document identified the best facilities for an enemy landing between the Towy Inlet and Giltar Point for operations against Milford Haven and from Pembrey to Mumbles Head for operations against Port Talbot and Swansea.

Section 4 of Operation Instruction No. 13 concerned defensive lines and stated:

'Work will be completed on the following defensive lines (laid down in Western Command Operation Instruction No. 2 as amended by Amendment No. 2)

- (a) Line of R. Towy from its mouth – Carmarthen – thence R. Avon Gwili to Conwil Elvet N8350 – Rhos N8357 – Llangeller N8163.
- (b) Ammonford O.0735 – Crosshands O.0235 – Carmarthen.
- (c) Line of R. Usk – Brecon.

Within the area formed by these lines, you will take advantage of the natural difficulties of the country in S. Wales to give depth to the defensive positions referred to above.'

The statement clearly identified that work on the Carmarthen Stop Line was underway by 22 July and that Amendment No. 2 to Operation Instruction No. 2 was the document responsible for establishing the Carmarthen Stop Line as an entity,

together with the stop line from Carmarthen to Ammanford. This instruction was issued on 5 June 1940, but the Western Command war diary does not preserve a copy of the amendment (or Amendment No. 1) and nor is the issue of either amendment recorded in the war diary monthly returns for June or July 1940, although the issue of other Amendments for other Operation Instructions were recorded. That the amending instruction or the record of its issue were not preserved or recorded was anomalous. It was routine practice for all instructions and amendments to be recorded and military administrative convention also required the detachment and return of Army Form A.16 from the instruction or amendment in order for the recipient to acknowledge safe receipt to the issuing authority; all other such instances were preserved in the war diary.

It was considered highly unlikely that the Carmarthen Stop Line was initiated in the period between 5 June and 5 July (i.e. the period between the issue of Operation Instructions Nos. 2 and 7), otherwise the Carmarthen Stop Line would have been listed in Operation Instruction No. 7's Appendix 'A' of defensive stop lines, and the only work undertaken in Western Command in this period was the tactical and engineering reconnaissance work required for siting defence works. Rather, the establishment of the stop line must date to the period after the issue of Operation Instruction No. 7 on 5 July and before the issue of Operation Instruction No. 13 on 22 July, which stated that work was to be completed on it.

A further Operation Instruction No. 16 on defensive works was issued by Western Command on 15 August 1940. Section 3 focused on stop lines as defined by Operation Instruction No. 7's list in Appendix 'A'. The construction of stop lines was ordered into five prioritised groupings. Stop Line No. 24 (Cardigan-Tenby) was

ranked in the highest priority grouping, as was Stop Line No. 24A, which was not cited in the original list (similarly, Stop Line No. 30 was not listed and its location presumed unknown). While there were no other known other references to Stop Line No. 24A and its identity remains unknown, the fact that it was given the same serial number as the Cardigan-Tenby stop line may suggest that it was in close physical proximity; it is suggested here that there is a strong possibility that Stop Line 24A may be serial number of the Carmarthen Stop Line. Stop Line No. 30 may be the Carmarthen-Ammanford Stop Line.

7.4.3.2 Construction of defence works

The Carmarthen Sub-Area and unit war diaries provided a small and important number of references to the construction of defences (Tables 7.14-15), which collectively provided a basic chronological overview of their production. Occasionally specific units could be identified as the creators of particular anti-invasion defences, but more often units were not named, and the description of the exact works could be frustratingly elusive.

| Date | Note |
|----------|---|
| 20/08/40 | RE Works – progressing with excavation of A/T ditches – Pembrey-Nant y Ci-Blaen Nantgwyn-Brithvir Mill. Pillboxes in construction through whole line. Limited output owing to shortage of cement. Roadblock on A/T line vertical rail 4' 0 centre 14' 0 depth, staggered type started today |
| 21/08/40 | Inspection of pillboxes and A/T blocks in Pembrey aerodrome neighbourhood. CO raised question of enlarging landing ground by removing fences. A/T ditches and pillbox construction making progress |
| 29/08/40 | Comd. visited ROF Pembrey with OC 9 Bn. Gloucester Regt. to inspect position of gun emplacements, pillboxes and general defence arrangements |
| 06/09/40 | Rhydlewis defences (pillboxes, A/T ditch, dragons teeth & sandbagged emplacements) |
| 16/09/40 | Comd. visited stop line and inspected pillboxes and roadblocks at Carmarthen |
| 17/09/40 | Position of guns and pillboxes at on shore at Burry Port discussed |
| 14/11/40 | Comd. visited Pembrey to inspect pillbox sites |
| 18/11/40 | Comd. visited Pendine to see disposition of 72 Coy, A.M.P.C. |
| 04/01/41 | Comd. visited Pendine with Garrison Engineer and met OC 961 Defence Battery |
| 15/01/41 | Comd. inspected A/T ditch at Nant-y-Ci |
| 11/03/41 | GSO III accompanied GSO II (Ops), South Wales Area to site 13-pdr. guns |
| 18/03/41 | 1 Bn. Belgian Fusiliers carried out practice occupation of Carmarthen west defences |
| 27/03/41 | GSO III met Comd., 36 Ind. Inf. Bde. to discuss Belgian Carmarthen west defences |
| 31/03/41 | Comd. met Comd. 36 Ind. Inf. Bde. re Belgian position at Green Castle, Carmarthen |
| 26/07/41 | Comd. visited Pembrey Beaches to meet the CRE re erection of pillboxes |
| 06/09/41 | OC 6 Bn. RIF and OC 35 Gp. P.C. called to discuss conduct of defence works after 01/10/41. HQ, SWA notified pioneer labour required after 01/10/41 |
| 12/09/41 | Major Clifton Brown (MLO, Western Approaches) called re tubular scaffolding, Llanelly |
| 15/11/41 | Examination of Ground Defence Squadron officers at RAF Pembrey |

Table 7.15: Selected defence related entries from Carmarthen Sub-Area Headquarters War Diary, 08/40-12/41 (TNA WO 166/1270).

| Date | Note |
|-------------------|--|
| 28/09/40-18/10/40 | No. 1 Section was engaged on stop line defences at Conwil Elvert |
| 28/09/40-18/10/40 | Nos. 2 and 3 Sections were engaged on unspecified defence works around the Kidwelly area |

Table 7.16: Selected unit related entries from 502 Field Company Royal Engineers, (2 / 47 (London) Infantry Division) War Diary, 06/40-02/41 (TNA WO 166/3768).

The Home Guard-related records could also be rich sources of defence site information. Often these records contained unique information at a scale not known from other sources (Tables 7.17-7.21), which was commensurate with their localised role. On occasion, an initially promising source might not contain the desired information owing to matters of secrecy. For example, the 3 Battalion, Carmarthenshire Home Guard's Operational Order No. 1 of 19 June 1941 marked

particular appendices with the letter 'N', indicating that they would only be issued with the *Newton* code word. *Newton* was not issued, so the appendices were not preserved.

| Date | Note |
|----------|---|
| 17/07/43 | Roadblocks at: <ul style="list-style-type: none"> - Pembrey, 100.8725 (A Coy.) - Kidwelly, 100.8529 (B Coy.) - Pontyates, 100.9130 (D Coy.) - Pontyberem, 100.9433 (C Coy.) - Drefach, 89.9735 (E Coy.) - Cross Hands, 89.0034 (F Coy.) |
| 17/07/43 | Observation posts at: <ul style="list-style-type: none"> - Pembrey, 100.857244 (A Coy.) - Cross Hands, 100.906234 (A Coy.) - Llansaint, 100.8330 (B Coy.) - Ferryside, 100.809313 (B Coy.) - Llandefeilog, 89.858345 (D. Coy) - Meinciau, 100.9032 (D Coy.) - Crwbin, 89.9135 (C Coy.) - Chapel, 100/944325 (C Coy.) - Llanddarog, 89.9438 (E Coy.) - Voel Gastell, 89.987368 (F Coy.) - Pt. 663, 89.9934 (F coy.) - Reservoir, 100.9932 (E Coy.) |
| 17/07/43 | Vulnerable Points at: <ul style="list-style-type: none"> - GPO Burry Port - GPO Ferryside - GPO Tumble - GPO Pontyates - New Lodge electricity station, Burry Port - Pontyates electricity station - Tumble electricity station - Kidwelly pumping station - Pembrey pumping station |

Table 7.17: 3 Bn. Carmarthenshire Home Guard defence site locations identified in Operational Instruction No. 3, Appendix E: Partial invasion. Plan A, 17 July 1943, (Carmarthenshire Archives CDX/429).

| Date | Note |
|----------|--|
| 17/07/43 | Pembrey centre of resistance, 100.8723 (A Coy.). Delay post locations: <ul style="list-style-type: none"> - 100.861251 - 100.865245 - 100.873238 |
| 17/07/43 | Kidwelly centre of resistance, 100.8529 (B Coy.). Delay post locations: <ul style="list-style-type: none"> - 100.8630 (pumping station) - 100.875302 (cross roads) |
| 17/07/43 | Bn. HQ Pontyberem centre of resistance (C Coy.) |
| 17/07/43 | Cynheidre centre of resistance, 100.9328 (D Coy.). Delay post locations: <ul style="list-style-type: none"> - 100.936295 (cross roads) - 915304 (Pontyates) |
| 17/07/43 | Llannon centre of resistance 100.9830 (E Coy.). Delay post locations: <ul style="list-style-type: none"> - 100.985308 - 100.9829 (Pontmorlais) |
| 17/07/43 | Cross Hands centre of resistance, 89.0034 (F Coy.). Delay post locations: <ul style="list-style-type: none"> - 89.9935 (Cefneithin) - 89.0135 (Gorslas) - 100.0132 (Rhydsarnau) - 100.9933 (cross roads) |
| 17/07/43 | ROF Pembrey centre of resistance, 100.8522 (G Coy.). Delay post location: <ul style="list-style-type: none"> - 100.8623 (Halt area) |
| 17/07/43 | Kidwelly will organise a 'keep' |

Table 7.18: 3 Bn. Carmarthenshire Home Guard defence site locations identified in Operational Instruction No. 3, Appendix F: Invasion proper. Plan B, 17 July 1943, (Carmarthenshire Archives CDX/429).

| Date | Note |
|----------|--|
| 16/06/44 | ROF Pembrey centre of resistance with G Coy., 100.8522 (A Coy.). Delay post location: <ul style="list-style-type: none"> - 100.862243 |
| 16/06/44 | Kidwelly centre of resistance, 100.8529 (B Coy.). Delay post locations: <ul style="list-style-type: none"> - 100.864308 (pumping station) - 100.875302 (cross roads) |
| 16/06/44 | Bn. HQ Llannon centre of resistance (C Coy.) |
| 16/06/44 | Cynheidre centre of resistance, 100.937288 (D Coy.). Delay post locations: <ul style="list-style-type: none"> - 100.930290 (road junction) - 916303 (Pontyates) - 100.9327 (Five Roads) |
| 16/06/44 | Llannon centre of resistance 100.9830 (E Coy.). Delay post location: <ul style="list-style-type: none"> - 100.986308 |
| 16/06/44 | Cross Hands centre of resistance, 89.0034 (F Coy.). Delay post locations: <ul style="list-style-type: none"> - 89.997358 (Cefneithin) - 89.0135 (Gorslas) - 100.017321 (cross roads) - 100.992337 (Tumble) |
| 16/06/44 | ROF Pembrey centre of resistance, 100.8522 (G Coy.) |
| 16/06/44 | Kidwelly will organise a 'keep' |

Table 7.19: 3 Bn. Carmarthenshire Home Guard defence site locations identified in Operational Instruction No. 3, Appendix F: Invasion proper. Plan B, 16 June 1944, (Carmarthenshire Archives CDX/429).

| Date | Note |
|----------|--|
| 17/07/43 | Fougasses at: <ul style="list-style-type: none"> - Pembrey House, 100.867237 (A Coy.) - Broomhill, Kidwelly, 100.855297 (B Coy.) |
| 17/07/43 | McNaughton Tube at: <ul style="list-style-type: none"> - Bridge, Kidwelly, 100.852292 (B Coy.) |

Table 7.20: 3 Bn. Carmarthenshire Home Guard defence site locations identified in Operational Instruction No. 3, Appendix N: Fougasses and McNaughton Tubes, 17 July 1943, (Carmarthenshire Archives CDX/429).

| Date | Note |
|-------|--|
| 02/44 | Vital points recorded at bascule railway bridge, town river bridge, GPO, petrol depot, electric power station and gas works |
| 02/44 | HQ at 26 Quay Street, BHQ at Ivy Bush Royal Hotel |
| 02/44 | Observation posts located at: <ul style="list-style-type: none"> - Mental hospital, 89.839427 (D Coy) - Penlan ROC post, 89.858436 (C Coy) - Penlan-ffos Farm, 89.862445 (C Coy) - Llwynmeredith Hill, 89.863433 (C Coy) - Bolahual, 89.870410 (A Coy) - Allt-y-cnap, 89.835408 (E Coy) - OPs at Llansteffan Castle, 100.795325 (E Coy) - Blaenycoed ROC post, 89.796497 (C Coy) - Crynfryn, 89.814479 (C Coy) - Llwynconwil Hill, 89.827498 (C Coy) |
| 02/44 | Defence posts cited in Conwil approaches (Route 1 via Rock & Fountain) to Carmarthen: <p>Vital points at:</p> <ul style="list-style-type: none"> - Railway bridge over River Gwili, 833487 - Reservoir, 832487 - Pumping station from River Gwili <p>Tank ambush:</p> <ul style="list-style-type: none"> - Rail roadblock at 837483 - Rear seal at 832487 - Roadblocks between Rock and Fountain and 873434 crossroads <p>Observation posts at:</p> <ul style="list-style-type: none"> - '717', 8248 - Visual contact with Crynfryn OP, 815482 - 840487 |
| 02/44 | Defence posts cited in Conwil approaches (Route 2 via Bwlchnewydd) to Carmarthen: <p>Vital point:</p> <ul style="list-style-type: none"> - Road junction at 812482 <p>Tank ambush along Blaenycoed – Crynfryn Road:</p> <ul style="list-style-type: none"> - Road rail blocks covering all approached to at Crynfryn crossroads, 812482 - Rear seal at 810486 <p>Tank ambush along Conwil – Crynfryn Road:</p> <ul style="list-style-type: none"> - Road rail blocks covering all approached to at Crynfryn crossroads, 812482 - Rear seal at 813484 - Small arms weapons at 811483 <p>Observation posts:</p> <ul style="list-style-type: none"> - 815483 (in visual contact with OP '717') - ROC Post at Blaenycoed, 796497 |

Table 7.21: 1 Bn. Carmarthenshire Home Guard defence site locations identified in Carmarthen Defence Scheme, February 1944, (Carmarthenshire Archives CDX/629).

It was interesting to note that the Home Guard records recorded the demolition of some types of defence works and salvage thereof before the end of the war. A letter from 3 Battalion, Carmarthenshire Home Guard entitled Road and Railway Blocks of 6 January 1943 to all companies forwarded on instructions from South Wales District via Carmarthen Sub-Area. The letter referred to the Sub-Area's instruction of 29 December 1942 stating that 'NO new defence works will be undertaken in this Sub-Area'. The letter also stated:

'The shortage of steel is serious. Changes in defence policy involving the concentration of defences at Centre of Resistance have rendered very many roadblocks redundant. Western Command is pressing for the salvage of every unwanted rail' (Carmarthen Archives CDX/553/1).

A second letter from 3 Bn. Carmarthenshire Home Guard entitled Pillboxes - Removal of 19 September 1944 to all companies forwarded on instructions from the County Surveyor of Carmarthenshire via Carmarthen Sub-District. It stated:

'I have received a circular on the above matter from the Divisional Road Engineer of the Ministry of War Transport requesting me to proceed with the demolition of all of the above items.

Before I commence to demolish the pillboxes I shall be very glad if you will remove any guns, ammunition or other military stores that may be kept in them...

Similar requests may be expected in due course from the County Surveyors in Cardiganshire and Pembrokeshire' (Carmarthen Archives CDX/553/3).

7.4.3.3 Minefields

The known documentary references to minefields that were established in the case study are summarised in Table 7.22. All of the minefields were located on the coastal margins of the Taf estuary, either protecting beach exits (Laugharne and

Pembrey) or gun emplacements (Pembrey). The very modest number of mines laid (1223) over such a large area was representative of supply problems and the prioritisation of beaches in other command areas. As such, minefields were laid at locations considered most vulnerable to challenge where reinforcement was required. A dummy minefield was mentioned at Laugharne, but it was not known whether other examples were established in the case study. In contrast with some other minefields, clearance certificates for minefields in the case study do not appear to have survived (WO 199/38).

| Date | Note |
|----------|--|
| 01/10/40 | Return of Mushroom Minefields described minefield Serial No. 8 comprising of 500 anti-tank mines being laid at Pembrey at co-ordinate 8722, which is in the Lifeboat Plantation area |
| 23/11/40 | Return of Mushroom Minefields described minefields Serial No. 4 and 4A comprising of 851 mines laid in an irregular triple row pattern north and south of road at 100. 8324 – 8224 area, which is in the Pembrey Forest area |
| 01/11/40 | Return of Anti-tank Minefields described proposal to lay 90 mines at Laugharne to convert the present dummy minefield (30yds x 20 yds) at 100.7433 |
| 08/12/40 | Return of Mushroom Minefields described minefields Serial No. 4 and 4A comprising of 851 mines laid in an irregular triple row pattern north and south of road at 100. 8324 – 8224 area, which is in the Pembrey Forest area |
| 08/01/41 | Letter entitled Beach Mine Fields revised number of mines at Pembrey Serial 4 and 4A to 633 |
| 04/02/41 | Letter entitled Anti-Tank Minefields amended return proposing to lay 90 mines at Laugharne to convert the present dummy minefield (30yds x 20 yds) at 100.7433 |

Table 7.22: Selected minefield entries from Defences: Anti-tank Minefields registered file, 1940-44 (TNA WO 199/37).

7.4.3.4 Canadian pipe mines

The documentary evidence recorded the installation of Canadian pipe mines (Table 7.23). The first phase focused on preparing the roads around Laugharne and a key steep gradient at Pendine. The positions and date were identifiable. Additional phases of work were proposed at Kidwelly and along the course of the stop line, but there was no documentary evidence that these schemes were completed.

| Date | Note |
|----------|--|
| 12/07/41 | Work noted as completed or now in hand on installation of McNaughton Tubes at: <ul style="list-style-type: none"> - Vicinity of Laugharne at 100.064128 [actually Blackpill, Swansea] - Vicinity of Laugharne at 100.745328 - Vicinity of Laugharne at 100.744331 - Vicinity of Laugharne at 100.745332 - Vicinity of Laugharne at 100.746332 - Vicinity of Laugharne at 100.733319 - Vicinity of Pendine at 100.677308 |
| 24/07/41 | Work proposed re installation of McNaughton Tubes at: <ul style="list-style-type: none"> - Vicinity Kidwelly Bridge at 100.852291 |
| 13/05/42 | Letter Canadian Pipes: 1942 Programme approved Western Command's proposed work programme to install McNaughton tubes on roads between Llangrannog and the estuary of the river Towy |

Table 7.23: Selected Canadian pipe mine entries from Defences: Roadblocks – McNaughton Tubes registered file, 1940-42 (TNA WO 199/52).

7.4.3.5 Obstruction of landing grounds

The file provided very important documentary evidence of extensive vertical pole defences at Pembrey and Pendine (Table 7.24). This form of defence was difficult to identify in contemporary aerial photography and the recent clearance at Pendine emphasised the unique character of this evidence. In contrast the poles were known to survive at the north end of Pembrey Beach, being revealed in abundance during the winter storms in 2014, but the distribution further south had been removed to allow for a RAF Temporary Landing Zone and tourism. The documentation did not record when this form of defence was erected, or the arrangement or breadth of the defensive corridor.

| Date | Note |
|----------------------------|--|
| Unknown but after 26/02/43 | South Wales District's Obstructions on the Foreshore return recorded: <ul style="list-style-type: none"> - Vertical poles at Pembrey Beach from 100.835230-801286 - Vertical poles at Pendine Sands from 100.765320-682302 (nearly cleared) - Tubular scaffolding at Loughor Estuary from 100.881221-885216 |

Table 7.24: Selected entries from Charting Obstructions on the Foreshore registered file, 1943-45 (TNA WO 199/103).

7.4.3.6 Coast artillery

The only coast artillery battery in the case study was located at Burry Port, although it was often referred to as Llanelly battery. The battery was planned to mount a pair of 6-in guns, but was equipped with a pair of 4-in guns. The long-term resident unit was 402 Coast Battery, RA, but its war diary was not preserved at TNA. Fortunately it was possible to reconstruct its biography through other war diaries and registered files (Table 7.25).

| Date | Note |
|-------------|---|
| 20/07/40 | 100 4in Naval guns were transferred from the Admiralty to GHQ Home Forces [WO 166/11] |
| 12/06/40 | Western Command CD selected site for No. 13 Emergency 6in battery at Llanelly [WO 166/1877] |
| 19/07/40 | 51 Medium Regt., RA to be responsible for 4in emergency batteries as a temporary measure [WO 166/11] |
| 10-11/08/40 | Noted 2 x 4in guns mounted Burry Port, Llanelly [WO 166/2067] |
| 10/08/40 | 51 Medium Regt., RA dispatched to Burry Port to take command of Emergency Battery [WO 166/1877] |
| 14/08/40 | The 4in battery at Llanelly reported operational [WO 166/11] |
| 17/08/40 | Noted guns at Burry Port taken over by 51 Medium Regt., RA from construction until 402 Coast Battery ready [WO 166/2067] |
| 29/11/40 | 402 Coast Battery took over guns at Burry Port battery [WO 166/1758] |
| 14/01/41 | GHQ Home Forces proposed reduced state of readiness at Llanelly battery amongst others [WO 166/11] |
| 31/01/41 | 402 Coast Battery noted at Burry Port battery [WO 166/1758] |
| 09/07/41 | GHQ Coast Artillery Operation Instruction No. 2 issued, setting out the role, tasks and operational control of coast artillery establishments. Coast artillery batteries at minor defended ports, including Llanelly, were tasked to engage enemy transport and landing craft, engage light naval forces attacking the port, support the Examination Service where appropriate and engage targets on landing beaches in the vicinity of the port. Naval guns located to cover landing beaches were responsible for engaging enemy transport and landing craft, engaging light forces attacking shore defences and engaging targets on the landing beaches. Coast artillery batteries in Western Command were under the direct operational command of Command HQ [WO 166/11] |
| 16/12/41 | Order of Battle of Non-Field Force Units in the United Kingdom for Coast Artillery and Defence Troops, Royal Artillery noted 402 Coast Battery, Burry Port, Llanelly as part of 559 Special Coast Regiment (Swansea) (WO 33/1897) |

Table 7.25: Selected entries from various war diaries and registered files relating to Burry Port coast battery, Llanelly.

7.4.3.7 Defence batteries

Two war diaries survived which illustrated the changing and complex arrangements undertaken to provide artillery defence in the case study (Tables 7.26 and 7.27). The sources also illustrated the relatively rapid re-naming of units that occurred as the military organisational structures evolved.

Although 959 Defence Battery was located in the St Athan area, it formed part of the South Wales Area Defence Regiment. Its war diary preserved copies of orders that were issued to other units, including 961 Defence Battery, which was located within the case study. These orders were not preserved in the latter unit's war diary. On two occasions, the orders included artillery emplacement location lists held by 961 Defence Battery, which would not otherwise be known.

In the context of this research these references were unique and highly significant. The November 1940 list located six 4-in and three 6-pdr gun emplacements, of which only four of the former and none of the latter were known from other sources. None of the four 13-pdr gun sites in the March 1941 list were known from other sources. This list possessed added value as it demonstrated that the guns were not solely used to cover the beaches, but were also deployed inland.

The content of 961 Defence Battery's war diary (Table 7.27) provided additional complementary information pertaining to the location of gun emplacements and their usage. Again much of this content was unique. It identified new 6-pdr gun emplacements at Causeway and Kidwelly, together with an additional 75mm gun emplacement at St Ishmael. It also clarified that the 6-pdr guns were handed over to the local Home Guard battalion, although their subsequent location and use was

unknown, and that the 6-pdr emplacements were replaced by different 13-pdr emplacements.

Collectively, the two war diaries referred to twenty individual gun emplacements, many of which were occupied simultaneously. Such a concentration of artillery was unparalleled in south Wales and emphasised the strategic importance and perceived military vulnerability of Carmarthen Bay.

| Date | Note |
|----------|--|
| 03/09/40 | 146 (Cardiganshire) Fd. Regt. of 38 Inf. Div. ordered to form a new battery for HD |
| 18/09/40 | 959 Defence Bty., RA established at Knutsford, Cheshire |
| 29/10/40 | Bty. detached from 146 Fd. Regt. and attached to 92 Fd. Regt., 5 Inf. Div. |
| 08/11/40 | War diary letter Defence Batteries stated 959, 960 and 961 Defence Btys. had relieved 97 (Kent Yeomanry) Fd. Regt. in south Wales |
| 10/11/40 | Bty. came under operational command of 15 Defence Regt., RA |
| 12/11/40 | War diary letter recorded that 959, 960 and 961 Defence Btys. were established as South Wales Area Defence Regt., RA with HQ at St Andrews Hall, St Helens Road, Swansea |
| 17/11/40 | War diary letter Relief of 97 (Kent Yeo) Regiment, RA by South Wales Area Defence Regiment, RA recorded orders for South Wales Area Defence Regt., RA: 961 Defence Bty. HQ at Llwyn-du, Llangain, Carmarthenshire. Took over following gun emplacements from 385 (Duke of Connaught's Own Yeomanry) Fd. Bty.: <ul style="list-style-type: none"> - 4-in at 678 303 [Pendine] - 4-in at 758 301 [Pendine East] - 4-in at 807 304 [St Ishmael] - 4-in at 812 269 [Range Tower, Pembrey] - 4-in at 822 248 [Tywyn Camp, Pembrey] - 4-in at 832 235 [ROF, Pembrey] - 6-pdr at 705 315 [Westmead Farm, Pendine] - 6-pdr at 818 255 [Tywyn Camp, Pembrey] - 6-pdr at 829 245 [Tywyn Burrows, Pembrey] |
| 18/11/40 | 15 Defence Regt. renamed South Wales Area Defence Regt., RA |
| 22/11/40 | Bty. Relocated to south Wales |
| 30/11/40 | South Wales Area Defence Regt. renamed 14 Defence Regt., RA |
| 10/03/41 | 14 Defence Regt. informed Defence Btys. that WC ordered that they would take over 13-pdr guns at locations [within case study area] to be reconnoitred as followed: <ol style="list-style-type: none"> 1. 961 Bty. at Kidwelly Bridge at about 100.852 292 2. 961 Bty. at Johnstown, Carmarthen at about 89.845 420 3. 961 Bty. at Laugharne at about 100.747 332 4. 961 Bty. at Carmarthen at about 89.861 420 covering the road bridge over the River Towy |

Table 7.26: Selected entries from 959 Defence Battery, RA war diary, 09/40-04/41 (TNA WO 166/2043).

| Date | Note |
|----------|--|
| 01/10/40 | Noted that 961 Home Defence Battery HQ was based at Carmarthen |
| 01/11/40 | Bty. HQ re-opened at Tenby |
| 19/11/40 | War diary noted unit travelled to 385 (Duke of Connaught's Own Yeomanry) Fd. Bty., RA for instruction on the gun sites at Pembrey and Pendine |
| 21/11/40 | Bty. changed name to 961 Defence Regiment, RA |
| 03/12/40 | Bty. took over BHQ at Llwyn-du, Llangain from 385 (Duke of Connaught's Own Yeomanry) Fd. Bty., RA and standing orders issued for gun emplacements at Pembrey, Ferryside, Island (St Catherine's Fort, Tenby) and Pendine |
| 09/01/41 | War diary named A1, A2, B1, B2 and B3 positions at Pembrey and differentiated between Pendine and Pendine East positions |
| 17/02/41 | Noted 6-pdr gun sited at Causeway |
| 02/03/41 | Bty. received warning order to hand over 6-pdr guns to HG |
| 22/03/41 | Bty. ordered by CSA HQ to hand over three 13-pdr to HG when suitably trained |
| 24/03/41 | Three detachments of 1 Bn. Carmarthenshire Home Guard commenced 13-pdr training |
| 02/04/41 | Bty. made arrangements with GE to site 13-pdr gun at Kidwelly |
| 11/04/41 | Bty. made arrangements to site 13-pdr guns at Pembrey |
| 17/04/41 | Received order to send 4-in Naval gun at St Ishmael to Navy and replaced by 75mm |
| 30/04/41 | CSA ordered all 6-pdr guns to be withdrawn and 13-pdr guns to beach areas |
| 04/05/41 | 4-in Naval gun at St Ishmael sent to RN Cardiff by rail |
| 14/05/41 | 6-pdr guns at B1 and A2, Pembrey handed over to HG and replaced by two 13-pdrs from Carmarthen |
| 19/05/41 | 6-pdr at Kidwelly taken over by HG, leaving 13-pdr at Kidwelly |
| 19/05/41 | 6-pdr guns from Westmead and A3, Pembrey handed over to HG |
| 22/05/41 | 13-pdr guns at Kidwelly and Carmarthen removed leaving only one 13-pdr in area |
| 27/05/41 | Bty. selected a new site for 13-pdr gun at the Causeway, Pendine, as original site had too much depression as selected for a 6-pdr gun |
| 28/05/41 | Selected new site for 75mm gun at St Ishmael that is to come. Bty. received 13-pdr gun from 960 Defence Battery. New 13-pdr site at Causeway agreed |
| 16/06/41 | GE selected site for 75mm at St Ishmael which is on a mounting |
| 10/07/41 | Noted inspection of A1, A2, B2, B3 and A3 guns at Pembrey |
| 04/08/41 | Bty. attached to 14 Defence Regt., RA |
| 19/08/41 | 75mm at St Ishmael sent to Pembroke Dock |
| 25/09/41 | BHQ relocated to Carmarthen |
| 01/01/42 | Advised that 4-in guns to be sent to 559 Coast Defence Battery at Port Talbot |
| 11/01/42 | Pendine and Pembrey guns taken over by 558 Coast Defence Regt., RA |
| 12/01/42 | Bty. disbanded |

Table 7.27: Selected entries from 961 Defence Battery, RA war diary, 10/40-01/42 (TNA WO 166/2045).

7.4.4 Aerial photographic source evidence

This large case study was the subject of variable aerial photographic coverage during the Second World War (Tables 7.28-29). Over two-thirds of the case study was not recorded. Other areas were subject to multiple surveys, typically the RAF airfields, the beaches at Pendine and Pembrey, and Carmarthen. Fourteen separate reconnaissance sorties were identified in the case study from 1940-44, totalling 269 prints. They were generally in focus, exposed correctly and free from cloud obscuration and physical damage. The majority were vertical in character; only four sorties recorded low-level oblique photographs, comprising 20% of the total. Oblique photography recorded beaches at invasion risk during 1940 and Carmarthen.

| Location | Type | WG APU Reference | Sortie | Date | No. of Frames |
|---|----------|------------------|---------------|----------|---------------|
| Tresaith Beach | Oblique | MWO12 | RAF Unknown | 16/06/40 | 4 |
| Pembrey Beach | Oblique | MWO17 | RAF Unknown | 01/07/40 | 19 |
| Pendine Beach | Oblique | MWO19 | RAF Unknown | 01/07/40 | 18 |
| Burry Port | Vertical | M328 | RAF 110/1 | 30/08/40 | 6 |
| Carmarthen | Vertical | M298 | RAF 78/1 | 20/03/41 | 18 |
| RAF Aberporth | Vertical | M224 | RAF 6/1 | 09/05/41 | 10 |
| Pendine-Laugharne sands | Vertical | M3009 | RAF S/606 | 10/10/41 | 34 |
| RAF Pembrey | Vertical | M2267 | RAF HLA/429 | 26/03/42 | 18 |
| Brynhoffnant-Beulah, Pontgarreg-Glasnant and RAF Aberporth area | Vertical | M2324 | RAF HLA/489 | 15/04/42 | 31 |
| Blaenporth area | Vertical | M2330 | RAF HLA/495 | 24/04/42 | 6 |
| Carmarthen Hospital | Oblique | M1468 | USAAF LOC/C4 | 02/03/44 | 13 |
| Carmarthen Hospital | Vertical | M1470 | USAAF LOC/E2 | 04/03/44 | 2 |
| Carmarthen and RAF Pembrey | Vertical | M1272 | USAAF LOC/200 | 05/03/44 | 44 |
| Carmarthen area and Burry Port area | Vertical | M1281 | USAAF LOC/212 | 08/03/44 | 46 |
| Total | | | | | 269 |

Table 7.28: Summary of aerial photographic evidence for Carmarthen Stop Line case study area. Presented in chronological order.

The early RAF coverage was heavily biased towards recording potential invasion beaches (MWO12, MWO 17, MWO19 and M328) and the 1940 coverage represented reconnaissance surveys prior to beach defences being installed. These were therefore limited in help in reconstructing the anti-invasion defence landscape, although they did illustrate the areas of interest and gave a pictorial context to the beach environments. There were examples of the routes of stop lines being recorded at this time elsewhere in Wales (for example sortie 13N/UK746 on 4 September 1940 (RAF Medmenham No. M326), which surveyed the course of the River Usk Stop Line in Monmouthshire), and the apparent absence of reconnaissance or monitoring photography along the Carmarthen Stop Line is a notable absence. The RAF reconnaissance coverage during 1941 and 1942 focused on the two RAF airfields (M224, M2267, M2324 and M2330) and a single beach sortie at Pendine (M3009). The area coverage at RAF Aberporth also captured the northern end of the Carmarthen Stop Line.

The archive did not retain any aerial photographic activity in the case study during 1943. During 1944 RAF aerial photography was apparently absent, but the USAAF undertook four separate sorties during March 1944. Two of these sorties focused on recording the newly established US Army trial expeditionary hospital at Carmarthen (M1468 and M1470), the third sortie surveyed the Carmarthen area and RAF Pembrey (M1272), and the fourth sortie (M1281) reconnoitred the Carmarthen and Burry Port areas. The archive did not retain any aerial photographic activity in the case study during 1945.

| Year | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | Totals |
|---------------------|------|-------|------|-------|------|------|------------|
| No. of RAF Frames | 0 | 47 | 62 | 55 | 0 | 0 | 164 |
| No. of USAAF Frames | 0 | 0 | 0 | 0 | 0 | 105 | 105 |
| Totals | 0 | 47 | 62 | 55 | 0 | 105 | 269 |
| Percentage | 0 | 17.5% | 23% | 20.5% | 0 | 39% | 100 |

Table 7.29: Summary of quantities of wartime aerial photographic frames collected for Carmarthen Stop Line case study area by year and by source.

In terms of defence structures, the emergency coast defence artillery battery at Burry Port was not depicted. A variety of military structures on the dune edge at Cefn Sidan were photographed during 1940 (MWO17) and added to the known extent and character of the defensive arrangements. The route of the Carmarthen Stop Line was captured unintentionally by the RAF on a number of sorties (to the west of Carmarthen in 1941 (M298); the northern end between Pontgarreg-Brynhoffnant in 1942 (M2324); and to the east of RAF Pembrey in 1942 (M2267)). Parts of the southern section of the stop line between Carmarthen and Pembrey were also recorded by the USAAF on a number occasions in 1944 (to the north and south-west of Carmarthen (M1272); from the west of Carmarthen south to the stop line's junction with the River Tywi (M1281); east of RAF Pembrey (M1272); and at its southern terminus on Pembrey Burrows (M1281)).

Usually this additional coverage amounted to no more than one or two frames of interest per defence site per sortie, but these rare survivals do add to the understanding of the anti-invasion defence landscape. For example frame 1006 of USAAF sortie 7PH GP LOC200 on 5 March 1944 showed an alignment of fifty-seven concrete anti-tank blocks aligned corner-to corner flanking the western side of the A484 and projecting south from the terminal end of the earthen anti-tank ditch to the east of Pante farm. The presence of the anti-tank blocks was hinted at by the map

contained within TNA MAF 112/204, but the exact location, orientation, number and extent was unknown.

The RAF airfields at Pembrey and Aberporth and their immediate environs were also recorded in detail. RAF Pembrey was overflown by the RAF in March 1942 (M2267) and the USAAF in 1944 (M1272). The 1942 coverage depicted the airfield, its visible defences and those of the adjacent stop line and coastal defences. Pembrey was host to Flying Training Command's No. 1 Bombing and Gunnery School at this time and it was unclear to what extent the activities of this unit interacted with the defensive layout, which would have been at its most developed. The USAAF imagery was clear and recorded the airfield prior to the arrival of the jet Operational Conversion Unit during the 1950s, but did not add any new information.

RAF Aberporth opened in December 1940 as an Anti-Aircraft Co-operation Unit base to serve the gunnery ranges on Cardigan Bay. It was surveyed in its entirety by the RAF in 1941 and the north-eastern corner was overflown in 1942. Somewhat unusually, the airfield was encircled by five FW3 style and ten Air Ministry style pillboxes, but was not apparently equipped with a battle headquarters. The defensive perimeter of pillboxes was visible on both sets of imagery.

The town of Carmarthen was the location of the regional army headquarters for Carmarthen Sub-Area and also possessed a barracks. Located on the A40 main road at the lowest crossing of the River Towy Carmarthen represented a strategic communications location. The town and its immediate environs were surveyed by the RAF in March 1941 (M298) and twice by the USAAF in March 1944 (M1272 and M12781). The RAF imagery appeared to show an entrenched position to the south

of the barracks on Picton Terrace with a crenelated trace; this had been infilled on the 1944 imagery. It was uncertain whether this represented a training facility or a defensive position. The USAAF imagery also depicted a series of small rectangular buildings built along the hedge line to the north of the Carmarthen Sub-Area's headquarters.

The evidence did not reveal much in the way of defence structures. The known pillbox on the eastern abutment of the bascule bridge was visible and a bright hexagonal structure located on a roundabout on Pensarn Road (7PH GP LOC200 frame 1015, 5 March 1944) might represent a FW3/22 or dummy pillbox; the latter was not visible on the March 1941 imagery and may have been camouflaged, but a shadow was not visible. These potentially represented part of the eastern town defences and suggested that the eastern approaches to the town were fortified to create an anti-tank island. Close examination of the imagery did not reveal any evidence for the western terminus of the Carmarthen-Ammanford Stop Line at Carmarthen.

The post-war aerial photography could also be invaluable, particularly the RAF Operation Revue coverage. Within the context of this study, a number of sorties during 1946 covered most, but not all of the case study. The coverage along the Carmarthen Stop Line is presented in Table 7.30.

| Location | Type | Operation Revue Sortie No. | Date |
|------------------------------|----------|----------------------------|----------|
| Pembrey area | Vertical | 106GUK/1400 | 11/04/46 |
| Aberbarre to Nantygronw area | Vertical | 106GUK/1471 | 04/05/46 |
| Cwmduad to Llangain area | Vertical | 106GUK/1625 | 07/07/46 |
| Morfa Uchaf to Kidwelly area | Vertical | 106GUK/1629 | 08/07/46 |

Table 7.30: Summary of Operation Revue aerial photographic sorties identified for Carmarthen Stop Line case study area.

This source of aerial photography, as attested in the other case studies, demonstrated how quickly the anti-invasion defence landscape was dismantled. The near-complete coverage of the post-war aerial photography also provided another valuable opportunity to record structures that were either not built and/or surveyed during the war and that were demolished in the following decades. A good example was the emergency coast battery built at Burry Port. Although disused and probably on a care and maintenance basis on the date of the photograph on 8 July 1946, the frame (RAF 106GUK/1629 frame 2145) clearly depicted the location, extent and character of the two gun emplacements, the technical buildings and supporting camp, together with the coast artillery search light emplacement and pillbox at the end of the breakwater.

7.4.5 Cartographic source evidence

The cartographic evidence identified for this case study was limited in quantity. None of the records were directly related to the creation of the defence networks, although one set was related to the removal of defences. The absence of maps from contexts from which they might be expected to have been preserved was perhaps the most notable characteristic of this evidence class for the case study. However, given that there were so many opportunities to create maps, the absence should perhaps be interpreted as being indicative of the high potential that this evidence type retains overall to contribute to the understanding of this anti-invasion landscape.

The records were held in national archive or personal collections. Four generic collections of cartographic evidence pertaining to the case study were identified (Table 7.31). All maps and plans were viewed.

| Source | Title | Date | No. of Plans | Notes |
|--|---|---------|--------------|-------|
| RAF Museum | Air Ministry Record Site Plans | 1944-54 | 4 | N/A |
| MAF 112/204, The National Archives | Removal of defence works and other obstacles in the interest of food production | 1946 | 3 | |
| Admiralty Drawing No. 127/42, Private collection | Milford Haven RN Mine Depot - Camp Site - Burry Port | ? | 1 | |
| Personal collection | GSGS3906 1:25,000 maps | 1940-43 | 11 | |
| Personal collection | GSGS3907 1 inch to 1 mile maps | 1940 | 3 | |

Table 7.31: Summary of cartographic evidence identified for Carmarthen Stop Line case study area.

7.4.5.1 Ministry of Agriculture and Fisheries plans

The most important series of plans comprised those filed within a Ministry of Agriculture and Fisheries registered file preserved at TNA (MAF112/204). Rather than focusing on the construction of the defences, the file was concerned with the removal of temporary defence works on private land in order that land requisitioned under Defence Regulations 50 and 51 might be reinstated and rehabilitated for agricultural usage under the provisions of the Requisitioned Land and War Works Act 1945.

The registered file was first described in Redfern's entry for the River Towy and River Gwili Stop Line (1998b: 85-89). While the plans were identified as the key source of information for plotting the location of the stop line's defensive components,

no appraisal of the contribution of the source was undertaken. Redfern listed the defence components from south to north and provided six-figure OS coordinates for each example. He stated that 'the features have been given 1:50,000 grid references by enlarging the traces and matching them up with the 1:50,000 scale OS map' (1998b: 85). It was unfortunate that Redfern did not match the traces to the contemporary GSGS3907 series of maps, which possess a different map projection to that utilised by modern OS mapping. While Redfern acknowledged that 'the grid references have been chosen by the author and represent an outline of the stop line and its make-up only' (1998b: 85), the use of the incorrect base mapping would explain the errors present in the distribution of blockhouses when plotted on GIS.

The file contained three tracings covering the length of the Carmarthen Stop Line, which were designed to be used as overlays with the appropriate GSGS3907 one-inch to one mile map sheets (78, 89 and 100). The colour-coded legend distinguished between natural, excavated and concrete cube forms of defence and also marked the location of blockhouses (pillboxes). It depicted eleven lengths of excavation, five lengths of anti-tank cube alignment and nine lengths of natural defence respectively, together with at least 72 pillboxes.

The excavations and anti-tank cube alignments were annotated 'A', 'B' and 'C' in accordance with the Ministry of Works' Temporary Defence Works Committee Instruction No. 2 of August 1946, which classified temporary defence works under three categories: (a) those the removal of which is urgently necessary; (b) those the removal of which is necessary at some future date; and (c) those the removal of which is not required in the Public Interest (letter from the Secretary of the Temporary

Defence Works Committee, Ministry of Works to the Land Commissioner, Aberystwyth, 8 August 1946).

The areas annotated for rehabilitation (Plates 7.1-7.3) comprised those lengths of anti-tank ditch earmarked for infilling, which would explain the survival of most of the anti-tank concrete cube alignments, particularly at Carn Wen and Pembrey. It was apparent that while the infilling of the anti-tank ditch, which often cut across and bisected fields, was seen as an absolute priority, the removal of the concrete anti-tank defences that usually followed field boundaries was not seen in the same light. The removal of short lengths and the partial removal of longer lengths of the latter type of defences were most probably undertaken by landowners.

The importance of the use of sources in combination was paramount in this context to gain the maximum amount of information from them. While the plans were important in their own right as the sole near-contemporaneous plan of the stop line and provide data pertaining to the course and constitution of the defences, the purpose, origination, context and date of the plans were unknown without the supporting documentary evidence. The explanation for the 'A', 'B' and 'C' notation from the documentary source was also of crucial importance when trying to reconstruct the site biographies of the individual defence structures following their abandonment.

An awareness of the official clearance and rehabilitation policy and its implementation informed the rapid field observation strategy, as did an awareness of the distribution of pillboxes along the length of the stop line. For example, the northernmost plan did not depict the presence of any pillboxes to the north of the

concentration at Rhydlewis. While it was unclear whether this was a representation of the original defence distribution or the altered reality of a phase of previous clearance activity, it would appear to be an accurate reflection of the situation as it was recorded in 1946.

7.4.5.2 Air Ministry Record Site Plans

The second collection of plans comprised the known catalogued Air Ministry record site plans for RAF Pembrey and RAF Aberporth (Table 7.32) preserved at the RAF Museum Hendon and TNA. Three record site plans were known to survive for Pembrey showing the development of the airfield from 1944-54. As such they portrayed the airfield at its most developed towards the end of the war and in the immediate post-war period. Use of these plans was aided by the survival of the associated schedules of buildings, which facilitated precise building identification, description and location, together with the use of a standardised key, which included an icon depicting the location of gun posts. No earlier Air Ministry plans were identified, although they must have been produced.

In common with other similar dated plans, these examples did not record the airfield defence arrangements from 1940-42. The only defence structure listed with certainty from this early wartime period was the Type 11008/41 Battle Headquarters; in contrast the defensive perimeter pillboxes and Pickett-Hamilton forts known to be constructed were conspicuous by their absence. Their omission was probably due to their early abandonment and the adoption of a more mobile and extensive form of offensive defence. It was uncertain whether the depiction of four gun posts at RAF

Pembrey on the 1944 plan represented part of the early defensive scheme or subsequent arrangements. The aerial photography was unclear and did not provide a satisfactory conclusion.

Interpretation of the sole identified record site plan for RAF Aberporth was hindered by the absence of the schedule of buildings. As with Pembrey, the 1944 dated plan did not appear to be concerned with defensive arrangements. Comparison between the known surviving pillboxes and the plan demonstrated that none of the known examples were depicted on the airfield plan. Despite possessing at least fifteen pillboxes, the presence or absence of the battle headquarters was not confirmed. This structure was routinely depicted on such plans and could be anticipated to be depicted if built with a high degree of confidence, but the lack of a building schedule hinders identification. This type of structure was often part-buried and well camouflaged making it difficult to identify from aerial photography. The apparent lack of a formal battle headquarters was an unusual occurrence.

| Title | Date | Scale | AM Reference | Notes |
|-----------------------------|---------------|---------|--------------|---|
| Aberporth: Record Site Plan | 1944 | 1:2,500 | 4329/44 | Scaled plan at RAF Museum. Depicts location of buildings and dispersed. No schedule of buildings. |
| Pembrey: Record Site Plan | November 1944 | 1:2,500 | PY950 | Scaled plan with schedule of buildings at The National Archives. Includes 11008/41 battle headquarters, and four gun defence posts. |
| Pembrey: Record Site Plan | 1948 | 1:2,500 | 3925/48 | Scaled plan with schedule of buildings at RAF Museum. Includes 11008/41 battle headquarters, and four gun defence posts. |
| Pembrey: Record Site Plan | 1954 | 1:2,500 | 761/54 | Scaled plan with schedule of buildings at RAF Museum. No defence post depicted. |

Table 7.32: Summary of cartographic evidence identified for RAF Pembrey and Aberporth.

7.4.5.3 War Office Cassini mapping

The third major collection of cartographic evidence comprised the GSGS3906 1:25,000 and GSGS3907 one-inch to one mile (1:63,360) scale maps (Table 7.33). A complete series of both sets of mapping was identified for the case study. None of the individual map sheets were annotated with any form of defensive depiction and other than providing geographical context their chief importance was in facilitating the identification of the locations of defence structures cited using the Cassini grid overlay in registered files at TNA and Home Guard records at Carmarthenshire Archives.

| Sheet No. | Title | Series | Scale | Edition | Notation |
|-------------|---------------|----------|----------|-------------------------------------|------------------------------------|
| 26/22 NW&SW | [Pendine] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | 2,000/6/43/14 RE |
| 26/22 NE | [Ferryside] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | 2,500/10/42/520 RE |
| 26/22 SE | [Pembrey] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | 2,500/8/42/520 RE |
| 26/24 NW | [Llanfyrnach] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | 2,500/40 |
| 26/24 NE | [Rhos] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | 2,500/40 |
| 26/24 SW | [Llanboidy] | GSGS3906 | 1:25,000 | Provisional Edition | 2,500/3/41/520 Corps Fd Svy Coy RE |
| 26/24 SE | [Carmarthen] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | 2,000/41 |
| 26/26 NW | [Aberporth] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | 2,500/40 |
| 26/26 NE | [Pont-garreg] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | 2,000/41 |
| 26/26 SW | [Cardigan] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | 2,500/3/41/520 Corps Fd Svy Coy RE |
| 26/26 SE | [Henllan] | GSGS3906 | 1:25,000 | 2 nd Provisional Edition | 2,000/41 |
| 78 | Lampeter | GSGS3907 | 1:63,360 | War Revision 1940 | WO 6,000/40 |
| 89 | Carmarthen | GSGS3907 | 1:63,360 | War Revision 1940 | WO 20,000/40 |
| 100 | Llanelly | GSGS3907 | 1:63,360 | War Revision 1940 | WO 20,000/40 |

Table 7.33: Summary of GSGS3906 and GSGS3907 maps identified in case study area.

7.4.5.4 Admiralty plan for Milford Haven RN Mine Depot

This plan was held in the personal collection of Roger JC Thomas, but was not viewed. It was produced by the Admiralty and depicted the accommodation camp site at Burry Port which supported Milford Haven Royal Naval Mine Depot. The accommodation utilised the buildings constructed for the former Emergency Coast Battery at Burry Port. The plan depicted the gun emplacements and the associated technical buildings common to these types of establishments.

7.4.5.5 Missing maps

Despite the range of defensive site types and military establishments within the case study that were known to generate cartographic records in other contexts, the lack of these records was frustrating. The larger establishments such as the airfields at Pembrey and Aberporth and the coast artillery battery at Burry Port would have generated multiple copies and revisions of many maps and plans. While the airfields' ORBs were preserved at TNA, the defence schemes and associated mapping were not. The FRB for the Burry Port emergency coast battery was not preserved at TNA. The cumulative impact of these cartographic absences was that the defences at these locations were poorly depicted and understood. This source of evidence was often the best means of identifying the location and character of the smaller defensive fieldworks. At these locations other sources must be used to rectify the apparent absence.

It was clear from the surviving documentary records that the Home Guard defence schemes held at Carmarthenshire Archives were richly furnished with maps,

plans and sketches. The text of the 1 Battalion, Carmarthenshire Home Guard defence scheme document of February 1944 (CDX/629) referred to sketches in Appendices A and B depicting the locations of slit trenches, tank ambush areas and the siting for sub-artillery positions, a map in Appendix H that depicted the arrangements for Carmarthen keep and the locations of observation posts and sketch maps in Appendix I with Annexures 1 and 2 marking the positions of weapons, squad and battle platoon areas. None of these maps, plans or sketches were preserved suggesting a deliberate separation of the written and cartographic records, for unknown purposes.

A covering minute from the Officer Commanding accompanying the issue of the 3 Battalion, Carmarthenshire Home Guard Operational Order No. 1 of 19 June 1941 stated:

'I enclose herewith Copy No. 9 of the above. You are personally responsible for its safe custody... Certain appendices marked 'N' are held at Battalion Headquarters and will be issued to you only on receipt of 'NEWTON'. This applies to all copies below Copy No. 7... Copies of Battalion Operational Orders issued on January 1941 will be destroyed by fire and a certificate that it has been done will be rendered to this HQ.' (CDX429).

The document was helpful in explaining military practice surrounding the issue, circulation and destruction of information in a tightly controlled manner. A distribution list at the end of the Operational Order recorded the issue of twenty-four uniquely numbered copies of the document to formation and unit commanders within and adjacent to the defence scheme area. The document was issued with fourteen supporting appendices, but three entitled Beaches, Harbours and Aerodromes in the Battalion area, Field Formations in the Battalion area and Inter-communication and

Light Signals were considered to be so sensitive that they would only be issued to the majority of recipients on the issue of the *Newton* code word indicating that the invasion was believed imminent. As the version preserved at Carmarthenshire Archives was number nine it did not contain these appendices or the accompanying maps and plans, and explained how in some cases the missing maps occurred. It was important to understand the consequences of the practice of restricting important plans, maps and sketches to headquarters. This would have reduced the number in circulation and focused them into one archive. If the archive was not deposited at a local or national level, the opportunity to source them from another source was limited.

The reference to the practice of burning superseded instructions and orders, together with associated maps and being required to officially record this action would help to explain the very low incidence of known defence scheme maps that have been identified in Wales. It was assumed that this practice was undertaken to ensure that only one set of orders was available at any one time to ensure compliance with the latest defence plan and to reduce opportunities for the German armed forces to gain an oversight of the general defence strategy from outdated orders held in multiple dispersed headquarters locations should they have invaded Wales. In this context, the information contained within the associated sources very clearly explained some of the factors for the paucity of maps.

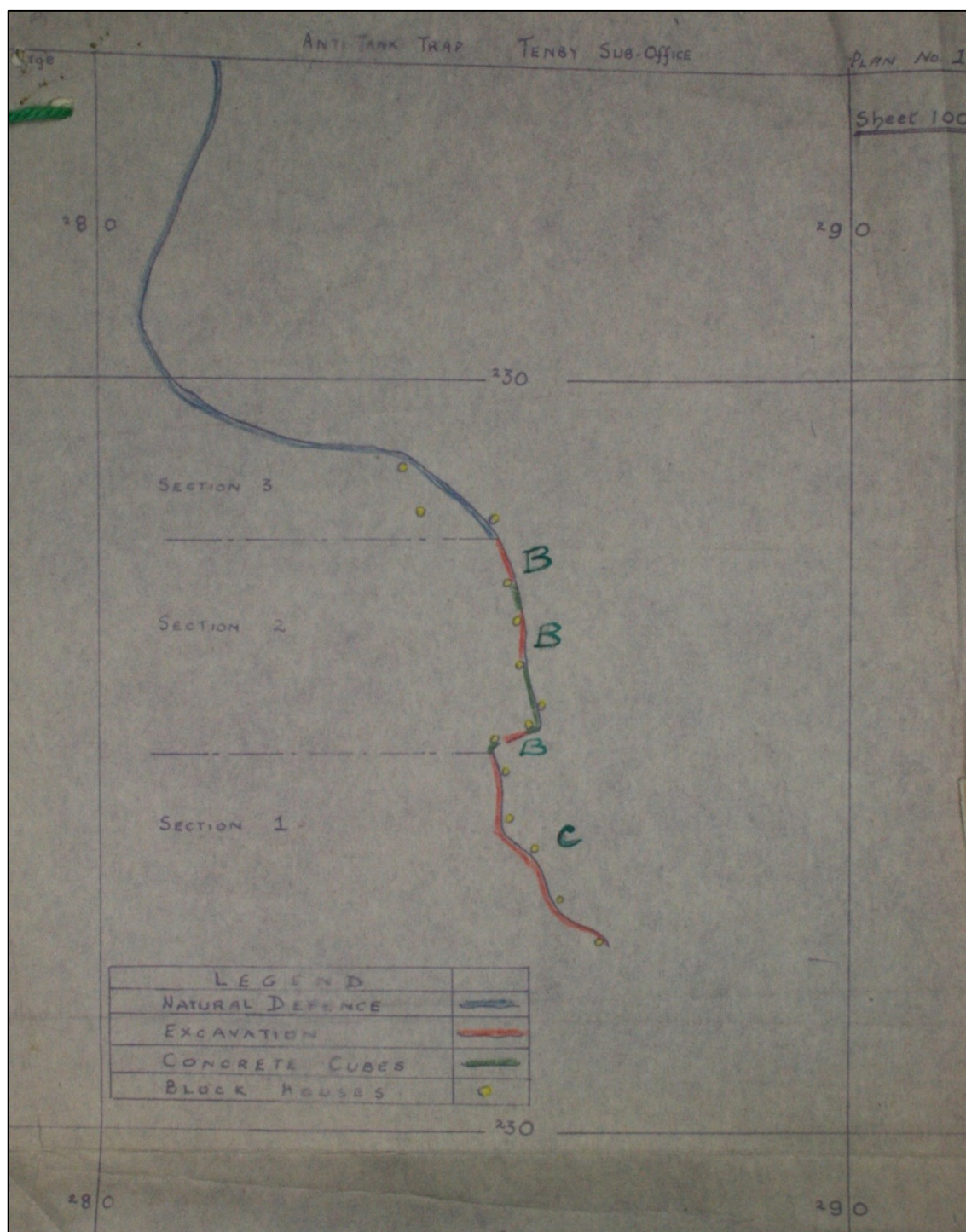


Plate 7.1: Plan depicting natural defences, excavation, concrete cubes and block houses for southern (Pembrey-Ferryside) section of Carmarthen Stop Line (TNA MAF 112/204).



Plate 7.2: Plan depicting natural defences, excavation, concrete cubes and block houses for central (Carmarthen-Henllan) section of Carmarthen Stop Line (TNA MAF 112/204).

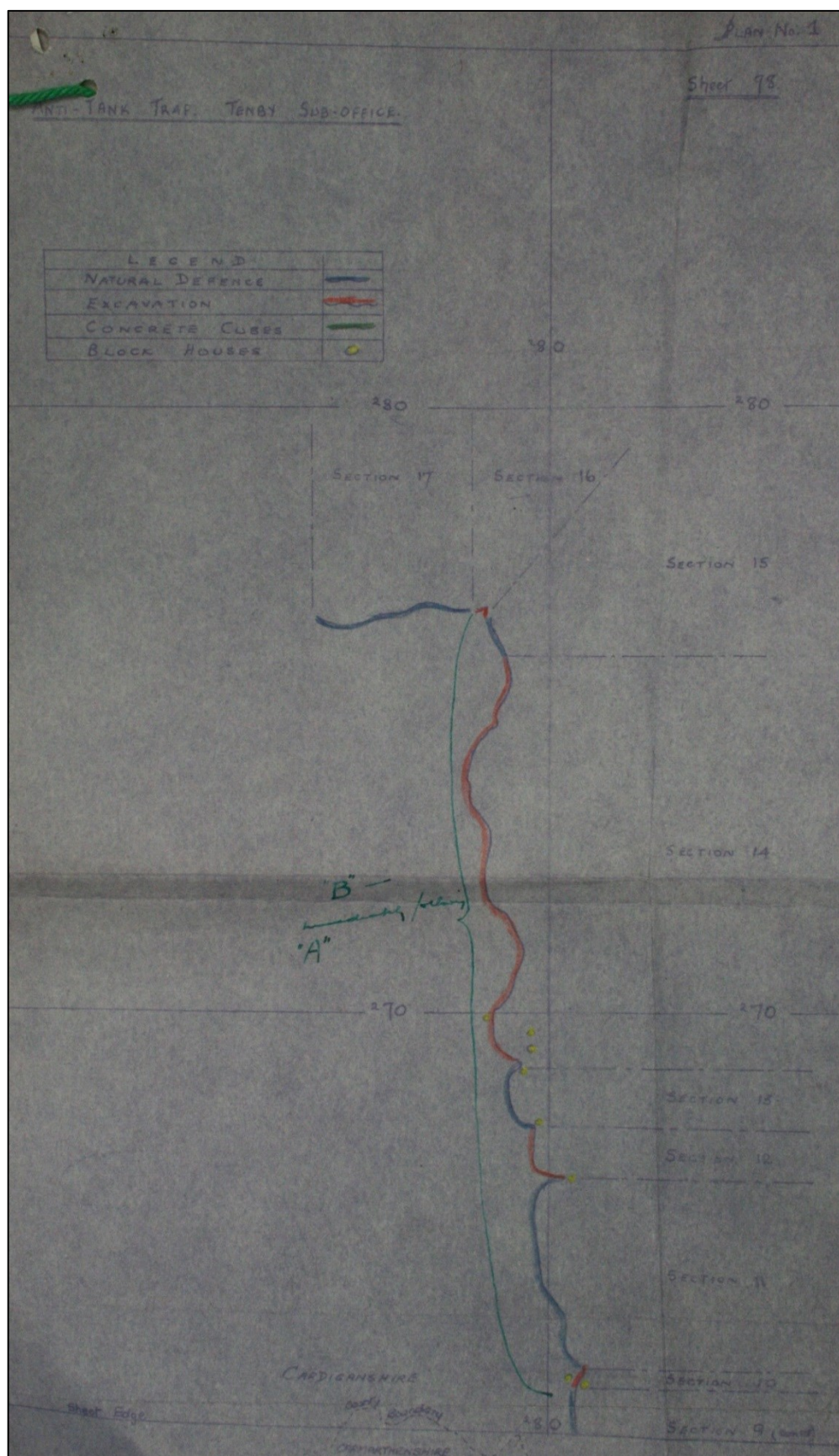


Plate 7.3: Plan depicting natural defences, excavation, concrete cubes and block houses for northern (Llangrannog Aber-banc) section of Carmarthen Stop Line (TNA MAF 112/204).

7.5 Contribution and role of evidential sources

This section assesses the value, role and contribution of the evidential sources.

7.5.1 Archaeological evidence

| Type | Value | Role | Major + contribution | Major - contribution |
|------------------------------|--------|---|--|--|
| DAT HER | Low | Minor | Summary of previous knowledge | Illustrates how little research undertaken Too few defence sites recorded |
| RCAHMW NMRW (incl. DoB data) | Medium | Moderate | Drew together most previous research | Too few defence sites recorded; Multiple point data records for single linear and polygonal features |
| Rapid field observation | Medium | Primary role where survives (buried resource potential unknown) | Some new sites Surviving remains provide unique information not available elsewhere | Constrained by extensive clearance |

Table 7.34: Summary of value, role and contribution of archaeological evidence for the Carmarthen Stop Line case study area.

The archaeological evidence was the unique source for identifying a number of previously unknown defence posts, but its cumulative value was moderate and its role variable (Table 7.34). It was the only source to identify the presence and location of the unusually designed pillboxes at Pembrey Sands Air Weapons Range and evidence preserved in road surfaces for a number of roadblocks between Tywyn Camp and the bombing range at Pembrey Forest, and at Werncorgam. The course of the various lengths of anti-tank ditch, now infilled but still visible as shallow linear features, was also best understood from an archaeological perspective. Conversely,

archaeological survey also confirmed that the anti-tank ditch did not continue in afforested areas, which were often located on steep local slopes where the combination of trees and topography was considered to form an effective defence against AFVs.

It was a modest but important contributory source of evidence for a range of sites that were identified in other existing sources, including the large number of hardened defence works including pillboxes along the Carmarthen Stop Line and the beach defence gun houses at Cefn Sidan and the airfield perimeter defences at RAF Pembrey and Aberporth.

As demonstrated in the other two case studies, the archaeological evidence could not be relied upon alone to identify the original anti-invasion defence site population in this case study. The role of archaeology as a means of locating new anti-invasion defence sites was most successfully demonstrated in this case study. Partly this was a function of the successive periods of fieldwork survey by different individuals that have been undertaken since the 1990s. The rapid field observation undertaken during this research demonstrated that a variety of sites ranging from small features such as earthwork slit trenches and roadblocks to larger hardened structures such as pillboxes and gun emplacements could also be identified anew. Many of these features and structures were identified in locations where public access was not routine or in marginal locations. Elsewhere, site visits on to private and previously un-surveyed land identified a number of structures along the course of the stop line.

The unknown visible (as opposed to buried) archaeological evidence was considered to retain great potential and a more intensive survey across a broader corridor along the course of the stop line would be expected to significantly enhance the number of defence structures identified by this method.

The application of archaeological techniques was successful in this case study and the source evidence could not be considered to be undertaking a subservient role compared to the other evidential sources.

7.5.2 Primary documentary evidence

| Type | Value | Role | Major + contribution | Major - contribution |
|------------------------|-------|---------|---|--|
| TNA: Admin war diaries | High | Primary | Strategic overview; Operation Instructions; location lists | Lack of RAF and Naval files |
| TNA: Unit war diaries | High | Primary | Operational data; site locations and dates | Identifying the unit at a specific location and time |
| TNA: Registered files | High | Primary | Detailed data for specialist defence works; MAF file detailing stop line components | Lack of stop line construction and operational files |
| LROs | High | Primary | Detailed Home Guard defence schemes and data for defence works in Carmarthenshire | Lack of Home Guard documentation for Cardiganshire |

Table 7.35: Summary of value, role and contribution of primary documentary evidence for the Carmarthen Stop Line case study area.

The primary documentary evidence was the most important contributory evidential source in terms of the range and number of defence posts identified within the case study, although the majority of defence posts could not have been located with reasonable precision without the facilitating role of the Cassini maps. The documentary evidence also provided significant contextual information concerning

the military administrative and operational organisational structure and an indication of the formations and units present, together with statements concerning their roles and activities. On rare occasions a unit was cited as constructing a particular defensive component on a particular date, but this combination of information was not readily identifiable in the documentary evidence. The documentary evidence concerning the regular forces at TNA and the Home Guard at Carmarthenshire Archives blended well to establish an informative narrative of the military's presence, identity, organisation and activities with a depth that was not regularly encountered elsewhere in Wales.

7.5.2.1 Missing files

While the surviving primary documentary evidence could be detailed and useful, and undertook a primary role in terms of value, role and contribution to understanding the defensive arrangements within the case study, this form of evidence was not complete and there were significant gaps that impeded further comprehension.

The failure to locate records detailing the construction, extent, occupation and amendment of the stop line, the arrangement of defence schemes for the airfields, the regular army and Home Guard defence schemes from 1940 and 1941, and the FRB for Burry Port Emergency Battery were all substantial omissions. Entire classes of anti-invasion site type, for example petroleum warfare sites or spigot mortar emplacements, were not referred to and it was uncertain whether this represented an evidence of absence or an absence of evidence. Similarly, there were important

continuity breaks in the administrative files, for example a complete lack of sector and garrison files. The future identification of any one or more of these sources has the potential to both significantly enhance and/or contradict the documentary-based evidence discussed in this chapter.

7.5.3 Aerial photographic evidence

| Type | Value | Role | Major + contribution | Major - contribution |
|-------------------------------|--------|--|--|---|
| Wartime low-level oblique | Low | Minor | Can provide high levels of detail and 3D perspective; Good source for identifying small structures | Almost complete lack of spatial coverage; tended to predate anti-invasion defence construction |
| Wartime vertical (all scales) | Medium | Primary source of evidence and context | A unique source of evidence for structures not cited in other sources; Limited repeat sorties can provide phasing evidence | Significant gaps in spatial coverage; most coverage is limited to one sortie only and cannot provide phasing evidence; Smaller and/or camouflaged structures are hard to identify |
| Operation Revue (1945-52) | High | Important retrospective source | Almost complete coverage for case study area; Provides an immediate post-War benchmark | Smaller and/or camouflaged structures are hard to identify Coverage taken after clearance |

Table 7.36: Summary of value, role and contribution of aerial photographic evidence for the Carmarthen Stop Line case study area.

The contribution of wartime aerial photography was variable in this case study, and less useful than in the other two case studies (Table 7.36). At its best, successive sorties over an area recorded clear photographic evidence through time providing some insight into the phased development of defence systems, but often the resolution of the imagery was incapable of capturing the smaller defence

structures. These opportunities were rare and focused on Carmarthen and the RAF airfields.

Wartime aerial photographic coverage did not make any contribution to over two-thirds of the case study as it was not subjected to aerial reconnaissance. Such a significant absence severely curtailed the contribution and role of this form of evidence. The absence of wartime aerial photography was particularly noted along the course of the Carmarthen Stop Line, particularly the areas from Brynhoffnant-Carmarthen, to the west of Carmarthen and from Carmarthen-Pembrey (excluding the airfield).

The Operation Revue imagery was more useful and contributed near-complete coverage of the case study as photographed in May and July 1946. Like the wartime vertical coverage it was not a strong source for capturing the smaller defensive structures, as many pillboxes could not be identified, but it did provide an invaluable benchmark of the immediate post-war landscape. In particular the course and extent of the Carmarthen Stop Line's anti-tank ditch could be traced prior to its infilling during the late 1940s, but the majority of defence posts along its length could not be identified.

In combination, the vertical imagery was the unique source of evidence for a number of defence site types, including identification of the barbed wire entanglements at Pendine and Laugharne Burrows, identification of the anti-tank block alignment at Pante Farm, and the principal source for identifying the presence, location and extent of the Admiralty Z1 scaffolding at Burry Port. Aerial photography was also the only available source to identify the location, form, vertical plan and

extent of the emergency defence coast battery at Burry Port in the absence of being able to view the plan.

7.5.4 Cartographic evidence

| Type | Value | Role | Major + contribution | Major – contribution |
|--------------------------------|--------|------------|---|---|
| GSGS3906 (1:25,000) | High | Enabling | Cannot locate defence sites in documents without them; Complete series for case study area | Hard to obtain No defence sites |
| GSGS3907 (1 inch to 1 mile) | Low | Contextual | Provide geographical context | Scale too small to plot sites |
| Air Ministry Record Site Plans | Medium | Minor | Depicts Air Ministry boundary, BHQ and some defence sites | Most defence structures are not shown; Plans for 1940-43 do not appear to survive |
| MAF clearance plans | High | Primary | 1:25,000 scale tracing of main linear and pillbox defences | Medium is fragile and opaque and cannot easily be used with GSGS3906 maps; Pillbox locations hard to plot; Does not include all defence posts |

Table 7.37: Summary of value, role and contribution of cartographic evidence for the Carmarthen Stop Line case study area.

The cartographic evidence presented in Table 7.37 made a moderate cumulative contribution to enhancing understanding of the defensive arrangements of the case study, mostly through undertaking enabling or confirmatory roles, with one important piece contributing significant and unique information in its own right. The Carmarthen Stop Line case study was notable for the lack of identified defence scheme maps and plans that illustrated the military organisational structure of the region. The lack of these types of cartographic evidence significantly weakened the

contribution of this class of evidence in this case study, particularly when compared to the Swansea-Gower case study. Consequently much of the fine detail was missing and knowledge induction more generalised.

A complete coverage of the two types of military cartography identified in the other two case study areas was identified for the Carmarthen Stop Line case study and the same general observations regarding their role and contribution applied. The same general observations expressed for this source type elsewhere also applied to the Air Ministry Record Site Plans, which were late in date and omitted the details of most defensive structures.

The most important piece of cartographic evidence was the series of three Ministry of Agriculture and Fisheries overlay plans that depicted the component parts of the stop line prior to its demolition immediately after the war. The plans, despite their weaknesses in terms of difficulty of use, lack of detail, being drafted for non-military purposes and possessing an unknown level of accuracy, represented the sole known example of such a plan for a stop line in Wales. No other stop line in Wales was known to have a plan that depicted the course, linear components and locations of pillboxes. As such this evidence was unique and a cartographic source of high importance. Despite its importance the contribution of the content of the plan was fairly limited, in part because of its function to identify the parts of the stop line to be reinstated and in which priority, and because it was not undertaken to produce a comprehensive record of all of the component parts of the stop line.

The role and contribution of the plans were complex. They were silent on the matter of many types of defence structure such as roadblocks, fougasse sites, mines

etc., so its contribution for these structures was negligible. The plan depicted the locations of 74 pillboxes, but it was uncertain whether those shown represented the entire built population, those that were present at the time of the survey or just those that were considered to be a nuisance. The distribution given must be considered to be of prime importance, but it was difficult to attribute the level of confidence in its use. Many of the pillbox locations depicted correlate broadly with known archaeological evidence on the ground, but those where there was no known evidence presented more of a problem as there was insufficient confidence to precisely locate a defence structure other than to state that there might be a pillbox near point A, between pillboxes X and Y. An important use of the plan was that it could be used to focus rapid field observation and/or examination of aerial photographic evidence in order to try and identify the site. It was interesting to note that some care appeared to have been demonstrated in the placement of the pillboxes, with some being located along the alignment, and others being located to the east and west of the central alignment.

The Admiralty plan of Burry Port coast battery, which was located in a private collection, was not viewed and consequently the role, value and contribution of this plan could not been determined. It was not included in Table 7.37.

7.6 Summary

This study set out to determine the Second World War defensive arrangements and evidential contributions within the case study. Prior to undertaking this research, not much was known about the defensive arrangements in the case study. A small number of defence sites had been identified through archaeological fieldwork, sometimes based on aerial photographic evidence or on records available in the local record office. The results had been incorporated into the NMRW, whereas the HER tended to reactively record the results of designation work. An attempt had been made to describe the components of the stop line from the Ministry of Agriculture and Fisheries plan preserved at TNA.

Despite being the subject of ongoing research, very little had been published. There was no identifiable understanding of the military administrative and operational arrangements and no comprehension of the formations and units involved. The development, phasing and use of the defensive schemes and their location, composition and extent was also poorly understood.

This research drew together and reviewed all of the identifiable evidence. It identified new sources of evidence, particularly documentary, and to a lesser extent archaeological, and combined them with cartographic and aerial photographic evidence to present a new and integrated understanding of the development of the role and contribution of the different evidential source types, together with the case study's defensive arrangements. The complexity of the defensive arrangements was clear, and challenges the often verbally expressed notion that the defences were

simple as they were built quickly. Significant evidential gaps were identified. New discoveries will further enhance understanding.

The last three chapters reviewed the available evidence for the defensive arrangements prepared within three case studies. These assessments raised a number of important issues and questions regarding the use, role and significance of the different types of evidential source which will be addressed in the next chapter.

8. DISCUSSION

8.1 Introduction

Previous chapters introduced the research question, reviewed the published literature, developed a methodology, described and critiqued the available evidential sources and then identified and analysed the significance, role and contributions of archaeological, documentary, aerial photographic and cartographic evidence for the study of Second World War anti-invasion defences in three case studies in south and south-west Wales.

This chapter locates the research within the wider fields of archaeology discussed in Chapter Two and draws together the previous chapters to address the research questions. It comprises three parts. The first part compares and contrasts the results from the three cases. It seeks to identify how similarities and differences were expressed and the reasons why. It reviews the structures within each case study and examines the reasons for consistency and/or variability and determines whether the results were sufficiently comparable to produce a robust synthesis. The second part discusses the effectiveness of the methodology. It compares the adopted methodology to other approaches and states how it compared with the broader academic field.

The third part discusses issues regarding the choices involved with selecting cases. It examines whether the choice of case represents a fundamental difference from other periods and whether there are implications arising from this research for an emergent conflict archaeology that seeks to cross disciplinary boundaries.

8.2 Discussion of case study results

Distinct patterning was observed within the case datasets concerning the types of evidence used and their contributions. This section reviews the similarities and/or differences arising from the cases, their consistency and/or variability and the reasons why.

8.2.1 Archaeological evidence

The archaeological evidence performed in a variable manner. The data preserved within the HERs and the NMRW were found to be of low-moderate value, while the contribution of rapid field observation varied in each case.

The information preserved within HERs at the beginning of the research was found to be of low value, except for in the St Athan-Llandow case study, where it was of moderate value. In all cases the numbers of recorded sites were low and misattributed site types were common. The data reflected under-recording of the modern defence heritage, which was considered to be illustrative of the prioritisation of more 'traditional' archaeological subjects and the palpable absence of active recording projects within the cases.

The data preserved within the NMRW contained all of the records from the Defence of Britain project, but no new additional data had been added within the cases subsequently, again indicating a lack of active research in these areas. The NMRW data was found to be internally inconsistent particularly regarding the allocation of site type categories, grid reference accuracy and the confusing practice

of using collective site and site-based records in an inconsistent way. The lack of shared records common to both the NMRW and the HERs was notable.

The contribution of rapid field observation was found to be highly variable. It was of low value in the Swansea-Gower case, where the clearance of anti-invasion defences had been widespread and well documented. The approach was found to be of high value in the St Athan-Llandow case, where a number of new anti-invasion defences were identified. The results for the Carmarthen Stop Line case were of moderate value, given the historically attested clearance activities, but some interesting new sites were identified. The impact of the fieldwork was diluted by the sheer length of the stop line and the complexity of the adjacent defences. Although over three weeks of fieldwork was undertaken in this area, given the terrain, multiple land ownership and the ephemeral character of much of the evidence future research in this case would benefit from dividing it into smaller sub-areas.

In all cases, the fieldwork results were subjected to a strong degree of bias as the majority of the new anti-invasion defence sites identified were hardened concrete structures. A less rapid and more intensive form of field observation in combination with other sources and techniques was considered to offer the best opportunity for addressing this bias in future fieldwork.

8.2.2 Primary documentary evidence

The documentary evidence was obtained from national and local sources. The evidence from national archives performed in a consistent way across all three cases with good preservation of records facilitating enhanced analysis. In all three

cases, the primary historical evidence was of high value, and although incomplete, performed a primary role in identifying defence arrangements. In contrast the evidence obtained from local archives performed in a variable manner.

TNA preserved significant numbers of war diaries (WO 166) and registered files (WO 199) relevant to the three cases. The upper echelon Command and Area war diaries were found to be preserved consistently, providing information on operational level matters.

The regional Sub-Areas were responsible for organising defence arrangements in their respective areas and their war diaries preserved home defence and counter-invasion schemes, together with distribution lists, unit location lists, operational instructions and reports. These sources enabled the creation of relatively detailed narratives regarding defence provision, military organisation and the identity of the formations and units present. Such narratives were weak for 1940-41, but improved from 1942. In no one location was a complete narrative established.

Lower level echelon records for Sector, Sub-Sector and OC Troops administrative areas were not identified with the notable exception of the Swansea Garrison war diary, which included the Swansea Garrison and Gower Sector defence schemes. The level of detail preserved within this source was comparatively high and it made a major contribution to the understanding of this case.

The majority of the war diaries for the military formations and units located within the cases were identified and found to retain moderate levels of information relating to their date and duration of presence, location and role. In some cases the records of Royal Engineer and home defence battery units preserved enhanced

information regarding an initiating unit's identity and dates of construction for anti-invasion defences.

The registered files preserved at TNA also influenced site discovery illustrating the construction of minefields, Canadian pipe mines and foreshore obstacles; these were informative to the same degree across all cases. Primary categories of record omission for all cases were identified for the construction and operation of road blocks, nodal points, stop lines and airfield defence schemes, although it was uncertain whether this was just a characteristic of the three cases or an artefact of the wider Welsh evidence.

The contribution of locally sourced records was found to be variable. The local record offices covering the St Athan-Llandow and Swansea-Gower cases were examined, but were not found to contain records pertaining to the regular army and only a few records of negligible value concerning the Home Guard.

In contrast the local records office for the southern part of the Carmarthen Stop Line case preserved a quantity of relevant and detailed records relating to Home Guard defensive arrangements, including the use of the Carmarthen Stop Line itself. Similarly, the Llantwit Major Local History Society preserved a detailed Home Guard defence scheme for part of the St Athan-Llandow case. These records made valuable contributions, but were restricted in the spatial and chronological coverage and therefore their ultimate holistic contribution. The survival of such sources suggested that the search strategy for records within a case should be conducted at local, regional and national archival repositories in order to maximise record retrieval.

A critical awareness and application of documentary evidence was required to maximise understanding from the past (Beaudry 1988; Little 1992, 2014). Some of the evidence provided unique and detailed information not available elsewhere (Babits 1988). These records should be used more often to add to our understanding of the recent past.

8.2.3 Aerial photographic evidence

The aerial photographic evidence performed consistently across all three cases. The low-level oblique photography lacked spatial and chronological impact owing to the physically low incidence of frames. While this evidence type retained the potential to provide unprecedented levels of detail concerning the location and construction of all types and sizes of anti-invasion defences, it was the experience of this research that this form of aerial photography contributed rarely to new defence identification. In most cases key areas of anti-invasion defences were not captured in this format and the evidence performed a secondary and contextual role. The fundamental issue lay with the low number of frames taken in Wales, and unless significant amounts of new imagery were identified, the evidential source was considered to be of relatively low contributory value for future anti-invasion defence research in Wales.

The experience of using wartime vertical aerial photography was more positive and it was of moderate-high value in terms of identifying new defence works across the three cases. Almost complete coverage of the smaller cases was available, but the coverage was usually from one sortie and with the exception of a few areas

repeat photography was not available therefore limiting the value of this evidence for phasing construction. Only a third of the Carmarthen Stop Line case was covered, which curtailed the usefulness and application of this form of evidence. In contrast to the clear and detailed wartime imagery from elsewhere in the UK (as used by Foot in his Defence Areas study (2006a)), much of the imagery in the cases was more difficult to use. The imagery was constrained by its lack of clarity and resolution, meaning that many smaller defence works known to exist were often difficult to identify.

This format of aerial photography was best used for the identification of larger defences such as anti-tank and anti-landing obstacles, and was often the unique identifier. The later USAAF imagery benefitted from much higher resolution, but this was found to be counteracted by the capture from higher altitudes in order to record a greater land mass in each frame. Many types of anti-invasion defence had also been dismantled prior to this time. Wartime vertical photography performed a primary role where present and should be considered a key source for anti-invasion defence in Wales, subject to application limitations.

The post-war Operation Revue imagery was available across all of the cases. The high resolution imagery depicted a landscape in a rapid state of change. While it was a key source for defence site identification in some areas, it was found to be too late to record defences in other areas where clearance schemes had been underway since 1942-43.

Aerial photography could be very useful on occasion, but generally its contribution was found to be much less useful and direct than had been anticipated

prior to the research commencing, particularly when compared with some of the applications used in England and Scotland.

8.2.4 Cartographic evidence

The cartographic evidence divided into two types and performed and contributed in different ways. The creator, purpose, audience and bias needed to be understood to maximise use of this source (Seasholes 1988). The GSGS3906 and 3907 mapping performed consistently across all of the cases. The former was of high value and while it did not contribute direct evidence for new sites in its own right, the presence of the large-scale mapping with the over-printed WOFO grid was found to be crucial for plotting the War Office co-ordinates cited in defence schemes and registered files. The GSGS3907 was too small-scale to plot War Office co-ordinates accurately and its role was restricted to offering contextual geographic information.

Maps appended to defence schemes were rare occurrences, but where they were present the evidence preserved within was of fundamental importance. The usefulness of mapping for defining military organisational areas was also constrained by its limited availability. This form of evidence when present performed a primary role and contributed profoundly to understanding the defence arrangements at the date of the plan. Ultimately, the usefulness of this form of evidence was constrained by its lack of availability and limited spatial and chronological coverage.

The lack of such plans was in striking contrast to the abundance identified within Foot's Defence Areas project. The virtual lack of plans relating to stop lines

and airfield defences retarded further understanding of these important site types. Provision for coast artillery batteries was better, particularly if the FRBs were located.

The stop line clearance plan created by the Ministry of Agriculture and Fisheries for the Carmarthen Stop Line is thought to be a unique survival for Wales, but the records of the War Agricultural Executive Committees have not been searched and it is considered that there is potential for similar information to be preserved in those records.

The information preserved within the Air Ministry Record Site Plans for airfields and their usefulness was variable. Those preserved at the RAF Museum were found to largely ignore airfield defensive arrangements due to their late date (1944-45) when invasion was less of a concern. The plans preserved within Welsh Office records at TNA were found to be of variable use, as the plan for RAF Llandow depicted very few airfield defences. In contrast, the plans for RAF St Athan provided evidence of what must have been almost a complete defensive scheme. As with many types of evidential source for Wales, sources could not be assumed to perform in a standard fashion and it was imperative to check all available sources for the possibility that useful information was preserved within.

8.2.5 Use of the results

Following the above discussion, it was considered important to determine whether the results of the three cases bore comparable results that were capable of producing a synthesis or whether they rather formed a series of unique individual statements that made synthesis problematic.

The results of this research suggested strongly that the three cases shared sufficient in common to have successfully produced a new, evidence-based and informative collective synthesis in terms of establishing the military organisational and defensive arrangements. Following Little's framework (1992, 2014) the evidence and the trends identified within the data was characterised as collaborative and complementary in character, rather than contradictory. It is anticipated that this synthesis would be enriched by the identification of additional source evidence, rather than requiring fundamental re-assessment.

Certain caveats must be respected, particularly when examining defences at a local level as the chronological range was incomplete and it was important to avoid drawing generalising statements concerning defence provision from the presence of structures that formed part of a network whose construction, development and role was only partially understood.

It was important to determine how far the synthesis could be projected to other areas of Wales. As the three cases shared similar geographical environments, were co-located in relative close spatial proximity within the same military Area command it was considered that the synthesis from the three cases would be capable of application to other lowland urban and rural areas within the same Area command in south and south-west Wales. The ability to project the synthesis into north Wales or into other parts of Western Command in England was uncertain and would need to be tested in order to establish the extent of its application.

8.2.6 Review of case study chapters' structure

The case chapters benefitted from being structured in the same way. The purposeful selection and the use of the same types of data from the four evidential classes in each case meant that the results could be described, analysed and compared directly with each other in a meaningful way. The variety and inter-disciplinary evidence enabled narrative understanding to be induced. As suggested by Hicks (2004), critical assessment of the sources and recognition of variations in emphasis and absences within the overall datasets for each case enabled the development of new and informative accounts that were nuanced and rigorous.

8.3 Effectiveness of the methodology

The technique of undertaking an extensive and widespread examination of local, regional and national data repositories for content relevant to the three cases was found to work well. It revealed a passively forgotten world that required a conscious act of foregrounding (Buchli and Lucas 2001c). Each relevant record was identified and described, and its potential contribution assessed to identify wider patterns.

As an approach combining archaeology with readily available categories of official evidence created by the military it was considered appropriate that similar work on other topics could be reported in a similar way.

It was considered likely that the strength of the approach would be weakened when applied to some areas of twentieth century and earlier conflict research, as for example very few First World War aerial photographs survive for Wales and many of

the key primary documents required to interpret Cold War subjects at TNA are closed for reasons of national security. In these scenarios, other approaches would need to be defined, although a collaborative multi-evidential methodology would still be effective.

The known existing base line of anti-invasion defence-related evidential sources for Wales at the beginning of the research was ill-defined and under-developed. This research identified new sources, assessed their strengths and weaknesses, and allowed them to be used in an informed and appropriate manner. The adopted technique was successful in the following ways:

8.3.1 Identification of new records

Significant numbers of new records regarding the four chosen evidential classes were identified for each of the cases. The amount and character of the original source evidence produced and its modern day availability was defined and its role, value and contribution was articulated. Significant gaps and weaknesses were identified, particularly in terms of early wartime thematic, spatial and chronological coverage. This reflected the findings from Wilkie's work (2006).

In addition, some of the newly identified records were found to be highly detailed in terms of the content contained within. The defence schemes produced by administrative formations and by operational formations and units were found to be key sources. However their infrequent survival did not facilitate the construction of complete narratives. The records were useful for reconstructing the forgotten wider social relationships behind the defences, addressing deficiencies in the social

archaeology of warfare (Carman 2013; Gilchrist 2003). It was clear that the evidence was active in the past in the production of the phenomenon under study (Moreland 2001), and that it possessed efficacy in the maintenance and reproduction of specific structures of power. Clear examples of reinforcement of group identity and social control were identified.

8.3.2 Identification of new anti-invasion defence sites

The discovery of new evidential source material resulted in the identity and location of new anti-invasion defences being identified for the first time. The new data demonstrated that the defence arrangements in south and south-west Wales were complex and subject to continuous improvement and revision over time.

Certain types of documentary sources were found to be very useful in identifying new anti-invasion defence sites, particularly defence scheme plans and specialist registered files, but this was found to be a frustrating process, as in many cases documents known to be produced could not be located. The lack of stop line and airfield defence scheme-related documentation common to all of the cases placed this research at a considerable disadvantage compared to those areas where this material is known to survive in abundance (for example the Scottish stop line registered files (Redfern 1998d-e) and successive copies of English RAF station defence schemes (Dobinson 2000e: 3).

The value of the aerial photographic evidence was found to be constrained by its lack of spatial and chronological coverage and its poor resolution.

Low numbers of defence-related cartographic evidence were identified for each of the cases. The evidence was found to be the least numerous and when it did exist invariably late in date. It made little direct contribution to understanding the defence arrangements during 1940-41. Despite the source's general low impact, the evidence type retained the ability to provide powerful testament regarding the micro-defence arrangements of a static defence site (for example the Mumbles Head coast artillery battery) or a defence area (for example the 'B' Company, 10 (Cowbridge) Battalion, Glamorgan Home Guard defence scheme map). Such contributions were rare, but made a significant impact when identified.

8.3.3 Identification of new types of anti-invasion defences

The source evidence led to new types of anti-invasion defence sites being identified in an act of 'presencing' absence (Buchli and Lucas 2001). Compared to the relatively restricted series of site types identified in the NMRW and the HERs for the three cases at the commencement of this research, this technique facilitated an expansion in understanding of the range of anti-invasion defences constructed. The documentary sources made the greatest contribution, for example confirming the existence of Naval mine fields, anti-boat scaffolding, petroleum warfare harbour defences, Canadian pipe obstacles, headquarters and home defence batteries.

8.3.4 Placement of the defence arrangements in their original context

Chapter Two demonstrated that other than a number of popular and amateur publications, particularly focusing on aspects of military airfields, very little academic

research had been undertaken on conflict archaeology or anti-invasion defences in Wales. A detailed narrative account of the organisation, presence, location, role and change through time of the army in Wales was not identified for the 1940-42 period. Similarly, few of the secondary sources provided more than a fleeting account of defensive arrangements or attempted to place the defence arrangements into their military context. Very few sources attempted to couple the defences with military organisation or identify the formations and units responsible for their conception, construction, alteration, occupation or abandonment. Despite these absences, this past was presented as familiar and known. However, following Graves-Brown's assertion this past was in fact mostly unknown and it needed to be made unfamiliar in order to assess it critically (2000).

The thorough identification and analysis of the sources, particularly at TNA, successfully enabled detailed, but incomplete military narrative accounts within the cases to be established. This in-depth archival analysis also facilitated the construction of the strategic, operational and sometimes tactical military context for the cases.

The ability to reconnect sites and people regarding the defence arrangements, military formations and units connected to them was considered to be a strong advantage of this technique (Hicks 2004). Establishing the link between physical evidence and human agency provided fundamental and enriching contextual grounding (Wilkie 2001). Although it required extensive resources to undertake this type of analysis, it was considered worthwhile as it provided a more detailed and nuanced understanding of the roles of the source evidence and the development and context of the defensive arrangements. The approach enabled a robust treatment of

the subject and moved beyond the purely descriptive approach utilised by most of the secondary sources (Tarlow 1999).

8.3.5 Production of holistic narrative accounts

Developing on methodological concerns defined by Beaudry (1988) and Wilkie (2006) different forms of evidence were treated as inter-linked aspects of a common totality. This research established the first description and evaluation of the types of evidential sources and their uses, levels of survival and usefulness in Wales. As Buchli and Lucas argued (2001b), the integration of diverse evidence created meaningful narratives about the past which transcended accounts available from looking at one form of evidence and unique contributions were formed. Although the different forms of evidence were shaped by different degrees of preservation and coverage, the evidence blended to provide complementary narratives (Little 1992, 2014).

The complementary combination of the four types of source evidence successfully produced holistic, robust and integrated narrative accounts for the three cases. The results acted as a cautionary tale to inform others wishing to undertake similar work in this field (Little 2007), highlighting benefits and pitfalls (Schofield 2005). The work also acted as a caveat concerning the presence and absence of the evidential sources and their strengths and weaknesses, and identified a methodology for adoption elsewhere. Indeed, as Stevenson (2001) asserted archaeological approaches were useful for telling the stories of the twentieth century, even when historical approaches might appear more obvious.

8.3.6 Extent of wartime and post-war clearance and redevelopment

Rapid field observation confirmed that the sites known to have been built and identified from defence schemes and cartographic sources could not usually be identified as surviving visible remains on the ground. This outcome confirmed Piccini and Holtorf's characterisation of the relationship between the present and recent past as being a complex one and that sources should not be reduced to an illustrative role (2011).

The fact that so few of the defence posts from the original population were identified was demonstrative of the extensive clearance and re-development activities that took place from 1942-43 onwards, particularly in the post-war period. It was a powerful example of an unknowable contemporary past (Buchli and Lucas 2001). It was also a striking illustration of the need to employ archaeological approaches as an act of conscious remembrance and to undertake the 'presencing' of absence. The character of any sub-surface surviving remains and the reasons and methods for post-depositional destruction were beyond the scope of this research.

8.4 Comparison with other approaches

The three cases formed the most intensively studied, described and understood areas in Wales in terms of the evidential sources, the numbers and types of anti-invasion defences identified and their military organisational context. While not resulting in complete accounts of the defensive arrangements, the technique was shown to be effective and it was considered suitable for application to other cases.

Collating data from all of the sources produced a very different depiction from that known previously (making the familiar unfamiliar), though the overall picture was of necessity a preliminary one.

It was important to compare the approach used in this research with that of others. Given the extensive resource implications of the technique particularly regarding the documentary research it was important to determine whether other approaches achieved similar or different results and if so to determine why.

Within the context of Second World War anti-invasion defence research four major studies were identified as being appropriate for comparison. These comprised Dobinson's in depth historical research and analysis of eleven themes at the Public Records Office undertaken as part of English Heritage's Monuments Protection Programme (1994-2000). Redfern undertook a smaller one year documentary evidence-based research project for Wales, Northern Ireland and Scotland (1997-98). Running in parallel to the primary documentary historical studies were two archaeological fieldwork-based projects comprising the UK-wide Defence of Britain project (1995-2001) and English Heritage's Defence Areas project (2002-04), which continued the fieldwork element and enhanced the results of the former project in England.

8.4.1 Dobinson's documentary research

In contrast to Dobinson's conclusion that 'in reality, surviving records for most site types [in England] are thorough and precise: sufficient to tell us what was built, when and why' (1998: 2), the results of this research into three cases in south and

south-west Wales demonstrated that the documentary record, while of a similar quality and detail where it was known to survive, was incomplete and less useful. Researchers would appear not to be able to readily identify what was built, when and why with confidence, particularly for the key 1940-41 period. Where records did survive, significant categories appeared to be depleted of potentially useful appendices.

The reasons for the paucity of the documentary record were uncertain. It was considered unlikely that Western Command and its subsidiary administrative echelons recorded such information to a lesser standard, as the known material was comparable to that from other English and Scottish-based commands. Large quantities of wartime records would have been available for transfer from the War Office, the Admiralty and the Air Ministry to the Public Record Office. The National Archives suggested that some of the records may have been lost in a fire in 1940, while others may not have been selected for preservation by their parent ministry or were selected for destruction as part of routine archival practices (McGrady 2014, pers. comm.).

Dobinson's research was purely historical in character and while important it did not engage directly with other types of sources or evaluate their potential contribution. These findings corresponded with concepts expressed by Moreland (2001) and Hicks (2004), as it was clear that the multi-source technique with a close and detailed engagement with all sources on an equal footing advocated in this study was more successful than just applying a unique historical documentary approach.

8.4.2 Redfern's documentary research

In contrast to Dobinson's study, Redfern's research was narrower in scope, almost as geographically extensive, but undertaken in one year (Redfern 1998a-e; 1999). The work comprised pure historical research and did not involve additional analyses based on data from site visits, existing archaeological records or aerial photography.

The research produced a series of short contextual and site anatomy statements for each of the themes (Redfern 1998a) and partially complete gazetteers of defence sites for a very limited range of site types based on a very limited number of sources. At best the results for Wales (Redfern 1998b) should be treated as an imprecise indication of the potential of the sources rather than a definitive account.

Given the time constraints Redfern was not able to confirm or refute whether Dobinson's extended narrative historical analyses were appropriate for application in Wales or otherwise.

In comparison with Redfern's approach, the methodology adopted in this research was considered to offer much better results. The selection of geographically smaller cases rather than undertaking a national level survey enabled the implementation of a geographical frame that acted to filter in or out records, effectively and efficiently reducing the totality of the records to be interrogated. Spatial limitations facilitated more in-depth resource identification and assessment. The use of defined areas also meant that it was easier to drill down into relevant records, particularly when using formation and unit records to identify other military records of relevance and to establish the presence, location, role and duration of the

military. The use of smaller cases enabled the effective identification of military units from formation records. It was also considered easier to develop and maintain an effective historical narrative account.

As with the comments for Dobinson's work above, the adoption of a multi-source-based approach enabled a fuller picture of the defence provisions to be established than by just using historical documentary sources.

8.4.3 Defence of Britain project

The approach adopted in this research was more robust and integrated. The methodology adopted a multi-disciplinary approach from its commencement. This was felt to be a significant improvement, as it enabled the development of historical narratives that placed the defences in their military and historical context. Additionally, the adoption of an approach advocating thorough research in smaller cases was determined to be more successful than a poorly resourced, targeted and executed pan-Wales survey.

8.4.4 Defence Areas project

Foot's research was the nearest comparator to the research undertaken in this study. There were key differences in approach, which are drawn out below.

8.4.4.1 Relative advantages/disadvantages of each approach

While Foot's methodology was able to illustrate a number of small-scale tactical situations across England, it was felt that the approach utilised in this research offered a number of additional advantages. Rather than creating a dispersed and unlinked range of cases, the selection of three large cases enabled more of the defensive networks to be articulated and for different types of defence to be examined in a cohesive manner. The larger cases enabled the entire military administrative area of Swansea Garrison and Gower Sector to be examined. The selection of larger cases also facilitated the research of physically bigger defence systems such as entire stop lines and airfield perimeter defences, rather than just sub-sections of them. This approach enabled a holistic overview of military administrative and operational arrangements to be developed.

Examination of Foot's site gazetteers demonstrated that 1,791 anti-invasion defence sites were identified, of which 832 were extant. The average number of anti-invasion defence sites per defence area was twelve, but ranged from four (Breamore Mill, Hampshire) to eighty-eight (Weybourne, Norfolk). As larger cases, this research identified significantly greater numbers of anti-invasion defence sites per case, but was not able to extend to national coverage in the same way. It was interesting to note that Foot's claim of undertaking a national survey was undermined by the fact that most of his cases were located in the southern and eastern counties of England. Very few cases were selected from the western counties with, for example only one case study being selected from Cheshire and Gloucestershire while none were selected from Herefordshire or Shropshire.

Foot's use of small areas was considered to be appropriate for the analysis of small defence areas such as vulnerable points to facilitate the capture of fine detail. Given the low base of known anti-invasion defence sites in Wales this method was deemed to be inappropriate when a more extensive area was required for primary defence site identification. It was considered that the scale of analysis adopted by the Defence Areas project would be suitable for more refined secondary analysis in a Welsh context.

8.4.4.2 Range of evidence

Foot's research utilised a greater range of evidential sources from a wider array of archival sources. As Foot did not stipulate the individual contribution of each source no direct comparison with this research could be made. His use of German mapping of British defences, particularly from collections held by the British Library Map Library, the Bodleian Library and the Bundesarchiv-Militärarchiv, Freiburg, was not utilised in this research. The coverage of these archives for Wales remains unknown, but these repositories potentially hold information that could contribute to understanding of defence provision in Wales.

8.4.4.3 Results

The most striking comparison, despite the different sizes of case study analysis used in both studies, were the common conclusions that significant proportions of the original defence populations had been destroyed and that the surviving remains were dominated by hardened concrete built site types. The

identification of small fieldworks, defended houses, fortified buildings, road blocks and those anti-invasion defences made from metal was problematic to both studies. Consideration should be given to how research methodologies can be amended to enhance the ability of these sites to be identified. For example, is further documentary and cartographic research required to identify these site types? Or are these sites in fact lost to research, unless revealed through invasive archaeological investigation?

8.5 Case study selection criteria

The section above began to explore themes emerging from the choice of case study selection. The use of cases was a central part of this research and it was important to review their selection and use. This third section discusses issues regarding the choices involved with selecting cases including the disciplinary grounds for selection. It examines whether the choice of case represented a fundamental difference from other periods and whether there are implications arising from this research for an emergent conflict archaeology that seeks to cross period boundaries.

8.5.1 Case study selection strategies

It was important to review the strategies employed when selecting cases. This research based two arbitrary cases on known discrete concentrations of anti-invasion defences linked by a common theme. The St Athan-Llandow case focused on the two wartime airfields and the Carmarthen Stop Line case was set around the defensive line of the same name. As physical manifestations extant in the landscape

this approach was primarily archaeological in character. The boundaries were set with the intention of being able to capture associated data of interest, but not so large to exceed the requirements of this research.

The archaeological-based selection approach can be seen to have worked for both cases, but the lack of detail in the information pertaining to how the defence structures related to each other and the military administrative and operational hierarchies meant that the case results were not as complete, embedded or integrated as they could have been.

This approach is routinely deployed in all types of archaeology (alongside thematic selection) and was evidence-led. Other relevant examples included studies on the Taunton Stop Line (Hellis 1992; Warren 2000), Foot's Defence Areas project (2006a) and the photographic characterisation of RAF Coltishall (Cocroft and Cole 2007). Location-based or 'situated' studies were also very common within the wider conflict archaeology discipline including for example studies on the battle of Towton (Sutherland 2000), the siege of Haddington (Cooper 2009) or the Long Kesh/Maze prison (McAtackney 2014).

8.5.1.1 Case study selection by historical documentation

In contrast the Swansea-Gower case was selected on historical grounds. The case boundary was co-terminous with that of the Swansea Garrison and Gower Sector military administrative areas, which were described in detail within surviving documentation at TNA. In many ways this approach was similar to many

archaeological studies that utilised the political borders of particular counties to frame their research, for example the medieval mills of Anglesey (Davidson 2001).

A key difference that distinguished the approach adopted in this case from others was that the military administrative boundary was not abstract. It was created by the same authority that was responsible for preparing the defence arrangements that were the subject of this research, and was embedded within the research subject.

Rather than selecting a case based on visible groupings of anti-invasion defences without knowing where the military administrative and operational boundaries and therefore the authorities for their construction were located, this research benefitted from the certainty that all of the defences were party to a common defensive scheme. As a unified area component this enabled simplification when handling evidence and facilitated more effective and efficient contrast and comparison between cases.

The literature review did not identify any other examples of the use of this type of case selection and as far as the author is aware, this is the first time that this type of approach has been applied within Second World War conflict archaeology. The advantages and disadvantages of this approach are discussed below.

8.5.1.2 Advantages of using a military area-based approach

The employment of military administrative areas offered a potentially useful way of framing anti-invasion research because, as administrative areas, they were fixed and not prone to frequent alteration. The territorial units ranged from national to

regional, sub-regional and local areas in size. The administrative areas were developed as a logical hierarchical system ensuring that all areas were covered by a mutually interlinking system of areas through which commands and reports could flow with common boundaries covering the whole of Wales. The areas were also nested so that a specific location would exist simultaneously within Western Command's area, an Area command, and a Sub-Area command. Depending on local arrangements such as population density and the anti-invasion threat Sub-Areas might also be sub-divided into Garrisons, Officer Commanding Troop's areas and from November 1941 Sector and possibly Sub-Sector commands.

This hierarchical complexity was conceived to provide different command structures at different geographical scales and possessed the added advantage of providing a series of interlinked scalable and readymade cases. The variation in size and coverage meant that it was theoretically possible to select an appropriately sized case of a particular size depending on research needs.

8.5.1.3 Disadvantages of using a military area-based approach

A disadvantage of using military administrative areas was that the allocation of the entire hierarchical distribution was not spatially or temporally uniform. While the higher levels in the hierarchy were always present, the presence of lower level i.e. smaller hierarchical areas was uncommon during the early part of the Second World War and irregularly applied thereafter. Therefore, depending on the geographical location of the area of research interest it would not always be possible to adopt a smaller case for all areas of Wales. This difficulty was compounded by further

problems when trying to identify the presence of a lower level military administrative area, as the extent and/or boundary of the desired area might not be known or mentioned in the evidential sources.

8.5.1.4 Optimal case study size

The Sub-Area might be considered to be the optimal level on which to base a case from the perspective of undertaking anti-invasion defence research, as this level of command was responsible for determining the anti-invasion scheme for that area, had control over the anti-invasion defences constructed and maintained within it and controlled the majority of the subservient levels below. The defences shared a common primary initiating authority which linked most of the defences together into a unified defence scheme with a common purpose.

In practice the Sub-Area commands enclosed areas that covered two or three counties (Carmarthen Sub-Area = 5,760 square kilometres; Severn Sub-Area = 3,481 square kilometres) and the amount of work required to identify all of the relevant sources was considered excessive for this study. Instead smaller administrative areas within Sub-Areas were preferred. Future research might select other static military administrative areas for example those occupied by specific Home Guard units or defence entities such as airfields.

In contrast the use of the areas occupied by mobile field force formations and units was determined to be unhelpful and too difficult to use effectively. These areas were ill-defined in contemporary surviving documentary and cartographic evidence, and could not be located with precision. The units were also peripatetic and moved

locations often. The resultant changing kaleidoscope of shifting identities and responsibilities was too difficult to recreate with sufficient detail to be useful when considering individual defence structures.

8.5.2 A new way of framing anti-invasion defence research

The above discussion demonstrated that the selection of cases can be made on historical and archaeological grounds. The use of historical grounds does not represent a fundamental difference from research in other periods (for example parish-based archaeological studies of the medieval period are common), but it is thought to be the first time that this approach has been applied to Home Defence during the Second World War. Such an approach should be transferable to studying physical evidence emerging from other highly organised and hierarchical societies in the recent historical era.

The key implication for the emergent sub-discipline of conflict archaeology was that no one evidential source type was capable of describing all of the wartime anti-invasion defence arrangements within any of the cases. A purely archaeological evidence-based approach would not enable the complexity of the subject to be adequately identified, described, analysed or placed in its proper context. Similarly, purely historical documentary, aerial photographic or cartographic approaches could not produce complete summations. Although the archaeological evidence alone could not sustain a robust interpretation, the application of archaeology as an approach to cross-disciplinary evidence was well placed to induce nuanced narratives as it treated all evidence equally as material culture of the same totality.

Instead multiple, relevant and critically assessed sources of evidence must be identified and used through the adoption of a collaborative evidential mode of analysis in order to understand this rich, but incomplete material legacy. It was found to be insufficient to just identify defence posts from the source evidence. Two additional elements were required. The first comprised the development of an in depth understanding of the interplay between the different forms of source evidence and their potential usage (cf. Leech 1999). The second comprised the re-embedding or re-socialising of this material back into the society that was responsible for creating and using it, rather than treating it as an abstract subject (cf. Carman 2013, Gilchrist 2003).

The defensive remains identified were an expression of how a society organised itself for defence against perceived aggression. It was therefore important to define the social relationships of the creators and users of the defences both in organisational and material terms in order to produce an informed, robust and nuanced narrative.

8.6 Summary

This chapter made the main points and claims of this research and located it within the sub-discipline of conflict archaeology. The three cases added to the breadth and depth of an evolving conflict archaeology and facilitated comparison to enable the identification of cross-cultural similarities and differences.

The research found that evidence did survive for Second World War anti-invasion defences in Wales and that the study of this topic was a valid and rewarding

enterprise. The extent of survival was variable across the cases. The evidence interplayed in a complex way regarding the temporal, spatial and thematic content and was determined by the particular characteristics of the case. At its best the evidence focused to provide comprehensive information regarding a particular locality and time, whereas in other situations there might only be one form of evidence, which reduced information and interpretation. Evidence could be depleted or incomplete. Cumulatively the evidence collaborated to enable the induction of new narratives for the cases of a standard and detail not previously seen in Wales. It was important to recognise that these narratives were incomplete and should be regarded as preliminary statements to be enhanced in the future.

The research suggested that the character of the selected evidential sources in the cases was complex and required critical assessment in order to fully understand their strengths, weaknesses and application. It suggested that the archaeological, documentary, aerial photographic and cartographic sources were all incomplete to varying degrees and that the associative relationships between the different types of evidence (primarily their common conception, creation and use by the military as different manifestations of a common phenomenon) enabled a collaborative use of the evidence to make up for some of these deficiencies. The research emphasised that Second World War anti-invasion defence studies needed to be situated into a diverse range of evidential sources to maximise understanding and determine their context.

Significant spatial, temporal and thematic limitations were identified within the sources. Important biases were present at multiple levels regarding previous

research, source survival and content, site types and visibility. Evidential gaps, inconsistencies and weaknesses were described. Where the evidence survived it was shown to be complementary and inter-dependent. The archaeological evidence could be successfully combined with the official source evidence. Patterning present within the evidential classes was capable of suggesting trends. The content was able to identify and locate an undetermined proportion of the original defensive scheme and set them within their partial contemporary military organisational context and social identities. Assessment demonstrated that a comprehensive understanding of the coverage, strengths and weaknesses of the origination, purpose and post-depositional processes was required to use the source evidence robustly.

The research suggested that a knowledge of the military organisational practices and identities of the formations/units involved were fundamental prerequisites required to use the source evidence effectively. A critical understanding of the evidence was also required. With this knowledge the diverse sources could be integrated into meaningfully informed and holistic narratives. Such knowledge was also a requirement for re-engaging the physical evidence with human agency.

The research suggested that the choice of official source evidence could be useful because it provided access to unique, authoritative and informed content. The content was reliable and trustworthy as it was prepared for internal military audiences and had not been censored or used for propaganda purposes. No instances of deliberate attempts to mislead or suppress information were identified. As with any

document, compiler selectivity and bias were identified, but its documentation informed the usefulness and application of the evidence.

On limited occasions the selected evidence was able to provide an understanding of what was built, where, when, why, by whom and for what purpose in Wales. This occurrence did not achieve the frequency reported in England (Dobinson 1998; Schofield 2005) and Scotland (Barclay 2013) owing to the absence or limitations of the evidence. As far as can be determined the documentary, aerial photographic and cartographic evidence in the cases would appear to be less commonly occurring and complete in Wales than in England or Scotland. However, the situation was not as adverse as suggested by Redfern's study (1998a). The research was able to characterise the type, presence, strengths, limitations and applications (value, role and contributions) of the evidence for the cases in Wales.

The research suggested that an archaeological approach was a legitimate form of inquiry when applied across inter-disciplinary source evidence because the approach gave equal primacy to all of the evidence in a neutral and critical way. Archaeology was well placed to undertake this study as the evidence was approached as different but linked facets of material culture from a common shared past. In contrast to the discipline of history no evidence was given primacy. The application of an archaeological approach to the recent past demonstrated that archaeology was not a subservient handmaiden to history and was capable of making a unique and informed contribution in its own right. Archaeology is a valid alternative approach to purely historiographical approaches. As a result a more balanced and contextual narrative could be induced. Furthermore, studies in conflict

archaeology can inform wider disciplinary debates by providing new data and cases for historical archaeology and the archaeologies of the recent and contemporary past.

The research suggested that case study boundaries were best framed in a pragmatic way depending on the available evidence. Small-scale military administrative boundaries provided useful study areas with the benefit of all of the defences within being commissioned by one authority to a common defence scheme. Otherwise the purposeful selection of linked defence features or networks could also provide intellectually coherent entities. While it was recognised that a boundary had to be drawn somewhere and it was inevitable that the boundaries could never be functionally, temporally or spatially absolute the identification of administrative or defence-based boundaries was rational and defensible.

The case study method and grounded theory approach of inducing meaning from data were found to be effective methods for establishing to what extent the evidence survived, as well as establishing anti-invasion defence narratives for the cases. This approach could be applied elsewhere.

The final chapter draws out the original research contribution of this work in detail. It summarises what has been done and what has not been attempted, and gives the reasons why. The chapter suggests future directions for research that build on the findings of this chapter.

9. CONCLUSIONS

9.1 Introduction

This concluding chapter is divided into six parts. The first part comprises a research summary that describes what was accomplished and the second part summarises the research constraints. The third part comprises a methodological evaluation, including limitations, and the fourth part identifies the original research contribution of this work. The fifth part recommends a range of future areas of potential research activity. The final part describes the wider implications of this research.

9.2 Research summary

It is important and necessary for the researcher to document and reflect upon the research process as experienced. Following the initial decision to undertake research into an aspect of British Second World War archaeology the preliminary reading quickly ascertained that this was an under-investigated subject area, particularly within Wales. In contrast to the situation in England and Scotland, there had not been an intensive pan-Wales investigation into the surviving physical remains of this conflict and the dataset of known archaeological evidence was very modest. There was little knowledge or understanding about the type, location, content and usefulness of evidential sources that might be utilised to inform subsequent research.

Many of the adopted parameters for this research were imposed by the very limited state of knowledge regarding the potential sources, history and development

of Welsh anti-invasion defences prevalent at the research's inception in 2008. The research situation in England had benefitted enormously from multiple thorough archaeological and historical research projects and an active research community based in both professional and amateur archaeological traditions; to a similar extent this was also true in Scotland, although since enhanced by Barclay (2013).

In contrast, in a Welsh context there was a fundamental lack of knowledge at practically every level. There was an almost total absence of information and awareness regarding the types of evidence available and their locations, or critique regarding their content in terms of chronological and spatial coverage, their potential contributions and limitations, and how all of this compared and contrasted with experience elsewhere.

Initially this research aimed to examine the use of the landscape by anti-invasion defences. At an early stage it was recognised that the defence site dataset was significantly under-developed for Wales. This prompted a review of alternative sources of evidence in order to increase the size of the dataset. A preliminary examination of the sources quickly identified that a detailed investigation of the content and usefulness of the sources was a central and priority research objective that needed to be undertaken before an informed landscape-scale study could commence. The research was therefore re-oriented to achieve the former. Four fundamental and different types of evidential source were identified as being able to recognise defence sites and to understand who built them, when and why. All sources were linked by a common commissioning authority.

Rather than undertaking a broad and shallow study on a national basis, it was decided to adopt a comparative case study approach to enable smaller areas to be studied more intensively, in order to set boundaries to the research and to act as a filter (i.e. in or out of scope) when examining the source evidence.

While obtaining the known sites recorded within the regional and national archaeological records was a relatively simple task, the identification and evaluation of the usefulness of primary documentary, aerial photographic and cartographic source evidence was much more prolonged and complicated. This was an iterative process, as new understanding about the circumstances of the creation and purpose of individual types of records prompted re-assessment of those already examined, including in other cases.

The most important source for primary documentary records was the War Office WO 166 and 199 series of records at TNA. The WO 166 war diaries for Western Command headquarters were examined first in order to identify the context at that hierarchical level, and the information therein identified subservient administrative formations at both Area and Sub-Area levels. The war diaries for these records were examined in turn and relevant information pertaining to defence schemes and networks, and the identification of field force, static formations and units was extracted.

A less intensive process was undertaken with the WO 199 registered files from the Home Forces military headquarters, which recorded policy, planning and administrative papers.

The wartime collection of RAF and USAAF aerial photography for Wales owned by Welsh Government had been scanned to make high resolution digital versions of each sortie frame, but the content of the collection had not been catalogued or assessed for its contribution to the recognition of anti-invasion defences. Analytical cataloguing of this collection formed part of the research.

Accessible areas within the cases were subjected to rapid field observation in order to identify additional unrecorded defence sites. Field visits were organised often guided by knowledge of existing defence structures, for example the course of the Carmarthen Stop Line and through conversations with land owners and occupiers.

During the course of the data identification and cataloguing phase it became apparent that the types, survival and coverage of the evidential sources were markedly different in character to those that had been discussed for England and Scotland.

Having assessed critically the character and availability of the four chosen different types of source evidence available for the study of Second World War anti-invasion defences in Wales, the prime objective of this study was to determine to what extent the evidence survived and to characterise it and its inter-evidential associative relationships in terms of their role, value and contribution within the cases. The aim to identify new defence posts and to induce their meaning into holistic narratives was a secondary and related objective.

Once summaries of the role, value and contribution of each of the four evidential sources had been determined for each case, a critical cross-comparative

analysis was undertaken between the cases in order to identify the strengths, trends, weaknesses and gaps within the sources and to draw conclusions regarding the provision of Second World War anti-invasion defences in Wales.

As far as could be determined, this research was the first in-depth and systematic comparative study of the role, value and contribution of the four classes of evidential sources for Second World War anti-invasion defences. The results identified new information and understanding into the usefulness of the source evidence and the cases represented the most developed descriptions of anti-invasion defence provision in Wales.

9.3 Research constraints

When utilising an inter-disciplinary approach there were a great variety of potential research directions and approaches that could be adopted. In order to establish reasonable boundaries for the purposes of this research there were a number of potential areas and approaches that were deliberately excluded from the beginning. This was not because the excluded areas and approaches were thought to be inappropriate or of limited value, but rather in order to ensure that the main focus of the research had sufficient room for development and articulation within the thesis. The wider reading and the experience of undertaking this research identified a number of potential directions for future research which will be reviewed later in this chapter.

9.3.1 Approach

Although this research adopted an archaeological approach, it utilised a cross-disciplinary evidential base as often adopted within the canons of historical archaeology and the archaeologies of the recent and contemporary past. The research focused on establishing fundamental information and understanding, and did not seek to deploy traditional methods of archaeological invasive and non-invasive enquiry other than rapid field observation for comparative purposes.

Given the paucity of available data, this research was more akin to an in depth and critical desk-based assessment utilising a range of evidential sources and the employment of archaeological investigative techniques was considered more appropriate to a later phase of research. The lack of availability of defence post data also precluded the development of a detailed GIS-based investigative approach.

In contrast to many studies of this type and period, this research did not focus on the military tactical intent of the defences or how successful they might have been in their primary anti-invasion role. The author possessed no direct military experience and deferred to more informed authorities on this matter. The latter was considered to comprise speculative modelling that was beyond the scope of this research. Rather this study focused on the identification, role and uses of the evidence upon which such accounts should be based.

9.3.2 Scope

The selection of a case study approach meant by necessity that those areas outside of the cases were not subjected to detailed research reporting, although by

definition these areas formed the linked contextual background to the cases and were researched but not as intensively as the cases. This was considered to be an acceptable feature of the research.

It was thought inappropriate to include a heritage management element as this was primarily an academic investigation. Therefore the condition of individual defence sites were not recorded and no attempt was made to identify management proscriptions.

Much recent research activity focused on the wartime Auxiliary Units, also sometimes referred to as the British Resistance Army, but their activity was not included within the remit of this research. These units undertook a different, but linked role, and their primary documentary records at TNA were embargoed until 2045.

9.3.3 Sources

The range, quantity and variety of locations of primary historical evidence relevant to Wales meant that a meaningful and purposeful subset needed to be identified. As the relevant military, naval and aviation-related war diaries and registered files for Wales had not been subjected to in-depth scrutiny it was decided to focus on these records, together with any similar content from unitary authority archival repositories. These records were identified as key informed and authoritative accounts of fundamental importance, but their use meant that other categories of potentially useful records such as those pertaining to the activities of

the county war agricultural executive committees or land valuers were not examined during this research.

Although Wales was (and is) a bilingual country, the wartime British armed forces did not commonly use the Welsh language in their record keeping, although some Welsh language Home Guard records were recognised in north Wales. No formal military, naval or air force records in the Welsh language were identified in this research. Personal recollections, newspapers and documents in the Welsh language were not examined.

Moshenska emphasised the importance of oral history testimony as a fundamental approach within Second World War archaeology and particularly stressed its time-bound availability from the diminishing numbers of people who experienced the conflict (2012). An early decision was taken to exclude this approach in this study, in order to focus on the inter-play between the four selected types of evidential source. The selected types of sources were anticipated to provide precise information regarding times and places, which would be crucial to discovering the complexity of the archaeological phasing. In contrast, the potential data offered by oral history testimony was considered to be less specific (Calder 1992).

9.4 Methodological evaluation

It is necessary to consider the strengths and weaknesses of the adopted methodology, and to describe those areas that were problematic. To the author's knowledge, the methodology employed had not been used in this manner for this topic before. The methodology utilised a qualitative approach to induce meaning

from data using the grounded theory approach. Understanding grew through iteration. The evidence was identified and selected using case study method and coded through content analysis. Case study method facilitated a cross-comparative analysis that drew out similarities and differences within and between cases. Elements of the method were informed by Dobinson's in-depth archival documentary research and Foot's Defence Areas project. This approach was thought to provide the strongest opportunity for identifying to what extent evidence survived for Second World War anti-invasion defences in Wales and to characterise its role, value and contribution.

Given the deficiencies in producing rigorous studies outlined at the beginning of this chapter, the single most significant problem was the development of a suitable methodological approach and method that would enable researchers to move beyond the preparation of simplistic low-level descriptive accounts. This research demonstrated a methodology that facilitated the identification and evaluation of four different types of available evidence in an informed and critical manner.

9.4.1 Dataset choice

A wide range of potential source evidence was identified, but three key types were chosen in order to keep the task manageable within the bounds of this research. Given that the armed forces were responsible for the construction and use of the anti-invasion defences it was decided to focus on the records created by these organisations. Where present, the evidence was found to be rich and informative, although subject to biases, selectivity and incompleteness.

Selection was influenced by availability and initial assessments of their potential contribution. The wartime aerial photographic collection at Welsh Government was chosen as each frame had been digitally scanned and was readily available. The decision to include material in local collections was self-selecting on the basis of presence or absence.

The selection of primary documentary, aerial photographic and cartographic sources was found to work well. The content was highly complementary and inter-dependent. It was not contradictory, but rather capable of enhancing the value of other sources to establish more informative descriptions and nuanced narratives. Deficiencies in one source could often be addressed by using other sources. Frequently defence sites and organisational arrangements would be evidenced in multiple sources and multiple places, providing data triangulation which enhanced the validity of the research.

An important limitation of this aspect of the study was that the source evidence selected provided weak thematic, spatial and temporal coverage for 1940-41, which was a period of key importance for this research. It was unfortunate that this study did not include much evidence from this period; alternative data selections could resolve this issue.

9.4.2 Data collection

The identification of the primary documentary data was relatively straightforward, using online search facilities where the material was catalogued at collection level. Identification of cartographic evidence was more difficult, as the

occurrences were not stated on most search catalogues. Their identification was more serendipitous than controlled. The digital photographic recording and re-printing of all examined sources was considered to be advantageous as it meant that source material could be re-examined away from the archive.

The digital wartime aerial photography was easily accessible, although initially uncatalogued (resolved during this research). Identification of sites through rapid field observation met with varying degrees of success, influenced by land access, vegetation coverage and post-depositional processes.

9.4.3 Usefulness of the data

The contribution of the aerial photographic evidence was much weaker than had been anticipated owing to its extremely limited spatial and temporal coverage. A lack of repeated photography meant that the source could rarely be used for archaeological phasing purposes. The early imagery was of a poor resolution and the post-war imagery, although of better quality, was too late to capture complete defensive networks.

The study of the contribution of the cartographic material was limited by the low number of examples identified. Three examples provided unique and very detailed defence information, and it would be interesting to assess the effects of additional examples.

The results of the rapid field survey demonstrated that additional site data could be identified in the field. The current study targeted particular areas within the cases, and it would be interesting to assess both a wider deployment of this method

and the selected use of intensive reconnaissance in areas of known defence site clusters.

The primary documentary evidence was the most numerous and useful source for identifying new defence sites and for placing them in their military historical, administrative and operational contexts. The lack of 1940-41 defence schemes, certain types of registered files and the inability to locate airfield defence schemes were identified as major weaknesses.

9.4.4 Case study approach

It was decided that the most appropriate method to adopt for this investigation was to undertake a comparative case study approach. Although Chapter Four highlighted certain problems with the use of case studies, this approach allowed similarities, differences, trends and data gaps between the chosen cases to be compared and contrasted. The approach was found to be effective in cases that had seen little or no previous research and practical as the use of case boundaries acted as effective evidential filters.

9.4.5 Case study area selection

The adoption of a case study approach was found to work well deployed purposefully in either an arbitrary fashion focusing on known grouped concentrations of military defences (St Athan-Llandow and Carmarthen Stop Line cases) or by utilising available contemporary military administrative sub-divisions (Swansea-

Gower case). The piloting of the latter approach was regarded as a real success of this study, as it was respectful of the initiating authority and had the potential to provide national coverage combined with scalability.

9.4.6 Developing insight

Due to its exploratory nature and notwithstanding the inherent limitations described in Chapter Four, this methodological approach offered some valuable insights into the investigation of Second World War anti-invasion defences in Wales. The study suggested that an archaeological approach utilising multiple sources of cross-disciplinary evidence in a rigorous way had the best chance of maximising reliable knowledge induction and enhancing understanding of both the source evidence and the topic itself.

As far as could be determined, this research was the first time that the available archaeological, primary documentary, aerial photographic and cartographic sources had been described, assessed and analysed in detail to establish their spatial and chronological coverage, role, contribution and usefulness within a British context.

9.5 Original research contribution

This research made original contributions to knowledge and understanding in a number of ways. As well as formalising the research topic within an academic framework, the study generated new empirical data, developed a method,

established new knowledge regarding the research problem and contributed to a new understanding of the topic.

9.5.1 New formalisation of the research topic

The literature review demonstrated that while there was an increasing abundance of academic modern conflict archaeology-related literature very little engaged with British Second World War archaeology or the topic of anti-invasion defences despite a number of high-profile initiatives.

Only a relatively small amount of formal academic publication on the topic was identified and in the literature review little was relevant to Wales. Most of the publications were popular in origination and were not peer-reviewed. Elsewhere research was undertaken or commissioned by professional archaeologists with different outcomes in mind. Therefore this research represented a method by which the topic was introduced formally into academia.

9.5.2 New knowledge about the research methodology

An existing published methodology was not applied in this research. A new composite approach for investigating the topic was developed, which situated the research within the canons of historical archaeology and the archaeologies of the contemporary and recent pasts. The method drew on practices and concerns expressed within documentary and text-aided archaeology, as well as Dobinson's historical archival and Foot's Defence Areas methodologies. A case study method

was used to identify, select and analyse data and a grounded theory approach was used to induce meaning from data in a rigorous manner, which met established tests for good qualitative research through the use of multiple cases and data triangulation. The focus on evidence determined the role, value and contribution of four different types of sources.

A new scalable framework for case study selection based on the identification and use of military administrative areas was proposed, as used in the Swansea-Gower case. As far as can be determined, this was the first use of wartime military administrative areas for framing the extent of a case study.

The detailed discussion of the spatial and temporal coverage, usefulness of the sources and their role, contribution and significance should aid future researchers studying this topic. This thesis therefore made a methodological contribution to knowledge regarding the investigative approach of Second World War anti-invasion defences using multi-disciplinary sources.

9.5.3 New empirical data

The research provided two types of new empirical data i.e. that which was obtained from direct observation. The first category involved the identification of all of the known relevant individual evidential records from within the four types of evidential source examined by the researcher for the three cases.

While the known archaeological evidence was recorded within the HERs and NMRW, the identification and collation of the primary documentary, aerial photographic and cartographic evidence from local, regional and national archival

repositories was entirely new. These were described in detailed (see appendices) and represented a new contribution to empirical data.

The second category of new empirical data arose out of the first and comprised the totality of the new anti-invasion defence sites identified within the four classes of evidential sources for the three cases. The large numbers of defence sites extracted from these sources facilitated the establishment of the most developed and extensive summations of defence arrangements known in Wales. These sources also presented new data regarding the character of military organisation and the identity of military units present within the cases.

9.5.4 New knowledge about the research problem

This research was undertaken into a particularly under-investigated topic of academic enquiry, particularly within a Welsh context. It represented new research activity in south Wales and developed on previous investigations in south-west Wales.

The fundamental new knowledge about the research problem that was identified was that evidence did survive for Second World War anti-invasion defences in Wales and that its character was complex and variable depending on specific combinations of circumstances. However, insufficient and incomplete evidence survived to be able to confidently state what was built, where, when, why, by whom and for what purpose in contrast to claims made elsewhere. The interplay of the evidential sources was collaborative and often weaknesses in one source could be overcome by strengths in another source. The combination of sources used in this

research should be approached as different manifestations of a common phenomenon. The use of official sources was beneficial and did not appear to retain the disadvantages described by other commentators. An in depth understanding of the way the sources were created, used and their subsequent biographies was a prerequisite for using the evidence effectively, as was knowledge concerning the military organisational arrangements and the identity of the military units therein. Cumulatively, the evidence was able to induce new and nuanced, but incomplete narratives for the cases. The evidence required critical assessment and familiarity with its strengths, weaknesses, trends and omissions in order to use it effectively.

While research from England and Scotland pointed to an abundance of evidence, the experience for these cases was different. Those key documents such as defence schemes and counter-invasion plans that were identified were as detailed as examples elsewhere, but the prime constraint was the intermittent identification of these records. In particular the primary documentary evidence for the principal period of 1940-41 was substantially incomplete and key classes of documents such as airfield defence plans could not be identified.

Cumulatively, this was a major limitation to understanding anti-invasion defence preparations in Wales. The usefulness of cartography was curtailed by its very limited occurrence and the aerial photography was limited by both its lack of spatial and chronological coverage, and it could not be used for archaeological phasing.

As far as could be determined, this was the first time that the detailed limitations of the sources and their impact on interpretation had been defined and this represented new knowledge about the research problem.

9.5.5 New contribution to understanding

This research contributed to new understanding relating to the methodological approaches employed and insights regarding the topic itself.

9.5.5.1 Archaeology alone cannot provide the entire story

The research highlighted that a purely archaeological fieldwork method of inquiry would be unlikely to identify and understand the totality of the phenomenon in question. Similarly, the sole reliance on one of the other sources would also render an incomplete narrative account. However, the research suggested that the use of an archaeological approach was legitimate when applied across inter-disciplinary source evidence because it gave equal primacy to all of the evidence in a neutral and critical way. Archaeological approaches provided a valid alternative approach to historical approaches in the recent past.

Integration of evidence was key, rather than starting with one type of evidence and trying to fit the other types of evidence in. On some occasions there was a greater reliance on documentary sources, but as different aspects of the same totality this was not seen to be problematic. This research provided compelling evidence that a complementary multi-evidential source approach was required in order to

identify as much of the original anti-invasion defence site population as possible within a given case, and to place the known sites in their original military historical, administrative and operational context.

9.5.5.2 Necessity of utilising a contextual approach

This research emphasised the fundamental importance of understanding the historical, administrative and operational context of the relevant armed services and their identities in order to understand the anti-invasion defences and the source evidence about them. At a practical level the rapid replacement of units and the regular issuing of orders relating to changes in defence schemes meant that a detailed understanding of the units present was required in order to identify whether a war diary survived. On a philosophical level the re-unification of the anti-invasion defences with the military formations and units responsible for their conception, construction and use provided greater nuanced understanding. In this military context, all of the evidence was produced in the past and possessed an efficacy in the maintenance and reproduction of very particular forms of structures of power. Social control and group identity were important aspects of military life and this was palpable in all forms of evidence. Recognition of this occurrence aided the creation of a socially-aware conflict archaeology.

Use of the evidential sources also emphasised the importance of approaching the Second World War as a series of short rapid events compressed into a narrow temporal period, rather than as a single monolithic event. As the conflict developed through time, the perceived threat, the resources available and the ability to counter

that threat changed on a frequent basis within the context of the cases. As such, 1940-42 should be seen as a period of rapid successive 'micro-events' that generated immediate and short-term physical manifestations.

9.5.5.3 Evidence for the very recent past can be incomplete

This research highlighted that our understanding of part of the very recent past was substantially incomplete and difficult to reconstruct. Superficially the recent past appeared reassuringly known and familiar, but critical assessment identified absences that challenged this familiarity. Much of the documentary, aerial photographic and cartographic evidence for the 1940-41 period was not identified and it was not known whether it was ever created, was created and destroyed, or whether it survived, but had not been accessioned, catalogued, identified or accessed within an archive.

Specific attempts to 'presence' absence were required. The research demonstrated that very intensive effort using multiple sources was required to achieve even an incomplete and partial understanding of the topic within the cases. It was considered unlikely that a complete or total account in terms of identifying and understanding all of the relevant evidential sources for a similar case could be achieved in Wales. By implication, it was also considered unlikely that a complete understanding of the total population of anti-invasion defence posts and their construction, organisation, occupational history, use and abandonment could be established for large cases. Additional types of evidence would need to be investigated.

This finding challenged accepted convention that everything was known about the recent past. It demonstrated that archaeology was a valid mode of research for this period and that the study of the twentieth century had much in common with other established areas of historical archaeological inquiry.

9.5.5.4 Wales was not a military backwater

This research demonstrated that Wales was not a quiet wartime backwater and that the defence arrangements undertaken were a sophisticated response illustrating how a society organised itself for defence against perceived aggression.

9.6 Next steps

The results arising from this research were not a definitive statement on the topic. While insightful indications were gained, the weaknesses in the source evidence and our knowledge of the defence systems and those who built and used them meant that our understanding of this phenomenon was very much partial and incomplete. This research must be seen as a preliminary statement pending (and prompting) further investigation. A number of areas of uncertainty were revealed by this research. Typically the uncertainty was caused by evidential gaps created by the previous lack of research and weaknesses inherent in the evidential sources. Nine potential future research opportunities were identified.

9.6.1 Enhanced research engagement across Wales

The research identified an almost total absence of previous academic engagement with this topic across Wales. Amateur involvement was limited and often defence site location-oriented or aviation-focused. Large geographical areas remained unexplored and obvious prominent defence arrangements such as entire stop lines had not been subjected to the intensive recording and analysis commonplace elsewhere.

The repeated research focus on the defences of Pembrokeshire and Carmarthenshire created a strong bias in understanding this subject at a national level and deflected attention from the deficit of research in other areas.

Similar work using this methodology should be undertaken for cases in other parts of Wales (and Western Command) in order to build up a comparative national baseline, particularly in those Welsh unitary authorities that did not feature within the Defence of Britain project (Blaenau Gwent, Caerphilly and Torfaen) or where very few defence sites were recorded (for example Merthyr Tydfil, Denbighshire and Rhondda Cynon Taf).

A greater number of cases would enable stronger conclusions to be drawn from cross-analysis and the identification of trends, similarities and differences. It would quantify the survival of different types and amounts of evidence in new areas in order to further assess whether the trends identified in the three cases examined during this research were indicative of national trends or part of a more complex reality. It would be useful to determine whether other lower level military

administrative areas could be identified in order to understand whether this approach was capable of wider application.

9.6.2 Identification, cataloguing and analysis of source evidence

The research found that it was extremely rare for the primary documentary, aerial photographic and cartographic evidence to have been identified, listed and used in a systematic manner. Hand lists identifying and describing archival sources were not available. Further work should be undertaken at archival repositories to catalogue the availability of different types of source evidence relevant to the topic.

9.6.3 Expansion of research investigation to other types of records

The investigation of primary historical documents should be expanded to include other categories in which useful information may be preserved. In particular, those records relating to the removal of, or compensation for, defence works possessed significant potential to retain detailed information pertaining to the presence, type and location of anti-invasion defences. A scoping exercise might help determine whether records created by the county war agricultural executive committees, the War Office's Lands Branch and Defence Lands Service, and local authority land agents and valuers preserved relevant material.

9.6.4 Development of military administrative and operational narratives

The literature review failed to identify a detailed military narrative account of the presence, organisation and role of the armed forces, or their change through time, for the Second World War in Wales.

Detailed research should be undertaken with the War Office, Admiralty and Air Ministry war diaries and registered files at TNA in order to identify the changing military administrative and operational arrangements relating to Wales for the Second World War period, particularly the presence, identity, location and role of the armed forces. This framework would enable the possibility of identifying those units that commissioned, constructed and used specific anti-invasion defences.

9.6.5 Site gazetteers

The research identified that the national and regional archaeological records held very few records relating to Second World War anti-invasion defences in Wales. It demonstrated that the Defence of Britain project did not penetrate significantly in Wales compared to England and Scotland, and that it identified fewer sites within a lesser site type range. A comprehensive effort to identify all instances of all classes of anti-invasion defence site types in Wales would be beneficial.

9.6.6 Post-depositional processes

This research clearly demonstrated that significant proportions of the original populations of both the defence documentation and defence sites were not identified.

The archaeological and archival post-depositional processes and their individual and combined effects were poorly understood and often based on conjecture rather than evidence. The reasons why this deficiency occurred in such a short period of time, the mechanisms and the extent of the loss needs to be understood, perhaps through the development of site biographies and quantitative analysis, so that bias can be identified and accounted for in the evidence.

9.6.7 Interpreting the meaning of the defences outlined in this research

One of the disadvantages of choosing to undertake an evidence-based assessment was that there was insufficient scope within the bounds of this research to undertake the more familiar form of archaeological and/or landscape analysis and discussion of the anti-invasion defence networks and sites identified within the cases.

The identified networks and clusters of anti-invasion defences, while lacking totality in terms of their complete site populations and their histories of construction, development, usage and abandonment, would benefit from detailed large-scale description and interpretation (cf. Foot 2006a).

9.6.8 Application of GIS data analysis

Following the identification of significant clusters of anti-invasion defences it would be useful to undertake GIS data analysis to examine their firesheds (cf. Lacey 2003) and their locations within, and their use of, the landscape (cf. Rowe 2014).

9.6.9 Identification of fieldworks

The research highlighted difficulties identifying the presence of fieldworks such as slit trenches and weapon pits owing to their small physical size, and lack of referencing in the majority of documentary, aerial photographic and cartographic sources. It would be helpful to investigate methods for successfully identifying these fundamentally important, but ephemeral features.

9.7 Research implications

As well as making an original contribution to knowledge and understanding, the outcomes of this research retained the potential to produce a wider range of effects and consequences in the future.

Although the study drew attention to the lack of earlier research in this topic area, it demonstrated that Second World War archaeology was a viable and engaging subject area for research. An implication of this was the possibility that this examination could promote, and signpost directions for, greater academic engagement with this subject, especially as it continued to grow in popularity. In particular, this study emphasised the importance of in depth archival research and the information and understanding arising from it could help to develop the emerging modern conflict archaeology research agenda for Wales.

Another implication of this research was the possibility that it might stimulate a re-engagement between professional, academic and amateur archaeologists through the dissemination of the evidence discovered and the ways in which it could be used (Berry forthcoming a-d).

One of the issues that arose from these findings was that it was not possible to rely solely on existing archaeological evidence to characterise Second World War anti-invasion defences across large cases in Wales in a meaningful way. Instead the results demonstrated that a collaborative cross-disciplinary evidential base and an in depth understanding of the contributions and limitations of the source evidence would be more successful.

The literature review demonstrated that UK-based academics expressed a significant archaeological interest in the First World War and earlier battlefield archaeology, but that this interest was less popular for the British Second World War Home Front. The reasons for this lack of engagement warrant further investigation to assure that modern conflict archaeology is reflective, inclusive and can remove self-bias.

Potential reasons for this preference might be because the Second World War was too recent and lacked the generational chronological separation attested by the First World War; the latter is sometimes perceived as being more worthy, authentic and acceptable of research attention. Alternatively, Second World War archaeology may just be unfashionable, and some have expressed concern regarding the appropriation of Second World War iconography by right wing political parties (Brockman 2009 pers. comm.).

The results of this study and the methodology utilised may help to broaden and mature the discourse and practice of Second World War archaeology, which was characterised in Chapter Two as being fragmented into a series of standalone archaeologies. Existing studies demonstrated that the conflict's impact on civilians,

internees and prisoners was important and the investigations produced rich and interesting archaeological evidence and artefactual assemblages that contributed to the multi-vocal experience of conflict in a Second World War context.

However, the anti-invasion defences imposed on landscapes and communities provided some of the most distinctive, extensive, intrusive, visible and well known archaeological evidence and it was important that these were investigated in an academically rigorous way as well. Human experience of anti-invasion defences would have been as common and recognisable as the effects of rationing and the blackout. Therefore this methodology may have important implications for developing an additional strategy for investigating modern conflict archaeology in addition to the anthropologically-informed material culture and cultural memory perspectives that have often dominated in much of the published British twentieth century conflict archaeology.

It is hoped that the most significant implication of this research will be to energise a more rigorous form of Second World War anti-invasion defence study in Wales and beyond, potentially inspiring the undertaking of new studies to develop a canon of cases to inform cross-comparative study.

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LIST OF ABBREVIATIONS

| | |
|-------|--|
| AA | Anti-Aircraft |
| AC | Army Co-operation (squadron, RAF) / Armoured Car |
| A/C | Aircraft |
| ACI | Army Council Instruction |
| ADGB | Air Defence Great Britain |
| Adj. | Adjutant |
| Adv. | Advanced |
| AFS | Auxiliary Fire Service |
| AFV | Armoured Fighting Vehicle |
| AI | Administrative Instruction |
| AIS | Administrative Instruction Scheme |
| AL | Amendment List |
| AAL | Amendment to Amendment List |
| ALO | Anti-Landing Obstruction |
| AM | Air Ministry |
| AME | Air Ministry Experimental [station] |
| Amn. | Ammunition |
| AMPC | Auxiliary Military Pioneer Corps |
| AMTB | Anti-Motor Torpedo Boat |
| AMWD | Air Ministry Works Directorate |
| AO | Administrative Order |
| AOC | Air Officer Commanding |
| APR | Army Plotting Room |
| Armd. | Armoured |
| ARP | Air Raid Precautions |
| Arty. | Artillery |

| | |
|----------|---|
| ASU | Aircraft Storage Unit |
| A/T | Anti-Tank |
| AW (A/W) | Allan-Williams turret |
| BB | Blacker Bombard (the 29mm spigot mortar) |
| BC | Battery Commander |
| BD(S) | Bomb Disposal (Section) |
| Bde. | Brigade |
| BEF | British Expeditionary Force |
| BHQ(s) | Battle Headquarters |
| BL | Breech Loading |
| Bn. | Battalion |
| BOP | Battery Observation Post |
| BPR | Battery Plotting Room |
| BSA | Brecon Sub-Area |
| Bty. | Battery |
| Btys. | Batteries |
| CA | Coast Artillery |
| C&M | Care and Maintenance |
| CASL | Coast Artillery Searchlight |
| CB | Counter Bombardment |
| CBA | Council for British Archaeology |
| CCA | Corps Coast Artillery |
| CCW | Countryside Council for Wales (now Natural Resources Wales) |
| CD | Close Defence |
| CD/CHL | Coast Defence / Chain Home Low (radar) |
| CE | Chief Engineer |
| CFD | Commander Fixed Defences |
| CID | Committee for Imperial Defence |

| | |
|----------|---|
| C-in-C | Commander-in-Chief |
| CIS | Counter Invasion Scheme |
| CMP | Corps of Military Police |
| Comd. | Command |
| Comdr. | Commander |
| Comn(s). | Communication(s) |
| Con. | Construction |
| COS | Chiefs of Staff |
| Coy. | Company |
| CP | Command Post |
| CPAT | Clwyd-Powys Archaeological Trust |
| CPM | Canadian Pipe Mine (also known as the McNaughton Tube) |
| CRA | Commander Royal Artillery |
| CRAPW | Central Register of Aerial Photographs for Wales |
| CR | Centre of Resistance |
| CRE | Commander Royal Engineers |
| CSA | Carmarthen Sub-Area or Cambrian Sub-Area |
| CW | Chemical Warfare |
| DAT | Dyfed Archaeological Trust |
| DCRE | Deputy Commander Royal Engineers |
| DEL | Defence Electric Light |
| DEMS | Defensively Equipped Merchant Ship |
| Det. | Detachment |
| DF | Defensive Fire |
| DFW | Directorate of Fortifications and Works (War Office) |
| DIO | Defence Infrastructure Organisation (Ministry of Defence) |
| Div. | Division |
| DL | Defended Locality |

| | |
|------------|---|
| DOB | Defence of Britain project |
| DORA | Defence of the Realm Act |
| DR | Despatch Rider |
| DRC | Defence Requirements Committee (sub-committee of CID) |
| DRF | Depression Range Finder |
| Drg. | Drawing |
| DS | Defence Scheme |
| DWB | Directorate of Works and Buildings (Air Ministry) |
| EE | Experimental Establishment |
| E.Y. rifle | Edward Yule rifle discharger cup for No. 36 and No. 68 grenades |
| FC | Fire Command |
| FD | Fixed Defences |
| Fd. | Field |
| Fd. Coy. | Field Company |
| FDL | Forward Defended Locality |
| FF | Flame Fougasse |
| FOi/c | Flag Officer in Charge |
| Fmn. | Formation |
| FOGMO | Fitting Out Gun Mountings Officer |
| FRB | Fort Record Book |
| Fus. | Fusiliers |
| FW (F/W) | Field Work |
| FW3 | Directorate of Fortifications and Works, Branch 3 (War Office) |
| GAT | Gwynedd Archaeological Trust |
| Gds. | Guards |
| GE | Garrison Engineer |
| Gen. | General |
| GGAT | Glamorgan-Gwent Archaeological Trust |

| | |
|--------------|--|
| GHQ | General Headquarters |
| Gn. | Garrison |
| GP | Gun Post |
| Gp. | Group |
| GRO | General Routine Order |
| GS | General Staff or General Service |
| GS GS | Geographical Section, General Staff |
| GSO III / G3 | General Staff Officer responsible for operations planning and training |
| HAA | Heavy Anti-Aircraft |
| HD | Home Defence |
| HDS | Home Defence Scheme |
| HE | High Explosive |
| HER | Historic Environment Record |
| HF | Harassing Fire or High Frequency |
| HG | Home Guard |
| HM | His Majesty's |
| HMG | Heavy Machine Gun |
| HPDC | Home Ports Defence Committee |
| HQ(s) | Headquarters |
| Hy. | Heavy |
| i/c | In charge |
| In. | Inch |
| Incl. | Inclusive |
| Ind. | Independent |
| Inf. | Infantry |
| ITC | Infantry Training Centre |
| JIC | Joint Intelligence Committee |
| KSA | Kinmel Sub-Area |

| | |
|-------------|---|
| KOSB | King's Own Scottish Borderers |
| LA | Light Automatic |
| LAA | Light Anti-Aircraft |
| Lancs. | Lancashire |
| LDA | Local Defence Advisor (Army officer advising on airfield defence) |
| LDC | Local Defence Commander |
| LDV | Local Defence Volunteers |
| LMG | Light Machine Gun |
| LMSR | London, Midland and Scottish Railway |
| LRO | Local Record Office |
| MG | Machine Gun |
| MI | Movement Instruction |
| MLO | Military Liaison Officer |
| MMG | Medium Machine Gun |
| MOD | Ministry of Defence |
| MU | Maintenance Unit (RAF) |
| NCO | Non-Commissioned Officer |
| NMRW | National Monuments Record of Wales |
| <i>N.N.</i> | <i>Nomen Nescio</i> (name unknown) |
| NOi/c | Naval Officer in Charge |
| NOR | National Oil Refinery |
| NP | Nodal Point |
| NWA | North Wales Area |
| NWD | North Wales District |
| OAPU | Overseas Aircraft Preparation Unit |
| O(s)C | Officer(s) Commanding |
| OI | Operation Instruction |
| OO | Operation Order |

| | |
|----------|--|
| OP | Observation Post |
| Ops. | Operations |
| OR(s) | Other Rank(s) |
| ORB | Operational Records Book (RAF) |
| OS | Operations Scheme or Ordnance Survey |
| OSA | Oswestry Sub-Area |
| OTU | Operational Training Unit (RAF) |
| PADS | Passive Air Defence Scheme/Site |
| PB (P/B) | Pillbox |
| PC | Pioneer Corps |
| Pdr. | Pounder |
| Pl. | Platoon |
| Pnr. | Pioneer |
| PRO | Public Records Office (now The National Archives) |
| PWSS | Port War Signal Station |
| QF | Quick-Firing |
| QM | Quarter Master |
| QOY | Queen's Own Yeomanry |
| R | Rifle |
| R&D | Research and Development |
| RA | Royal Artillery |
| RAF | Royal Air Force |
| RASC | Royal Army Service Corps |
| RCAHMS | Royal Commission on the Ancient & Historical Monuments of Scotland |
| RCAHMW | Royal Commission on the Ancient & Historical Monuments of Wales |
| RCE | Royal Canadian Engineers |
| RE | Royal Engineers |
| Regt. | Regiment |

| | |
|-----------|--|
| RM | Royal Marine |
| RN | Royal Navy |
| RNAD | Royal Navy Armaments Depot |
| RNO | Royal Naval Officer |
| ROF | Royal Ordnance Factory |
| RSJ | Rolled Steel Joist |
| SAA | Small Arms Ammunition |
| SAA Arty. | School of Anti-Aircraft Artillery |
| Sec. | Section |
| SIP | Self-Igniting Phosphorus (grenade) |
| S/L | Searchlight |
| S-mine | Shrapnel Mine |
| SO | Standing Order |
| SSA | Severn Sub-Area or Shropshire Sub-Area |
| Sta. | Station |
| Staffs. | Staffordshire |
| Svy. | Survey |
| SWA | South Wales Area |
| SWB | South Wales Borderers |
| SWD | South Wales District |
| TA | Territorial Army |
| TEWT | Tactical Exercise Without Troops |
| TG | Tommy gun (Thompson submachine gun) |
| TNA | The National Archives |
| Tps. | Troops |
| Trg. | Training |
| USAAF | United States Army Air Forces |
| VP | Vulnerable Point |

| | |
|------|---------------------------------------|
| WAAF | Women's Auxiliary Air Force |
| WBSA | Welsh Border Sub-Area |
| WC | Western Command |
| WD | War Department |
| WE | War Establishment |
| WO | War Office |
| WOFO | War Office False Origin |
| W/T | Wireless telegraphy |
| ZAA | Rocket-equipped anti-aircraft battery |

LIST OF CODE WORDS

| | |
|-------------------|---|
| <i>Arras</i> | Western Command code word for 'state of extreme tension exists' |
| <i>Barbarossa</i> | German code word for the operation to invade the Soviet Union |
| <i>BEETLE</i> | Western Command code word for an inter-service wireless system |
| <i>Cromwell</i> | Home Forces code word for an imminent German invasion |
| <i>Culverin</i> | Western Command code word for invasion use of training artillery |
| <i>Ebbtide</i> | First plan to reduce British Second World War coast artillery layout |
| <i>Floodtide</i> | Second plan to reduce British Second World War coast artillery layout |
| <i>Mushroom</i> | Home Forces code word for the Naval Beach Mine 'B', Type 'C' |
| <i>Neaptide</i> | Third plan to reduce British Second World War coast artillery layout |
| <i>Newton</i> | Western Command code word for 'invasion believed imminent' |
| <i>Oliver</i> | Western Command code word for 'hostile action has occurred' |
| <i>PANDA</i> | Code word for Army W/T communication system with RAF aerodromes |
| <i>Sealion</i> | German code word for the operation to invade the UK |
| <i>Toadstool</i> | Home Forces code word for the Naval Beach Mine 'B', Type 'C' |
| <i>Ypres</i> | Western Command code word for an imminent German invasion |

LIST OF DEFINITIONS

The following list of 134 definitions is a sub-set of the terms used in the English Heritage Defence of Britain Thesaurus (Historic England 2015).

| Term | Definition |
|------------------------------------|--|
| Airfield Defence Site | A site or building associated with active or passive defence of the landing ground and buildings of an airfield |
| Allan Williams Turret | A rotating, domed, steel turret set over a circular pit used as a gun emplacement |
| Anti-Aircraft Battery | A site containing one or more artillery pieces and/or rocket launchers for firing at enemy aircraft |
| Anti-Boat Landing Obstacle | Obstacles, including scaffolding and anti-tank blocks designed to impede an enemy's attempts to land forces onto open beaches |
| Anti-Invasion Defence Site | Sites, buildings and structures associated with the defence of the British Isles against invasion from seaborne or airborne forces |
| Anti-Landing Obstacle | Obstacles placed in open spaces and alongside roads designed to prevent the successful landing of enemy airborne forces |
| Anti-Landing Trench | A purpose built trench designed to prevent the successful landing of enemy glider-borne and airborne forces |
| Anti-Motor Torpedo Boat Battery | A coastal battery containing one or more artillery pieces to defend the coast against hostile motor torpedo boats |
| Anti-Seaplane Obstacle | A purpose built obstruction placed in a stretch of water to prevent the landing of seaplanes or flying boats |
| Anti-Submarine Defence | Defence sites and structures including passive and active defences such as netting, chain booms and mines designed to prevent submarines approaching strategic ports |
| Anti-Tank Block | A reinforced concrete block designed to obstruct the progress of a tank or armoured vehicle. Use more specific type where known (Buoy, Caltrop, Coffin, Cone, Cube, Cylinder, Pimple, Tetrahedron) |
| Anti-Tank Ditch | A ditch designed to obstruct the progress of a tank or armoured vehicle. Use more specific type where known |
| Anti-Tank Ditch (Artificial) | A man made ditch designed to obstruct the progress of a tank or armoured vehicle. Ditches were often revetted with concrete or wood |
| Anti-Tank Ditch (Natural Improved) | A natural ditch the depth and/or width of which has been increased so as to prevent the progress of a tank or armoured vehicle |
| Anti-Tank Girder | A metal girder, usually of iron or steel, embedded in the ground designed to obstruct the progress of hostile tanks or armoured vehicles |
| Anti-Tank Gun Emplacement | A defensive structure or site where an anti-tank gun is situated |
| Anti-Tank Hairpin | A road block formed by placing curved rails, 'hairpins', in sockets in the road surface |
| Anti-Tank Island | A designated area within a town or village with fixed defences such as pillboxes, anti-tank ditches and gun emplacements, designed to threaten the flanks of an enemy force which had broken through a stop line |
| Anti-Tank Obstacle | Obstacles, usually constructed of concrete and/or metal, designed to prevent the advance of enemy armoured divisions in the event of a successful invasion |
| Anti-Tank Scaffolding | Scaffolding intended to impede the advance of enemy armoured divisions. Often found in association with 'one way' anti-tank ditches |
| Anti-Tank Vertical Rail | A road block formed by placing rails or girders in an upright position in sockets in the road surface, forming a moveable barrier (hedgehog) |
| Anti-Tank Wall | A wall, usually of reinforced concrete, designed to obstruct the progress of a tank or armoured vehicle |

| | |
|--------------------------------------|--|
| Barbed Wire Entanglement | One or more coils of barbed wire intended to impede the advance of hostile troops |
| Barrel Flame Trap | An anti-personnel device consisting of a 40 gallon fuel drum placed on top of an explosive charge and detonator. When detonated the barrel would explode sending burning fuel over the intended target. Use for flame fougasse |
| Battery Observation Post | A building used to observe the movements of hostile aircraft or shipping |
| Battle Headquarters (11008/41) | A concrete structure, based on drawing number (11008/41), intended to be the headquarters for the coordination of an airfield's defences. Constructed partially underground it was considered less vulnerable than the (3329/41) |
| Battle Headquarters (3329/41) | A structure, based on drawing number (3329/41), intended to be the headquarters for the coordination of an airfield's defences. Constructed above ground this design was found to be vulnerable and was superseded by the (11008/41) |
| Beach Defence Battery | A battery, usually a single gun often in a pillbox, situated so as to provide enfilading fire along a beach to prevent hostile forces from advancing inland |
| Beach Defence Light | A searchlight battery used to light a beach |
| Beach Scaffolding | Scaffolding erected on a beach and in the surf so as to prevent hostile forces from landing |
| Bison Mobile Pillbox | A flatbed lorry with a concrete defensive position fitted on the back enabling the 'pillbox' to be driven to where it was most needed in the event of an airborne force landing on the airfield |
| Boom Defence | A bar, chain or other obstruction stretched across a waterway to obstruct navigation |
| Buoy | Blocks of solid concrete, in the shape of a round bottomed cone usually 2 feet 6 inches across x 2 feet 9 inches high. Buoys were mainly used in road blocks intended to impede enemy movement in the event of invasion |
| Cable | A cable, usually erected between posts, used to prevent the landing of hostile aircraft |
| Caltrop | Blocks of concrete with four protruding arms so that, whichever way up the caltrop is placed, one arm will always point upward. Used in imitation of the iron caltrops thrown on the ground to impede cavalry |
| Canadian Pipe Mine | A steel pipe driven into the ground at a shallow, oblique angle and packed with explosives. They were intended to be detonated on the approach of a hostile armoured vehicle or tank in order to create an obstacle directly in its path (use for McNaughton Tube) |
| Centre of Resistance | An area, often a village, with fixed defences such as pillboxes, anti-tank ditches and gun emplacements, designed to stop the advance of an enemy force and to hold out for an agreed period of time |
| Close Defence Battery | A coastal battery designed for use in short range engagements with enemy vessels, minelayers, blockships and torpedo craft |
| Coast Artillery Battery | A defensive battery positioned facing out to sea enabling the guns to be brought to bear on enemy shipping and amphibious craft |
| Coast Artillery Searchlight | A searchlight battery, which faces out to sea, used to locate and illuminate enemy shipping |
| Coast Battery Gun Site | A gun emplacement associated with a coastal battery |
| Coast Defence Chain Home Low Station | A radar station with sets operating on a wavelength of 1.5m established to provide radar plotting of both shipping and aircraft movements |
| Coastal Battery | A site including artillery pieces and associated structures directed out to sea to engage enemy shipping and defend the coastline. Use more specific term where known |
| Coastal Observation Post | A building, situated on the coast, used for observing the movements of shipping |

| | |
|---------------------------------|--|
| Coffin | Rectangular slabs of concrete with a sloping top usually with sides of 5 feet by 3 feet and 3 feet high which when placed in rows were intended to form a substantial barrier to enemy armoured divisions in the event of invasion |
| Cone | Cones of solid concrete usually 3 feet 6 inches in diameter x 2 feet high which, when placed in rows or groups were intended to form a substantial barrier to enemy armoured divisions in the event of invasion |
| Counter Bombardment Battery | A coastal battery used for delivering fire at long distance thus forcing a warship threatening or bombarding shore installations to withdraw out of range |
| Cube | Cubes of solid concrete, usually with sides of 3 feet 6 inches or 5 feet which when placed in rows were intended to form a substantial barrier to enemy armoured divisions in the event of invasion |
| Cylinder | Blocks of solid concrete, in the form of cylinders usually 2 feet across x 2 feet 6 inches or 3 feet high. Cylinders were mainly used in road blocks intended to impede enemy movement in the event of invasion |
| Dannert Wire | Barbed wire in the form of a coil which could be extended concertina-like to form a barrier to impede the movement of hostile troops |
| Defence Line | A system of defensive works such as anti-tank obstacles, ditches and pillboxes, designed to stop the advance of an enemy. Defence lines were constructed across and around strategic areas of ground and sites such as industrial towns |
| Defended Building | A building which has been altered to increase its defensive characteristics. Use more specific term where known (Fortified House, Loopholed Wall, Section Post) |
| Defended Locality | An area, with fixed defences, designed to act as a focal point for a defending force |
| Demolition Chamber | A chamber built into a structure, such as a bridge, in which an explosive, demolition charge could be placed. The charge could then be inserted in the event of an invasion |
| Demolition Charge Site | A site used for the placing of an explosive, demolition charge. Many types of structures were prepared for demolition in the event of an invasion in order to cause the maximum disruption to the advance of hostile forces. Use more specific type where known (Canadian Pipe Mine, Demolition Chamber, Mined Road, Mined Bridge) |
| Emergency Coast Defence Battery | A coastal battery constructed at short notice usually mounting a variety of artillery pieces |
| Extended Defence Officers Post | An observation post for a naval officer in charge of a marine minefield |
| Fieldwork | A usually temporary earthwork or fortification, constructed by military forces operating in the field. Use more specific type where known (Infantry Post, Rifle Pit, Trench, Weapons Pit) |
| Fortified House | A house which bears signs of fortification often including the addition of loopholes |
| Fougasse | A pit filled with rocks and metal, designed to be fired with an explosive charge |
| Gun Emplacement | A fortified site in which a gun, mortar or cannon is positioned |
| Gun Emplacement (Type 55414) | A fortified site in which a gun, mortar or cannon is positioned and which conforms to Department of Fortification and Works drawing number 55414 |
| Gun Emplacement (Type 55415) | A fortified site in which a gun, mortar or cannon is positioned and which conforms to Department of Fortification and Works drawing number 55415 |
| Gun Emplacement (Type 55422) | A gun emplacement which conforms to Department of Fortification and Works drawing number 55422 |
| Gun Emplacement (Type 55483) | A gun emplacement which conforms to Department of Fortification and Works drawing number 55483 |
| Gun Emplacement (Type 55491) | A gun emplacement which conforms to Department of Fortification and Works drawing number 55491 |

| | |
|--------------------------------|---|
| Gun Emplacement (Type 55503) | A gun emplacement which conforms to Department of Fortification and Works drawing number 55503 |
| Headquarters | A building used for the daily administration of an organisation or military force |
| Heavy Anti-Aircraft Battery | An anti-aircraft battery usually mounting weapons with a larger calibre ammunition such as the QF 3.75 inch (94mm) gun |
| Home Guard Headquarters | A building used as the headquarters for the Home Guard during the Second World War |
| Home Guard Observation Post | An observation post used by members of the Home Guard |
| Infantry Post | A defensive position, often constructed from sandbags, designed to protect a group of infantry (use for rifle post) |
| Keep | An existing building which has been designated as the last point of defence in a defended locality, nodal point or centre of resistance. If all else failed the Keep would be used as a last ditch defence |
| Light Anti-Aircraft Battery | An anti-aircraft battery usually mounting smaller, faster weapons such as Bofors guns, intended to engage fast low flying aircraft |
| Loopholed Wall | A wall containing apertures to allow a weapon to be fired through it |
| Lyon Light Emplacement | An emplacement mounting a small, portable electrically-powered searchlight |
| Machine Gun Emplacement | A structure, usually concrete or sandbags, in which a machine gun was emplaced |
| Machine Gun Post | An open walled structure built of concrete, brick or sandbags which enclosed one or more machine-guns mounted on pintels for light anti-aircraft and ground defence |
| Mined Bridge | A bridge which has had mines placed within its structure to enable it to be destroyed in the event of an invasion |
| Mined Road | A road which has had mines placed within its structure to enable it to be destroyed in the event of an invasion |
| Minefield | An area of ground or water containing explosive mines |
| Minewatcher's Post | A building with small observation ports used for plotting mines dropped by parachute |
| Nodal Point | A designated area, usually sited at a strategic crossroads, with fixed defences such as pillboxes, anti-tank ditches and gun emplacements, designed to act as a rallying point for defenders |
| Observation Post | A building or site for watching specific military activities or the movement of enemy forces, etc. |
| Pedestal | A concrete, cylindrical pedestal on which a spigot mortar was mounted. The pedestal is often the only evidence for a Spigot Mortar emplacement to survive |
| Petroleum Warfare Site | A site, usually including fuel tanks, pipe works and control buildings, where flaming petroleum was intended to be used as a weapon against a hostile invasion |
| Pickett Hamilton Fort | A sunken, circular, concrete pillbox used on airfields. They remained flush with the surface to permit the free movement of aircraft, but if attack threatened, could be raised, hydraulically or by a counterbalance, and manned to give covering fire |
| Pillbox | An often squat building with thick, loopholed walls and a flat roof, designed to accommodate a variety of weapons, usually strategically positioned to cover a vulnerable point in a defensive system |
| Pillbox (Air Ministry Pattern) | A pillbox built to a design drawn up by the Air Ministry. Usually found near airfields |
| Pillbox (Cantilevered) | A pillbox in which the roof is detached from the walls and supported by a central pillar, thus leaving an embrasure allowing a 360 degree field of fire |
| Pillbox (Modified) | A pillbox which has been modified from a standard Directorate of Fortifications and Works design. Double index with specific type where known |

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| Pillbox (Prefabricated) | A pillbox constructed of prefabricated concrete panels. Double index with specific type where known |
| Pillbox (Shellproof) | A pillbox with walls that have been thickened to protect against shells. Double index with specific type where known |
| Pillbox (Type CE391) | A pillbox built to a design drawn up by the chief engineer of GHQ Home Forces |
| Pillbox (Type CE124/41) | A pillbox built to a design drawn up by the chief engineer of South-Eastern Command |
| Pillbox (Type CE2717) | A pillbox built to a design drawn up by the chief engineer of Scottish Command |
| Pillbox (Type CE2843) | A pillbox built to a design drawn up by the chief engineer of Scottish Command |
| Pillbox (Type CE390) | A pillbox built to a design drawn up by the chief engineer of GHQ Home Forces |
| Pillbox (Type CP/6/40/111) | A circular pillbox, usually consisting of a concrete pipe with a timber and corrugated iron roof, surrounded and covered by earth and sandbags. Built to a design by Norcon Ltd, a company dealing in concrete pipes |
| Pillbox (Type CRE TL62) | A pillbox built to a design drawn up by the commander of the Royal Engineers in Southern Area (Taunton Stop Line) |
| Pillbox (Type CRE1094) | A pillbox built to a design by the commander of the Royal Engineers for the Colchester Garrison |
| Pillbox (Type CRE1116) | A pillbox built to a design by the commander of the Royal Engineers for the Colchester Garrison |
| Pillbox (Type FW3/22) | A hexagonal pillbox, with an internal anti-ricochet wall and loopholes for five Light Machine Guns and one rifle. Originally designed to have 15in bulletproof walls many were built with 42in thick shellproof walls. Designed by DFW branch 3 |
| Pillbox (Type FW3/23) | A rectangular pillbox with an enclosed square plan section for three Light Machine Guns and an adjacent open area housing a mounting for a Light Anti-Aircraft weapon. Designed by DFW branch 3 |
| Pillbox (Type FW3/24) | A hexagonal pillbox with an internal anti-ricochet wall and the rear wall lengthened to take two rifle loopholes in addition to five Light Machine Gun loopholes. Both 15in and 42in thick walls are common. Designed by DFW branch 3 |
| Pillbox (Type FW3/25) | A circular pillbox designed by the Engineering and Metals Company using 'Armco' corrugated iron sheets as the inner and outer skins into which concrete was poured, giving a 12in wall thickness. The design was taken up by DFW and assigned a drawing number |
| Pillbox (Type FW3/26) | A square pillbox with loopholes for four Light Machine Guns and walls 18in thick. Probably designed by DFW branch 3 although it may have been adapted from an external source as Southern Command correspondence refer to the type as 'Stento' |
| Pillbox (Type FW3/27) | A large octagonal pillbox, with a projecting entrance, equipped with loopholes for eight Light Machine Guns and a Light Anti-Aircraft mounting sited in a central well which was accessed from inside the pillbox. Designed by DFW branch 3 |
| Pillbox (Type FW3/28) | A square pillbox with walls up to 48in thick, designed to emplace a 2 pounder anti-tank gun. A large opening in the back allowed the gun to be wheeled into position at the large embrasure in the front wall. Designed by DFW branch 3 |
| Pillbox (Type FW3/28A) | A large, rectangular pillbox based on the FW3/28 with the addition of a small infantry chamber to one side of the main gun chamber |
| Pillbox (Type FW3/45) | A pillbox design, assigned a drawing number by DFW branch 3 |
| Pillbox (Type FW3/46) | A pillbox design, assigned a drawing number by DFW branch 3 |

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| Pillbox (Type PD541) | A circular pillbox designed by the Croft Granite, Brick and Concrete Company, with six loopholes. With no roof or door access was gained through the roof |
| Pillbox (Variant) | A pillbox which varies from the standard designs |
| Pimple | Blocks of solid concrete in the form of truncated pyramids usually 3 feet square x 2 feet high which could be placed in rows to impede enemy movement in the event of invasion. Pimples were recommended for use on soft ground. (Use for Dragons Teeth and Sharks Teeth) |
| Pole | A telegraph pole, tree trunk or similar erected on the side of a road, or in an open space, to prevent the landing of hostile aircraft |
| Railblock | Obstacles, often semi-permanent, which are placed on railway lines to prevent the enemy from using them. Set up during the defence of Britain |
| Rifle Pit | A pit dug to protect a small group of infantry men |
| Roadblock | A combination of obstructions, used either to stop enemy forces or force them off the road |
| Ruck Machine Gun Post | A machine gun post designed by James Ruck constructed from hollow concrete blocks and prefabricated concrete sheeting with loopholes allowing for a garrison of eight |
| Seagull Trench | A trench in the form of a flattened 'W' with a flat concrete roof covered in turf, supported on concrete pillars. The name derives from the resemblance to a child's drawing of a seagull in flight |
| Section Post | A large pillbox-like structure, often L-shaped or angular, with numerous loopholes used as a defensive position |
| Slit Trench | A short trench used to protect troops or to provide defensive fire from, often dug for practice purposes |
| Spigot Mortar Emplacement | A pit or emplacement surrounding a concrete pedestal, or 'thimble', which was used to mount a spigot mortar. Deployed by the Home Guard during WWII as an anti-invasion measure |
| Stop Line | A notional line of resistance defined by anti-tank obstacles, pillboxes and gun emplacements |
| Strongpoint | A fortified position, often including fieldworks or defensive structures, designed to keep enemy forces engaged to allow reinforcements to be mobilized |
| Tetrahedron | Triangular concrete pyramids with 6 feet long sides and 5 feet high, intended to impede enemy movement in the event of invasion. Thought to be confined geographically to Southern Command |
| Tett Turret | A small concrete turret placed on top of a standard 4ft diameter concrete pipe sunk into the ground intended for use in defending road junctions |
| Torpedo Station | A land based establishment armed with torpedoes and used to defend the coast from enemy shipping |
| Trench | A linear fieldwork dug as a means of concealment, protection or both |
| Vickers Machine Gun Emplacement | A square, concrete pillbox-like structure with 36in thick walls and a single large embrasure used to emplace a Vickers Medium Machine Gun. The entrance was protected by an external blast wall |
| Vulnerable Defile | A pass, vulnerable to attack from the enemy but essential for the movement of troops and which, if captured, could divide a defending force. As a result such passes are defended with anti-invasion defences such as pillboxes |
| Weapons Pit | Usually a small, two or three man trench, dug as an isolated fieldwork rather than as part of a defensive system. A WWI and WWII feature |
| Z Battery | An anti-aircraft battery armed with 3 inch rockets with a ceiling of 22,000 feet. Both single and multiple launchers were designed. Single launchers being used to defend vulnerable points such as coastal batteries with multiple launchers defending towns |

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Map 5: RAF Fairwood Common (Air Ministry Record Site Plan) (1:20,000)

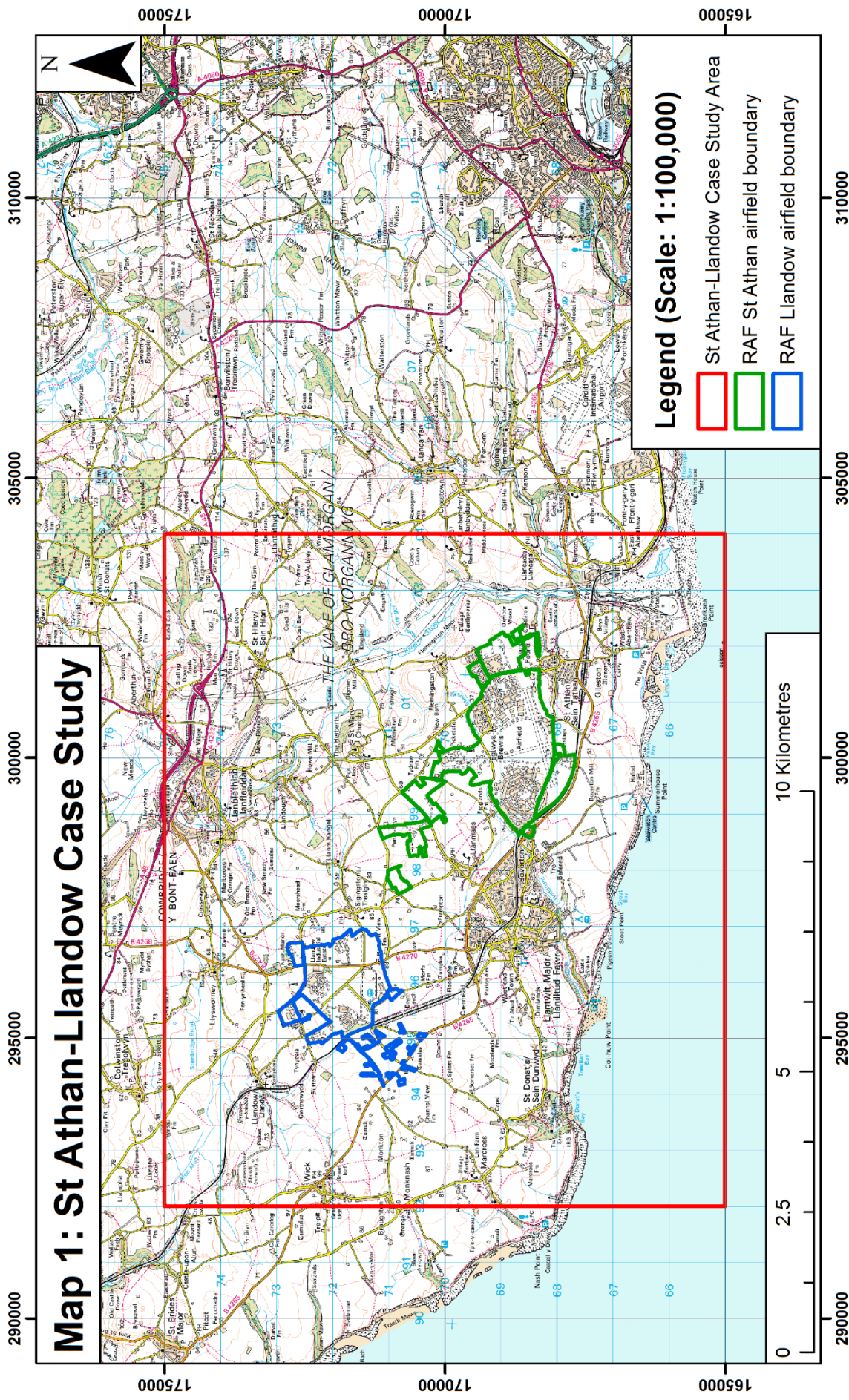
Map 6: Carmarthen Defences (1:30,000)

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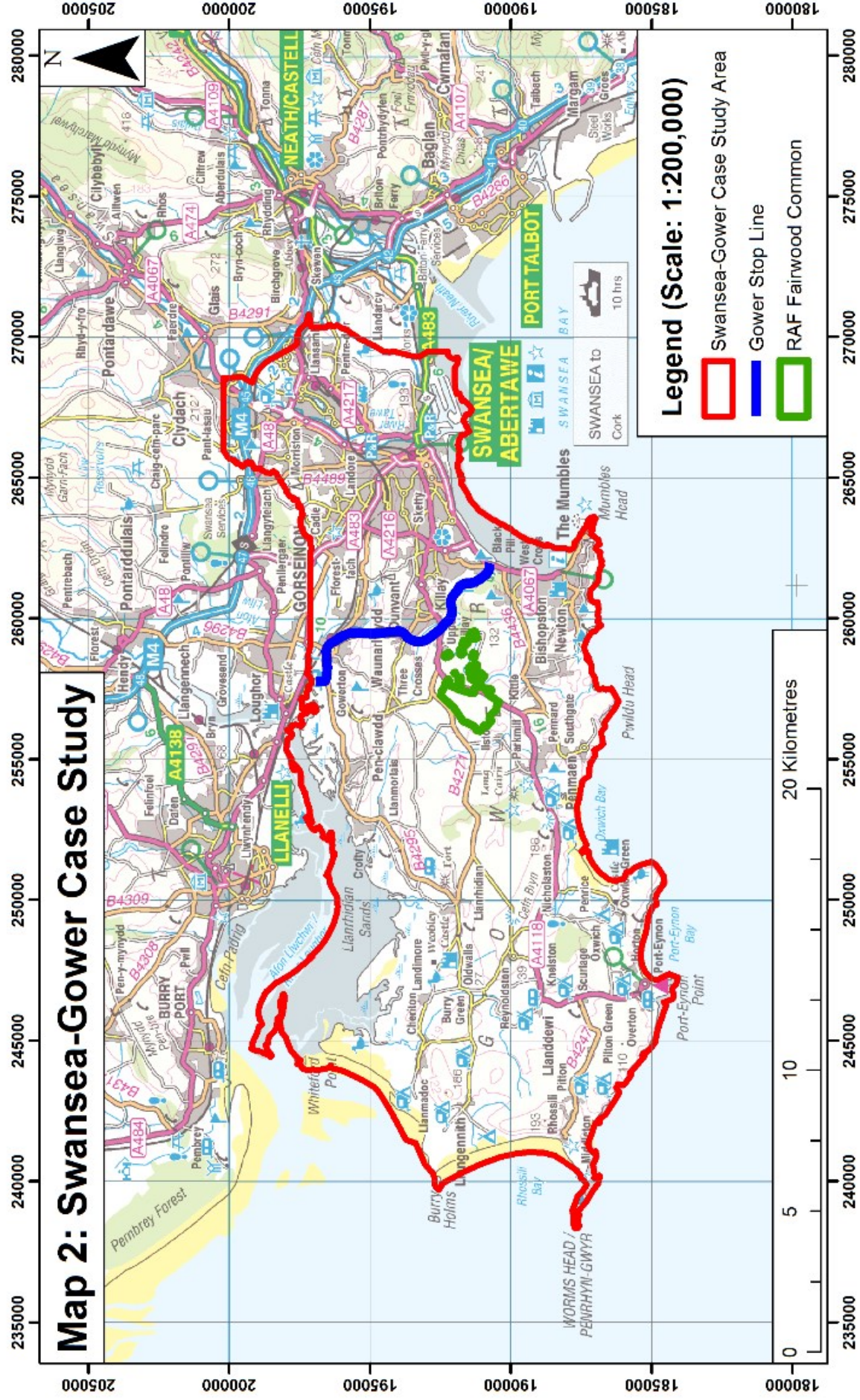


Map 1: St Athan-Llandow Case Study

Legend (Scale: 1:100,000)

- St Athan-Llandow Case Study Area
- RAF St Athan airfield boundary
- RAF Llandow airfield boundary

Map 2: Swansea-Gower Case Study

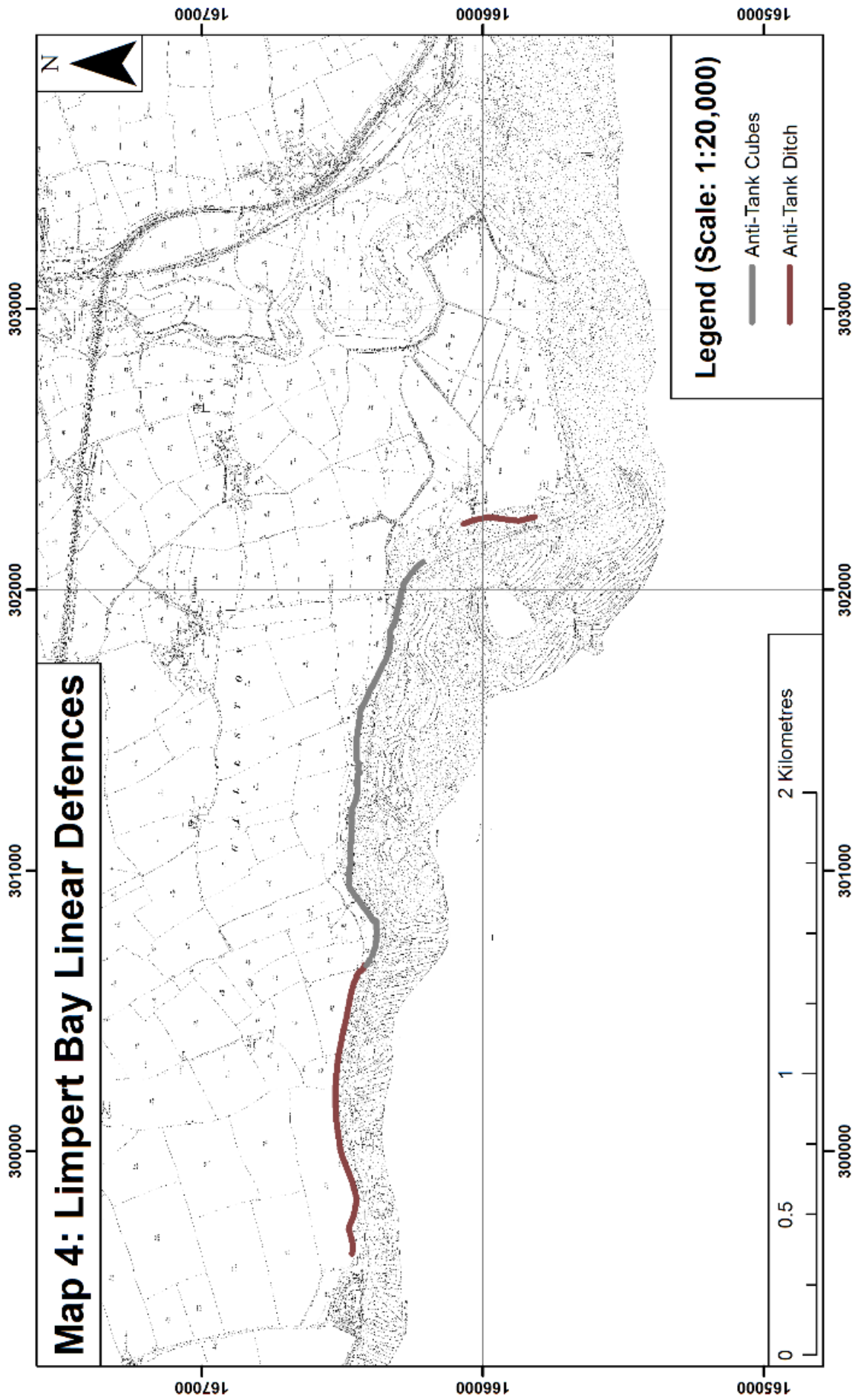


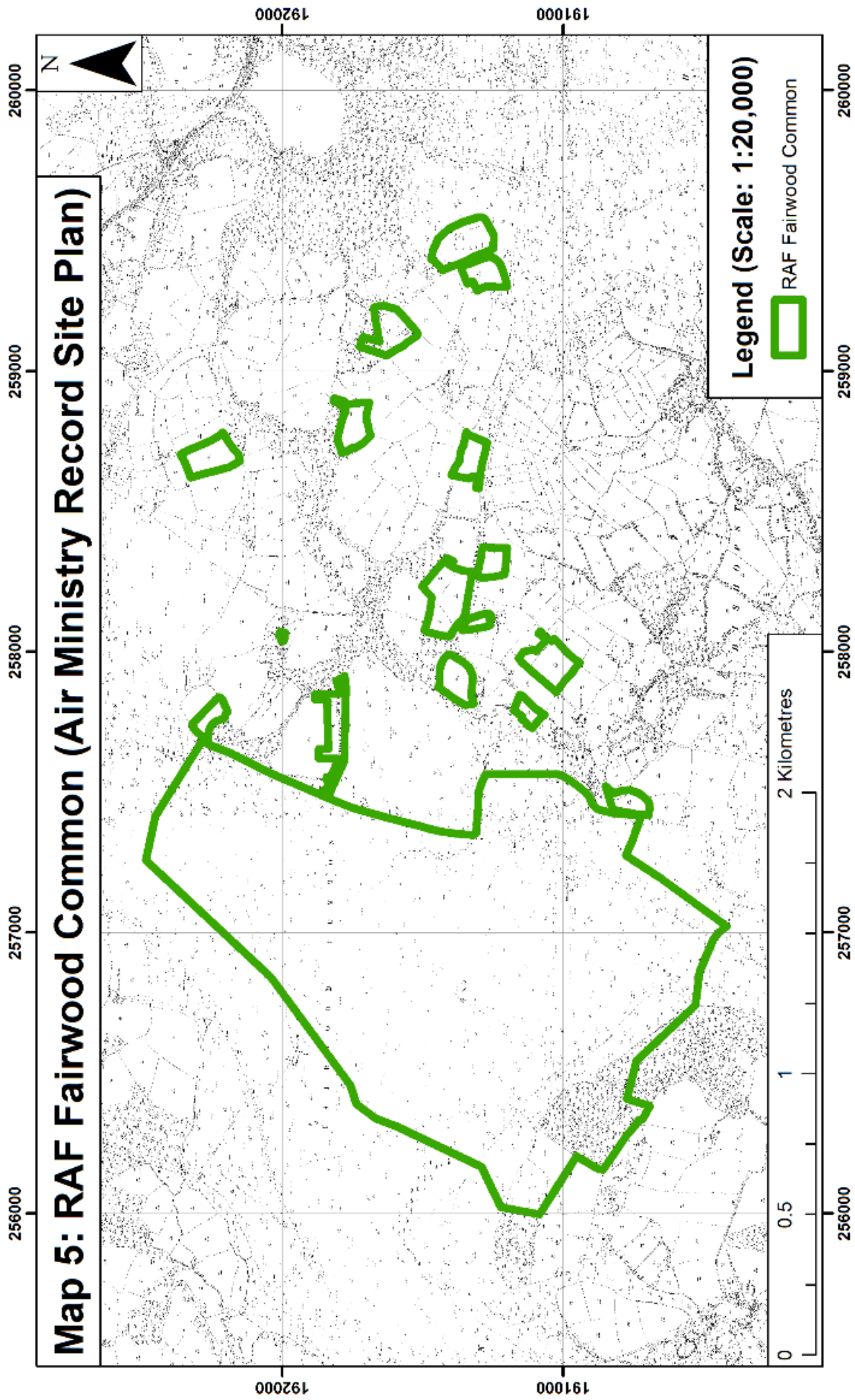
Map 3: Carmarthen Stop Line Case Study

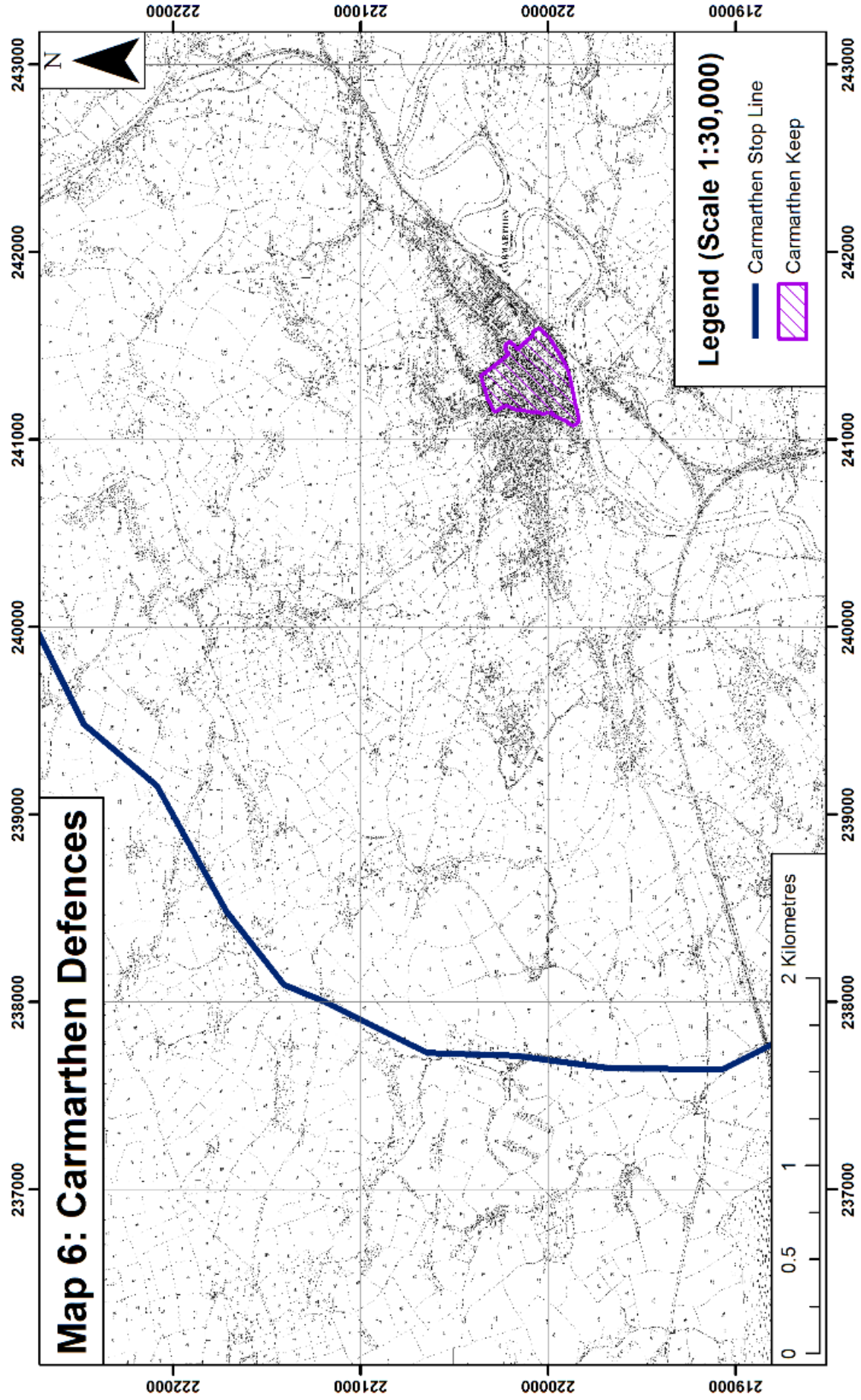
Legend (Scale: 1:300,000)

- Carmarthen Stop Line Case Study Area
- Carmarthen Stop Line
- RAF Aberporth airfield boundary
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Scale: 0 2.5 5 10 Kilometres







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Appendix 7.3: List of identified defence sites for Carmarthen Stop Line case study

Appendix 3.1: List of Command, Area/District, Sub-Area and Garrison Operation Instructions, Orders and Schemes for Wales 1940-42.

| Western Command General Staff operation instructions and amendments | | |
|--|--------------|--|
| The following Operation Instructions, Artillery Instructions and Movement Instructions, together with their subsequent amendments are preserved in the Western Command General Staff war diaries for 1939-40 (WO 166/94), 1941 (WO 166/103) and 1942 (WO 166/6025) at The National Archives. | | |
| Date | Number | Title |
| 12/04/40 | | Western Command Home Security Scheme, 1940 |
| 15/05/40 | | Western Command Scheme for Defence Against Enemy Landings |
| 04/06/40 | | Western Command Scheme for Defence Against Enemy Landings: amendment |
| 05/06/40 | WC OI 2 | [Defence of Liverpool] |
| 09/06/40 | WC OI 3 | [Western Command Defence Scheme] |
| 10/06/40 | WC OI 3 A 1 | |
| 18/06/40 | WC OI 4 | [Relaxation of state of alert to allow training] |
| 28/06/40 | WC OI 3 A 2 | [Disturbance of crops] |
| 29/06/40 | WC OI 5 | [Mobile columns] |
| 04/07/40 | WC OI 6 | Intelligence and inter-communication |
| 05/07/40 | WC OI 7 | Co-ordination of defence [and stop line list] |
| 09/07/40 | WC OI 8 | [Information to HQ III Corps] |
| 10/07/40 | WC OI 9 | [Information to HQ 23 Tank Brigade] |
| 14/07/40 | WC OI 10 | Immediate operations |
| 19/07/40 | WC OI 11 | [Movement of 4 London Inf. Bde. Gp. to SW Wales] |
| 20/07/40 | WC OI 12 | Armed personnel in training and other establishments and units in Western Command: policy in event of invasion |
| 22/07/40 | WC OI 13 | Comd. South Wales Area |
| 22/07/40 | WC OI 14 | Comd. North Wales Area |
| 24/07/40 | WC OI 15 | Comdr. III Corps |
| 08/08/40 | | AA protection of merchant shipping |
| 15/08/40 | WC OI 16 | Defensive works |
| 22/08/40 | WC OI 17 | Action to deal with parachutes |
| ? | WC OI 18 | [Unknown content] |
| 31/08/40 | WC OI 19 | Action to be taken by troops on receipt of red air raid warning |
| 03/09/40 | WC OI 21 | Roadblocks |
| 05/09/40 | WC OI 20 | Preliminary movement of troops to Winter dispositions |
| 19/08/40 | WC AI 6 A 2 | [6-pdr mobile guns] |
| 06/09/40 | WC AI 6 A 3 | [6-pdr mobile guns] |
| ?06/09/40 | WC OI 22 | Comd. 2 London Div. |
| 12/09/40 | WC OI 23 | Comd. 38 Div. |
| 14/09/40 | WC OI 24 | Movement of Fd. units to Winter dispositions |
| 14/09/40 | WC OI 20 A 1 | [New appendices] |
| 15/09/40 | WC OI 26 | Comdr. III Corps |
| 17/09/40 | WC OI 25 | Home Guards: code words |
| 17/09/40 | WC OI 27 | Air support and co-operation in the event of active operations in Western Command |
| 26/09/40 | WC OI 28 | Comd. West Lancs. Area |
| 02/10/40 | WC OI 20 A 3 | [New appendix] |
| 07/10/40 | WC OI 29 | States of readiness of Tps. guarding RAF aerodromes |
| 14/10/40 | WC OI 30 | States of readiness of Tps. guarding RAF aerodromes [WC OI 29 cancelled] |
| 25/10/40 | WC OI 31 | Relief of 38 Div. by 5 Div. |
| 01/11/40 | WC OI 32 | Comd. 5 Division |

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| 11/11/40 | WC OI 33 | Command of field formations |
| 11/11/40 | WC OI 34 | Code words |
| 16/11/40 | WC OI 35 | Comd. South Wales Area |
| 07/12/40 | WC OI 36 | Comd. 47 Div [WC OI 22 cancelled] |
| 16/12/40 | WC OI 37 | Intelligence and intercommunication |
| 30/01/41 | WC OI 38 | [Movements from, to and within the Command] |
| 31/01/41 | WC OI 38 A 1 | |
| 01/02/41 | WC OI 38 A 2 | |
| 03/02/41 | WC OI 38 A 3 | |
| 03/02/41 | WC OI 38 A 4 | |
| ? | WC OI 38 A 5 | [Unknown content] |
| 08/02/41 | WC OI 38 A 6 | |
| 08/02/41 | WC OI 39 | Movement of 47 Div. to South Eastern Command |
| 08/02/41 | WC OI 39 A 1 | |
| 09/02/41 | WC OI 39 A 2 | |
| 10/02/41 | WC OI 39 A 4 | |
| 10/02/41 | WC OI 40 | Home Guard: state of readiness and code words |
| 11/02/41 | WC OI 41 | Instructions to Comd. South Wales Area |
| 11/02/41 | WC OI 42 | Mobile columns and local defences |
| 12/02/41 | WC OI 43 | Immobilisation of ports and vessels |
| 13/02/41 | WC OI 39 A 5 | |
| 13/02/41 | WC OI 44 | Home Guards: feeding when mustered |
| 15/02/41 | WC OI 43 A 1 | |
| 17/02/41 | WC OI 45 | Instructions to Comd. 31 Inf. Bde. Gp. |
| 18/02/41 | WC OI 46 | [Statement on status of Command Instructions] |
| 18/02/41 | WC OI 43 A 2 | |
| 20/02/41 | WC OI 47 | Instructions to Comd. Central Midland Area |
| 21/02/41 | WC OI 48 | Instructions to Comd. East Lancs. Area |
| 21/02/41 | WC OI 49 | Instructions to Comd. West Lancs. Area [WC OI 28 cancelled] |
| 21/02/41 | WC OI 50 | Instruction to formation Comds. 11 Armd. Div. |
| 21/02/41 | WC OI 51 | Instructions to Comd. North Wales Area |
| 21/02/41 | WC OI 46 A 1 | |
| 24/02/41 | WC OI 52 | Vulnerable points and static guards |
| 24/02/41 | WC OI 54 | Protection of aerodromes |
| 28/02/41 | WC OI 53 | States of readiness, code words and intercom signals |
| 03/03/41 | WC OI 43 A 3 | New appendix |
| 04/03/41 | WC OI 55 | Organisation III Corps |
| 09/03/41 | WC OI 56 | Demolitions and air landing obstacles |
| 10/03/41 | WC OI 57 | Role of 50 Div. if allotted |
| 10/03/41 | WC OI 58 | Irish refugees, aliens at large and suspicious persons |
| 10/03/41 | WC OI 59 | Reports on the use of gas |
| 14/03/41 | WC OI 60 | Procedure at roadblocks |
| 16/03/41 | WC OI 61 | Instructions to 59 Div. |
| 16/03/41 | WC OI 62 | Instructions to Comd. 73 Ind. Bde. |
| 16/03/41 | WC OI 63 | Defence measures |
| 16/03/41 | WC OI 64 | Denial of petrol resources |
| 17/03/41 | WC OI 65 | Command reserves |
| 18/03/41 | WC OI 66 | Restrictions on roads and vehicles |
| 18/03/41 | WC OI 67 | Intercommunication and liaison |
| 21/03/41 | WC OI 68 | Immobilisation of motor vehicles |
| 26/03/41 | WC OI 69 | [Motor transport on action stations] |
| 30/03/41 | WC OI 70 | Action against parachutists |
| 30/03/41 | WC OI 71 | Relief of 5 Div. by 18 Div. |
| 31/03/41 | WC OI 72 | Denial of food resources |
| ? | | [WC OI 57 cancelled] |

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| 01/04/41 | WC OI 73 | Instructions to III Corps |
| 01/04/41 | WC OI 71 A 1 | |
| 02/04/41 | WC OI 74 | Roles of 54 Div. within Western Command |
| 03/04/41 | WC OI 75 | RAF support and co-operation |
| 03/04/41 | WC OI 76 | <i>BEETLE</i> [inter-service wireless system] |
| 01/04/41 | AL 1 | Amendments to WC OIs 37, 40, 43, 46, 53, 58, 63, 64, 66, 67 and 69 |
| 10/04/41 | AAL 1 | Amendments to WC OI 58 and 64 |
| 13/04/41 | WC OI 77 | Measures to minimise effects of enemy air action |
| 13/04/41 | WC OI 78 | Comd. 18 Div. |
| 07/05/41 | AL 2 | Amendment to WC OI 53 |
| 18/05/41 | AL 3 | Amendment to WC OIs 53, 58 and 76. WC OIs 55, 62 and 73 cancelled |
| 26/05/41 | AL 4 | Amendment to WC OI 53 |
| 28/05/41 | AL 5 | Amendment to WC OI 53 |
| 10/06/41 | AL 6 | Amendment to WC OI 65 |
| 11/06/41 | AL 7 | Amendment to WC OIs 53 and 63 |
| 11/06/41 | WC OI 79 | Denial of petrol resources |
| 27/06/41 | WC OI 80 | Military road movement in operations |
| 03/07/41 | AL 8 | Amendments to WC OIs 43, 53, 58, 61, 65, 67, 72, 74, 75, 76 and 78. WC OIs 32 and 71 cancelled |
| 05/07/41 | AAL 8 | Amendment to WC OI 58 |
| 09/07/41 | WC OI 81 | W/T Comn. to aerodromes (<i>PANDA</i> scheme) |
| 10/07/41 | WC OI 82 | [Repositioning of formations] |
| 16/07/41 | AL 9 | Amendments to WC OIs 41, 43, 45 and 76 |
| 28/07/41 | WC OI 76 A | |
| 28/07/41 | AL 10 | Amendments to WC OIs 63, 67, 76, 79 and 82 |
| 29/07/41 | WC OI 81 A 1 | New appendix |
| 29/07/41 | AL 11 | Amendments to WC OI 80 |
| 01/08/41 | WC OI 83 | Role of 18 Div. |
| 01/08/41 | WC OI 84 | Instructions to 31 Ind. Bde. Gp. |
| 04/09/41 | WC OI 85 | Supply of stores for engineer requirements in case of operations |
| 07/09/41 | WC OI 86 | Employment of liaison officers |
| 09/09/41 | AL 12 | Amendments to WC OIs 53, 61, 63, 67 and 77 |
| 14/09/41 | WC OI 87 | Reports on the use of gas |
| 22/09/41 | WC OI 88 | Immobilisation of vehicles |
| 22/09/41 | WC OI 89 | Restrictions on roads |
| 27/09/41 | AL 13 | Amendments to WC OI 79 |
| 03/10/41 | AL 14 | Amendments to WC OI 79 |
| 06/10/41 | WC OI 90 | States of readiness and local protection Winter 1941-42 |
| 08/10/41 | WC OI 91 | Use of AA Comns. by Home Forces units in Western Command |
| 07/11/41 | AL 15 | Amendments to WC OIs 43, 53, 58, 65, 83, 88 and 90 |
| 10/11/41 | WC OI 92 | Organisation within Sub-Areas |
| 13/11/41 | AL 16 | Amendment to WC OI 79 |
| 20/11/41 | WC OI 93 | Miscellaneous points |
| 22/11/41 | WC OI 94 | Types and scales of likely attacks |
| 08/12/41 | WC OI 95 | Instructions to Comd. West Lancs. District |
| 08/12/41 | WC OI 96 | Instructions to Comd. South Wales District |
| 08/12/41 | WC OI 97 | Instructions to Comd. Central Midland District |
| 08/12/41 | WC OI 98 | Instructions to Comd. North Wales District |
| 08/12/41 | WC OI 99 | Instructions to Comd. East Lancs. District |
| 11/12/41 | AL 17 | Amendments to WC OIs 42, 43, 52, 53, 56, 58, 63, 69, 75, 77, 83, 88 and 90 |
| 27/12/41 | WC OI 100 | Instructions to Comd 53 Div. |
| 28/12/41 | WC OI 101 | Home Guard: states of readiness and code words |
| 09/01/42 | WC OI 102 | <i>BEETLE</i> inter-service wireless system |
| 16/01/42 | AL 18 | Amendments to WC OIs 21 and 53 |

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| 05/02/42 | WC OI 103 | Denial of petrol resources |
| 10/03/42 | WC OI 104 | Immobilisation of vehicles |
| 10/03/42 | WC OI 105 | Restrictions on roads |
| 14/03/42 | WC OI 106 | <i>Culverin</i> scheme |
| 19/03/42 | AL 19 | Amendments to WC OIs 87, 101 and 106 |
| 22/03/42 | WC MI 1 | 53 Inf. Div. moves to South Eastern Command |
| 05/04/42 | WC OI 107 | States of readiness and local protection 1942 |
| 13/04/42 | AL 20 | Amendments to WC OI 103 |
| 13/04/42 | AL 21 | Amendments to WC OIs 43, 72, 106, 101 and 102. WC OIs 44, 67, 69, 80, 82 and 100 cancelled |
| 23/04/42 | WC OI 108 | W/T communications with aerodromes (<i>PANDA</i>) |
| 23/04/42 | WC OI 109 | Vulnerable points and static guards |
| 26/04/42 | | WC OI 54 cancelled |
| 28/04/42 | WC OI 110 | Instructions to Commander 49 Div. |
| 14/05/42 | WC OI 111 | Liaison |
| 18/05/42 | WC OI 112 | Code words |
| 20/05/42 | WC OI 113 | Command reserves |
| 21/05/42 | AL 22 | Amendments to WC OIs 21, 43, 46, 56, 60 and 63 |
| 02/06/42 | WC OI 114 | Defence measures |
| 06/06/42 | WC OI 115 | Operational role of 9 Bn. KOSB |
| 13/06/42 | AL 23 | Amendments to WC OI 42 |
| 15/06/42 | WC OI 116 | Role: Royal Marine Division |
| 18/06/42 | WC OI 117 | Disposal of staff and students at Western Command Schools on receipt of code word 'Newton' |
| 01/07/42 | AL 24 | Amendments to WC OIs 42, 56, 60, 94, 95, 96, 97, 98, 99, 103, 104, 105, 107, 108, 112 and 113 |
| 08/07/42 | AL 25 | Amendments to WC OIs 106, 112, 115 and 114 |
| 16/07/42 | WC OI 118 | Special force: London |
| 04/08/42 | AL 26 | Amendments to WC OI 116 |
| 08/08/42 | AL 27 | Amendments to WC OIs 42, 107, 108, 112, 113, 114, 115, 117, 118, 108 and 112 |
| 20/08/42 | WC OI 119 | RAF support and co-operation [cancels WC OI 75] |
| 03/09/42 | AL 28 | Amendments to WC OIs 42, 93, 105, 107, 108, 109, 110, 111, 112, 117, 119, 102 and 114 |
| 05/09/42 | WC OI 120 | Collection and transmission of information and intelligence |
| 05/09/42 | WC OI 121 | [Administrative and operational command responsibilities] |
| 27/09/42 | AL 29 | Amendments to WC OI 42 |
| 07/10/42 | AL 30 | Amendments to WC OIs 93, 105, 106, 111, 112, 113, 114, 116, 117, 118, 120 and 121 |
| 08/10/42 | WC OI 122 | Defence of vulnerable points |
| 12/10/42 | WC OI 123 | Role of 49 Div. |
| 17/10/42 | AL 31 | Amendments to WC OI 122 |
| 15/11/42 | AL 32 | Amendments to WC OIs 42, 106, 107, 108, 111, 112, 113, 114, 115, 119, 120, 121 and 122 |
| 11/12/42 | WC OI 124 | Operational role: 14 Bn. South Staffs. |
| 22/12/42 | AL 33 | Amendments to WC OIs 42, 111, 113, 118, 120, 121 and 112. WC OIs 115 and 116 cancelled |

South Wales Area / District HQ Operation Instructions

NB. No Operation Instructions or Defence Schemes survive within the South Wales Area HQ war diary for 1939-41 (WO 166/1247) or the South Wales District HQ war diary for 1942 (WO 166/6840) at The National Archives.

Early Sub-Area HQ Operation Instructions and Amendments

NB. The Sub-Area HQ war diaries for Cardiff Sub-Area, Glamorgan Sub-Area, Monmouth Sub-Area, Brecon Sub-Area, South Wales Sub-Area and South West Wales Sub-Area do not appear in the catalogue of The National Archives and the researcher was unable to determine whether they survive.

| Severn Sub-Area HQ operation instructions and amendments | | |
|--|---------------|--|
| The following Home Defence Scheme and subsequent amendments are preserved in the Severn Sub-Area HQ war diaries for 1940-41 (WO 166/1314) and 1942 (WO 166/6771) at The National Archives. | | |
| Date | Number | Title |
| 14/12/40 | HDS 2 | Severn Sub-Area Home Defence Scheme No. 2 |
| 22/01/41 | HDS 2 A2 | Severn Sub-Area Home Defence Scheme No. 2 |
| 27/02/41 | HDS 2 A3 | Severn Sub-Area Home Defence Scheme No. 2 |
| 23/03/41 | HDS 2 A4 | Severn Sub-Area Home Defence Scheme No. 2 |
| 11/04/41 | HDS 2 A5 | Severn Sub-Area Home Defence Scheme No. 2 |
| 01/06/41 | HDS 2 A6 | Severn Sub-Area Home Defence Scheme No. 2 |
| 24/06/41 | HDS 2 A7 | Severn Sub-Area Home Defence Scheme No. 2 |
| 07/07/41 | HDS 2 A8 | Severn Sub-Area Home Defence Scheme No. 2 |
| 04/09/41 | HDS 2 A9 | Severn Sub-Area Home Defence Scheme No. 2 |
| 11/09/41 | HDS 2 A10 | Severn Sub-Area Home Defence Scheme No. 2 |
| 09/01/42 | HDS 2 A12 | Updates, including replacement Appendix Y: immobilisation of ports and new Appendix ZK: miscellaneous points |
| 01/09/42 | CIS | Issue |
| 09/11/42 | CIS A2 | Updated appendices |

Carmarthen Sub-Area HQ operation instructions and amendments

NB. No Operation Instructions or Defence Schemes survive within the Carmarthen Sub-Area HQ war diary for 1940-41 (WO 166/1270) preserved at The National Archives.

| Carmarthen Sub-Area HQ operation instructions and amendments | | |
|--|---------------|---|
| The Carmarthen Sub-Area Counter Invasion Scheme is preserved within the war diary for 1942 (WO 166/6729) at The National Archives. | | |
| Date | Number | Title |
| 05/06/42 | CIS | Carmarthen Sub-Area Counter Invasion Scheme |
| 21/07/42 | CIS A2 | Significant updates |

| Swansea Garrison HQ defence scheme and amendments | | |
|--|---------------|--|
| The following Defence Scheme and subsequent amendments are preserved in the Swansea Garrison HQ war diary for 1942 (WO 166/6880) at The National Archives. | | |
| Date | Number | Title |
| 15/01/41 | DS 1 | Swansea Defence Scheme No. 1 |
| 01/01/42 | DS 2 | Swansea Defence Scheme No. 2 |
| 20/02/42 | DS 2 A1 | Amendment included Appendix D naming all roadblocks |
| 21/05/42 | DS 2 A2 | Minor updates |
| 09/06/42 | DS 2 A3 | Amendment included Appendix R: code words |
| 30/07/42 | DS 2 A4 | Amendment included update to Appendix B: Gower Defence Scheme |
| 05/09/42 | DS 2 A5 | Minor updates |
| ? | DS 2 A6 | Not included in war diary |
| 19/09/42 | DS 2 A7 | Minor updates |
| 07/10/42 | DS 2 A8 | Minor updates |
| 11/11/42 | DS 2 A9 | Amendment included updated Appendix A: location list and Appendix I: light signals |

| North Wales Area / District HQ operation instructions and amendments | | |
|--|---------------|--|
| The following Operation Orders, Instructions and Schemes together with their subsequent amendments are preserved in the North Wales Area HQ war diary for 1939-41 (WO 166/1245) and the North Wales District HQ war diary for 1942 (WO 166/6838) at The National Archives. | | |
| Date | Number | Title / Subject |
| 07/11/39 | NWA OO 1 | [Mobile column, local defence and area reserve] |
| 07/11/39 | NWA S/214.G | Home Defence: North Wales Zone [includes appendix listing vulnerable points] |
| 17/11/39 | NWA S/236.G | Home Defence: North Wales Zone |
| 24/11/39 | NWA S/112.G | Defence of RAF vulnerable points |
| 02/04/40 | NWA OO 2 | [Mobile columns, local defence and aid to Civil Power - cancelled and replaced NWA OO 1] |
| 14/05/40 | NWA OO 3 | Officer Commanding Troops, Oswestry [defence of airfields] |
| | NWA OO 3 A3 | Notes unit changes |
| 17/05/40 | NWA OO 4 | [Defence of aerodromes using mobile columns] |
| 21/05/40 | NWA OO 5 | [Mobile columns] |
| 23/05/40 | NWA S/240.G | Defence of ports |
| 25/05/40 | NWA 1/587/G | Liaison and inter-channels of communication [lists Local Defence Volunteer Zones within NWA] |
| 27/05/40 | NWA OO 6 | [Defence of aerodromes using mobile columns. Cancelled and replaced NWA OOs 3, 4 and 5] |
| 10/06/40 | NWA OI 1 | [Invasion risk and defence response] |
| 15/06/40 | NWA OI 2 | [Sub-Area reorganisation] |
| 20/06/40 | NWA OI 3 | [Defence of aerodromes and landing grounds] |
| 09/07/40 | NWA OI 4 | Co-ordination of defence |
| 11/07/40 | NWA 1/758/G | Disposal of petrol supplies |
| 15/07/40 | NWA 1/816/1.G | Defence of Lake Vyrnwy and Rhayader |
| 15/07/40 | NWA OO 6 A3 | [Notes changes in defence responsibilities] |
| 24/07/40 | NWA 1/1650.G | State of readiness: troops in North Wales Area |
| 26/08/40 | NWA OI 7 | Defensive works |
| 24/09/40 | NWA 1/80.G | Vulnerable points: change of guards |
| 04/10/40 | NWA 1/833/G | Reorganisation, North Wales Area |
| 25/10/40 | NWA OI 11 | [Defence scheme for NWA and Sub-Areas] |
| 08/02/41 | NWA 1/1178/G | Change of location: Gds. at aerodromes and VPs |
| 22/04/41 | NWA OI 11 A8 | [New Area troops appendix] |
| 26/05/41 | NWA OI 13 | Defence scheme [Cancelled and replaced NWA OO 6 and NWA OIs 1 to 8, 10 and 11] |
| 31/05/41 | NWA OI 13 A1 | Updates to appendices |
| 02/07/41 | NWA OI 13 A2 | Updates to appendices |
| 03/07/41 | NWA OI 13 A3 | Updates to appendices |
| 16/07/41 | NWA OI 14 | Roadblocks |
| 01/08/41 | NWA OI 13 A4 | Issue of Appendix 'N': principal communications in North Wales Area |
| 03/09/41 | NWA OI 13 A5 | Issue of Appendices 'A1': troops under Sub-Area control and Area reserve, 'A2': Area troops, 'B': field forces, 'H1': vulnerable points, 'H2': AME stations and 'I': aerodromes. |
| 09/09/41 | NWA 10/004/G | Re-organisation of Home Defence battalions |
| 15/11/41 | NWA OI 13 A6 | Composition of North Wales Area and issue of replacement appendices |
| 19/12/41 | NWD OI 15 | [Not attached to War Diary] |
| 29/01/42 | NWD OI 15 A1 | Minor paragraph updates |
| 10/02/42 | NWD OI 13 A8 | Updates to appendices |
| 14/02/42 | NWD OI 13 A9 | Update to defence scheme |
| 27/04/42 | NWD OI 16 | RA mobile Arty. detachments: <i>Culverin</i> scheme |

| | | |
|----------|------------|---|
| 20/05/42 | NWD SO | Standing orders for routine daily activities |
| 30/05/42 | NWD SO A1 | Amendment to medical arrangements |
| 18/06/42 | NWD SO A2 | [Not attached to War Diary] |
| 22/06/42 | NWD DS 1 | Defence scheme for HQ, Shrewsbury |
| 22/06/42 | NWD SO | Additional sections issued |
| 23/06/42 | NWD SO A3 | [Not attached to War Diary] |
| 06/06/42 | NWD OS 1 | Instructions to Sub-Area Commanders [concerning defence]. Also cancelled NWD OIs 13, 14, 15 and 16 |
| 06/06/42 | NWD OI 2 | District organisation |
| 06/06/42 | NWD OI 3 | Operational role of regular troops |
| 06/06/42 | NWD OI 4 | Home Guard |
| 06/06/42 | NWD OI 5 | Defence works |
| 06/06/42 | NWD OI 6 | Defence of aerodromes and RAF support |
| 06/06/42 | NWD OI 7 | Vulnerable points and static guards |
| 06/06/42 | NWD OI 8 | Denial of resources to the enemy |
| 06/06/42 | NWD OI 9 | Code words and signals |
| 06/06/42 | NWD OI 10 | Cooperation with AA and SL units |
| 06/06/42 | NWD OI 11 | RN and HM Coastguard co-operation |
| 06/06/42 | NWD OI 12 | Royal Observer Corps: liaison |
| 06/06/42 | NWD OI 13 | Civil authorities, co-operation with |
| 06/06/42 | NWD OI 14 | Intelligence |
| 14/07/42 | NWD SO A4 | Rules for transport for administrative purposes |
| 07/08/42 | NWD OI 15 | Communications |
| 07/08/42 | NWD OS A2 | [Not attached to War Diary] |
| 20/08/42 | NWD AO 3 | Unit movements |
| 20/08/42 | NWD AO 4 | Unit movements |
| 06/09/42 | NWD OI 16 | Traffic routes |
| 06/09/42 | NWD OI 500 | Administrative organisation |
| 06/09/42 | NWD OI 501 | [Not attached to War Diary] |
| 06/09/42 | NWD OI 502 | [Not attached to War Diary] |
| 06/09/42 | NWD OI 503 | [Not attached to War Diary] |
| 06/09/42 | NWD OI 504 | [Not attached to War Diary] |
| 06/09/42 | NWD OI 505 | [Not attached to War Diary] |
| 06/09/42 | NWD OI 506 | [Not attached to War Diary] |
| 06/09/42 | NWD OI 507 | [Not attached to War Diary] |
| 06/09/42 | NWD OI 508 | [Not attached to War Diary] |
| 06/09/42 | NWD OI 509 | [Not attached to War Diary] |
| 06/09/42 | NWD OI 510 | Refugees from Ireland, aliens at large and suspects |
| 06/09/42 | NWD OI 511 | [Not attached to War Diary] |
| 06/09/42 | NWD OI 512 | [Not attached to War Diary] |
| 07/09/42 | NWD OS A2 | Updates |
| 23/09/42 | NWD AO 5 | Unit movements |
| 26/09/42 | NWD SO A8 | Updated Section 1: Organisation of North Wales District |
| 30/09/42 | NWD SO A9 | [Not attached to War Diary] |
| 11/10/42 | NWD OI 17 | Operational role of schools and training units and establishments |
| 13/10/42 | NWD OI 514 | Home Guard feeding arrangements [not attached to War Diary] |
| 18/10/42 | NWD OI 5 A | |
| 23/10/42 | NWD OS A3 | Updated, including to NWD OI 5, Appendix B: minefields and NWD OI 4, Appendix A: Home Guard general policy |
| 28/10/42 | NWD OS A4 | [Not attached to War Diary] |
| 26/11/42 | NWD AO 10 | [Not attached to War Diary] |
| 29/11/42 | NWD AO 11 | [Not attached to War Diary] |
| 07/12/42 | NWD SO A10 | [Not attached to War Diary] |
| 09/12/42 | NWD OS A5 | Updated, including NWD OI 2, Appendix A: Sector and Sub-Sector HQs; NWD OI 3, Appendix B: mobile columns; NWD OI 6, |

| | | |
|----------|---------|--|
| | | Appendix A: airfields in NWD; and NWD OI 7: defence of vulnerable points |
| 31/12/42 | NWD CLR | Consolidated list of returns |

| Kinmel Sub-Area HQ operation instructions and amendments | | |
|---|----------|---------------------------------------|
| The following Operation Orders together with subsequent amendments are preserved in the Kinmel Sub-Area HQ war diary (WO 166/1290) for 1940 at The National Archives. | | |
| Date | Number | Title |
| 28/05/40 | OO 1 | Kinmel Sub-Area Operation Order No. 1 |
| 31/05/40 | OO 1 A1 | Kinmel Sub-Area Operation Order No. 1 |
| 01/06/40 | OO 1 A2 | Kinmel Sub-Area Operation Order No. 1 |
| 01/06/40 | OO 1 A3 | Kinmel Sub-Area Operation Order No. 1 |
| 06/06/40 | OO 1 A4 | Kinmel Sub-Area Operation Order No. 1 |
| 08/06/40 | OO 1 A5 | Kinmel Sub-Area Operation Order No. 1 |
| 11/06/40 | OO 1 A6 | Kinmel Sub-Area Operation Order No. 1 |
| 14/06/40 | OO 1 A7 | Kinmel Sub-Area Operation Order No. 1 |
| 22/06/40 | OO 2 | Kinmel Sub-Area Operation Order No. 2 |
| 30/06/40 | OO 2 A1 | Kinmel Sub-Area Operation Order No. 2 |
| 02/07/40 | OO 2 A2 | Kinmel Sub-Area Operation Order No. 2 |
| 05/07/40 | OO 2 A3 | Kinmel Sub-Area Operation Order No. 2 |
| 08/07/40 | OO 2 A4 | Kinmel Sub-Area Operation Order No. 2 |
| 12/07/40 | OO 2 A5 | Kinmel Sub-Area Operation Order No. 2 |
| 14/07/40 | OO 2 A6 | Kinmel Sub-Area Operation Order No. 2 |
| 25/07/40 | OO 2 A7 | Kinmel Sub-Area Operation Order No. 2 |
| 31/07/40 | OO 3 | Kinmel Sub-Area Operation Order No. 3 |
| 02/08/40 | OO 3 A1 | Kinmel Sub-Area Operation Order No. 3 |
| 05/08/40 | OO 3 A2 | Kinmel Sub-Area Operation Order No. 3 |
| 09/08/40 | OO 3 A3 | Kinmel Sub-Area Operation Order No. 3 |
| 10/08/40 | OO 3 A4 | Kinmel Sub-Area Operation Order No. 3 |
| 13/08/40 | OO 3 A5 | Kinmel Sub-Area Operation Order No. 3 |
| 13/08/40 | OO 3 A6 | Kinmel Sub-Area Operation Order No. 3 |
| 16/08/40 | OO 3 A7 | Kinmel Sub-Area Operation Order No. 3 |
| 19/08/40 | OO 3 A8 | Kinmel Sub-Area Operation Order No. 3 |
| 20/08/40 | OO 3 A9 | Kinmel Sub-Area Operation Order No. 3 |
| 21/08/40 | OO 3 A10 | Kinmel Sub-Area Operation Order No. 3 |
| 22/08/40 | OO 3 A11 | Kinmel Sub-Area Operation Order No. 3 |
| 24/08/40 | OO 3 A12 | Kinmel Sub-Area Operation Order No. 3 |
| 29/08/40 | OO 3 A13 | Kinmel Sub-Area Operation Order No. 3 |
| 03/09/40 | OO 3 A14 | Kinmel Sub-Area Operation Order No. 3 |
| 15/09/40 | OO 3 A15 | Kinmel Sub-Area Operation Order No. 3 |
| 16/09/40 | OO 3 A16 | Kinmel Sub-Area Operation Order No. 3 |
| 18/09/40 | OO 3 A17 | Kinmel Sub-Area Operation Order No. 3 |
| 19/09/40 | OO 3 A18 | Kinmel Sub-Area Operation Order No. 3 |
| 25/09/40 | OO 3 A19 | Kinmel Sub-Area Operation Order No. 3 |
| 27/09/40 | OO 3 A20 | Kinmel Sub-Area Operation Order No. 3 |
| 10/10/40 | OO 3 A21 | Kinmel Sub-Area Operation Order No. 3 |
| 15/10/40 | OO 3 A22 | Kinmel Sub-Area Operation Order No. 3 |

Welsh Border Sub-Area HQ operation instructions and amendments

NB. The Welsh Border Sub-Area HQ war diary for 1940 is not preserved at The National Archives.

No Operation Instructions or Defence Schemes survive within the Welsh Border Sub-Area HQ war diaries for 1941 (WO 166/1327) or 1942 (WO 166/6783) at The National Archives.

| Oswestry Sub-Area HQ operation instructions and amendments | | |
|---|---------|--|
| The following Defence Scheme and subsequent amendment are preserved in the Oswestry Sub-Area HQ war diary (WO 166/1309) for 1940-41 at The National Archives. | | |
| Date | Number | Title |
| 07/10/41 | DS 2 | Oswestry Sub-Area Defence Scheme No. 2 |
| 23/10/41 | DS 2 A1 | Oswestry Sub-Area Defence Scheme No. 2 |

| Cambrian Sub-Area HQ operation instructions and amendments | | |
|---|----------|--|
| The following Operation Orders and Operation Instructions together with their subsequent amendments are preserved in the Cambrian Sub-Area HQ war diaries for 1941 (WO 166/1268) and 1942 (WO 166/6727) at The National Archives. | | |
| Date | Number | Title |
| 14/01/41 | OO 1 A10 | Cambrian Sub-Area Operation Order No. 1 |
| 04/02/41 | OO 1 A11 | Cambrian Sub-Area Operation Order No. 1 |
| 17/02/41 | OO 1 A12 | Cambrian Sub-Area Operation Order No. 1 |
| 17/02/41 | OO 1 A13 | Cambrian Sub-Area Operation Order No. 1 |
| 17/02/41 | OO 1 A14 | Cambrian Sub-Area Operation Order No. 1 |
| 03/03/41 | OO 1 A15 | Cambrian Sub-Area Operation Order No. 1 |
| 05/04/41 | OO 1 A16 | Cambrian Sub-Area Operation Order No. 1 |
| 13/04/41 | OO 1 A17 | Cambrian Sub-Area Operation Order No. 1 |
| 02/05/41 | OO 1 A18 | Cambrian Sub-Area Operation Order No. 1 |
| 23/05/41 | OO 1 A19 | Cambrian Sub-Area Operation Order No. 1 |
| 24/05/41 | OO 1 A20 | Cambrian Sub-Area Operation Order No. 1 |
| 27/05/41 | OO 1 A21 | Cambrian Sub-Area Operation Order No. 1 |
| 03/06/41 | OO 1 A22 | Cambrian Sub-Area Operation Order No. 1 |
| 18/06/41 | OO 1 A23 | Cambrian Sub-Area Operation Order No. 1 |
| 19/12/41 | OO 2 | Cambrian Sub-Area Operation Order No. 2 |
| 19/12/41 | OO 2 A1 | Cambrian Sub-Area Operation Order No. 2 |
| 14/03/42 | OO 2 A2 | Cambrian Sub-Area Operation Order No. 2 |
| 26/03/42 | OO 2 A3 | Cambrian Sub-Area Operation Order No. 2 |
| 31/03/42 | OI 5 | Cambrian Sub-Area Operation Instruction No. 5: transfer to Sectors and Sub-Sectors |
| 14/04/42 | OI 8 | Cambrian Sub-Area Operation Instruction No. 8: immobilisation of vehicles |
| 14/04/42 | OI 9 | Cambrian Sub-Area Operation Instruction No. 9: states of readiness |
| 15/04/42 | OI 5 A1 | Cambrian Sub-Area Operation Instruction No. 5: transfer to Sectors and Sub-Sectors |
| 22/04/42 | OI 4 | Cambrian Sub-Area Operation Instruction No. 4: denial of petrol resources |
| 07/05/42 | OI 11 | Cambrian Sub-Area Operation Instruction No. 11: RA mobile Arty.: <i>Culverin</i> scheme |
| 12/05/42 | OI 3 | Cambrian Sub-Area Operation Instruction No. 3: control of civil and military traffic in operations |
| 14/05/42 | OI 6 | Cambrian Sub-Area Operation Instruction No. 6: <i>BEETLE</i> inter-service wireless system |
| 30/05/42 | OI 12 | Cambrian Sub-Area Operation Instruction No. 12: pay services during active operations in the UK |
| 02/06/42 | OI 3 A1 | Cambrian Sub-Area Operation Instruction No. 3: control of civil and military traffic in operations |
| 12/06/42 | OI 4 A2 | Cambrian Sub-Area Operation Instruction No. 4: denial of petrol resources |

| | | |
|----------|---------|--|
| 04/07/42 | OI 4 A3 | Cambrian Sub-Area Operation Instruction No. 4: denial of petrol resources |
| 14/07/42 | OI 5 A2 | Cambrian Sub-Area Operation Instruction No. 5: transfer to Sectors and Sub-Sectors |
| 21/07/42 | OO 2 A6 | Cambrian Sub-Area Operation Order No. 2 |
| 29/07/42 | OI 13 | Cambrian Sub-Area Operation Instruction No. 13: destruction of Llandulais jetties |
| 30/07/42 | OO 2 A7 | Cambrian Sub-Area Operation Order No. 2 |
| 03/09/42 | OI 4 A4 | Cambrian Sub-Area Operation Instruction No. 4: denial of petrol resources |
| 06/09/42 | OO 2 A8 | Cambrian Sub-Area Operation Order No. 2 |
| 06/09/42 | OI 5 A3 | Cambrian Sub-Area Operation Instruction No. 5: transfer to Sectors and Sub-Sectors |
| 17/09/42 | OO 2 A9 | Cambrian Sub-Area Operation Order No. 2 |

Shropshire Sub-Area HQ operation instructions and amendments

The following Defence Schemes, Operation Instructions and Administrative Instructions, together with their subsequent amendments are preserved in the Shropshire Sub-Area HQ war diaries for 1941 (WO 166/1315) or 1942 (WO 166/6774) at The National Archives.

| Date | Number | Title |
|----------|----------|--|
| 07/10/41 | DS 2 | Oswestry Sub-Area Defence Scheme No. 2 |
| 30/10/41 | DS 2 A1 | Oswestry Sub-Area Defence Scheme No. 2 |
| 17/11/41 | DS 1 | Shropshire Sub-Area Defence Scheme No. 1 |
| 23/01/42 | DS 1 A1 | Shropshire Sub-Area Defence Scheme No. 1 |
| 17/02/42 | DS 1A | Shropshire Sub-Area Defence Scheme No. 1A |
| 23/02/42 | AI 1 | Shropshire Sub-Area Administrative Instruction No. 1 |
| 25/02/42 | DS 1 A2 | Shropshire Sub-Area Defence Scheme No. 1 |
| 04/04/42 | DS 1 A3 | Shropshire Sub-Area Defence Scheme No. 1 |
| 16/04/42 | DS 1A A1 | Shropshire Sub-Area Defence Scheme No. 1A |
| 29/05/42 | DS 1 A5 | Shropshire Sub-Area Defence Scheme No. 1 |
| 02/07/42 | AI 1 A1 | Shropshire Sub-Area Administrative Instruction No. 1 |
| 09/07/42 | OI 1 | Shropshire Sub-Area Operation Instruction No. 1: 30 Bn. King's Shropshire Light Infantry |
| 17/07/42 | OI 2 | Shropshire Sub-Area Operation Instruction No. 2: 9 Bn. King's Shropshire Light Infantry |
| 28/08/42 | OI 3 | Shropshire Sub-Area Operation Instruction No. 3: 20 Infantry Training Centre |
| 31/08/42 | OI 4 | Shropshire Sub-Area Operation Instruction No. 4: 5 Infantry Depot |
| 08/09/42 | AO 1 | Shropshire Sub-Area Administrative Order No. 1 |
| 11/09/42 | AIS 1 | Shropshire Sub-Area Administrative Instruction Scheme No. 1 |
| 18/09/42 | OI 6 | Shropshire Sub-Area Operation Instruction No. 6: Troops, Donnington |
| 20/09/42 | OI 5 | Shropshire Sub-Area Operation Instruction No. 5: Troops, Oswestry |
| 23/09/42 | OI 6 A1 | Shropshire Sub-Area Operation Instruction No. 6: Troops, Donnington |
| 28/09/42 | OI 5 A1 | Shropshire Sub-Area Operation Instruction No. 5: Troops, Oswestry |
| 05/10/42 | OI 4 A1 | Shropshire Sub-Area Operation Instruction No. 4: 5 Infantry Depot |
| 22/10/42 | OS 2 | Shropshire Sub-Area Operation Scheme No. 2 |
| 21/11/42 | OI 7 | Shropshire Sub-Area Operation Instruction No. 7: South-West Sector |
| 08/12/42 | AI 2 | Shropshire Sub-Area Administrative Instruction No. 2 |
| 19/12/42 | OS 2 A1 | Shropshire Sub-Area Operation Scheme No. 2 |

Appendix 5.1: Text of Severn Sub-Area Home Defence Scheme No. 2 as preserved at The National Archives (WO 166/1314)

Copy No. 54

SECRET

SEVERN SUB-AREA HOME DEFENCE SCHEME NO. 2 dated 14 Dec. 40

Reference Maps OS ¼" to 1 mile, sheet No. 7.
 OS 1" to 1 mile, sheets Nos. 89, 90, 91
 92, 100, 101, 102, 103 and 109.

I. GENERAL

This scheme replaces Severn Sub-Area Home Defence Scheme No. 1 dated 9 Sep. 40, which will be destroyed by fire on receipt of this document. No. 2 Scheme will be read in conjunction with South Wales Area Operational Instruction No. 2, dated 19 July 40, with amendments. This Scheme will come into force from date of receipt.

Responsibility for military operations in Severn Sub-Area is vested in the Sub-Area Commander, Severn Sub-Area, who is responsible for the operational control of all troops placed under his command including Home Defence Battalions and Home Guard personnel located in the Sub-Area (HQ Castell Coch – Tel. Taffs Well 266/7). A list of OC Troops appointed to ports and larger towns under Sub-Area Commander is given in Appendix 'A'.

OC Troops are responsible for the general defence measures in the towns, docks and in the case of Cardiff – the aerodrome – in the vicinity. They will be in operational control of all troops in those towns and in their immediate vicinity including coast defence troops for land operations and local Home Guard units. Severn Sub-Area consists of the two counties of Monmouthshire and Glamorgan.

II. INFORMATION

Enemy attacks may take the following forms:-

- (i) Landing in force after bases have been established in Ireland.
- (ii) Raiding parties from the sea on the chief ports – Newport, Cardiff, Swansea, Barry or Port Talbot.
- (iii) Attacks on aerodromes by air-borne troops.
- (iv) Gas attacks by bomb or spraying methods from the air.
- (v) Troops might be landed or dropped by parachute, dressed as civilians or in British or Allied Forces battle dress, in order to create confusion by means of sabotage.
- (vi) Combination of methods outlines in i, ii, iii, iv and v.

Flame throwers may be used.

Enemy Dispositions as far as is known.

About forty German Divisions have been lately located in the Northern parts of France and invasion of these Islands can undoubtedly be mounted at short notice.

Description of country.

- (i) In addition to the docks and contingent industrial areas, coal, steel and other factories extend up the valleys in a northerly direction from Cardiff and Newport, towards the Brecon hills. Owing to their steepness these valleys can be blocked at their northern and southern exits against the passage of troops. North of the Abergavenny-Merthyr-Swansea road the country is open moor and grass land, much of it suitable for parachute or troop carrier aeroplane landings.

Generally speaking, the country south of this road is not suitable for tanks, though the Gower Peninsula presents no obstacle and would be easily passable for tracked vehicles.

The Rivers Wye and Usk are only partially tank obstacles and can be crossed in several places. In wet weather, however, they rise rapidly and become impassable.

- (ii) The coast line has a few well defined stretches of open beach suitable for landings of both sea and air-borne troops and vehicles in barges. Such are Margam Sands and the Swansea Bay beaches. Other parts of the coast though unpromising at low tide present a very different picture at high tide. These places then present no obstacles to tanks and landings could be made at certain times dependent on the state of the tide. Such are the stretch of coast between Newport and Cardiff and between Aberthaw and Summerhouse Point. Other parts are bound by cliffs and protected by rocks and landings would be difficult and hazardous.

A 6" to 1 mile map is kept at Sub-Area HQ, on which the defences, wiring, position of beach mines, and nature of the beaches along the whole front can be seen.

- (iii) The main military (Red and Blue) traffic routes are:
 1. The Hereford-Abergavenny-Pontypool-Aberdare-Neath-Carmarthen road.
 2. The Ross-Monmouth-Newport-Cardiff-Bridgend-Neath road.

And roads running north from Aberdare to Brecon, and Neath through Pontardawe to Llandilo.

These must at all costs be kept open to military traffic.

Localities that are liable to attack are as follows:-

Cardiff Docks and City
Swansea Docks and Town
Gower Peninsula
Newport Docks and Town
Burry Port and Port Talbot
Chief factories, industrial plants and other installations.

Recce shows that the Loughor Estuary and the beach from Breaksea Point to Summerhouse Point (OS 1" sh.109, 465870 – 435878) are important objectives liable to enemy attack. Special measures are, therefore, required for the defence of these localities.

Enemy attacks, regardless of loss, pressed with great daring and determination are to be expected on RAF Stations at St Athan, Cardiff, Newton Down (Porthcawl) and Llandow, and on above mentioned objectives.

Own Troops

Troops under Command of Severn Sub-Area for operations in an emergency are shown in Appendix 'A'. Location statement of all troops in the two counties is shown in Appendix 'B'.

III. INTENTION

The enemy will be attacked and destroyed at the earliest possible opportunity, preferably, in the case of a sea landing, on the beaches, where he is most vulnerable. It is essential that the enemy be attacked before he has time to consolidate his position in any sector of the two counties. There will be no withdrawal from Ports or beaches. Os. C. Units in the Sub-Area will give all possible assistance to neighbouring units to attain this end and, in co-operation with HG Units. In an emergency the role of the HG will be static; see para. VII.

IV. PLAN

General organisation of the defensive system in the Sub-Area is as follows:-

- (i) Os. C. Troops in Ports and Towns are responsible for the defence of the inner and outer perimeters of their localities and for beach defence and other commitments as shown in Appendix 'O', which outlines separate sectors and boundaries between units in the Sub-Area.
- (ii) Two Stop Lines have been completed on the lines of the Rivers Wye and Usk, that on the Wye to meet an attack from the east, that on the Usk to meet an attack from the south and west. Prepared positions are ready for occupation by reinforcements in case of large scale enemy landings. Prior to the arrival of reinforcements these localities will be defended by HG Units who will reconnoitre the actual posts to be occupied.
- (iii) The 212 Inf. Bde. has commitments on the beaches in the Bde. Area, i.e. (excl.) Loughor Sta. 008200 to Cold Knap Point 545880. Bde. Troops have operational commitments on aerodromes and provide Mobile Columns.
- (iv) Details of Coast defences are given in Appendix 'O'.

- (v) O.C. 100 Army Fd. Coy, RE, Monmouth, is responsible for the all-round defence of Monmouth and will co-operate with neighbouring HG Units.
- (vi) To provide for the defence of the Loughor Estuary co-operation with the Navy has been arranged. A strong point has been established on the Old Lighthouse jetty, near Burry Port. The Estuary will be netted and mined at an early date.
- (vii) In foggy weather very active patrolling of beaches will be carried out and sentry posts will be increased as necessary.
Os.C Units will ensure that the defences in their localities are progressively improved and maintained. Particular attention will be paid to camouflage. Defence will be organised in depth by the construction of strong points in the rear of the forward line of defended localities. It is emphasised that these strong points like all other defences in the area must have all-round defence. Defences will be progressively developed during the winter months by field works and wire, particularly areas of possible landing grounds and for the protection of the rear of the zones of beach defences.
Os.C. Infantry units in the Sub-Area will ensure close liaison with Battery Comdrs. Responsible for coastal defence.
- (viii) Under normal conditions defence measures will be entrusted to Comdr. Severn Sub-Area. After the issue of 'NEWTON' or an enemy landing, operational command will be exercised by the Comdr. South Wales Area through the following subordinates:-
 - (1.) In the Swansea Bay and Gower portions of Severn Sub-Area by Comdr. 212 Inf. Bde.
 - (2.) In the remainder of Severn Sub-Area by the Sub-Area Comdr., the 2 Bns. of 212 Inf. Bde. coming directly under his command.

In the event of large scale operations, command will pass to the Comdr. 47 (Lond) Div. who will assume operational control of all troops in South Wales Area.

The Comdr. III Corps will take charge of further operations in the event of invasion assuming major proportions.

Mobile Columns.

Units providing mobile columns are as shown in Appendix 'L'.

State of readiness of these troops is shown in Appendix 'P'.

These columns are available for reconnaissance, tank hunting, and operational roles, and may be held in reserve to give immediate support to static units in difficulties.

Mobile columns will be under the operational control of the Sub-Area Commander in case of military necessity, but in the case of those allocated for defence of aerodromes, the AOC each aerodrome can call direct on the mobile column concerned, informing Sub-Area Comdr. of the action taken.

Air Co-operation

Air co-operation will be provided by the RAF Station St Athan and No. 13 Squadron RAF Speke. Two aircraft are available at 15 minutes notice at St Athan RAF Station for reconnaissance purposes in an emergency.

Co-operation with Navy

Liaison is maintained with FOi/c Cardiff, in order that notice of sea-borne threats may reach HQ Severn Sub-Area through the Naval Intelligence Service and off shore patrols.

Appendix 'I' shows Coast Guard organisation.

Appendix 'H' – List of Naval Officers in Sub-Area.

General Instructions for Mobile Columns.

- (a) The organisation of all columns will provide for an officers' reconnaissance party which can move off in advance at the shortest possible notice in any transport available, to reconnoitre the route and examine the situation in the locality where the action is required.
- (b) Commanders of units finding mobile columns will arrange to make a preliminary reconnaissance of the country over which his column or columns may be required to work and establish contact with Chief Constables and other civilian authorities.
- (c) They will ensure that:-
 - i. A detailed scheme is prepared for the movement of the detachment at short notice.
 - ii. Inspections are held from time to time to ensure that the detachment as a whole and each individual is properly equipped.
 - iii. Responsible Column Commanders are detailed and that they are kept fully informed as to their duties and the composition of their columns.
- (d) Mobile columns will not normally be expected to move at less than four hours' notice.
- (e) On receipt of order to move, Column Commanders will send forward their reconnaissance group to establish a report centre as soon as possible to which orders for them can be sent. On arrival at the scene of operations, the Column Commander will report to and place himself under the orders of the Commander of any troops working in the same area who may be senior to him.

Defence of Aerodromes.

The probable sequence of attacks on aerodromes is:-

- (i) Heavy scale dive bombing and machine gun attacks on the hangars themselves.

- (ii) Landing of about 500 parachute troops equipped with automatics, sub-machine guns and grenades, outside the perimeter and attack inwards towards the aerodrome.
- (iii) Landing of troop-carrying aircraft.
- (iv) Capture of aerodrome – fighter protection being provided by the enemy.

Details concerning the defence of the four aerodromes in the Sub-Area is as shown in Appendix 'M'.

Responsibility for the defence of aerodromes and the country within a radius of 5 miles is that of RAF Comdrs. This will include the construction of pill boxes and defence posts, and wiring, and also provision of accommodation for the military garrison. They will receive every assistance from the Military Comdrs. providing the garrison.

Royal Ordnance Factories.

ROFs situated at Glascoed and Bridgend are defended by local HG Units provided by the 9 Bn Mon HG (Glascoed) and the 3 Bn Glam HG (Bridgend).

AA troops and WD Constabulary will co-operate with HG Units in an emergency.

VI ADMINISTRATION.

All administrative arrangements are the responsibility of the Units Commanders concerned.

There is a reserve of ammunition at Castell Coch (.300 and .303. and SIP Grenades).

Prisoners of War Cages are located at Cardiff and Port Talbot.

VII HOME GUARD.

The principle of Home Guard defence is a static one and HG Units should operate within a short distance of their homes. With this end in view, islands of defence or localities must be prepared for occupation in an emergency, and these positions must be held to delay the enemy till the last round or the arrival of reinforcements.

In addition to the issue of light automatics, a certain number of medium machine guns have been allotted to Bns., and positions must be sited for these guns in pairs, arcs of fire prepared, and alternative positions dug.

The action of the Home Guard in emergency on receipt of Code Words is laid down in Appendix 'P'.

In each sector of defence, local arrangements must be made for the supply of ammunition, bombs and rations. During active operations it may be necessary to call on the nearest military unit for emergency rations. Plans will be made to meet this contingency.

VIII. INTERCOMMUNICATION

All Os.C. Units will acquaint themselves with the BEETLE System of wireless communication and, if possible, provide themselves with a wireless receiving set (see Appendices 'P, Q, R, S, T and U' for details of code and other means of communication).

Appendix 'N' shows channels through which orders will be transmitted and through which reports will be submitted.

In the event of active operations it is probable that telephone communication will fail. Os.C. Units and HG Comdrs. will therefore arrange alternative means of communication. Group Comdrs. HG will establish a report centre to which all reports from Bns. in their groups will be sent. DRs. will be used by HG Bns.

Group Comdrs. HG will despatch one DR to report to HQ Severn Sub-Area for the use of the Sub-Area Comdr.

Os.C. Troops, Chepstow, Newport, Cardiff, Barry, Port Talbot and Swansea, and Os.C Units providing Mobile Columns (excluding 9 R. Sussex and 6 SWB) will also despatch one DR to report to this HQ upon receipt of Code Word 'NEWTON', or prior to the issue of Code Words should local Comdrs. consider that the local situation warrants this action.

All reports by HG Bns will be submitted through Group Comdrs. to HQ Severn Sub-Area.

All reports by troops under operational control of Os.C. Troops will be submitted through Os.C. Troops. All Infantry Brigade units will submit their reports through Bde. HQ.

In the event of active operations it is expected that a wireless transmitter will operate from Castell Coch on a certain wave length. Transmission can be picked up on civilian wireless sets having short wavelengths.

HB Trevor Cox.

Captain, General Staff,

For Commander, Severn Sub-Area.

Appendix 5.2: Text of 10 (Cowbridge) Battalion, Glamorgan Home Guard Defence Scheme as preserved at Llantwit Major Local History Society

DEFENCE SCHEME.

'B' Coy. 10 GLAMORGAN BATTALION (COWBRIDGE) HOME GUARD.

1. INFORMATION.

Action to be expected:

ENEMY.

(a). PRE-INVASION:- Parachutists and Air-borne Troops in Gliders to seize key positions and for Sabotage. Fifth Columnist activity

(b). INVASION:- Attacks in force by air, sea, or land, or all three, accompanied by mechanised Forces, Tanks, A.F.Vs. and Lorries.

(a). PRE-INVASION:- Dispersed in Platoon Areas.

OUR TROOPS:

(b). INVASION:- Concentrated in Centres of Resistance.

'A' Coy at Cowbridge.

'B' Coy at Llantwit Major, Boverton & St Athan.

'C' Coy at Llantrisant.

2. INTENTION:

(a). PRE-INVASION:- To round up and destroy any small body of Enemy Troops in Area, and to deal with Saboteurs & Fifth Columnists.

(b). INVASION:- To observe and report on Enemy's movements. To deny the use of the Main Roads to the Enemy by manning Islands of Resistance.

To harass and obstruct the Enemy until Regular Troops counter-attack.

3. METHOD:

'B' Coy Centre of Resistance is Llantwit Major, Boverton & St Athan. It is divided into Defence Areas as indicated in Appendix 'A'.

Each Platoon has been allocated a definite part of the Defence Area, and will occupy positions prepared for all-round Defence and mutual support.

Within their defined areas Platoons will establish Observation Posts and employ Fighting Patrols. The Defence must be aggressive at all times.

Infiltration by Tanks and Enemy Infantry must be accepted, but Islands of Resistance will be held to the last. The Enemy will be harassed by night and day. The denial of Roads to his Supply Columns will bring his A.F.Vs. to a standstill.

Close liaison will be maintained with other Units in Coy. Area or on its flanks, and arrangements made for their co-operation.

(See Location Statement, Appendix 'C').

Mobile Units may be ordered by Higher Command to operate in the Coy. Area. Guides will be supplied by the Coy. to pilot Troops passing through the Area.

The closest liaison will be maintained with the Police, Civil Defence Services, Red Cross Detachment, Fire Brigade and other Services. Plans are ready to use the civil population to prepare additional Defence Works, and to increase the resistance and to maintain the morale.

4. ADMINISTRATION:

Appendix 'A' – Company and Platoon Locations.

Appendix 'B' – Platoon Strengths, Weapons & Defence Positions.

Appendix 'C' – Telephone Numbers.

Appendix 'D' – Disposal of Arms and Ammunition.

Appendix 'E' – Call-out System.

Appendix 'F' – Catering Arrangements.

Appendix 'G' – Medical Arrangements.

Appendix 'H' – Transport Arrangements.

Appendix 'I' – Communications and Guides.

Appendix 'J' – Immobilisation of Petrol and Plant.

Appendix 'K' – Vital Undertakings.

Appendix 'L' – Evacuation.

Appendix 'M' – Prisoners of War, etc.

Appendix 'N' – Miscellaneous.

5. ACTION STATIONS: Upon receipt of 'Action Stations' the Company Commander, 2nd i/c., Lt. Quartermaster, Q.M. Sergeant, Armourer and Signals, Cook, First-Aid and Transport N.C.Os. forming Coy. H.Q. Section will establish themselves at Coy. H.Q., Town Hall, Llantwit Major.

The Arms and other equipment will be prepared for instant use.

It will be the duty of Platoon Commanders to detail a similar H.Q. Section to report and make the required arrangements at their respective Platoon H.Qs. and care must be taken in preparing this detail that members whose employment places them in Category II are not called upon to report at this stage.

All other ranks will be warned to be on the alert and prepared to report with all possible speed on receipt of the recognised signal.

Major. P.J. Smith

O.C., 'B' Coy.

1 APR 1943

Appendix 5.3: List of identified defence sites for St Athan-Llandow case study

| Name | Location | Site Type | Group | E | N | Evidence | | | |
|-----------------------------------|---|---------------------------|-------------------------|--------|--------|----------|-----|----|-------|
| | | | | | | Arch | Doc | AP | Carto |
| Breaksea Point Pillbox | Breaksea Point | Pillbox (Variant) | Limpert Bay Defences | 302263 | 165776 | ✓ | ✓ | ✓ | |
| Old Lime Kiln Machine Gun Post | Limpert | Defended Building | Limpert Bay Defences | 302193 | 166171 | | | ✓ | |
| Limpert Pillbox | Limpert Bay | Pillbox (Variant) | Limpert Bay Defences | 301996 | 166287 | | | ✓ | |
| W of Limpert Pillbox | Limpert Bay | Pillbox (Variant) | Limpert Bay Defences | 301778 | 166330 | ✓ | ✓ | ✓ | |
| The Walls E Pillbox | The Walls | Pillbox (Type FW3/22) | Limpert Bay Defences | 301339 | 166413 | ✓ | ✓ | ✓ | |
| The Walls W Pillbox | The Walls | Pillbox (Variant) | Limpert Bay Defences | 301026 | 166469 | ✓ | ✓ | ✓ | |
| Tidal Pond Pillbox | Tidal Pond | Pillbox (Variant) | Limpert Bay Defences | 300823 | 166379 | ✓ | ✓ | ✓ | |
| Penry Bay Pillbox | Penry Bay | Pillbox (Variant) | Limpert Bay Defences | 300305 | 166503 | ✓ | ✓ | ✓ | |
| Summerhouse Bay Pillbox | Summerhouse Bay | Pillbox (Variant) | Limpert Bay Defences | 300014 | 166502 | ✓ | ✓ | ✓ | |
| The Leys Canadian Pipe Mine | The Leys | Canadian Pipe Mine | Limpert Bay Defences | 302307 | 166141 | | ✓ | | |
| Limpert Bay Canadian Pipe Mine | Limpert | Canadian Pipe Mine | Limpert Bay Defences | 302131 | 166190 | | ✓ | | |
| Col-Hugh Point Canadian Pipe Mine | Col-Hugh Point | Canadian Pipe Mine | Llantwit Major Defences | 295689 | 167445 | | ✓ | | |
| Tresilian Bay Canadian Pipe Mine | Tresilian Bay | Canadian Pipe Mine | Tresilian Bay Defences | 294796 | 167757 | | ✓ | | |
| No. 1 6-pdr Gun (St Athan) | Llantwit Road | Anti-Tank Gun Emplacement | RAF St Athan Defences | 299785 | 168086 | | ✓ | | |
| No. 2 6-pdr Gun (Eglwys Brewis) | Eglwys Brewis | Anti-Tank Gun Emplacement | RAF St Athan Defences | 300450 | 169155 | | ✓ | | |
| No. 3 6-pdr Gun (Old Mill) | East Orchard Wood | Anti-Tank Gun Emplacement | RAF St Athan Defences | 302892 | 167659 | ✓ | ✓ | ✓ | |
| No. 4 6-pdr Gun (Gigman Mill) | Gigman Mill | Anti-Tank Gun Emplacement | RAF St Athan Defences | 301477 | 171514 | | ✓ | ✓ | |
| No. 1 13-pdr Gun | Llantwit Road | Anti-Tank Gun Emplacement | RAF St Athan Defences | 299663 | 168125 | | ✓ | | |
| No. 1 13-pdr Gun Target A1 | Cross Inn cross roads | Artillery Target | RAF St Athan Defences | 302692 | 171774 | | ✓ | | |
| No. 1 13-pdr Gun Target A2 | Road junction NE of Llancadle | Artillery Target | RAF St Athan Defences | 303992 | 168791 | | ✓ | | |
| No. 1 13-pdr Gun Target A3 | B4265 - Llancadle road junction | Artillery Target | RAF St Athan Defences | 303224 | 167776 | | ✓ | | |
| No. 1 13-pdr Gun Target A4 | East Aberthaw - Burton - Fonmon road junction | Artillery Target | RAF St Athan Defences | 303509 | 167433 | | ✓ | | |
| No. 1 13-pdr Gun Target A5 | St John's Valley, N of St Athan | Artillery Target | RAF St Athan Defences | 301355 | 168297 | | ✓ | | |

| | | | | | | | | | |
|--------------------------------------|--|--------------------------------|------------------------|--------|--------|---|---|---|---|
| No. 1 13-pdr Gun Target A6 | S road exit from Flemingston | Artillery Target | RAF St Athan Defences | 301787 | 169961 | | ✓ | | |
| No. 2 13-pdr Gun | Eglwys Brewis | Anti-Tank Gun Emplacement | RAF St Athan Defences | 300430 | 169172 | | ✓ | | |
| No. 2 13-pdr Gun Target B1 | Road junction N of Llanmaes | Artillery Target | RAF St Athan Defences | 298213 | 169937 | | ✓ | | |
| No. 2 13-pdr Gun Target B2 | S road exit from Llanmaes | Artillery Target | RAF St Athan Defences | 298153 | 169396 | | ✓ | | |
| No. 2 13-pdr Gun Target B3 | Llanmaes Road - Windmill Lane road junction | Artillery Target | RAF St Athan Defences | 297049 | 168978 | | ✓ | | |
| No. 2 13-pdr Gun Target B4 | Windmill Lane - Frampton Lane road junction | Artillery Target | RAF St Athan Defences | 297249 | 169620 | | ✓ | | |
| No. 2 13-pdr Gun Target B5 | Llanmaes Road - Frampton Lane cross roads | Artillery Target | RAF St Athan Defences | 297639 | 169297 | | ✓ | | |
| No. 2 13-pdr Gun Target B6 | Line of [Boverton to Eglwys Brewis] road to railway bridge | Artillery Target | RAF St Athan Defences | 298863 | 168869 | | ✓ | | |
| Maiden's Folly Pillbox | Maiden's Folly | Pillbox (Variant) | Tresilian Bay Defences | 294962 | 167659 | ✓ | ✓ | ✓ | |
| Tresilian Bay E Pillbox | Tresilian Bay | Pillbox (Variant) | Tresilian Bay Defences | 294807 | 167726 | ✓ | ✓ | ✓ | |
| Tresilian Bay W Pillbox | Tresilian Bay | Pillbox (Variant) | Tresilian Bay Defences | 294746 | 167767 | ✓ | ✓ | ✓ | |
| Reynard's Cave Pillbox | Reynard's Cave | Pillbox (Variant) | Tresilian Bay Defences | 294676 | 167721 | ✓ | ✓ | ✓ | |
| Tresilian Pillbox | Tresilian | Pillbox (Variant) | Tresilian Bay Defences | 294444 | 167851 | ✓ | ✓ | ✓ | |
| St Donat's Pillbox | St Donat's | Pillbox (Variant) | Tresilian Bay Defences | 294169 | 167894 | ✓ | ✓ | ✓ | |
| RAF Llandow Site 'C' Pillbox | Site 'C' | Pillbox | RAF Llandow Defences | 295888 | 170983 | ✓ | | ✓ | |
| RAF Llandow Site 'A' Pillbox | Site 'A', No. 130 | Pillbox | RAF Llandow Defences | 295690 | 172733 | ✓ | | ✓ | ✓ |
| RAF Llandow Site 'D' Pillbox | Site 'D', No. 91 | Pillbox | RAF Llandow Defences | 297263 | 171912 | | | ✓ | ✓ |
| RAF Llandow West Site Pillbox No. 76 | West Site, No. 76 | Pillbox | RAF Llandow Defences | 295394 | 171545 | | | ✓ | ✓ |
| RAF Llandow Pickett-Hamilton Fort N | West Site, Disappearing Gun Pit No. 79 | Pickett Hamilton Fort | RAF Llandow Defences | 296103 | 171813 | | ✓ | ✓ | ✓ |
| RAF Llandow Pickett-Hamilton Fort W | West Site, Disappearing Gun Pit No. 80 | Pickett Hamilton Fort | RAF Llandow Defences | 295688 | 171563 | | ✓ | ✓ | ✓ |
| RAF Llandow Pickett-Hamilton Fort S | West Site, Disappearing Gun Pit No. 81 | Pickett Hamilton Fort | RAF Llandow Defences | 296107 | 171107 | | ✓ | ✓ | ✓ |
| RAF Llandow BHQs | BHQ Site, Battle Headquarters No. 100 | Battle Headquarters (11008/41) | RAF Llandow Defences | 295501 | 172414 | | | ✓ | ✓ |

| | | | | | | | | | |
|---|-----------------------------|--------------------------------------|-----------------------------|--------|--------|---|--|---|---|
| RAF Llandow Pillbox S of Bryn-sych | S of Bryn-sych | Pillbox (Type FW3/24) | RAF Llandow Defences | 295804 | 170645 | ✓ | | ✓ | |
| RAF Llandow Pillbox E of Broadlands | E of Broadlands | Pillbox (Air Ministry Pattern) | RAF Llandow Defences | 294718 | 172355 | ✓ | | ✓ | |
| RAF Llandow Pillbox S of Broadlands | S of Broadlands | Pillbox (Air Ministry Pattern) | RAF Llandow Defences | 294857 | 172177 | ✓ | | ✓ | |
| RAF Llandow Pillbox SW of Tynyaia | SW of Tynyaia | Pillbox | RAF Llandow Defences | 294634 | 172490 | ✓ | | ✓ | |
| RAF Llandow Pillbox E of Tynyaia | E of Tynyaia | Pillbox | RAF Llandow Defences | 294818 | 172511 | | | ✓ | |
| RAF Llandow Pillbox Site 'A' | Site 'A' | Pillbox | RAF Llandow Defences | 295480 | 172958 | ✓ | | ✓ | |
| RAF Llandow Pillbox NW of Bryn-y-fro | NW of Bryn-y-fro | Pillbox (Type FW3/24) | RAF Llandow Defences | 295599 | 173387 | ✓ | | ✓ | |
| RAF Llandow Pillbox NE corner of Site 'D' | NE corner of Site 'D' | Pillbox | RAF Llandow Defences | 296747 | 171977 | | | ✓ | |
| RAF Llandow Pillbox S Side of Site 'D' | S side of Site 'D' | Pillbox | RAF Llandow Defences | 296757 | 171717 | | | ✓ | |
| RAF St Athan Pillbox S of Whangarei | S of Whangarei | Pillbox (Type FW3/24) | RAF St Athan Defences | 301952 | 169372 | ✓ | | | |
| RAF St Athan Pillbox Golf Course | RAF St Athan Golf Course | Pillbox | RAF St Athan Defences | 301855 | 169137 | ✓ | | | |
| RAF St Athan Pillbox SE of Ty Newydd Farm | SE of Ty Newydd Farm | Pillbox (Type FW3/24) | RAF St Athan Defences | 301043 | 169754 | ✓ | | ✓ | |
| RAF St Athan BHQs | Picketston | Battle Headquarters (11008/41) | RAF St Athan Defences | 300160 | 169445 | ✓ | | ✓ | |
| RAF St Athan Pillbox | Picketston | Pillbox (Air Ministry Pattern) | RAF St Athan Defences | 300091 | 169476 | ✓ | | ✓ | ✓ |
| RAF St Athan Pillbox | Picketston | Pillbox (Air Ministry Pattern) | RAF St Athan Defences | 300175 | 169413 | ✓ | | ✓ | ✓ |
| RAF St Athan Pillbox | Picketston | Pillbox (Air Ministry Pattern) | RAF St Athan Defences | 300198 | 169480 | ✓ | | ✓ | ✓ |
| RAF St Athan Pillbox S of Loughor Place | S of Loughor Place | Pillbox (Type FW3/24) | RAF St Athan Defences | 301244 | 167584 | ✓ | | | |
| RAF St Athan Pillbox W of Beggars Pound | W of Beggars Pound | Pillbox (Air Ministry Pattern) | RAF St Athan Defences | 301140 | 168369 | ✓ | | ✓ | |
| RAF St Athan Pillbox St John's Valley (No. 261Q Gun Post) | St John's Valley | Pillbox (Air Ministry Pattern) | RAF St Athan Defences | 300941 | 168307 | ✓ | | ✓ | ✓ |
| RAF St Athan Pillbox S of West Farm | S of West Farm | Pillbox (Air Ministry Pattern) | RAF St Athan Defences | 300972 | 168019 | ✓ | | ✓ | |
| RAF St Athan Pillbox N of Briarbank | N of Briarbank | Pillbox (Air Ministry Pattern) | RAF St Athan Defences | 300664 | 168065 | ✓ | | ✓ | |
| RAF St Athan Pillbox E of Batslays Farm | E of Batslays Farm | Pillbox (Variant) | RAF St Athan Defences | 300217 | 167894 | ✓ | | | |

| | | | | | | | | | |
|--|--------------------------------|--------------------------------|-------------------------|--------|--------|---|---|---|---|
| RAF St Athan Pillbox SE of Batslays Farm | SE of Batslays Farm | Pillbox (Air Ministry Pattern) | RAF St Athan Defences | 300194 | 167701 | ✓ | | | |
| RAF St Athan Pillbox N of B4265 | N of B4265 | Pillbox (Type FW3/24) | RAF St Athan Defences | 299317 | 167906 | | | ✓ | |
| RAF St Athan Pillbox S of B4265 | S of B4265 | Pillbox (Type FW3/24) | RAF St Athan Defences | 298924 | 168194 | ✓ | | ✓ | |
| RAF St Athan Pillbox W of Picketston | W of Picketston | Pillbox (Type FW3/24) | RAF St Athan Defences | 299310 | 169983 | ✓ | | | |
| RAF St Athan Pillbox R&D Park | R&D Park | Pillbox (Air Ministry Pattern) | RAF St Athan Defences | 299705 | 169462 | ✓ | | ✓ | |
| RAF St Athan Pickett Hamilton Fort S | S of DARA Building | Pickett Hamilton Fort | RAF St Athan Defences | 300413 | 168513 | ✓ | | | |
| RAF St Athan Pickett Hamilton Fort N | W of DARA Building | Pickett Hamilton Fort | RAF St Athan Defences | 300175 | 168950 | ✓ | | | |
| RAF St Athan Pillbox Dyffryn House | Dyffryn House | Pillbox (Air Ministry Pattern) | RAF St Athan Defences | 301084 | 168141 | ✓ | | ✓ | |
| RAF St Athan Pillbox N of West Farm | N of West Farm | Pillbox (Air Ministry Pattern) | RAF St Athan Defences | 300997 | 168166 | ✓ | | ✓ | |
| RAF St Athan Anti-Tank Cubes W of Fro Chapel | W of Fro Chapel | Anti-Tank Cubes | RAF St Athan Defences | 299132 | 169090 | ✓ | | ✓ | |
| RAF St Athan Pillbox Black Bridge | Black Bridge | Pillbox | RAF St Athan Defences | 300489 | 167602 | | | | |
| RAF St Athan Pillbox S of Groswen Farm | S of Groswen Farm | Pillbox | Llantwit Major Defences | 296605 | 169363 | ✓ | | | |
| 10 Bn. Glam HG HQ | 44 High Street, Cowbridge | Headquarters | Cowbridge Defences | 299444 | 174658 | ✓ | ✓ | | |
| 10 Bn. Glam HG Signal Station | Stalling Down, Cowbridge | Home Guard Observation Post | Cowbridge Defences | 301463 | 173900 | ✓ | ✓ | | |
| 'A' Coy, 10 Bn. Glam HG HQ | 71 Eastgate Street, Cowbridge | Home Guard Headquarters | Cowbridge Defences | 299748 | 174529 | ✓ | ✓ | | |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG BHQ | Great House | Home Guard Headquarters | Llantwit Major Defences | 296691 | 169225 | ✓ | ✓ | ✓ | ✓ |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG HQ | Town Hall | Home Guard Headquarters | Llantwit Major Defences | 296727 | 168715 | ✓ | ✓ | ✓ | |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG Explosive Shed | Cowbridge Road, Llantwit Major | Home Guard Store | Llantwit Major Defences | 296707 | 169196 | | ✓ | | |
| 'B' Coy, 10 Bn. Glam HG HQ & BHQ | Town Hall | Home Guard Headquarters | Llantwit Major Defences | 296744 | 168720 | ✓ | ✓ | ✓ | |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG Cowbridge Road Roadblock | Cowbridge Road, Llantwit Major | Roadblock | Llantwit Major Defences | 296607 | 169394 | | ✓ | ✓ | ✓ |

| | | | | | | | | | |
|---|---------------------------------------|-------------------------------|-------------------------------|--------|--------|--|---|---|---|
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG Frampton Road Roadblock | Frampton Road, Llantwit Major | Roadblock | Llantwit Major Defences | 296721 | 169329 | | | | ✓ |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG Wick Road Roadblock | Wick Road, Llantwit Major | Roadblock | Llantwit Major Defences | 296447 | 169192 | | ✓ | | |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG Dimlands Road Roadblock | Dimlands Road, Llantwit Major | Roadblock | Llantwit Major Defences | 296358 | 168797 | | ✓ | | |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG Ogney Brook Machine Gun Emplacement | Ogney Brook | Machine Gun Emplacement | Llantwit Major Defences | 296498 | 169308 | | ✓ | ✓ | ✓ |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG The Meadows Anti-Tank Gun Emplacement | The Meadows | Anti-Tank Gun Emplacement | Llantwit Major Defences | 296450 | 169142 | | ✓ | ✓ | ✓ |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG N of Westfield House Machine Gun Emplacement | N of Westfield House | Machine Gun Emplacement | Llantwit Major Defences | 296423 | 168980 | | ✓ | ✓ | ✓ |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG Anti- Tank Gun Emplacement | Rose Cottage | Anti-Tank Gun Emplacement | Llantwit Major Defences | 296513 | 168877 | | ✓ | ✓ | ✓ |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG Ham-Colhugh Crossroads Anti Invasion Defence Site | Ham-Colhugh crossroads | Anti-Invasion Defence Site | Llantwit Major Defences | 296789 | 168339 | | ✓ | ✓ | |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG Station Yard Anti Invasion Defence Site | Station Yard, Boverton Road | Anti-Invasion Defence Site | Llantwit Major Defences | 297205 | 168720 | | ✓ | ✓ | |
| No. 1 Pl, 'B' Coy, 10 Bn. Glam HG Railway Bridge Anti Invasion Defence Site | Railway Bridge, Llanmaes Road | Anti-Invasion Defence Site | Llantwit Major Defences | 296989 | 168942 | | ✓ | ✓ | |
| No. 2 Pl, 'B' Coy, 10 Bn. Glam HG HQ & BHQ | Boverton Castle/Place, Boverton | Home Guard Headquarters | Boverton Defences | 298270 | 168455 | | ✓ | | |
| No. 2 Pl, 'B' Coy, 10 Bn. Glam HG Explosive Shed | Boverton | Home Guard Store | Boverton Defences | 298253 | 168210 | | ✓ | | |
| No. 2 Pl, 'B' Coy, 10 Bn. | Boverton Brook | Petroleum Warfare Site | Boverton Defences | 298031 | 168496 | | ✓ | | ✓ |

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|---|---|------------------------------|----------------------|--------|--------|---|---|--|---|
| Glam HG Boverton Brook Petroleum Warfare Site | | | | | | | | | |
| No. 2 Pl, 'B' Coy, 10 Bn. Glam HG S of River Hodnant Machine Gun Emplacement | S of River Hodnant | Machine Gun Emplacement | Boverton Defences | 297981 | 168333 | | ✓ | | ✓ |
| No. 2 Pl, 'B' Coy, 10 Bn. Glam HG Boverton Park House Machine Gun Emplacement | Boverton Park House | Machine Gun Emplacement | Boverton Defences | 298358 | 168351 | | ✓ | | ✓ |
| No. 2 Pl, 'B' Coy, 10 Bn. Glam HG Causeway Anti-Tank Gun Emplacement | The Causeway | Anti-Tank Gun Emplacement | Boverton Defences | 298286 | 168418 | | ✓ | | ✓ |
| No. 2 Pl, 'B' Coy, 10 Bn. Glam HG Boverton Road Roadblock, Boverton | Pentyla | Roadblock | Boverton Defences | 298167 | 168482 | | | | ✓ |
| No. 2 Pl, 'B' Coy, 10 Bn. Glam HG Eagleswell Road Roadblock, Boverton | High Meadow | Roadblock | Boverton Defences | 298203 | 168514 | | | | ✓ |
| No. 2 Pl, 'B' Coy, 10 Bn. Glam HG Llantwit Road Roadblock, Boverton | Llantwit Road | Roadblock | Boverton Defences | 298844 | 168392 | | | | ✓ |
| No. 3 Pl, 'B' Coy, 10 Bn. Glam HG HQs | St Athan | Home Guard Headquarters | St Athan Defences | 301699 | 167985 | | ✓ | | ✓ |
| No. 3 Pl, 'B' Coy, 10 Bn. Glam HG HQ | Co-op Shop/Stratford Cafe, St Athan | Home Guard Headquarters | St Athan Defences | 301655 | 168014 | | ✓ | | |
| No. 3 Pl, 'B' Coy, 10 Bn. Glam HG BHQ | Three Horse Shoes Inn, St Athan | Home Guard Headquarters | St Athan Defences | 301661 | 167971 | ✓ | ✓ | | |
| No. 3 Pl, 'B' Coy, 10 Bn. Glam HG Explosive Shed | St Athan | Home Guard Store | St Athan Defences | 301689 | 168112 | | ✓ | | |
| No. 3 Pl, 'B' Coy, 10 Bn. Glam HG Anti- Tank Gun Emplacement | St Athan | Anti-Tank Gun Emplacement | St Athan Defences | 301705 | 167772 | | ✓ | | ✓ |
| No. 3 Pl, 'B' Coy, 10 Bn. Glam HG Machine Gun Emplacement | St Athan | Machine Gun Emplacement | St Athan Defences | 301793 | 167777 | | ✓ | | ✓ |
| No. 3 Pl, 'B' Coy, 10 Bn. Glam HG | St Athan | Machine Gun Emplacement | St Athan Defences | 301465 | 167633 | | ✓ | | ✓ |

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|--|------------------------|-----------------------------|-----------------------|--------|--------|---|---|---|---|
| Machine Gun Emplacement | | | | | | | | | |
| No. 3 PI, 'B' Coy, 10 Bn. Glam HG Gileston Rise Fougasse | Gileston Church | Fougasse | St Athan Defences | 301820 | 167055 | | ✓ | | ✓ |
| No. 3 PI, 'B' Coy, 10 Bn. Glam HG X5 Roadblock, St Athan (Gileston Railway Bridge) | Gileston | Anti-Tank Vertical Rail | St Athan Defences | 301747 | 167456 | ✓ | | | ✓ |
| No. 3 PI, 'B' Coy, 10 Bn. Glam HG Gileston Road Roadblock, St Athan | The Forge | Roadblock | St Athan Defences | 301737 | 167900 | | ✓ | | ✓ |
| No. 3 PI, 'B' Coy, 10 Bn. Glam HG Llantwit Road Roadblock, St Athan | Wyndham House | Roadblock | St Athan Defences | 301449 | 168020 | | | | ✓ |
| St Athan HAA No. K1 | Boverton | Heavy Anti-Aircraft Battery | RAF St Athan Defences | 298156 | 167945 | | ✓ | ✓ | |
| St Athan LAA No. 30 | W of Flemingston | Light Anti-Aircraft Battery | RAF St Athan Defences | 301048 | 169838 | | ✓ | | |
| St Athan LAA No. 31 | S of Flemingston | Light Anti-Aircraft Battery | RAF St Athan Defences | 301991 | 169299 | | ✓ | | |
| St Athan LAA No. 32 | NE of Methodist Chapel | Light Anti-Aircraft Battery | RAF St Athan Defences | 301878 | 168463 | | ✓ | | |
| St Athan LAA No. 33 | S of West Orchard | Light Anti-Aircraft Battery | RAF St Athan Defences | 301188 | 167715 | | ✓ | | |
| St Athan LAA No. 34 | SW of Seaview | Light Anti-Aircraft Battery | RAF St Athan Defences | 300195 | 167337 | | ✓ | | |
| St Athan LAA No. 35 | W of Boverton Farm | Light Anti-Aircraft Battery | RAF St Athan Defences | 298868 | 167284 | | ✓ | | |
| St Athan LAA No. 36 | N of Splott Cottage | Light Anti-Aircraft Battery | RAF St Athan Defences | 298954 | 169296 | | ✓ | | |
| St Athan LAA No. 37 | E of Llanmaes | Light Anti-Aircraft Battery | RAF St Athan Defences | 299367 | 169815 | | ✓ | | |
| Llandow LAA No. 37 | SE of Nash Manor | Light Anti-Aircraft Battery | RAF Llandow Defences | 296828 | 172689 | | ✓ | | |
| Llandow LAA No. 39 | Sigingstone | Light Anti-Aircraft Battery | RAF Llandow Defences | 297279 | 171877 | | ✓ | | |
| Llandow LAA No. 40 | WSW of Sigingstone | Light Anti-Aircraft Battery | RAF Llandow Defences | 296538 | 171156 | | ✓ | | |
| Llandow LAA No. 41 | SE of Bryn-sych | Light Anti-Aircraft Battery | RAF Llandow Defences | 295845 | 170662 | | ✓ | | |
| Llandow LAA No. 42 | SE of Parc Bach | Light Anti-Aircraft Battery | RAF Llandow Defences | 295750 | 171969 | | ✓ | | |

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|---|------------------------|-----------------------------|-------------------------|--------|--------|---|---|---|---|
| Llandow LAA No. 43 | NE of Cae-Bush | Light Anti-Aircraft Battery | RAF Llandow Defences | 293975 | 171229 | | ✓ | | |
| Llandow LAA No. 44 | NNE of Ty'n-y-Caeau | Light Anti-Aircraft Battery | RAF Llandow Defences | 294819 | 172648 | | ✓ | | |
| Llandow LAA No. 45 | E of Rectory | Light Anti-Aircraft Battery | RAF Llandow Defences | 295568 | 173244 | | ✓ | | |
| Col-Hugh Point Minefield | Col-Hugh Point | Minefield | Llantwit Major Defences | 295680 | 167465 | | ✓ | | |
| Summerhouse Point Minefield | Summerhouse Point | Minefield | Limpert Bay Defences | 299395 | 166407 | | ✓ | | |
| Limpert-Breaksea Point Minefield | Limpert-Breaksea Point | Minefield | Limpert Bay Defences | 302217 | 136010 | | ✓ | | |
| Summerhouse Point Searchlight Post | Summerhouse Point | Searchlight Battery | RAF St Athan Defences | 299588 | 166447 | | ✓ | ✓ | |
| St Athan HM Coast Guard Post | Breaksea Point | Observation Post | St Athan Defences | 302349 | 165689 | | ✓ | ✓ | |
| Llantwit Major HM Coast Guard Station | Llantwit Major | Observation Post | Llantwit Major Defences | 296780 | 167222 | | ✓ | | |
| RASC Gileston Camp | Gileston | Headquarters | | 302072 | 166695 | | ✓ | ✓ | |
| RAF Station St Athan | St Athan | Airfield | RAF St Athan Defences | 300300 | 168750 | ✓ | ✓ | ✓ | ✓ |
| RAF Station Llandow | Llandow | Airfield | RAF Llandow Defences | 296000 | 171800 | ✓ | ✓ | ✓ | ✓ |
| Limpert Bay | Limpert Bay | Artillery Target | Limpert Bay Defences | 301985 | 166219 | | ✓ | | |
| Thaw Estuary | Thaw Estuary | Artillery Target | St Athan Defences | 303417 | 166157 | | ✓ | | |
| St Hilary Pillbox | St Hilary | Pillbox | | 301717 | 173242 | ✓ | | | |
| St Donat's Castle | St Donat's | Headquarters | | 293468 | 168076 | ✓ | ✓ | | |
| St Donat's Castle Searchlight Post | St Donat's | Searchlight Battery | | 293353 | 168491 | | | ✓ | |
| RAF St Athan Site 'D' Gun Post | Site 'D' | Airfield Defence Post | RAF St Athan Defences | 300559 | 168227 | | | ✓ | ✓ |
| RAF St Athan Married Officers Quarters Gun Post | West Camp | Airfield Defence Post | RAF St Athan Defences | 299161 | 168316 | | | ✓ | ✓ |
| RAF St Athan Sergeants Mess Gun Post | West Camp | Airfield Defence Post | RAF St Athan Defences | 299176 | 168352 | | | ✓ | ✓ |
| RAF St Athan YMCA Building Gun Post | West Camp | Airfield Defence Post | RAF St Athan Defences | 298906 | 168426 | | | | ✓ |
| RAF St Athan Bethesda Chapel Gun Post | West Camp | Airfield Defence Post | RAF St Athan Defences | 299184 | 169006 | | | ✓ | ✓ |
| RAF St Athan MT Storage | West Camp | Airfield Defence Post | RAF St Athan Defences | 299306 | 169004 | | | ✓ | ✓ |

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|---|---------------------------|-----------------------|-----------------------|--------|--------|--|--|---|---|
| Shed W Gun Post | | | | | | | | | |
| RAF St Athan Oil Paint & Dope Store Gun Post | West Camp | Airfield Defence Post | RAF St Athan Defences | 299589 | 169107 | | | ✓ | ✓ |
| RAF St Athan Pyrotechnic Store Gun Post | West Camp | Airfield Defence Post | RAF St Athan Defences | 299828 | 169086 | | | ✓ | ✓ |
| RAF St Athan MT Storage Shed S Gun Post | West Camp | Airfield Defence Post | RAF St Athan Defences | 299384 | 168862 | | | ✓ | ✓ |
| RAF St Athan Fire Party House Gun Post | West Camp | Airfield Defence Post | RAF St Athan Defences | 299444 | 168584 | | | ✓ | ✓ |
| RAF St Athan Electrical Distribution House N Gun Post | West Camp | Airfield Defence Post | RAF St Athan Defences | 299548 | 168828 | | | ✓ | ✓ |
| RAF St Athan Electrical Distribution House S Gun Post | West Camp | Airfield Defence Post | RAF St Athan Defences | 299687 | 168590 | | | ✓ | ✓ |
| RAF St Athan No. 167 Machine Gun Post | East Camp - Eglwys Brewis | Airfield Defence Post | RAF St Athan Defences | 300432 | 169206 | | | ✓ | ✓ |
| RAF St Athan No. 168 Gun Post Disused | East Camp - Eglwys Brewis | Airfield Defence Post | RAF St Athan Defences | 300445 | 169141 | | | ✓ | ✓ |
| RAF St Athan No. 261A Gun Post | East Camp - Eglwys Brewis | Airfield Defence Post | RAF St Athan Defences | 300641 | 169090 | | | ✓ | ✓ |
| RAF St Athan No. 261B Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 300951 | 169296 | | | ✓ | ✓ |
| RAF St Athan No. 261C Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 301240 | 169309 | | | ✓ | ✓ |
| RAF St Athan No. 261D Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 301435 | 169165 | | | ✓ | ✓ |
| RAF St Athan No. 261E Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 301440 | 169038 | | | ✓ | ✓ |
| RAF St Athan No. 261F Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 301523 | 168899 | | | ✓ | ✓ |
| RAF St Athan No. 261G Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 300889 | 168345 | | | ✓ | ✓ |
| RAF St Athan No. 261H Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 300842 | 169117 | | | ✓ | ✓ |
| RAF St Athan No. 261I Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 300941 | 168786 | | | ✓ | ✓ |
| RAF St Athan No. 261J Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 301052 | 168790 | | | ✓ | ✓ |
| RAF St Athan No. 261K Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 301157 | 168788 | | | ✓ | ✓ |
| RAF St Athan No. 261L Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 301293 | 168513 | | | ✓ | ✓ |

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|--|------------------------------|----------------------------|-----------------------|--------|--------|---|--|---|---|
| RAF St Athan No. 261M Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 301318 | 169095 | | | ✓ | ✓ |
| RAF St Athan No. 261N Gun Post | Communal Site | Airfield Defence Post | RAF St Athan Defences | 301931 | 168601 | | | | ✓ |
| RAF St Athan No. 261O Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 301523 | 168621 | | | ✓ | ✓ |
| RAF St Athan No. 261P Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 300971 | 168470 | | | ✓ | ✓ |
| RAF St Athan No. 261R Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 300891 | 168913 | | | ✓ | ✓ |
| RAF St Athan No. 261S Gun Post | East Camp - 'B' Site | Airfield Defence Post | RAF St Athan Defences | 301161 | 168389 | | | ✓ | ✓ |
| RAF St Athan No. 261T Gun Post | Officers' Accommodation Site | Airfield Defence Post | RAF St Athan Defences | 301627 | 169590 | | | | ✓ |
| RAF St Athan No. 261U Gun Post | East Camp - 'B' Site | Airfield Defence Post | RAF St Athan Defences | 301526 | 168391 | | | ✓ | ✓ |
| RAF St Athan No. 264 AA Gun Post | East Camp | Airfield Defence Post | RAF St Athan Defences | 300890 | 169113 | | | ✓ | ✓ |
| RAF St Athan R&D Park Gun Post | R&D Park | Airfield Defence Post | RAF St Athan Defences | 299877 | 169508 | | | ✓ | ✓ |
| RAF St Athan Site 'A' Gun Post | Site 'A' | Airfield Defence Post | RAF St Athan Defences | 300075 | 169691 | | | ✓ | ✓ |
| St Athan Defence Party Hut | S of St Athan | Airfield Defence Party Hut | RAF St Athan Defences | 301227 | 167649 | ✓ | | | |
| Ty Newydd Defence Party Hut | S of Ty Newydd Farm | Airfield Defence Party Hut | RAF St Athan Defences | 300995 | 169838 | ✓ | | ✓ | |
| Froglands Defence Party Hut | NE of Froglands | Airfield Defence Party Hut | RAF St Athan Defences | 299361 | 169873 | ✓ | | | |
| Anti-Landing Obstacle NW of Llandow | NW of Llandow Village | Anti-Landing Obstacle | | 293226 | 174049 | | | ✓ | |
| Anti-Landing Obstacle E of Nash Manor | Nash Manor | Anti-Landing Obstacle | | 296829 | 173020 | | | ✓ | |
| Flemingston Moor Anti-Landing Obstacle | Flemingston Moor | Anti-Landing Obstacle | | 302080 | 170246 | | | ✓ | |
| Breaksea Point Anti-Tank Ditch | Breaksea Point | Anti-Tank Ditch | Limpert Bay Defences | 302254 | 165945 | | | ✓ | |
| Penry Bay Anti-Tank Ditch | Penry Bay | Anti-Tank Ditch | Limpert Bay Defences | 300100 | 166521 | | | ✓ | |
| Limpert Anti-Tank Block Alignment | Limpert | Anti-Tank Block | Limpert Bay Defences | 301964 | 166293 | | | ✓ | |
| The Walls East Anti-Tank Block Alignment | The Walls | Anti-Tank Block | Limpert Bay Defences | 301405 | 166447 | ✓ | | ✓ | |
| The Walls West Anti-Tank Block Alignment | The Walls | Anti-Tank Block | Limpert Bay Defences | 300857 | 166415 | ✓ | | ✓ | |

**Appendix 6.1: Text of Swansea Defence Scheme No. 2 as preserved in
Swansea Garrison HQ war diary at The National Archives (WO 166/6880)**

S E C R E T

Copy No. 29

SWANSEA DEFENCE SCHEME No. 2 date 1.1.42

Reference Maps O.S. 1" to 1 Mile. Sheets 100 & 101

1. GENERAL This scheme replaces Swansea Defence Scheme dated 15 January 1941, which will be destroyed by fire upon receipt of this document. The Scheme will come into force on the date of receipt. The Swansea area covered by this scheme includes all ground WEST and SOUTH of the following boundaries:

The East boundary is the Borough boundary from 144128 to – incl LONLAS – along NORTH SIDE of road to Railway at 140197 – along Railway to R. Tawe at 128211 – up the River to horizontal grid line – across to incl PONTLASSAU – down Borough boundary to CADLE 068192 and from thence due WEST to 000192.

Responsibility for Military operation in the above area is vested in the COMMANDER, SWANSEA GARRISON who is responsible for the operational control of all troops placed under his command including HOME GUARD BATTALIONS and HOME GUARD PERSONNEL located in the above area.

On "ACTION STATIONS" E Group H.Qs. will become an integral part of Swansea Garrison H.Qs.

The Group Commander will act as principal Staff Officer to the Garrison Commander. He will be responsible for all matters dealing with feeding arrangements, casualties, ammunition supply, accommodation of Home Guard Units.

He will ensure that Liaison is working satisfactorily between H.G. Sector and Sub-Sector Commanders and Civil and Police authorities.

2. INFORMATION

Types of attack to be expected.

- (a) Parachute landings possibly followed by other air-borne troops with the object of:-
 - i. Seizing or destroying important places such as FAIRWOOD AERODROME, N.O.R. at LLANDARCY, SWANSEA DOCKS, etc.
 - ii. Dislocation of communications.
 - iii. Attacks in rear of beach defences in conjunction with

- iv. Sea-borne landings.
- v. Drawing off reserves from elsewhere.
- vi. Causing panic and confusion among civil population.
- (b) Gas attack by bomb or spray from the air, or cloud gas from the sea.
- (c) Small sea-raids with the object of seizing or destroying FAIRWOOD AERODROME, EXPERIMENTAL STATIONS, Factories etc.
- (d) Larger sea-borne and air-borne landings with tanks as a preliminary to an advance on the industrial area of Glamorgan and then to Birmingham and the Midlands.

DESCRIPTION OF COUNTRY

- (a) From Swansea the industrial area runs in a N.E. direction along the valley of the RIVER TAWE.
This river is tidal as far as Landore. Except after heavy rain and at high tide it is not a tank obstacle and can be crossed at most places.
- (b) To the East of Swansea, Kilvey Hill entirely dominates the Docks and the town of Swansea. On its summit A/C could make crash landings, and parachute landings would be simple.
- (c) The Gower Peninsula would present no obstacle and would be easily passable for track vehicles. Landings by air-borne troops would be possible on many points of the peninsula especially in the neighbourhood of FAIRWOOD AERODROME.
- (d) The coastline has a few well defined stretches of open beach suitable for landing of both sea and air-borne troops and vehicles from barges. Such are – Swansea Bay beaches, Oxwich Bay, Rhossili Bay and the Loughor Estuary. At low tide the beach of Rhossili Bay would afford perfect landing for almost unlimited aircraft.

LOCALITIES WHICH ARE LIABLE TO ATTACK are as follows:-

Swansea Docks and Town.

Gower Peninsula.

Chief Factories, industrial plants and other installations.

Enemy attacks, regardless of loss, pressed with great daring and determination are to be expected on the R.A.F. Station at FAIRWOOD COMMON and in the above mentioned objectives.

ENEMY DESPOSITIONS

These cannot be predicted but a large number of enemy divisions could be concentrated quickly in Northern France and invasion of the British Isles undoubtedly can be mounted at short notice.

OWN TROOPS.

Location of all troops in Swansea Garrison is in Appendix "A".

3. INTENTION.

To resist invasion in all its forms, whether air-borne or sea-borne and to destroy the enemy in detail where-ever he may affect a landing.

4. PLAN.

- a. To prevent the landing of a sea-borne force by defence works along certain beaches, and by defence of the Docks.

To prevent the landing of an air-borne force by the external defence of FAIRWOOD AERODROME and by obstructing possible landing grounds (The internal defence of FAIRWOOD AERODROME is the responsibility of the R.A.F. Station Commander).

- b. If, however, despite these measures the enemy succeeds in effecting a landing then it will be the duty of the static troops in the area affected to pin them to the ground and hold up their advance until mobile columns and if necessary and possible, field formations can be brought to destroy them.

With this object in view various defensive localities and Stop-Lines have been constructed.

- i. GOWERTON-BLACKPILL STOP LINE.

From ISLAND HOUSE 022190 – GOWERTON-DUNVANT-KILLAY-BLACKPILL 063128 all inclusive. (ISLAND HOUSE locality will be manned by both 8 and 12 Bns Glam H.G.)

- ii. DEFENCE OF SWANSEA from the WEST.

Extension of SWANSEA VALLEY STOP LINE 125220-085192-072183-067155-070134.

- iii. DEFENCE of SWANSEA from the NORTH.

General line LONLAS-LLANSAMLET-YNYSFORGAN-FFORSTFACH-WAUNARLLWYDD-GOWERTON-ISLAND HOUSE all inclusive.

- iv. DEFENCE OF GOWER PENINSULA. including the external defences of FAIRWOOD AERODROME.

- c. For OPERATIONAL COMMAND the area will be divided into four Sectors (vide Appendix "E"). Sectors will be divided into Sub-Sectors. Each Sub-Sector will have a number of Defended Localities. The Sub-Sectors in No. 2 Swansea Sector coincide with Police Sub-Sectors so as to facilitate co-operation.
- d. TROOPS AVAILABLE for the defence of these Sectors.
 - i. Static Troops under operational command.
 Certain Coast Defence guns of 14 Defence Regt. R.A.
 1 Coy. 30 Bn. South Wales Borderers.
 194 Coy., Pioneer Corps
 285 Coy., Pioneer Corps
 Det., 294 Coy., Pioneer Corps
 Movement Control Personnel.
 R.A.S.C., Cockett.
 - ii. Static Troops not under operational Command:-
 A.D.G.B. Units.
 Penclawdd Experimental Station.
 958 Squadron R.A.F. (Balloon)
 559 Coast Artillery Regt., R.A.
 No. 97 Bomb Disposal Section
 No. 165 Bomb Disposal Section.
 - iii. Home Guard
 12 Bn. Glam H.G.
 14 Bn. Glam H.G.
 15 Bn. Glam H.G.
 18 (Post Office) Bn. Glam H.G.
 - iv. Mobile Field Formations under Operational Command.
 1 Troop (75 mm Guns) of 14 Defence Regt., R.A.
 1 Coy. Tyneside Scottish (Black Watch)
- e. BASIS OF DEFENCE
 - i. The basis of defence is a network of defended localities by which the enemy is bound to be contacted no matter in what direction he may seek to advance, so that whichever way he turns he will be met by small arms, fire, flame throwers, bombs, tank traps, booby traps and the like from every direction.
 - ii. Pill Boxes are only placed to form the skeleton of the defence. In no case should more than 2 or at the most 3 men remain in pill boxes. The remainder of the garrison of the site should be in houses, slit trenches, behind banks etc, around the pill boxes. All dead ground near pill boxes will be covered by fire or by mines. The keys

for the doors of pill boxes will be held by the N.C.O. i/c of the Sections detailed to occupy them. Duplicate keys will be held at Sub-Sector H.Qs.

- iii. On enemy paratroops landing they will be engaged with the utmost speed by patrols sent out from neighbouring defended localities. They will be rounded up and prevented from concentrating into larger bodies. The utmost vigour will be employed in dealing with them.
- iv. It is essential that ground forward of, and between, these localities should be continuously patrolled. It is the responsibility of the Home Guard manning the localities to carry out this patrolling. It will be made impossible for any party of the enemy to approach any defended locality unobserved.
- v. Where detachments have been given tasks as outposts forward of Stop Lines or perimeter defences their duty is:
 - 1. To send back early information of the presence and general direction of advance of the enemy.
 - 2. To ambush small parties of his leading troops.
 - 3. To delay the enemy by opening fire on large bodies at long range so as to make him deploy early.

It is not intended that outposts should resist to “the last man and the last bullet” but if hardly pressed they should retire on the main defences behind them. However, if passed or over-run they should hide and come up again to harass the enemy following the advanced attackers.

If the enemy succeeds in penetrating the defences he will be attacked ruthlessly wherever he appears. House tops, windows, alley ways will be used from which to harry his flanks and rear and he will be engaged mercilessly with every weapon and bomb available.

For distribution of men and arms by localities see Appendix “B”.

f. Role of A.D.G.B. Units

The role of Heavy, Light AA and "Z" Units will be confined to such action as is necessary for their own protection. This will include the organisation and preparation of a defensive position to bring fire on all ground in the vicinity of the site, and readiness to attack the enemy within 800 yards of the defensive position. Arrangements will be made to patrol any dead ground in the vicinity of the site which cannot be covered by fire.

Searchlight Units will, in addition to organising a defensive position at or near the site:-

- i. Watch and report all enemy movement within one mile of the site.
- ii. Snipe, stalk and destroy small parties of the enemy within one mile of the site. (Armoured cars, tanks, despatch riders and H.Qs. of Armoured Units and formation when halted are particularly vulnerable to this form of attack).

The closest liaison will be established between H.G. localities and A.D.G.B. Units. The H.G. should know the layout of site defences of A.D.G.B. units and vice versa.

Where Searchlight units send out parties to carry out role above the H.G. should invariably provide guides to assist with their special knowledge of the local geography.

g. Defence of CHL and CD/CHL Stations

The local defences of these stations is the responsibility of the Senior Army or R.A.F. officer in the Stations.

- h. In foggy weather very active patrolling of beaches will be carried out by those units responsible for beach defences. The closest liaison will be established between these unit and H.M. Coastguard Stations. For details of these Stations and R.A.F. Observation Posts see Appendix "D".

i. Mines and Obstacles

- i. Mine fields have been placed as detailed in Appendix "E". All beach minefields will be securely wired in and the

ingress by dogs will be prevented by the erection of rabbit wire netting.

A Home Guard unit will be detailed to be responsible in each locality for:-

- a. General supervision of field.
- b. Removal of red warning notices.

As regards a). The unit detailed will make weekly inspections from outside the minefields with a view to seeing whether mines are unduly exposed or are covered up by sand. Any minefield needing attention will be reported immediately to Garrison H.Qs. via Battalion and E Group H.Qs. On no account will minefields be entered by H.G. personnel.

As regards b). Red warning notices will be taken down on "Action Stations" or before if ordered by the Commander, Swansea Garrison.

- ii. McNaughton tubes have been placed as detailed in Appendix "E". The necessary fuzes etc., will be held by the units detailed to blow these tubes. These units will detail certain men to be trained in operating the tubes. The instruction will be carried out by the unit instructors specially trained for the purpose. All tubes will be fuzed on "Action Stations". The policy is that the tubes will not be blown except on the immediate presence of the enemy. Tubes blocking the exits from beaches will be blown if the enemy attempts to land on the beach concerned. The tubes blocking the roads at 990113, 974134 and 038170 will only be blown if enemy A.F.Vs., transport or large parties of the enemy approach these sites. They will NOT be blown if only small parties of enemy on foot approach which can be dealt with by troops defending the site.
- iii. ANTI-TANK MINES
Certain defended localities detailed in Appendix "E" will hold Anti-Tank mines to assist in the defence of the localities concerned. These mines will be stored under cover as near as possible to where they are to be sited.

The mines will not be laid prior to "Action Stations" as they are inclined to deteriorate if exposed to the weather. The sites selected for these mines will be just outside the protective wire. When positioned steps will be taken to prevent our own troops from walking on them. The necessary Dannert wire will be held at each site for this purpose.

- iv. Flame Fougasse Barrels will be situated the enemy as detailed in Appendix "E". Special men will be detailed to fire these barrels. They will only be fired on the immediate presence of the enemy.
- v. Shrapnel and Anti-tank mines will be held by localities as detailed in Appendix "B". Sites will be prepared beforehand but mines will not be laid until the enemy are approaching the neighbourhood. The location of these mines will be made known to all troops in the locality and every care will be taken to prevent the civilian population and refugees from approaching them. The responsibility for deciding when the mines are to be laid rests with the Sub-Sector Commanders.

j. ROAD BLOCKS

- i. Appendix "D" gives lists of road blocks.
It is essential that traffic on the roads is not held up by premature closing of blocks. Roads will not be completely blocked except on orders from SWANSEA GARRISON HEADQUARTERS.
- ii. The NEATH-LONLAS-MORRISTON-LLANGYFELACH road is a RED ROUTE (essential Main traffic) and traffic on it will be in no way restricted until the last possible moment.
The MORRISTON-CLYDACH road is a YELLOW ROUTE (for refugee traffic). Traffic on it crossing the RED ROUTE will be controlled by the BOROUGH CONSTABULARY.
- iii. On "ACTION STATIONS", or before if ordered by the Garrison Commander, all Blocks, other than the above RED AND YELLOW ROUTES, will be erected sufficiently across the road to allow room for only one-way traffic. Rail or concrete cylinders to complete blocks will be put handy

so that there is the minimum delay in entirely closing roads. The Home Guard units responsible for covering the blocks will carry out this work.

- iv. On the Home Guard being mustered there will be the smallest delay possible in manning posts covering blocks.
- v. When roads have been completely blocked the obstruction will not be removed except for military traffic or essential civil cars; these latter are marked with E.L. labels prominently displayed.
- vi. All personnel detailed to cover road blocks will be thoroughly instructed in the methods employed for:-
 - a. Keeping Block under fire.
 - b. Dealing with enemy vehicles stopped by a block.
 - c. Checking the bona fides of personnel passing through blocks. In this respect emphasis will be laid on the necessity for the credentials of D.Rs., Staff Officers etc., being checked only at the first set of blocks.
- vii. The responsibility for traffic control is mainly the duty of the Police and they should be given every possible help. Local requests for assistance from a responsible police officer will be met unhesitatingly if the military situation allows.

k. Anti-aircraft Small Arms fire

Home Guard personnel manning defended localities will be prepared to engage low flying enemy aircraft with all of the L.As. and Rifles available.

The strictest fire discipline will be maintained.

The L.As. of Sections held in reserve will be grouped where possible in batteries of 4 and fire will be controlled by an officer.

In order to guard against sudden surprise attacks and also to provide for detachments every A.A L/A will be aimed at EVERY AEROPLANE which flies within range, whatever its nationality.

As the enemy may be expected to fly over defences in order to find out the exact position of the defences fire will not be opened unless a hostile act is performed.

I. Co-operation with Civil Authorities

It is to be expected that any attack on the SWANSEA AREA will be accompanied by heavy aerial bombing of the Town. This will have the effect of:-

- i. Blocking communications.
- ii. Putting numbers of civilian refugees on the roads,
- iii. Destroying telephone lines.
- iv. Reducing morale of civil population.

This will have an adverse effect on the defensive arrangements, unless Troops and Home Guard give all the help in their power to the Civil Authorities in restoring communications by filling in craters and removing obstructions. They will also assist the Police, if called upon, in controlling and collecting refugees, and getting them off the main roads.

A list of Police Stations, posts and telephone boxes is given in Appendix "F".

Prior to operations commencing Sector and Sub-Sector Commanders will establish the closest touch with all civil authorities in their Sectors or Sub-Sectors, i.e. with the Police, A.F.S., A.R.P., Food Centres, F.A.Ps. etc.

When operations commence these authorities will be kept posted with the military situation as it affects them and given a brief verbal appreciation of how it is likely to develop.

m. Ringling of Church Bells.

The ringling of Church Bells denotes the landing of parachutists or air-borne troops in that area.

Except in the Gower Sector the order to ring Church Bells will not be given by an officer under the rank of Bn. Commander and then only after intelligence concerning the landing has been most carefully verified.

The order to ring the bells must be given verbally to the Sexton concerned by the officer authorised or by written order over his signature.

In the case of the GOWER the following officers only are permitted to order bells to be rung:-

| <u>Belfrey at.</u> | <u>Officer authorised</u> |
|----------------------|-------------------------------|
| 022114 Bishopston) | O.C. 15 Bn. Glam H.G. |
| 009108 Pennard) | |
| 993169 Penclawdd) | Lt. J. Guy, 15 Bn. Glam. H.G. |
| 923122 Reynoldston) | |
| 903112 Llandewi) | |
| 908078 Port Eynon) | Major 15 Bn. Glam. H.G. |
| 860103 Rhossili) | |
| 875138 Llangennith) | |
| 894154 Llanmadoc) | |
| 941144 Llanrhidian) | |

n. Guards and Security

i. Guard for Garrison Headquarters.

On "ACTION STATIONS" O.C. 12 Bn. Glam H.G. will detail a guard of 1 N.C.O. and 10 men to report daily to act as a guard on Garrison H.Qs. The guard will check the credentials of all persons desiring to enter Headquarters.

ii. Guards for other Headquarters.

Arrangements will be made by Sector Commanders for suitable guards to be mounted on Sector and Sub-Sector Headquarters. Sentries should not be placed so that they give away the fact that a certain building is being used as a H.Qs. They should be able to see and to shoot but not be seen or shot at. The necessary cover from fire should be provided.

iii. Telephone security.

All orders and messages received over the telephone should be treated with suspicion. If the Sender's voice is not recognised and the receiver has reason to doubt his bona fides the procedure to be adopted is for the Sender to be asked for his telephone number and to hang up his instrument and wait for the receiver to ring him up.

iv. Security Officers.

Each Sector Commander will appoint a Security Officer. His duty before operations commence will be to supervise all security arrangements in his Sector. He will visit periodically the various H.Qs. in order to check whether all possible steps are taken to

safeguard secret and security documents.

In the event of H.Qs. being bombed arrangements will be made to guard the site till salvage parties arrive.

He will arrange for secret documents to be taken over when salvaged. He will make arrangements that if the enemy lands, all maps, Defence Schemes and other secret documents likely to fall into enemy hands are burnt.

o. GAS

- i. Every precaution will be taken to avoid being surprised by the use of enemy gas. The strictest gas discipline will be maintained at all times.
- ii. It is the duty of all units to ensure that the information regarding the use of gas by the enemy is speedily transmitted to Garrison Headquarters.

Messages on the following subjects will be regarded as very urgent and will be marked "Emergency Operations"

- a. First use of gas by the enemy.
- b. Suspected new gas.
- c. New weapons or new method of use.
- d. Heavy casualties due to failure of our defence measures.
- iii. Such reports should always include:-
 - a. Place and time of attack.
 - b. Weapon used (e.g. air or mortar bombs, shells, high or low spray, generators)
 - c. Type of gas (Blister, choking, nose, tear)
 - d. Casualties to troops or civilians.
 - e. Prevailing conditions of weather and ground.

p. PRISONERS OF WAR

- i. Swansea Garrison collecting point will be the Civil Prison on OYSTERMOUTH ROAD.
The Security Control Officer (Colonel T.D. Benyon Winsor) will be in charge of the Collecting Point and will have under him his S.C. Staff and all C.M.P. personnel in Swansea. Additional guards will be furnished as the situation demands.
- ii. Persons captured wearing British, Allied, or other non-enemy uniforms or wearing civilian clothes who appear to have landed in this country by sea or by air for the purposes of espionage or sabotage.

a. Before "ACTION STATIONS"

Will be handed over to the Police

before being handed over:-

- i. Prisoners will be searched for concealed weapons or documents.
- ii. The greatest care will be taken to prevent prisoners destroying or concealing or otherwise making away with any documents or other articles in his possession and from communicating with any third party.
- iii. A note will be taken of anything the prisoner may say.

b. After "ACTION STATIONS".

If captured by military personnel, they will be treated as prisoners of war as per para. 3 below.

(3) Persons who appear to be normally resident in this country who have aroused such suspicion by reason of their words or conduct as to warrant arrest will, if possible be handed over to the Police for investigation and any necessary action.

Before being handed over the instructions set out in (2) (a) above will be observed.

(4) PRISONERS OF WAR AFTER "ACTION STATIONS"

- a) Prisoners of War will be sent under escort to the Garrison collecting point where the Security Control Officer will obtain prisoner's identification and telephone list of units disclosed to Garrison H.Qs.
- b) Officer prisoners of war will at once be separated from O.Rs.
- c) All arms and equipment will be taken from prisoners of war and sorted and stacked in dumps.
- d) All papers and effects, other than those specified in sub para (e) will be removed from the prisoners, collected and put into sandbags, labelled with the Prisoner of War's names, unit, date and place of capture, and taken by the escort to the Sub-Area Cage where they will be handed over to the Sub-Area Intelligence Officer.
- e) Prisoners of War will retain identity tokens, cash, valuables, metal helmets, respirators, badges of rank and decorations.
- f) Interrogation at this point will be limited to that which is strictly needed for local tactical purposes.
- g) As soon as circumstances permit Prisoners of War will be sent, under escort, to Sub-Area Cage at PORT TALBOT.

q. PATROLS

i. RECCE PATROLS.

The garrison of all defended localities will ensure that they have early warning of the approach of the enemy. Recce patrols will be sent forward and to the flanks.

The presence of parties of the enemy will be reported immediately and track will be kept of their movements. Every effort will be made to delay the enemy advance and the Home Guard asset of knowing the country will be fully exploited.

ii. TUNNEL PATROLS.

In order to guard against sabotage to railway lines the following tunnels will be patrolled periodically by patrols of two men:-

COCKETT
LONLAS
YNYSFORGAN
PENLLERGAER

r. VULNERABLE POINTS.

A guard will be mounted on the following Railway V.Ps.

i. During period of "Black Out" prior to and after "OLIVER"

1. Railway Telephone Exchange – Swansea Docks.
2. Emergency Control and Railway Telephone Office, High Street Station.
3. District Control Officer, L.M.S.R. Victoria Station, (to include passenger Station and offices).

ii. 24 hour guard after "OLIVER".

Landore Viaduct.
Loop East Signal Box, Swansea.
Loop West Signal Box, Swansea.
District Goods and Passenger Managers' offices –
Victoria Station, Swansea
Wireless Railway Exchange TIR HESTER

iii. Guards to prevent sabotage will be maintained at the following essential works.

| | |
|---------------------------------|-------------------------|
| Magnesium Metals Ltd. | Tir John Power Station |
| Unit Superheaters. | Cwmfelin Works. |
| I.C.I Works. | Baldwin Limited. |
| Newport & S. Wales Tube Co Ltd. | |
| Duffryn Tin Works. | Upper Forest Tin Works. |
| Morriston Tinplate Works. | National Smelting Co. |

Swansea
1 Jany, 1942

V.L.S Cowley
Lieut-Colonel.
Commander, Swansea Garrison

**Appendix 6.2: Defence Posts listed in Swansea Defence Scheme No. 2,
Swansea Garrison HQ war diary, 1942 (WO 166/6880)**

| Defence Post No. | Cassini | Sector | Sub-Sector | Locality | Unit | Remarks |
|------------------|---------|-----------|------------|---------------------|---------------|---|
| PB001 | 152 192 | 1 Swansea | A | Lonlas | 14 Bn Glam HG | Road Block |
| FW001 | 152 192 | 1 Swansea | A | Lonlas | 14 Bn Glam HG | |
| PB002 | 148 192 | 1 Swansea | A | Lonlas | 14 Bn Glam HG | |
| PB003 | 141 197 | 1 Swansea | A | Peniel Green Tunnel | 14 Bn Glam HG | Mines on either side of railway embankment |
| FW002 | 140 198 | 1 Swansea | A | Peniel Green Tunnel | 14 Bn Glam HG | |
| FW003 | 143 198 | 1 Swansea | A | Peniel Green Tunnel | 14 Bn Glam HG | |
| PB004 | 132 199 | 1 Swansea | A | Llansamlet Church | 14 Bn Glam HG | |
| FW004 | 131 198 | 1 Swansea | A | Llansamlet Church | 14 Bn Glam HG | Mines in dead ground to W |
| PB005 | 132 196 | 1 Swansea | A | Llansamlet Church | 14 Bn Glam HG | Mines in dead ground to W |
| PB006 | 132 195 | 1 Swansea | A | Llansamlet Square | 14 Bn Glam HG | |
| PB007 | 132 194 | 1 Swansea | A | Llansamlet Square | 14 Bn Glam HG | |
| PB008 | 131 195 | 1 Swansea | A | Llansamlet Square | 14 Bn Glam HG | |
| | 128 193 | 1 Swansea | A | Llansamlet Square | 14 Bn Glam HG | To assist in local protection of E.A.M. (132 195) |
| PB009 | 137 183 | 1 Swansea | A | Halfway Inn | 14 Bn Glam HG | |
| FW005 | 138 183 | 1 Swansea | A | Halfway Inn | 14 Bn Glam HG | |
| H | 138 184 | 1 Swansea | A | Halfway Inn | 14 Bn Glam HG | Local reserve in houses |
| PB010 | 127 184 | 1 Swansea | A | Winch Wen | 14 Bn Glam HG | |
| PB011 | 125 183 | 1 Swansea | A | Winch Wen | 14 Bn Glam HG | Mines in dead ground to W |
| FW006 | 125 183 | 1 Swansea | A | Winch Wen | 14 Bn Glam HG | |
| RESERVES | 128 190 | 1 Swansea | A | RESERVES | 14 Bn Glam HG | Balloon Site mans FW at 146 183) |
| RESERVES | 138 183 | 1 Swansea | A | RESERVES | 14 Bn Glam HG | |
| RESERVES | 135 192 | 1 Swansea | A | RESERVES | 14 Bn Glam HG | |
| PB012 | 123 169 | 1 Swansea | B | Bonymaen | 14 Bn Glam HG | |

| | | | | | | |
|----------|---------|-----------|---|--------------------|---------------|--|
| FW007 | 121 169 | 1 Swansea | B | Bonymaen | 14 Bn Glam HG | |
| FW008 | 120 169 | 1 Swansea | B | Bonymaen | 14 Bn Glam HG | |
| PB013 | 119 174 | 1 Swansea | B | Pentrechwyth | 14 Bn Glam HG | Mines in dead ground between pillboxes |
| PB014 | 117 171 | 1 Swansea | B | Pentrechwyth | 14 Bn Glam HG | Mines in dead ground between pillboxes |
| FW009 | 118 172 | 1 Swansea | B | Pentrechwyth | 14 Bn Glam HG | |
| PB015 | 108 168 | 1 Swansea | B | White Rock | 14 Bn Glam HG | A/W |
| FW010 | 108 168 | 1 Swansea | B | White Rock | 14 Bn Glam HG | To fire FF |
| FW011 | 108 170 | 1 Swansea | B | White Rock | 14 Bn Glam HG | |
| PB016 | 130 155 | 1 Swansea | B | Tir John | 14 Bn Glam HG | A/W. Balloon Squadron will man pillbox at 132 166 |
| FW012 | 130 160 | 1 Swansea | B | Tir John | 14 Bn Glam HG | |
| FW013 | 130 160 | 1 Swansea | B | Tir John | 14 Bn Glam HG | |
| PB017 | 125 155 | 1 Swansea | B | Cemetery | 14 Bn Glam HG | |
| PB018 | 120 155 | 1 Swansea | B | Cemetery | 14 Bn Glam HG | |
| PB019 | 117 155 | 1 Swansea | B | Cemetery | 14 Bn Glam HG | |
| PB020 | 110 155 | 1 Swansea | B | Cemetery | 14 Bn Glam HG | |
| PB021 | 106 156 | 1 Swansea | B | St Thomas | 14 Bn Glam HG | A/W |
| FW014 | 106 154 | 1 Swansea | B | St Thomas | 14 Bn Glam HG | |
| FW015 | 106 158 | 1 Swansea | B | St Thomas | 14 Bn Glam HG | |
| RESERVES | 123 172 | 1 Swansea | B | RESERVES | 14 Bn Glam HG | |
| RESERVES | 130 155 | 1 Swansea | B | RESERVES | 14 Bn Glam HG | |
| RESERVES | | 1 Swansea | B | RESERVES | 14 Bn Glam HG | To patrol between Kilvey Hill and N boundary of Docks |
| PB022 | 117 211 | 2 Swansea | C | Ynysforgan Viaduct | 12 Bn Glam HG | Spare men of both Sections to man the 2 Blacker Bombards |
| PB023 | 119 212 | 2 Swansea | C | Ynysforgan Viaduct | 12 Bn Glam HG | Spare men of both Sections to man the 2 BBs |

| | | | | | | |
|-------|---------|-----------|---|--------------------|---------------|------------------------|
| PB024 | 123 212 | 2 Swansea | C | Ynysforgan Viaduct | 12 Bn Glam HG | |
| PB025 | 111 212 | 2 Swansea | C | Chemical Road | 12 Bn Glam HG | |
| PB026 | 113 211 | 2 Swansea | C | Chemical Road | 12 Bn Glam HG | |
| FW016 | 110 213 | 2 Swansea | C | Chemical Road | 12 Bn Glam HG | |
| PB027 | 113 214 | 2 Swansea | C | School | 12 Bn Glam HG | |
| FW017 | 113 216 | 2 Swansea | C | School | 12 Bn Glam HG | |
| FW018 | 113 217 | 2 Swansea | C | School | 12 Bn Glam HG | |
| FW019 | 107 207 | 2 Swansea | C | Golf Links | 12 Bn Glam HG | |
| FW020 | 108 206 | 2 Swansea | C | Golf Links | 12 Bn Glam HG | |
| FW021 | 108 208 | 2 Swansea | C | Golf Links | 12 Bn Glam HG | |
| PB028 | 112 202 | 2 Swansea | C | Pentrepoeth | 12 Bn Glam HG | |
| FW022 | 111 206 | 2 Swansea | C | Pentrepoeth | 12 Bn Glam HG | Reinforced garden wall |
| FW023 | 111 205 | 2 Swansea | C | Pentrepoeth | 12 Bn Glam HG | Reinforced garden wall |
| PB029 | 114 202 | 2 Swansea | C | Chris Williams | 12 Bn Glam HG | |
| PB030 | 116 203 | 2 Swansea | C | Chris Williams | 12 Bn Glam HG | |
| PB031 | 114 203 | 2 Swansea | C | Chris Williams | 12 Bn Glam HG | |
| PB032 | 112 202 | 2 Swansea | C | Chris Williams | 12 Bn Glam HG | |
| PB033 | 118 198 | 2 Swansea | C | Fforest Bridge | 12 Bn Glam HG | |
| PB034 | 110 197 | 2 Swansea | C | Fforest Bridge | 12 Bn Glam HG | |
| PB035 | 116 199 | 2 Swansea | C | Fforest Bridge | 12 Bn Glam HG | |
| PB036 | 113 190 | 2 Swansea | C | Duke Hotel | 12 Bn Glam HG | |
| PB037 | 113 193 | 2 Swansea | C | Duke Hotel | 12 Bn Glam HG | |
| PB038 | 114 192 | 2 Swansea | C | Duke Hotel | 12 Bn Glam HG | |
| FW024 | 113 190 | 2 Swansea | C | Duke Hotel | 12 Bn Glam HG | |
| PB039 | 108 196 | 2 Swansea | C | Bryn Rock | 12 Bn Glam HG | |
| FW025 | 108 194 | 2 Swansea | C | Bryn Rock | 12 Bn Glam HG | |
| PB040 | 107 192 | 2 Swansea | C | Bryn Rock | 12 Bn Glam HG | |
| PB041 | 107 196 | 2 Swansea | C | Bryn Rock | 12 Bn Glam HG | |

| | | | | | | |
|-------|---------|-----------|---|------------------------------|------------------|--|
| PB042 | 103 220 | 2 Swansea | C | Pontlassau | 12 Bn Glam HG | |
| FW026 | 102 220 | 2 Swansea | C | Pontlassau | 12 Bn Glam HG | |
| FW027 | 103 222 | 2 Swansea | C | Pontlassau | 12 Bn Glam HG | |
| PB043 | 091 210 | 2 Swansea | C | Llangyfelach | 12 Bn Glam HG | |
| FW028 | 090 209 | 2 Swansea | C | Llangyfelach | 12 Bn Glam HG | |
| FW029 | 091 212 | 2 Swansea | C | Llangyfelach | 12 Bn Glam HG | |
| PB044 | 096 194 | 2 Swansea | C | Mynydd-bach | 12 Bn Glam HG | |
| FW030 | 095 196 | 2 Swansea | C | Mynydd-bach | 12 Bn Glam HG | |
| FW031 | 098 196 | 2 Swansea | C | Mynydd-bach | 12 Bn Glam HG | |
| FW032 | 097 196 | 2 Swansea | C | Mynydd-bach | 12 Bn Glam HG | |
| PB045 | 097 190 | 2 Swansea | C | Mynydd-bach | 12 Bn Glam HG | |
| PB046 | 091 191 | 2 Swansea | C | Mynydd Cadle Common | 12 Bn Glam HG | |
| FW033 | 091 192 | 2 Swansea | C | Mynydd Cadle Common | 12 Bn Glam HG | |
| PB047 | 090 188 | 2 Swansea | C | Mynydd Cadle Common | 12 Bn Glam HG | |
| PB048 | 088 187 | 2 Swansea | C | Mynydd Cadle Common | 12 Bn Glam HG | |
| FW034 | 091 187 | 2 Swansea | C | Mynydd Cadle Common | 12 Bn Glam HG | |
| PB049 | 083 186 | 2 Swansea | C | Mynydd Newydd Colliery | 12 Bn Glam HG | |
| FW035 | 084 186 | 2 Swansea | C | Mynydd Newydd Colliery | 12 Bn Glam HG | |
| FW036 | 083 183 | 2 Swansea | C | Mynydd Newydd Colliery | 12 Bn Glam HG | |
| FW037 | 082 184 | 2 Swansea | C | Mynydd Newydd Colliery | 12 Bn Glam HG | |
| FW038 | 082 183 | 2 Swansea | C | Mynydd Newydd Colliery | 12 Bn Glam HG | |
| PB050 | 080 183 | 2 Swansea | C | Ravenhill | 12 Bn Glam HG | |
| PB051 | 082 180 | 2 Swansea | C | Ravenhill | 12 Bn Glam HG | A/W This post will be manned by men of A/A Repair Workshop |
| PB052 | 086 176 | 2 Swansea | C | Ravenhill | 12 Bn Glam HG | |

| | | | | | | |
|----------|---------|-----------|---|-------------------|---------------|--|
| FW039 | 086 176 | 2 Swansea | C | Ravenhill | 12 Bn Glam HG | |
| RESERVES | | 2 Swansea | C | RESERVES | 12 Bn Glam HG | Sub-Sector Reserves |
| PB053 | 078 180 | 2 Swansea | D | Fforestfach | 12 Bn Glam HG | Mines to be placed in hedges to prevent enemy getting off road |
| PB054 | 072 183 | 2 Swansea | D | Fforestfach | 12 Bn Glam HG | 6-pdr detachment |
| PB055 | 073 183 | 2 Swansea | D | Fforestfach | 12 Bn Glam HG | |
| PB056 | 074 178 | 2 Swansea | D | Fforestfach | 12 Bn Glam HG | Mines in dead ground behind slag heaps |
| FW040 | 073 172 | 2 Swansea | D | White City | 12 Bn Glam HG | |
| PB057 | 076 174 | 2 Swansea | D | Cockett | 12 Bn Glam HG | A/W Mines in gardens and in cemetery |
| FW041 | 075 176 | 2 Swansea | D | Cockett | 12 Bn Glam HG | Mines between slag heaps |
| PB058 | 076 171 | 2 Swansea | D | Cockett | 12 Bn Glam HG | |
| PB059 | 073 172 | 2 Swansea | D | Cockett | 12 Bn Glam HG | Mines on S side of Road |
| PB060 | 068 192 | 2 Swansea | D | Cadle | 12 Bn Glam HG | |
| FW042 | 067 193 | 2 Swansea | D | Cadle | 12 Bn Glam HG | |
| FW043 | 066 187 | 2 Swansea | D | Cadle | 12 Bn Glam HG | |
| PB061 | 023 193 | 2 Swansea | D | Island House | 12 Bn Glam HG | To be manned by 8 Glam HG |
| FW044 | 023 194 | 2 Swansea | D | Island House | 12 Bn Glam HG | To be manned by 8 Glam HG |
| FW045 | 023 192 | 2 Swansea | D | Island House | 12 Bn Glam HG | |
| PB062 | 028 187 | 2 Swansea | D | New Elba Colliery | 12 Bn Glam HG | |
| PB063 | 028 186 | 2 Swansea | D | New Elba Colliery | 12 Bn Glam HG | |
| PB064 | 027 186 | 2 Swansea | D | New Elba Colliery | 12 Bn Glam HG | |
| FW046 | 027 186 | 2 Swansea | D | New Elba Colliery | 12 Bn Glam HG | |
| PB065 | 033 187 | 2 Swansea | D | Elba Works | 12 Bn Glam HG | |
| PB066 | 032 186 | 2 Swansea | D | Elba Works | 12 Bn Glam HG | |
| PB067 | 032 187 | 2 Swansea | D | Elba Works | 12 Bn Glam HG | |
| PB068 | 033 183 | 2 Swansea | D | Elba Works | 12 Bn Glam HG | |
| PB069 | 035 185 | 2 Swansea | D | Gowerton Station | 12 Bn Glam HG | |

| | | | | | | |
|---------|---------|-----------|---|-------------------------|---------------|--|
| PB070 | 036 184 | 2 Swansea | D | Gowerton Station | 12 Bn Glam HG | |
| PB071 | 035 183 | 2 Swansea | D | Gowerton Station | 12 Bn Glam HG | |
| PB072 | 036 182 | 2 Swansea | D | Gowerton Station | 12 Bn Glam HG | |
| FW047 | 039 182 | 2 Swansea | D | Winder Terrace | 12 Bn Glam HG | Same Section defend FW047 and FW048 |
| FW048 | 039 181 | 2 Swansea | D | Winder Terrace | 12 Bn Glam HG | Same Section defend FW047 and FW048 |
| PB073 | 038 179 | 2 Swansea | D | Winder Terrace | 12 Bn Glam HG | Same Section defend PB073 and PB074 |
| PB074 | 039 180 | 2 Swansea | D | Winder Terrace | 12 Bn Glam HG | Same Section defend PB073 and PB074 |
| PB075 | 040 179 | 2 Swansea | D | Winder Terrace | 12 Bn Glam HG | |
| PB076 | 038 177 | 2 Swansea | D | Winder Terrace | 12 Bn Glam HG | Same Section defend PB076 and PB077 |
| PB077 | 038 177 | 2 Swansea | D | Winder Terrace | 12 Bn Glam HG | Same Section defend PB076 and PB077 |
| PB078 | 039 176 | 2 Swansea | D | Winder Terrace | 12 Bn Glam HG | |
| FW049 | 032 177 | 2 Swansea | D | Gorwydd | 12 Bn Glam HG | |
| FW050 | 023 180 | 2 Swansea | D | Allt-wen | 12 Bn Glam HG | |
| FW051 | 055 179 | 2 Swansea | D | Wanarlwydd | 12 Bn Glam HG | |
| FW052 | 055 176 | 2 Swansea | D | Wanarlwydd | 12 Bn Glam HG | |
| FW053 | 058 176 | 2 Swansea | D | Wanarlwydd | 12 Bn Glam HG | |
| RESERVE | | 2 Swansea | D | RESERVES | 12 Bn Glam HG | |
| FW054 | 039 170 | 2 Swansea | E | Gowerton - Dunvant Road | 12 Bn Glam HG | |
| PB079 | 041 164 | 2 Swansea | E | Brickworks | 12 Bn Glam HG | |
| PB080 | 041 163 | 2 Swansea | E | Brickworks | 12 Bn Glam HG | |
| FW055 | 040 163 | 2 Swansea | E | Brickworks | 12 Bn Glam HG | |
| PB081 | 040 158 | 2 Swansea | E | Dunvant Post Office | 12 Bn Glam HG | Mines in hollows between slag heaps |
| PB082 | 039 158 | 2 Swansea | E | Dunvant Post Office | 12 Bn Glam HG | Mines between pillbox and railway crossing |
| PB083 | 038 157 | 2 Swansea | E | Dunvant Post Office | 12 Bn Glam HG | |

| | | | | | | |
|-------|---------|-----------|---|-----------------------|---------------|---|
| PB084 | 039 157 | 2 Swansea | E | Dunvant Post Office | 12 Bn Glam HG | |
| FW056 | 038 157 | 2 Swansea | E | Dunvant Post Office | 12 Bn Glam HG | |
| FW057 | 038 158 | 2 Swansea | E | Dunvant Post Office | 12 Bn Glam HG | |
| PB085 | 044 155 | 2 Swansea | E | Dunvant Parish Hall | 12 Bn Glam HG | |
| PB086 | 043 155 | 2 Swansea | E | Dunvant Parish Hall | 12 Bn Glam HG | |
| PB087 | 043 153 | 2 Swansea | E | Dunvant Parish Hall | 12 Bn Glam HG | |
| PB088 | 045 141 | 2 Swansea | E | Killay | 12 Bn Glam HG | Same Section defend PB088 and PB089 |
| PB089 | 044 141 | 2 Swansea | E | Killay | 12 Bn Glam HG | Same Section defend PB088 and PB089 |
| FW058 | 045 140 | 2 Swansea | E | Killay | 12 Bn Glam HG | |
| PB090 | 043 142 | 2 Swansea | E | Killay | 12 Bn Glam HG | |
| PB091 | 043 143 | 2 Swansea | E | Killay | 12 Bn Glam HG | Same Section defend PB091 and PB092 |
| PB092 | 041 144 | 2 Swansea | E | Killay | 12 Bn Glam HG | Same Section defend PB091 and PB092 |
| PB093 | 043 146 | 2 Swansea | E | Killay | 12 Bn Glam HG | |
| PB094 | 045 148 | 2 Swansea | E | Killay | 12 Bn Glam HG | |
| FW059 | 044 145 | 2 Swansea | E | Killay | 12 Bn Glam HG | |
| PB095 | 050 145 | 2 Swansea | E | Race Course | 12 Bn Glam HG | A/Tk mines in protective wire. S mines in wood |
| FW060 | 051 144 | 2 Swansea | E | Race Course | 12 Bn Glam HG | A/Tk mines in protective wire |
| PB096 | 059 136 | 2 Swansea | E | Clyne Valley Colliery | 12 Bn Glam HG | |
| FW061 | 058 136 | 2 Swansea | E | Clyne Valley Colliery | 12 Bn Glam HG | |
| PB097 | 057 124 | 2 Swansea | E | Clyne Valley Colliery | 12 Bn Glam HG | |
| PB098 | 062 124 | 2 Swansea | E | Blackpill | 12 Bn Glam HG | Same Section defend PB098 and PB099. This Section will fire a FF in Mayals Road |
| PB099 | 063 125 | 2 Swansea | E | Blackpill | 12 Bn Glam HG | Same Section defend PB098 and PB099 |
| PB100 | 063 126 | 2 Swansea | E | Blackpill | 12 Bn Glam HG | Same Section defend PB100 and PB101 |

| | | | | | | |
|-------|---------|-----------|---|------------|---------------|---|
| PB101 | 063 128 | 2 Swansea | E | Blackpill | 12 Bn Glam HG | Same Section defend PB100 and PB101 |
| PB102 | 063 128 | 2 Swansea | E | Blackpill | 12 Bn Glam HG | Same Section defend PB102, PB103 and PB104 |
| PB103 | 062 127 | 2 Swansea | E | Blackpill | 12 Bn Glam HG | Same Section defend PB102, PB103 and PB104 |
| PB104 | 063 127 | 2 Swansea | E | Blackpill | 12 Bn Glam HG | Same Section defend PB102, PB103 and PB104 |
| PB105 | 062 129 | 2 Swansea | E | Blackpill | 12 Bn Glam HG | Same Section defend PB105 and PB106 |
| PB106 | 062 129 | 2 Swansea | E | Blackpill | 12 Bn Glam HG | Same Section defend PB105 and PB106 |
| H | 062 126 | 2 Swansea | E | Blackpill | 12 Bn Glam HG | Section in houses to deal with any enemy vehicles stopped by road block |
| FW062 | 054 127 | 2 Swansea | E | Clyne Farm | 12 Bn Glam HG | |
| FW063 | 052 128 | 2 Swansea | E | Clyne Farm | 12 Bn Glam HG | |
| FW064 | 050 130 | 2 Swansea | E | Clyne Farm | 12 Bn Glam HG | |
| PB107 | 067 155 | 2 Swansea | E | Sketty | 12 Bn Glam HG | |
| FW065 | 067 151 | 2 Swansea | E | Sketty | 12 Bn Glam HG | Loop holed wall |
| PB108 | 068 147 | 2 Swansea | E | Sketty | 12 Bn Glam HG | A/W |
| PB109 | 070 150 | 2 Swansea | E | Sketty | 12 Bn Glam HG | |
| PB110 | 067 144 | 2 Swansea | E | Sketty | 12 Bn Glam HG | |
| PB111 | 070 135 | 2 Swansea | E | Singleton | 12 Bn Glam HG | Same Section defend PB111 and PB112 |
| PB112 | 070 134 | 2 Swansea | E | Singleton | 12 Bn Glam HG | Same Section defend PB111 and PB112 |
| PB113 | 069 132 | 2 Swansea | E | Singleton | 12 Bn Glam HG | Section to man Ryder Flare post |
| PB114 | 074 135 | 2 Swansea | E | Singleton | 12 Bn Glam HG | Section to man Ryder Flare post |

| | | | | | | |
|----------|---------|-----------|---|--------------------------------------|------------------|---|
| PB115 | 077 138 | 2 Swansea | E | Singleton | 12 Bn Glam HG | Section to man Ryder Flare post |
| RESERVE | | 2 Swansea | E | Olchfa Sub- Sector Reserve | 12 Bn Glam HG | |
| RESERVE | | 2 Swansea | E | Sketty Park Sub-Sector Reserve | 12 Bn Glam HG | |
| PB116 | 073 155 | 2 Swansea | F | Western edge of Town | 12 Bn Glam HG | |
| PB117 | 073 154 | 2 Swansea | F | Western edge of Town | 12 Bn Glam HG | |
| PB118 | 071 163 | 2 Swansea | F | Western edge of Town | 12 Bn Glam HG | |
| PB119 | 070 140 | 2 Swansea | F | Western edge of Town | 12 Bn Glam HG | |
| FW066 | 085 142 | 2 Swansea | F | Western edge of Town | 12 Bn Glam HG | Loop holed wall of St Helens Ground |
| RESERVES | | 2 Swansea | F | No 1 PI | 12 Bn Glam HG | Mines to be available for booby traps |
| RESERVES | | 2 Swansea | F | No 2 PI | 12 Bn Glam HG | Mines to be available for booby traps |
| RESERVES | | 2 Swansea | F | No 3 PI | 12 Bn Glam HG | Mines to be available for booby traps |

Appendix 6.3: Minefields, Canadian pipe mines and flame fougasse sites listed in Swansea Defence Scheme No. 2, Swansea Garrison HQ war diary, 1942 (WO 166/6880)

| Site Type | Serial No. | Number | From Cassini | To Cassini | Locality | Unit |
|--------------------|------------|--------|--------------|------------|---------------------|--------------------------|
| Minefield | MF01 | 242 | 882161 | 885161 | Llanmadoc | - |
| Minefield | MF02 | - | 862152 | 869157 | Broughton Bay | - |
| Minefield | MF03a | 6 | 856128 | - | Rhossili Bay | - |
| Minefield | MF03b | 20 | 855130 | - | Rhossili Bay | - |
| Minefield | MF03c | 8 | 855129 | - | Rhossili Bay | - |
| Minefield | MF04 | 363 | 911072 | 913074 | Port Eynon | - |
| Minefield | MF05 | 33 | 918076 | - | Horton | - |
| Minefield | MF06a | 161 | 946088 | - | Oxwich Bay | - |
| Minefield | MF06b | 38 | 945084 | - | Oxwich Bay | - |
| Minefield | MF06c | 83 | 944103 | - | Oxwich Bay | - |
| Minefield | MF07 | 22 | 963100 | - | Nicholaston | - |
| Minefield | MF08a | 65 | 980101 | - | Three Cliffs Bay | - |
| Minefield | MF08b | 35 | 981102 | - | Three Cliffs Bay | - |
| Minefield | MF09 | 20 | 984098 | - | Popples Bay | - |
| Minefield | MF10 | 43 | 037097 | - | Caswell Bay | - |
| Minefield | MF11 | 180 | 063125 | - | Blackpill | - |
| Minefield | MF12 | - | 037175 | 038169 | Gowerton Road | - |
| Minefield | MF13 | - | 088189 | 086186 | Mynydd Cadle Common | - |
| Minefield | MF14 | - | 023193 | - | Island House | - |
| Canadian Pipe Mine | MT01 | 1 | 946098 | - | Oxwich Burrows | Oxwich Det 15 Bn Glam HG |
| Canadian Pipe Mine | MT02 | 1 | 946098 | - | Oxwich Burrows | Oxwich Det 15 Bn Glam HG |
| Canadian Pipe Mine | MT03 | 1 | 945084 | - | Oxwich | 14 Defence Regt, RA |
| Canadian Pipe Mine | MT04 | 1 | 983104 | - | Pennard | Southgate HG |
| Canadian Pipe Mine | MT05 | 1 | 945087 | - | Oxwich Burrows | 14 Defence Regt, RA |
| Canadian Pipe Mine | MT06 | 1 | 946092 | - | Oxwich Burrows | 14 Defence Regt, RA |
| Canadian Pipe Mine | MT07 | 1 | 990112 | - | Parkmill | Parkmill HG |
| Canadian Pipe Mine | MT08 | 1 | 990110 | - | Parkmill | Parkmill HG |
| Canadian Pipe Mine | MT09 | 1 | 974134 | - | Llethryd | Llanrhidian HG |
| Canadian Pipe Mine | MT10 | 1 | 882163 | - | Cwm Ivy | Llanmadoc HG |
| Canadian Pipe Mine | MT11 | 1 | 019092 | - | Pwlldu Bay | Bishopston HG |
| Canadian Pipe Mine | MT12 | 1 | 947102 | - | Penrice Wood | Oxwich HG |

| | | | | | | |
|--------------------|------|---|--------|---|-------------------|------------------------|
| Canadian Pipe Mine | MT13 | 1 | 946100 | - | S of Penrice Wood | Oxwich HG |
| Canadian Pipe Mine | MT14 | 1 | 907078 | - | Port Eynon | Port Eynon HG |
| Canadian Pipe Mine | MT15 | 1 | 921149 | - | Weobley Castle | Experimental Station |
| Canadian Pipe Mine | MT16 | 1 | 044141 | - | Killay | Killay HG |
| Canadian Pipe Mine | MT17 | 1 | 045141 | - | Killay | Killay HG |
| Canadian Pipe Mine | MT18 | 1 | 039146 | - | Killay | Killay HG |
| Canadian Pipe Mine | MT19 | 1 | 038172 | - | Bishwell Common | Dunvant HG |
| Canadian Pipe Mine | MT20 | 1 | 038173 | - | Bishwell Common | Dunvant HG |
| Canadian Pipe Mine | MT21 | 1 | 038169 | - | Bevexe-fach | Dunvant HG |
| Canadian Pipe Mine | MT22 | 1 | 023191 | - | Island House | Gowerton HG |
| Canadian Pipe Mine | MT23 | 1 | 023192 | - | Island House | Gowerton HG |
| Canadian Pipe Mine | MT24 | 1 | 049093 | - | Langland Bay | 194 Coy, Pioneer Corps |
| Canadian Pipe Mine | MT25 | 1 | 049094 | - | Langland Bay | 194 Coy, Pioneer Corps |
| Canadian Pipe Mine | MT26 | 1 | 050094 | - | Langland Bay | 194 Coy, Pioneer Corps |
| Canadian Pipe Mine | MT27 | 1 | 049094 | - | Langland Bay | 194 Coy, Pioneer Corps |
| Canadian Pipe Mine | MT28 | 1 | 049094 | - | Langland Bay | 194 Coy, Pioneer Corps |
| Canadian Pipe Mine | MT29 | 1 | 051094 | - | Langland Bay | 194 Coy, Pioneer Corps |
| Canadian Pipe Mine | MT30 | 1 | 052094 | - | Langland Bay | 194 Coy, Pioneer Corps |
| Fougasse | FF01 | 1 | 068192 | - | Cadle | 12 Bn Glam HG |
| Fougasse | FF02 | 1 | 055153 | - | Olchfa | 12 Bn Glam HG |
| Fougasse | FF03 | 1 | 060125 | - | Black Pill | 12 Bn Glam HG |
| Fougasse | FF04 | 1 | 108168 | - | Whiterock | 14 Bn Glam HG |
| Fougasse | FF05 | 1 | 982110 | - | Parkmill | 15 Bn Glam HG |
| Fougasse | FF06 | 1 | 073159 | - | Cockett | 12 Bn Glam HG |
| Fougasse | FF07 | 1 | 091290 | - | Llangyfelach | 12 Bn Glam HG |
| Fougasse | FF08 | 1 | 104221 | - | Pant-lasau | 12 Bn Glam HG |
| Fougasse | FF09 | 1 | 038157 | - | Dunvant | 12 Bn Glam HG |
| Fougasse | FF10 | 1 | 072094 | - | Mumbles Head | 12 Bn Glam HG |
| Fougasse | FF11 | 1 | 032017 | - | Caswell Bay | 15 Bn Glam HG |
| Fougasse | FF12 | 1 | 000167 | - | Wernbwll | 15 Bn Glam HG |

Appendix 6.4: Roadblock sites listed in Swansea Defence Scheme No. 2, 21 May 1942, Swansea Garrison HQ war diary, 1942 (WO 166/6880)

| Sub-Sector | Reference | Cassini | Location |
|------------|-----------|---------|---|
| A | A1 | 152191 | Neath Road at Borough Boundary nr Bowen |
| A | A2 | 141198 | N of Peniel Tunnel |
| A | A3 | 131199 | E of Llansamlet Church |
| B | B1 | 139149 | Crymlyn Burrows Road, King's Dock Level Crossing B.4290 |
| B | B2 | 108167 | Foxhole Road, White Rock Works |
| B | B3 | 127149 | Crymlyn Burrows Road, East Abutment New Canal Bridge |
| C | C1 | 104219 | Maesygernon Road, nr Pontlassau Cross Roads |
| C | C2 | 104221 | Rhydypanydd Road nr Pontlassau Cross Roads |
| C | C3 | 105221 | Gelliwastad nr Pontlassau Cross Roads |
| C | C4 | 103219 | Gorsllan Road nr Pontlassau Cross Roads |
| C | C5 | 114192 | Dolphin Bridge A.4067 |
| C | C6 | 116198 | Clase Road, at Canal Bridge A.48 |
| C | C7 | 114193 | Trewyddfa Common, Neath Road, south of junction with Martin Street, adjoining Harris' Garage A.4067 |
| C | C8 | 111206 | Morrison – Vicarage Road |
| C | C9 | 118198 | - |
| C | C10 | 109203 | - |
| C | C11 | 109196 | - |
| C | C12 | 113211 | - |
| C | C13 | 112198 | - |
| C | C14 | 113213 | - |
| C | C15 | 111215 | - |
| C | C16 | 092120 | Llangyfelach |
| C | C17 | 099178 | Brynhyfryd Square |
| C | C18 | 099178 | Brynhyfryd Square |
| C | C19 | 095196 | Mynydd Bach |
| C | C20 | 083184 | Mynydd Newydd Colliery |
| D | D1 | 068191 | Pontardulais Road nr Cadle Bridge A.483 |
| D | D2 | 070182 | Carmarthen Road in front of gun |
| D | D3 | 072182 | Middle Road nr Cadle Schools |
| D | D4 | 036184 | Gorwydd Road, Gowerton B.4295 (nr Police Station) |
| D | D5 | 032183 | Serry Road, Gowerton B.4295 (Junc. B42) |
| D | D6 | 027186 | In front of New Elba Colliery locality |
| D | D7 | 072173 | Cockett-Waunarwydd Road |
| E | E1 | 062124 | Mumbles Road, Blackpill A.4067 |
| E | E2 | 056152 | Gower Road, nr Olchfa Bridge A.4118 |
| E | E3 | 078139 | Brynmill Lane at junction with Mumbles Road |
| E | E4 | 063127 | Mumbles Road at LMS Railway Bridge Blackpill A.4067 |
| E | E5 | 037157 | Dunvant Station west side of Bridge |
| E | E6 | 037156 | Dunvant Station east side of Bridge |
| E | E7 | 041144 | Near Killay Railway Bridge A.4118 |
| E | E8 | 067155 | Cross Road by School |
| E | E9 | 038165 | Dunvant-Gowerton Road |
| F | F1 | 084143 | Recreation Ground at top of path leading to Bryn Road at St Gabriel's Church |
| F | F2 | 087143 | Mumbles Road, nr St Helens Football Ground A.4067 |
| Docks | Docks 1 | 104148 | Somerset Place nr Old Guildhall |
| Docks | Docks 2 | 104147 | Pier Street, nr South Dock Approach |
| Docks | Docks 3 | 104146 | Cambrian Place, nr South Dock Approach |
| Docks | Docks 4 | 102147 | Victoria Road at junction with York Street B.4290 |
| Docks | Docks 5 | 102148 | Wind Street junction with Harbour Trust Road A.48 |

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|-------|----------|--------|---|
| Docks | Docks 6 | 103145 | Burrows Place South Dock Entrance |
| Docks | Docks 7 | 104145 | Gloucester Place at South Dock Entrance |
| Docks | Docks 8 | 102145 | Road to South Dock between Museum Building and Victoria Station boundary wall |
| Docks | Docks 9 | 119148 | Burrows Inn, Canal Bridge Approach (demolished by enemy action during air raid on 28.11.41) |
| Docks | Docks 10 | 118148 | Burrows Inn under Railway Bridge. Entrance to King's Dock |
| Docks | Docks 11 | 107151 | Prince of Wales Dock Entrance Arch occupied by Lyons Ltd. |
| Docks | Docks 12 | 106151 | Prince of Wales Dock. Entrance RSEB Railway Station |
| Gower | Gower 1 | 066096 | Mumbles Road at Southend B.4433 |
| Gower | Gower 2 | 037097 | Caswell Road nr Caswell Bay A.4067 |
| Gower | Gower 3 | 053095 | Langland Bay Road |
| Gower | Gower 4 | 993111 | Gower Road, Parkmill |
| Gower | Gower 5 | 985179 | Penclawdd W of Ship & Anchor public house |
| Gower | Gower 6 | 989112 | At Parkmill |
| Gower | Gower 7 | 946093 | At Oxwich Burrow |
| Gower | Gower 8 | 944086 | At Oxwich, road to Oxwich Green |
| Gower | Gower 9 | 943087 | At Oxwich, road to Pitt |
| Gower | Gower 10 | 942141 | At Llanrhidian |
| Gower | Gower 11 | 009166 | At Poundffald, road to Penclawdd (will not be closed until the Penclawdd Mobile Column has passed through) |
| Gower | Gower 12 | 010167 | At Poundffald, road running north (will not be closed until the Penclawdd Mobile Column has passed through) |
| Gower | Gower 13 | 010165 | At Poundffald, above fork (will not be closed until the Penclawdd Mobile Column has passed through) |
| Gower | Gower 14 | 975134 | At Llethryd |
| Gower | Gower 15 | 034097 | At Caswell Bay West |
| Gower | Gower 16 | 018114 | At Kittle B.4436 |
| Gower | Gower 17 | 985178 | Near School, Penclawdd B.4295 |
| Gower | Gower 18 | 063093 | Western Approaches to Mumbles 559 Coast Regt., RA |

**Appendix 6.5: Selected extracts from Swansea Garrison HQ war diary, 1942
(WO 166/6880)**

| Date | Entry |
|------------|---|
| 03/02/1942 | Lt-Col. Cowley, Capt. Pictor (Garrison Engineer) and Contractors visited Mynydd Newydd locality and arranged for work on 2 Allan Williams Pill Boxes, 5 P/Bs and 3 Fieldworks to commence immediately. These defence works are the first to be commenced under the new Swansea Defence Scheme dated 01/01/1942. |
| 04/02/1942 | Instructions issued for a 'survey of all beaches in Gower and Swansea with a view to possible sea landings.' |
| 05/02/1942 | Recce of all beaches in Gower, and Experimental Station Salthouse Point. |
| 09/02/1942 | Garrison Commander showed contractors exact positions of defensive works to be built in Swansea area. Work to commence immediately. |
| 20/02/1942 | Templets (sic) on P/B sites under construction on Mynyddbach and Mynydd Cadle Common areas. Found that no work had been started. |
| 06/03/1942 | Garrison Commander (Lt-Col. Cowley) visited two P/B sites at Llansamlet with Mr Griff Davies (Contractor) and explained position of loopholes. |
| 09/03/1942 | Garrison Commander (Lt-Col. Cowley) visited with Engineer of LMSR and representatives of RE (South Wales District) and explained the exact sites for railblocks at Killay, Dunvant and Cockett. |
| 13/03/1942 | Inspected work on Gower Stop Line which has been carried out by Bomb Disposal Section. |
| 19/03/1942 | Garrison Commander met representatives of Borough Engineers' Dept. regarding P/B by ARP Shelter Colony at Llansamlet. |
| 23/03/1942 | Garrison commander inspected work done by contractor (Mr Isaac Jones) at Mynydd Cadle Common. |
| 24/03/1942 | Accompanied by Adjt., 12 Bn. Glam HG, Garrison Commander reconnoitred for defensive positions to be manned by ICI Waunarlwydd detachment. |
| 24/03/1942 | Garrison Commander interviews Contractor (Mr Griff Davies) regarding giving up remainder of construction of defence works. |
| 27/03/1942 | Garrison Commander inspected mines at Rhossili and work done at Penclawdd, also inspected A Sub-Sector defences. |
| 28/03/1942 | Garrison Commander inspected defence works at Gowerton. Arranged for further tasks to commence on 31/03/1942. |
| 31/03/1942 | Garrison Commander met Lt. Douglas, RE 165 BDS and showed him the site for new fieldworks in connection with the Defence Scheme. |
| 02/04/1942 | Garrison Commander discussed on the ground with OC 77 S/L Regt. AA the question of defence of roadblocks at Parkmill. Arranged with him to take over this task. |
| 03/04/1942 | Garrison Commander inspected Defence Works being constructed by contractors. Discovered very inferior work and reported same to Garrison Engineer who inspected work and took appropriate action to have it rectified. |
| 16/04/1942 | Flt/Lt. Patterson, RAF Fairwood and LDA Fairwood discussed external defence of Fairwood Aerodrome. Approval given for three parties of RAF Regiment to engage the enemy outside the perimeter of the aerodrome at all times. |
| 17/04/1942 | Garrison Commander inspected area to select sites for new roadblocks, and later visited Parkmill and Gowerton in order to show Lt. Douglas, RE sites for new minefields. |
| 25/04/1942 | Garrison Commander visited 12 Bn. area with OC 12 Bn. Glam HG to decide details of new defended localities. |
| 27/04/1942 | Garrison Commander and GSO III visited CD/CHL Stations at Oxwich and Rhossili accompanied by Garrison Engineer (Mr Fry) Garrison Commander sited defence positions for both Oxwich and Rhossili. |
| 28/04/1942 | Garrison Commander saw Group Captain Atcherley (Stn. Comdr. Fairwood) and agreed with him that the numbers available for defence of Gower and Fairwood were totally inadequate. |

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| 08/05/1942 | Garrison Commander (Lt-Col. Cowley) and G.3 (Captain Clark) visited Heavy AA site Jersey Marine and in conjunction with Battery Commander (Major Waddington) selected certain positions for Ground Defence of the HAA site. |
| 09/05/1942 | Garrison Commander visited Jersey Marine and carried out recce for defended locality by Heavy AA and Z AA sites. Proposals submitted to Severn Sub-Area embodying personnel of Heavy AA, Z and Home Guard. |
| 12/05/1942 | Garrison Commander saw OC and 2 i/c 285 Coy, PC who reported to HQs on arrival. It was arranged that their Coy. should build certain defence works in the area. |
| 15/05/1942 | Garrison Commander allotted tasks to 285 Coy, PC in construction of defences and slit trenches in the Login locality. |
| 17/05/1942 | Garrison Commander showed representative of 294 Coy, PC positions at Waunarwydd where slit trenches are to be made by working party from that Company. |
| 22/05/1942 | Garrison Commander met OC 294 Coy, PC (Major Webb) at Gowerton and should (sic) him defences which needed digging by fatigue party provided by his Coy. |
| 22/05/1942 | Garrison Commander met OC 'D' Coy. 30 SWBs at Oxwich CHL Station and inspected progress made in construction of wire. |
| 23/05/1942 | Visited Fairwood and discussed LDA policy to be adopted for defence of aerodrome. Principle accepted that Backers Up should be used for the manning of static positions within the Aerodrome and the Defence Squadron should be used as a highly mobile striking force outside of the aerodrome based on Fairwood Common. |
| 26/05/1942 | Visited Jersey Marine Beach with a view to siting Beach Flame Barrage. |
| 29/05/1942 | Inspection of pillboxes Dunvant and Killay carried out. |
| 03/06/1942 | Garrison Commander gave task to representative of 294 Coy, PC (Lt. Corbett) working party for field defences near Gowerton. |
| 06/06/1942 | Garrison Commander sited additional defence positions for work to be carried out by 294 Coy, PC at Gowerton. |
| 08/06/1942 | Garrison Commander visited Fairwood Defences with LDA Fairwood Aerodrome, made recommendations as to siting of posts in defended localities. |
| 11/06/1942 | Garrison Commander and G III attended conference at Jersey Marine to decide upon Jersey Marine defences. Final decision now left in hands of Neath Sector Commander. |
| 12/06/1942 | Garrison Commander inspected work done on defences at Fairwood Aerodrome. |
| 15/06/1942 | Garrison Commander met OC 'D' Coy, SWBs (Mr Smith) at Oxwich CHL Station and pointed out location of tented camp and also defensive positions. |
| 15/06/1942 | Garrison Commander then proceeded to Rhossili to inspect CD/CHL Station defences. Completion of wiring held up owing to lack of Dannert wire. |
| 16/06/1942 | Garrison Commander saw NOi/c re Burryport (sic) scaffolding barrage. |
| 16/06/1942 | Garrison Commander visited OC 559 Coast Regt., RA Mumbles with a view to recommending sites for Blacker Bombards in defence of the Btys. at Mumbles. |
| 19/06/1942 | Garrison Commander visited Llansamlet to see defences - camouflage of defences urgently required. |
| 19/06/1942 | Garrison Commander and G III carried out survey of Langland and Caswell Bays to report on condition and numbers of rails on the beaches with a view to salvaging rails not fulfilling a useful purpose. |
| 20/06/1942 | Garrison Commander visited Gowerton and Waunarwydd defences. Gave tasks to 294 Coy, PC for defence works. |
| 20/06/1942 | G III carried out recce of Swansea Bay to report on condition and numbers of rails on the beaches. |
| 26/06/1942 | Garrison Commander inspected Field Works under construction by 294 and 285 Coys, PC. |
| 30/06/1942 | Mr Cameron 179 Tunnelling Coy, RE visited Garrison Commander and discussed siting of Flame Beach Barrage, Jersey Marine. |
| 04/07/1942 | G I (Op) Western Command (Lt-Col. Hutchins) accompanied by G III Swansea Garrison (Captain Clark) carried out a detailed survey of Nicholaston Bay, Oxwich Bay, Rhossili Bay, Broughton Bay. |

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| 06/07/1942 | Garrison Commander handed over Waunarlwydd defended area defence works to No. 4 Coy, 12 Bn. Glam Home Guard. |
| 07/07/1942 | Garrison Commander inspected Popples Bay and 3 Cliffs Bay Minefields and submitted report to SAA re condition of mines. |
| 08/07/1942 | Garrison Commander, accompanied by DCRE (Major Pictor), met representatives of South Wales Transport Coy. and discussed question of incorporating Anti-Tank Blocks, which had fallen down, in the sea wall which they are building. Permission given for the Blocks to be made part of the new sea wall. |
| 09/07/1942 | Garrison Commander handed over field works in Windsor Terrace area (constructed by 294 Coy, PC) to No. 4 Coy, 12 Bn. Glam Home Guard. |
| 10/07/1942 | Garrison Commander took Colonel Davies (OC 12 Bn. Glam Home Guard) over ICI Gowerton defences and explained requirements for construction of fieldworks. |
| 13/07/1942 | Garrison Commander took Works Officer (Lt. Evans) to Fairwood Aerodrome and put him in charge of work being carried out by Contractor on Fairwood Defences. |
| 14/07/1942 | Garrison Commander inspected minefields at Port Eynon and Horton Bay. |
| 16/07/1942 | Provisional scheme for defence of Gower approved by Severn Sub-Area. |
| 18/07/1942 | Garrison Commander visited 179 Tunnelling Coy, RE and inspected work on Flame Beach Barrage - Jersey Marine. |
| 20/07/1942 | Garrison Commander proceeded to Fairwood Aerodrome and gave tasks for construction of fieldworks to Major Fry, RE Construction Coy. |
| 22/07/1942 | Garrison Commander visited Fairwood Aerodrome accompanied by LDA and Lt. Evans and selected positions to be built by RE in No. 9 Locality. |
| 27/07/1942 | Garrison Commander showed G III twelve sites chosen for Blacker Bombard Static Positions. |
| 30/07/1942 | G III, together with Mr Phillips (Rep. of Garrison Engineer) and Mr James (Rep. Term Contractor) pegged four positions for Static Blacker Bombard positions. |
| 04/08/1942 | G III (Captain Clark) took Mr Phillips (Representing Garrison Engineer West) and Mr James (Contractor) round Blacker Bombard positions in Gowerton, Gorseinon Road and Cockett areas. Static positions all pegged. |
| 05/08/1942 | G III showed Major Llewellyn, HG and Capt. Hayes (Adj. 12 Bn. Glam HG) new positions constructed by 285 Coy, PC in the Gipsy Cross Locality for six sections. The 6-pdr gun at Fforestfach was also inspected. |
| 06/08/1942 | G III and Adj. 12 Bn. Glam HG inspected Blackpill minefield. |
| 11/08/1942 | Garrison Commander visited Ynysforgan Viaduct for meeting with GWR Engineer regarding subsidence caused by construction of defence works. Agreed that a small retaining wall should be constructed. |
| 11/08/1942 | Major Hudson (OC 559 Coast Regt, RA) visited Garrison HQs and discussed Newton Pl. Home Guard who are to be used as Coastal Defence gunners. |
| 13/08/1942 | O i/c USA Movement Control detachment called on Garrison Commander regarding operational role. Detachment placed at disposal of DEMS for use on ships in Queen's Dock in the event of enemy attack. |
| 13/08/1942 | LDA Fairwood (Major Bamford) visited Garrison Commander to discuss lessons learnt during 'DAVID III', and the re-organisation of defensive measures at the aerodrome. |
| 20/08/1942 | Garrison Commander proceeded to Slade Bay (Gower Peninsula) to visit 2847 Squadron RAF Regiment from Llandow who are in camp there. |
| 24/08/1942 | Squadron Leader Frogley, 2847 Squadron RAF visited Garrison HQs and was allotted an operational role for his detachment during period at Slade. |
| 25/08/1942 | Garrison Commander took OC 16 BD Coy, RE round positions to be constructed on [Fairwood] aerodrome. |
| 27/08/1942 | Major Edmund, OC 559 Coast Regt, RA called at Garrison HQs on assuming command. Operational role as OC Mumbles Sub-Sector explained to him. |
| 28/08/1942 | Garrison Commander conducted TEWT at Ring Contour 400 locality Fairwood. |
| 30/08/1942 | Garrison Commander took contractor round Blacker Bombard positions [at Jersey Marine]. |
| 06/09/1942 | Garrison Commander and G3 accompanied Contractor (Mr James) to inspect work done on Blacker Bombards in Swansea area. |

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| 07/09/1942 | Garrison Commander called on LDA Fairwood (Major Colebourne) to discuss defences in No. 7 locality. |
| 15/09/1942 | Garrison Commander visited Port Eynon to inspect minefields. |
| 17/09/1942 | Garrison Engineer inspected Static BB sites at Cwmbwrla, and later visited 179 Tunnelling Coy, RE and inspected progress of work on Flame Beach Barrage. |
| 24/09/1942 | Accompanied by OC 294 Coy, PC (Major Webb) and LDA Fairwood (Major Colebourne) GC visited Quarry Locality with view to transferring responsibility of this defence to the Aerodrome Backers Up. |
| 28/09/1942 | Garrison Commander inspected defences of 431 Bty, RA Swansea Docks. |
| 02/10/1942 | Garrison Commander took Garrison Engineer East to Jersey Marine to show him sites for new Blacker Bombards. |
| 16/10/1942 | Garrison Commander took LDA (Major Colebourne) to defences at Cockett and Tir Hester. |
| 19/10/1942 | Severn Sub-Area Commander (Col. Robb) visited ICI Landore and Waunarlwydd regarding AA defence. |
| 04/11/1942 | Garrison Comdr. visited defences Tir John with OC 'C' Coy, 14 Bn. Glam HG. |
| 07/11/1942 | Col. Robb ordered OC 559 Coast Regt, RA (Major Edmonds) to draw up Ground Defence Scheme as soon as possible and carry out necessary work in digging slit trenches and preparing defended localities. |
| 09/11/1942 | G III (Capt. Clark) visited CD/CHL Station at Rhossili and CHL Station at Oxwich to report on position as to Ground Defence after removal of 'B' Coy, 30 SWBs from these stations on 07/11/1942. Position at Oxwich fairly satisfactory; position at Rhossili far from satisfactory. |
| 13/11/1942 | G3 Swansea Garrison carried out inspection of all poles on Gower Peninsula originally placed in position as obstruction for landing grounds. Only those poles in Singleton Camp recommended for use as pit props. |
| 17/11/1942 | Garrison Commander visited 559 Coast Regt, RA and sited all ground defence positions for Btys. at Mumbles. |
| 17/11/1942 | Garrison Commander sites OPs for Flame Beach Barrage, Jersey Marine - work to be carried out by 179 (S) Tunnelling Coy, RE. |
| 21/11/1942 | G3 inspected Blacker Bombard sites for Static Mountings at Clydach - Aberdulais, Neath, Briton Ferry, Pontardawe. |
| 24/11/1942 | Garrison Commander showed OC Bomb Disposal Section, RE (Lt. Douglas) particulars of defence works required at CHL Station, Oxwich. |
| 25/11/1942 | Garrison Commander visited Station Commander Fairwood Airfield regarding passage of traffic through airfield in an emergency. Mutual arrangements arrived at whereby N & S barriers are made passable for Military traffic until such time as the airfield is attacked. |
| 27/11/1942 | Garrison Commander and G3 inspected work on defences being carried out by BDS at Oxwich. |
| 14/12/1942 | Garrison Commander (Lt-Col. Phillips) inspected No. 1 Coy, 12 Bn. Glam HG area - Morriston, Ynysforgan, Pont-Iassau, Llangyfelach area. |
| 21/12/1942 | Garrison Commander accompanied by Adj. 15 Bn. Glam HG (Capt. Simons) recce'd Ring Contour 400 and selected localities for HQs and 3 Pls. of Penclawdd Coy. |
| 28/12/1942 | Garrison Commander, Adj. 15 Bn. Glam HG and a representative of LDA Fairwood, carried out a recce of Court Farm area and selected Pl. and Section Areas for 1 Pl. of 15 Bn. and 1 Flight of Aerodrome personnel. |
| 30/12/1942 | Garrison Commander inspected defences at New Cut Bridge, and Jersey Marine. |

Appendix 6.6: List of identified defence sites for Swansea-Gower case study

| Name | Location | Site Type | Group | E | N | Evidence | | | |
|----------|---------------------|--------------------|---------------------------------|--------|--------|----------|-----|----|-------|
| | | | | | | Arch | Doc | AP | Carto |
| PB001 | Lonlas | Pillbox | 1/A Swansea Sub-Sector Defences | 270817 | 197238 | | ✓ | | |
| FW001 | Lonlas | Fieldwork | 1/A Swansea Sub-Sector Defences | 270845 | 197238 | | ✓ | | |
| PB002 | Lonlas | Pillbox | 1/A Swansea Sub-Sector Defences | 270406 | 197259 | | ✓ | | |
| PB003 | Peniel Green Tunnel | Pillbox | 1/A Swansea Sub-Sector Defences | 269629 | 197814 | | ✓ | | |
| FW002 | Peniel Green Tunnel | Fieldwork | 1/A Swansea Sub-Sector Defences | 269555 | 197941 | | ✓ | | |
| FW003 | Peniel Green Tunnel | Fieldwork | 1/A Swansea Sub-Sector Defences | 269858 | 197875 | | ✓ | | |
| PB004 | Llansamlet Church | Pillbox | 1/A Swansea Sub-Sector Defences | 268779 | 197996 | | ✓ | | |
| FW004 | Llansamlet Church | Fieldwork | 1/A Swansea Sub-Sector Defences | 268619 | 197995 | | ✓ | | |
| PB005 | Llansamlet Church | Pillbox | 1/A Swansea Sub-Sector Defences | 268744 | 197686 | | ✓ | | |
| PB006 | Llansamlet Square | Pillbox | 1/A Swansea Sub-Sector Defences | 268721 | 195774 | | ✓ | | |
| PB007 | Llansamlet Square | Pillbox | 1/A Swansea Sub-Sector Defences | 268730 | 197436 | | ✓ | | |
| PB008 | Llansamlet Square | Pillbox | 1/A Swansea Sub-Sector Defences | 268653 | 197554 | | ✓ | | |
| RESERVES | Llansamlet Square | Ancillary Building | 1/A Swansea Sub-Sector Defences | 268368 | 197380 | | ✓ | | |
| PB009 | Halfway Inn | Pillbox | 1/A Swansea Sub-Sector Defences | 269287 | 196347 | | ✓ | | |
| FW005 | Halfway Inn | Fieldwork | 1/A Swansea Sub-Sector Defences | 269387 | 196347 | | ✓ | | |
| H | Halfway Inn | Fortified House | 1/A Swansea Sub-Sector Defences | 269438 | 196424 | | ✓ | | |
| PB010 | Winch Wen | Pillbox | 1/A Swansea Sub-Sector Defences | 268345 | 196502 | | ✓ | | |
| PB011 | Winch Wen | Pillbox | 1/A Swansea Sub-Sector Defences | 268038 | 196237 | | ✓ | | |
| FW006 | Winch Wen | Fieldwork | 1/A Swansea Sub-Sector Defences | 268055 | 196257 | | ✓ | | |
| RESERVES | RESERVES | Ancillary Building | 1/A Swansea Sub-Sector Defences | 268351 | 197052 | | ✓ | | |
| RESERVES | RESERVES | Ancillary Building | 1/A Swansea Sub-Sector Defences | 269287 | 196357 | | ✓ | | |

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|----------|--------------|--------------------|---------------------------------|-----------|-----------|--|---|--|--|
| RESERVES | RESERVES | Ancillary Building | 1/A Swansea Sub-Sector Defences | 269043 | 197246 | | ✓ | | |
| PB012 | Bonymaen | Pillbox | 1/B Swansea Sub-Sector Defences | 268000 | 194974 | | ✓ | | |
| FW007 | Bonymaen | Fieldwork | 1/B Swansea Sub-Sector Defences | 267662 | 194892 | | ✓ | | |
| FW008 | Bonymaen | Fieldwork | 1/B Swansea Sub-Sector Defences | 267562 | 194892 | | ✓ | | |
| PB013 | Pentrechwyth | Pillbox | 1/B Swansea Sub-Sector Defences | 267410 | 195460 | | ✓ | | |
| PB014 | Pentrechwyth | Pillbox | 1/B Swansea Sub-Sector Defences | 267190 | 195211 | | ✓ | | |
| FW009 | Pentrechwyth | Fieldwork | 1/B Swansea Sub-Sector Defences | 267318 | 195295 | | ✓ | | |
| PB015 | White Rock | Pillbox | 1/B Swansea Sub-Sector Defences | 266401 | 194881 | | ✓ | | |
| FW010 | White Rock | Fieldwork | 1/B Swansea Sub-Sector Defences | 266411 | 194891 | | ✓ | | |
| FW011 | White Rock | Fieldwork | 1/B Swansea Sub-Sector Defences | 266432 | 195030 | | ✓ | | |
| PB016 | Tir John | Pillbox | 1/B Swansea Sub-Sector Defences | 268477 | 193552 | | ✓ | | |
| FW012 | Tir John | Fieldwork | 1/B Swansea Sub-Sector Defences | 268555 | 194154 | | ✓ | | |
| FW013 | Tir John | Fieldwork | 1/B Swansea Sub-Sector Defences | 268532 | 194147 | | ✓ | | |
| PB017 | Cemetery | Pillbox | 1/B Swansea Sub-Sector Defences | 268040 | 193553 | | ✓ | | |
| PB018 | Cemetery | Pillbox | 1/B Swansea Sub-Sector Defences | 267563 | 193563 | | ✓ | | |
| PB019 | Cemetery | Pillbox | 1/B Swansea Sub-Sector Defences | 267306 | 193543 | | ✓ | | |
| PB020 | Cemetery | Pillbox | 1/B Swansea Sub-Sector Defences | 266611 | 193543 | | ✓ | | |
| PB021 | St Thomas | Pillbox | 1/B Swansea Sub-Sector Defences | 266173 | 193606 | | ✓ | | |
| FW014 | St Thomas | Fieldwork | 1/B Swansea Sub-Sector Defences | 266189 | 193404 | | ✓ | | |
| FW015 | St Thomas | Fieldwork | 1/B Swansea Sub-Sector Defences | 266179 | 193817 | | ✓ | | |
| RESERVES | RESERVES | Ancillary Building | 1/B Swansea Sub-Sector Defences | 267873 | 195295 | | ✓ | | |
| RESERVES | RESERVES | Ancillary Building | 1/B Swansea Sub-Sector Defences | 268521 | 193644 | | ✓ | | |
| RESERVES | RESERVES | Ancillary Building | 1/B Swansea Sub-Sector Defences | Not cited | Not cited | | ✓ | | |

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|-------|--------------------|----------------|---------------------------------|--------|--------|--|---|--|--|
| PB022 | Ynysforgan Viaduct | Pillbox | 2/C Swansea Sub-Sector Defences | 267285 | 199152 | | ✓ | | |
| PB023 | Ynysforgan Viaduct | Pillbox | 2/C Swansea Sub-Sector Defences | 267555 | 199239 | | ✓ | | |
| PB024 | Ynysforgan Viaduct | Pillbox | 2/C Swansea Sub-Sector Defences | 267840 | 199216 | | ✓ | | |
| PB025 | Chemical Road | Pillbox | 2/C Swansea Sub-Sector Defences | 266655 | 199189 | | ✓ | | |
| PB026 | Chemical Road | Pillbox | 2/C Swansea Sub-Sector Defences | 266825 | 199099 | | ✓ | | |
| FW016 | Chemical Road | Fieldwork | 2/C Swansea Sub-Sector Defences | 266470 | 199280 | | ✓ | | |
| PB027 | School | Pillbox | 2/C Swansea Sub-Sector Defences | 266847 | 199470 | | ✓ | | |
| FW017 | School | Fieldwork | 2/C Swansea Sub-Sector Defences | 266856 | 199619 | | ✓ | | |
| FW018 | School | Fieldwork | 2/C Swansea Sub-Sector Defences | 266838 | 199717 | | ✓ | | |
| FW019 | Golf Links | Fieldwork | 2/C Swansea Sub-Sector Defences | 266216 | 198734 | | ✓ | | |
| FW020 | Golf Links | Fieldwork | 2/C Swansea Sub-Sector Defences | 266316 | 198573 | | ✓ | | |
| FW021 | Golf Links | Fieldwork | 2/C Swansea Sub-Sector Defences | 266370 | 198856 | | ✓ | | |
| PB028 | Pentrepoeth | Pillbox | 2/C Swansea Sub-Sector Defences | 266800 | 198250 | | ✓ | | |
| FW022 | Pentrepoeth | Loopholed Wall | 2/C Swansea Sub-Sector Defences | 266654 | 198633 | | ✓ | | |
| FW023 | Pentrepoeth | Loopholed Wall | 2/C Swansea Sub-Sector Defences | 266664 | 198477 | | ✓ | | |
| PB029 | Chris Williams | Pillbox | 2/C Swansea Sub-Sector Defences | 267018 | 198177 | | ✓ | | |
| PB030 | Chris Williams | Pillbox | 2/C Swansea Sub-Sector Defences | 267184 | 198334 | | ✓ | | |
| PB031 | Chris Williams | Pillbox | 2/C Swansea Sub-Sector Defences | 266946 | 198288 | | ✓ | | |
| PB032 | Chris Williams | Pillbox | 2/C Swansea Sub-Sector Defences | 266719 | 198154 | | ✓ | | |
| PB033 | Fforest Bridge | Pillbox | 2/C Swansea Sub-Sector Defences | 267315 | 197801 | | ✓ | | |
| PB034 | Fforest Bridge | Pillbox | 2/C Swansea Sub-Sector Defences | 266584 | 197719 | | ✓ | | |
| PB035 | Fforest Bridge | Pillbox | 2/C Swansea Sub-Sector Defences | 267176 | 197963 | | ✓ | | |
| PB036 | Duke Hotel | Pillbox | 2/C Swansea Sub-Sector Defences | 266905 | 197002 | | ✓ | | |

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|-------|---------------------|-----------|---------------------------------|--------|--------|--|---|--|--|
| PB037 | Duke Hotel | Pillbox | 2/C Swansea Sub-Sector Defences | 266889 | 197338 | | ✓ | | |
| PB038 | Duke Hotel | Pillbox | 2/C Swansea Sub-Sector Defences | 266928 | 197275 | | ✓ | | |
| FW024 | Duke Hotel | Fieldwork | 2/C Swansea Sub-Sector Defences | 266905 | 197022 | | ✓ | | |
| PB039 | Bryn Rock | Pillbox | 2/C Swansea Sub-Sector Defences | 266404 | 197632 | | ✓ | | |
| FW025 | Bryn Rock | Fieldwork | 2/C Swansea Sub-Sector Defences | 266413 | 197404 | | ✓ | | |
| PB040 | Bryn Rock | Pillbox | 2/C Swansea Sub-Sector Defences | 266314 | 197226 | | ✓ | | |
| PB041 | Bryn Rock | Pillbox | 2/C Swansea Sub-Sector Defences | 266285 | 197609 | | ✓ | | |
| PB042 | Pontlassau | Pillbox | 2/C Swansea Sub-Sector Defences | 265819 | 200042 | | ✓ | | |
| FW026 | Pontlassau | Fieldwork | 2/C Swansea Sub-Sector Defences | 265590 | 200106 | | ✓ | | |
| FW027 | Pontlassau | Fieldwork | 2/C Swansea Sub-Sector Defences | 265847 | 200225 | | ✓ | | |
| PB043 | Llangyfelach | Pillbox | 2/C Swansea Sub-Sector Defences | 264683 | 198899 | | ✓ | | |
| FW028 | Llangyfelach | Fieldwork | 2/C Swansea Sub-Sector Defences | 264545 | 198874 | | ✓ | | |
| FW029 | Llangyfelach | Fieldwork | 2/C Swansea Sub-Sector Defences | 264651 | 199207 | | ✓ | | |
| PB044 | Mynyddbach | Pillbox | 2/C Swansea Sub-Sector Defences | 265222 | 197431 | | ✓ | | |
| FW030 | Mynyddbach | Fieldwork | 2/C Swansea Sub-Sector Defences | 265048 | 197579 | | ✓ | | |
| FW031 | Mynyddbach | Fieldwork | 2/C Swansea Sub-Sector Defences | 265382 | 197566 | | ✓ | | |
| FW032 | Mynyddbach | Fieldwork | 2/C Swansea Sub-Sector Defences | 265281 | 197566 | | ✓ | | |
| PB045 | Mynyddbach | Pillbox | 2/C Swansea Sub-Sector Defences | 265279 | 197002 | | ✓ | | |
| PB046 | Mynydd Cadle Common | Pillbox | 2/C Swansea Sub-Sector Defences | 264648 | 197083 | | ✓ | | |
| FW033 | Mynydd Cadle Common | Fieldwork | 2/C Swansea Sub-Sector Defences | 264648 | 197195 | | ✓ | | |
| PB047 | Mynydd Cadle Common | Pillbox | 2/C Swansea Sub-Sector Defences | 264660 | 196790 | | ✓ | | |
| PB048 | Mynydd Cadle Common | Pillbox | 2/C Swansea Sub-Sector Defences | 264421 | 196696 | | ✓ | | |
| FW034 | Mynydd Cadle Common | Fieldwork | 2/C Swansea Sub-Sector Defences | 264690 | 196709 | | ✓ | | |

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|----------|------------------------|---------------------------|---------------------------------|-----------|-----------|--|---|--|--|
| PB049 | Mynydd Newydd Colliery | Pillbox | 2/C Swansea Sub-Sector Defences | 263852 | 196625 | | ✓ | | |
| FW035 | Mynydd Newydd Colliery | Fieldwork | 2/C Swansea Sub-Sector Defences | 263970 | 196625 | | ✓ | | |
| FW036 | Mynydd Newydd Colliery | Fieldwork | 2/C Swansea Sub-Sector Defences | 263881 | 196293 | | ✓ | | |
| FW037 | Mynydd Newydd Colliery | Fieldwork | 2/C Swansea Sub-Sector Defences | 263730 | 196418 | | ✓ | | |
| FW038 | Mynydd Newydd Colliery | Fieldwork | 2/C Swansea Sub-Sector Defences | 263730 | 196318 | | ✓ | | |
| PB050 | Ravenhill | Pillbox | 2/C Swansea Sub-Sector Defences | 263582 | 196363 | | ✓ | | |
| PB051 | Ravenhill | Pillbox | 2/C Swansea Sub-Sector Defences | 263747 | 195951 | | ✓ | | |
| PB052 | Ravenhill | Pillbox | 2/C Swansea Sub-Sector Defences | 264211 | 195569 | | ✓ | | |
| FW039 | Ravenhill | Fieldwork | 2/C Swansea Sub-Sector Defences | 264201 | 195569 | | ✓ | | |
| RESERVES | RESERVES | Ancillary Building | 2/C Swansea Sub-Sector Defences | Not cited | Not cited | | ✓ | | |
| PB053 | Fforestfach | Pillbox | 2/D Swansea Sub-Sector Defences | 263397 | 196030 | | ✓ | | |
| PB054 | Fforestfach | Anti-Tank Gun Emplacement | 2/D Swansea Sub-Sector Defences | 262770 | 196262 | | ✓ | | |
| PB055 | Fforestfach | Pillbox | 2/D Swansea Sub-Sector Defences | 262867 | 196262 | | ✓ | | |
| PB056 | Fforestfach | Pillbox | 2/D Swansea Sub-Sector Defences | 263014 | 195776 | | ✓ | | |
| FW040 | White City | Fieldwork | 2/D Swansea Sub-Sector Defences | 262897 | 195224 | | ✓ | | |
| PB057 | Cockett | Pillbox | 2/D Swansea Sub-Sector Defences | 263217 | 195451 | | ✓ | | |
| FW041 | Cockett | Fieldwork | 2/D Swansea Sub-Sector Defences | 263060 | 195703 | | ✓ | | |
| PB058 | Cockett | Pillbox | 2/D Swansea Sub-Sector Defences | 263141 | 195106 | | ✓ | | |
| PB059 | Cockett | Pillbox | 2/D Swansea Sub-Sector Defences | 262897 | 195234 | | ✓ | | |
| PB060 | Cadle | Pillbox | 2/D Swansea Sub-Sector Defences | 262390 | 197213 | | ✓ | | |
| FW042 | Cadle | Fieldwork | 2/D Swansea Sub-Sector Defences | 262254 | 197296 | | ✓ | | |
| FW043 | Cadle | Fieldwork | 2/D Swansea Sub-Sector Defences | 262201 | 196694 | | ✓ | | |
| PB061 | Island House | Pillbox | 2/D Swansea Sub-Sector Defences | 257863 | 197216 | | ✓ | | |

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|-------|-------------------|-----------|---------------------------------|--------|--------|--|---|--|--|
| FW044 | Island House | Fieldwork | 2/D Swansea Sub-Sector Defences | 257860 | 197329 | | ✓ | | |
| FW045 | Island House | Fieldwork | 2/D Swansea Sub-Sector Defences | 257840 | 197123 | | ✓ | | |
| PB062 | New Elba Colliery | Pillbox | 2/D Swansea Sub-Sector Defences | 258367 | 196673 | | ✓ | | |
| PB063 | New Elba Colliery | Pillbox | 2/D Swansea Sub-Sector Defences | 258429 | 196542 | | ✓ | | |
| PB064 | New Elba Colliery | Pillbox | 2/D Swansea Sub-Sector Defences | 258330 | 196536 | | ✓ | | |
| FW046 | New Elba Colliery | Fieldwork | 2/D Swansea Sub-Sector Defences | 258330 | 196546 | | ✓ | | |
| PB065 | Elba Works | Pillbox | 2/D Swansea Sub-Sector Defences | 258907 | 196710 | | ✓ | | |
| PB066 | Elba Works | Pillbox | 2/D Swansea Sub-Sector Defences | 258734 | 196559 | | ✓ | | |
| PB067 | Elba Works | Pillbox | 2/D Swansea Sub-Sector Defences | 258734 | 196659 | | ✓ | | |
| PB068 | Elba Works | Pillbox | 2/D Swansea Sub-Sector Defences | 258897 | 196258 | | ✓ | | |
| PB069 | Gowerton Station | Pillbox | 2/D Swansea Sub-Sector Defences | 259078 | 196475 | | ✓ | | |
| PB070 | Gowerton Station | Pillbox | 2/D Swansea Sub-Sector Defences | 259148 | 196366 | | ✓ | | |
| PB071 | Gowerton Station | Pillbox | 2/D Swansea Sub-Sector Defences | 259075 | 196228 | | ✓ | | |
| PB072 | Gowerton Station | Pillbox | 2/D Swansea Sub-Sector Defences | 259161 | 196153 | | ✓ | | |
| FW047 | Winder Terrace | Fieldwork | 2/D Swansea Sub-Sector Defences | 259496 | 196188 | | ✓ | | |
| FW048 | Winder Terrace | Fieldwork | 2/D Swansea Sub-Sector Defences | 259496 | 196088 | | ✓ | | |
| PB073 | Winder Terrace | Pillbox | 2/D Swansea Sub-Sector Defences | 259418 | 195867 | | ✓ | | |
| PB074 | Winder Terrace | Pillbox | 2/D Swansea Sub-Sector Defences | 259490 | 195938 | | ✓ | | |
| PB075 | Winder Terrace | Pillbox | 2/D Swansea Sub-Sector Defences | 259594 | 195849 | | ✓ | | |
| PB076 | Winder Terrace | Pillbox | 2/D Swansea Sub-Sector Defences | 259386 | 195613 | | ✓ | | |
| PB077 | Winder Terrace | Pillbox | 2/D Swansea Sub-Sector Defences | 259398 | 195613 | | ✓ | | |
| PB078 | Winder Terrace | Pillbox | 2/D Swansea Sub-Sector Defences | 259496 | 195554 | | ✓ | | |
| FW049 | Gormwydd | Fieldwork | 2/D Swansea Sub-Sector Defences | 258791 | 195616 | | ✓ | | |

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|----------|-------------------------|--------------------|---------------------------------|-----------|-----------|--|---|--|--|
| FW050 | Allt-wen | Fieldwork | 2/D Swansea Sub-Sector Defences | 257868 | 195931 | | ✓ | | |
| FW051 | Waunarlwydd | Fieldwork | 2/D Swansea Sub-Sector Defences | 261097 | 195857 | | ✓ | | |
| FW052 | Waunarlwydd | Fieldwork | 2/D Swansea Sub-Sector Defences | 261124 | 195562 | | ✓ | | |
| FW053 | Waunarlwydd | Fieldwork | 2/D Swansea Sub-Sector Defences | 261359 | 195555 | | ✓ | | |
| RESERVES | RESERVES | Ancillary Building | 2/D Swansea Sub-Sector Defences | Not cited | Not cited | | ✓ | | |
| FW054 | Gowerton - Dunvant Road | Fieldwork | 2/E Swansea Sub-Sector Defences | 259465 | 194895 | | ✓ | | |
| PB079 | Brickworks | Pillbox | 2/E Swansea Sub-Sector Defences | 259704 | 194360 | | ✓ | | |
| PB080 | Brickworks | Pillbox | 2/E Swansea Sub-Sector Defences | 259704 | 194260 | | ✓ | | |
| FW055 | Brickworks | Fieldwork | 2/E Swansea Sub-Sector Defences | 259577 | 194251 | | ✓ | | |
| PB081 | Dunvant Post Office | Pillbox | 2/E Swansea Sub-Sector Defences | 259600 | 193717 | | ✓ | | |
| PB082 | Dunvant Post Office | Pillbox | 2/E Swansea Sub-Sector Defences | 259500 | 193717 | | ✓ | | |
| PB083 | Dunvant Post Office | Pillbox | 2/E Swansea Sub-Sector Defences | 259411 | 193637 | | ✓ | | |
| PB084 | Dunvant Post Office | Pillbox | 2/E Swansea Sub-Sector Defences | 259500 | 193617 | | ✓ | | |
| FW056 | Dunvant Post Office | Fieldwork | 2/E Swansea Sub-Sector Defences | 259411 | 193647 | | ✓ | | |
| FW057 | Dunvant Post Office | Fieldwork | 2/E Swansea Sub-Sector Defences | 259398 | 193749 | | ✓ | | |
| PB085 | Dunvant Parish Hall | Pillbox | 2/E Swansea Sub-Sector Defences | 259981 | 193436 | | ✓ | | |
| PB086 | Dunvant Parish Hall | Pillbox | 2/E Swansea Sub-Sector Defences | 259881 | 193436 | | ✓ | | |
| PB087 | Dunvant Parish Hall | Pillbox | 2/E Swansea Sub-Sector Defences | 259904 | 193250 | | ✓ | | |
| PB088 | Killay | Pillbox | 2/E Swansea Sub-Sector Defences | 260149 | 192102 | | ✓ | | |
| PB089 | Killay | Pillbox | 2/E Swansea Sub-Sector Defences | 260088 | 192115 | | ✓ | | |
| FW058 | Killay | Fieldwork | 2/E Swansea Sub-Sector Defences | 260119 | 191938 | | ✓ | | |
| PB090 | Killay | Pillbox | 2/E Swansea Sub-Sector Defences | 259918 | 192172 | | ✓ | | |
| PB091 | Killay | Pillbox | 2/E Swansea Sub-Sector Defences | 259918 | 192272 | | ✓ | | |

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|-------|-----------------------|-----------------|---------------------------------|--------|--------|--|---|--|--|
| PB092 | Killay | Pillbox | 2/E Swansea Sub-Sector Defences | 259716 | 192414 | | ✓ | | |
| PB093 | Killay | Pillbox | 2/E Swansea Sub-Sector Defences | 259906 | 192563 | | ✓ | | |
| PB094 | Killay | Pillbox | 2/E Swansea Sub-Sector Defences | 260166 | 192750 | | ✓ | | |
| FW059 | Killay | Fieldwork | 2/E Swansea Sub-Sector Defences | 260015 | 192427 | | ✓ | | |
| PB095 | Race Course | Pillbox | 2/E Swansea Sub-Sector Defences | 260625 | 192504 | | ✓ | | |
| FW060 | Race Course | Fieldwork | 2/E Swansea Sub-Sector Defences | 260742 | 192391 | | ✓ | | |
| PB096 | Clyne Valley Colliery | Pillbox | 2/E Swansea Sub-Sector Defences | 261542 | 191527 | | ✓ | | |
| FW061 | Clyne Valley Colliery | Fieldwork | 2/E Swansea Sub-Sector Defences | 261442 | 191527 | | ✓ | | |
| PB097 | Clyne Valley Colliery | Pillbox | 2/E Swansea Sub-Sector Defences | 261313 | 191367 | | ✓ | | |
| PB098 | Blackpill | Pillbox | 2/E Swansea Sub-Sector Defences | 261797 | 190306 | | ✓ | | |
| PB099 | Blackpill | Pillbox | 2/E Swansea Sub-Sector Defences | 261889 | 190412 | | ✓ | | |
| PB100 | Blackpill | Pillbox | 2/E Swansea Sub-Sector Defences | 261889 | 190512 | | ✓ | | |
| PB101 | Blackpill | Pillbox | 2/E Swansea Sub-Sector Defences | 261889 | 190712 | | ✓ | | |
| PB102 | Blackpill | Pillbox | 2/E Swansea Sub-Sector Defences | 261879 | 190712 | | ✓ | | |
| PB103 | Blackpill | Pillbox | 2/E Swansea Sub-Sector Defences | 261843 | 190688 | | ✓ | | |
| PB104 | Blackpill | Pillbox | 2/E Swansea Sub-Sector Defences | 261943 | 190688 | | ✓ | | |
| PB105 | Blackpill | Pillbox | 2/E Swansea Sub-Sector Defences | 261850 | 190855 | | ✓ | | |
| PB106 | Blackpill | Pillbox | 2/E Swansea Sub-Sector Defences | 261850 | 190875 | | ✓ | | |
| H | Blackpill | Fortified House | 2/E Swansea Sub-Sector Defences | 261887 | 190599 | | ✓ | | |
| FW062 | Clyne Farm | Fieldwork | 2/E Swansea Sub-Sector Defences | 261067 | 190690 | | ✓ | | |
| FW063 | Clyne Farm | Fieldwork | 2/E Swansea Sub-Sector Defences | 260834 | 190750 | | ✓ | | |
| FW064 | Clyne Farm | Fieldwork | 2/E Swansea Sub-Sector Defences | 260628 | 190941 | | ✓ | | |
| PB107 | Sketty | Pillbox | 2/E Swansea Sub-Sector Defences | 262295 | 193502 | | ✓ | | |

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|----------|--------------------------------|-----------------------|-----------------------------------|-----------|-----------|--|---|--|---|
| FW065 | Sketty | Loopholed Wall | 2/E Swansea Sub-Sector Defences | 262303 | 193092 | | ✓ | | |
| PB108 | Sketty | Pillbox | 2/E Swansea Sub-Sector Defences | 262373 | 192705 | | ✓ | | |
| PB109 | Sketty | Pillbox | 2/E Swansea Sub-Sector Defences | 262604 | 192967 | | ✓ | | |
| PB110 | Sketty | Pillbox | 2/E Swansea Sub-Sector Defences | 262302 | 192408 | | ✓ | | |
| PB111 | Singleton | Pillbox | 2/E Swansea Sub-Sector Defences | 262503 | 191403 | | ✓ | | |
| PB112 | Singleton | Pillbox | 2/E Swansea Sub-Sector Defences | 262503 | 191303 | | ✓ | | |
| PB113 | Singleton | Pillbox | 2/E Swansea Sub-Sector Defences | 262408 | 191100 | | ✓ | | |
| PB114 | Singleton | Pillbox | 2/E Swansea Sub-Sector Defences | 263040 | 191613 | | ✓ | | |
| PB115 | Singleton | Pillbox | 2/E Swansea Sub-Sector Defences | 263360 | 191825 | | ✓ | | |
| RESERVES | Olechfa Sub-Sector Reserve | Ancillary Building | 2/E Swansea Sub-Sector Defences | Not cited | Not cited | | ✓ | | |
| RESERVES | Sketty Park Sub-Sector Reserve | Ancillary Building | 2/E Swansea Sub-Sector Defences | Not cited | Not cited | | ✓ | | |
| PB116 | Western edge of Town | Pillbox | 2/F Swansea Sub-Sector Defences | 262928 | 193477 | | ✓ | | |
| PB117 | Western edge of Town | Pillbox | 2/F Swansea Sub-Sector Defences | 262928 | 193412 | | ✓ | | |
| PB118 | Western edge of Town | Pillbox | 2/F Swansea Sub-Sector Defences | 262667 | 194309 | | ✓ | | |
| PB119 | Western edge of Town | Pillbox | 2/F Swansea Sub-Sector Defences | 263443 | 192005 | | ✓ | | |
| FW066 | Western edge of Town | Loopholed Wall | 2/F Swansea Sub-Sector Defences | 264104 | 192202 | | ✓ | | |
| RESERVES | No 1 Pl. | Ancillary Building | 2/F Swansea Sub-Sector Defences | Not cited | Not cited | | ✓ | | |
| RESERVES | No 2 Pl. | Ancillary Building | 2/F Swansea Sub-Sector Defences | Not cited | Not cited | | ✓ | | |
| RESERVES | No 3 Pl. | Ancillary Building | 2/F Swansea Sub-Sector Defences | Not cited | Not cited | | ✓ | | |
| PB B1 | | Pillbox | Eastern Docks Sub-Sector Defences | 269419 | 193080 | | ✓ | | ✓ |
| AW B2 | | Allan Williams Turret | Eastern Docks Sub-Sector Defences | 269492 | 192866 | | ✓ | | ✓ |
| PB T1 | | Pillbox | Eastern Docks Sub-Sector Defences | 268677 | 193197 | | ✓ | | ✓ |
| PB T2 | | Pillbox | Eastern Docks Sub-Sector Defences | 268618 | 193116 | | ✓ | | ✓ |

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|-----------|----------------------|-----------------------|-----------------------------------|-----------|-----------|---|---|---|---|
| PB T3 | | Pillbox | Eastern Docks Sub-Sector Defences | 268737 | 193107 | | ✓ | | ✓ |
| PB T4 | | Pillbox | Eastern Docks Sub-Sector Defences | 268724 | 193047 | | ✓ | | ✓ |
| PB T5 | | Pillbox | Eastern Docks Sub-Sector Defences | 268622 | 193039 | | ✓ | | ✓ |
| PB T6 | | Pillbox | Eastern Docks Sub-Sector Defences | 268720 | 192976 | | ✓ | | ✓ |
| SBP T7 | | Infantry Post | Eastern Docks Sub-Sector Defences | 268884 | 192853 | | ✓ | | ✓ |
| PB Q1 | Queen's Dock | Pillbox | Eastern Docks Sub-Sector Defences | 267280 | 191830 | ✓ | ✓ | ✓ | ✓ |
| PB Q2 | Queen's Dock | Pillbox | Eastern Docks Sub-Sector Defences | 267625 | 1921951 | ✓ | ✓ | ✓ | ✓ |
| PB Q3 | Queen's Dock | Pillbox | Eastern Docks Sub-Sector Defences | 268035 | 192096 | ✓ | ✓ | ✓ | ✓ |
| SBP Q4 | Queen's Dock | Gun Emplacement | Eastern Docks Sub-Sector Defences | 268370 | 192227 | ✓ | ✓ | ✓ | ✓ |
| PB Q5 | Queen's Dock | Pillbox | Eastern Docks Sub-Sector Defences | 268934 | 192776 | ✓ | ✓ | ✓ | ✓ |
| PB Q6 | Queen's Dock | Pillbox | Eastern Docks Sub-Sector Defences | 269068 | 192931 | | ✓ | ✓ | ✓ |
| PB P1 | Prince of Wales Dock | Pillbox | Eastern Docks Sub-Sector Defences | 266253 | 193059 | | ✓ | | ✓ |
| PB P2 | Prince of Wales Dock | Pillbox | Eastern Docks Sub-Sector Defences | 266362 | 193113 | | ✓ | | ✓ |
| RH P3 | Prince of Wales Dock | Defended Building | Eastern Docks Sub-Sector Defences | 266866 | 193083 | | ✓ | | ✓ |
| AW P4 | Prince of Wales Dock | Allan Williams Turret | Eastern Docks Sub-Sector Defences | 267490 | 193033 | | ✓ | | ✓ |
| PB P5 | Prince of Wales Dock | Pillbox | Eastern Docks Sub-Sector Defences | 267450 | 192924 | | ✓ | | ✓ |
| PB P6 | Prince of Wales Dock | Pillbox | Eastern Docks Sub-Sector Defences | 267557 | 192930 | | ✓ | | ✓ |
| PB P7 | Prince of Wales Dock | Pillbox | Eastern Docks Sub-Sector Defences | Not cited | Not cited | | ✓ | | ✓ |
| PB K1 | King's Dock | Pillbox | Eastern Docks Sub-Sector Defences | 266604 | 192513 | | ✓ | | ✓ |
| PB K3 | King's Dock | Pillbox | Eastern Docks Sub-Sector Defences | 266886 | 192781 | | ✓ | | ✓ |
| PB K4 | King's Dock | Pillbox | Eastern Docks Sub-Sector Defences | 266821 | 192257 | | ✓ | | ✓ |
| PB K8 | King's Dock | Pillbox | Eastern Docks Sub-Sector Defences | Not cited | Not cited | | ✓ | | ✓ |
| SBP S1(W) | South Dock | Infantry Post | South Dock Sub-Sector Defences | 265436 | 192384 | | ✓ | | ✓ |

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|-----------------------------------|--|-----------------------|-----------------------------------|--------|--------|--|---|---|---|
| SBP S1(E) | South Dock | Infantry Post | South Dock Sub-Sector Defences | 265452 | 192393 | | ✓ | | ✓ |
| S2 | South Dock | Defended Building | South Dock Sub-Sector Defences | 265491 | 192536 | | ✓ | | ✓ |
| PB S3 | South Dock | Pillbox | South Dock Sub-Sector Defences | 265541 | 192493 | | ✓ | | ✓ |
| PB S4 | South Dock | Pillbox | South Dock Sub-Sector Defences | 265744 | 192597 | | ✓ | | ✓ |
| PB S5 | South Dock | Pillbox | South Dock Sub-Sector Defences | 265794 | 192636 | | ✓ | | ✓ |
| PB S6 | South Dock | Pillbox | South Dock Sub-Sector Defences | 265934 | 192630 | | ✓ | | ✓ |
| PB S7 | South Dock | Pillbox | South Dock Sub-Sector Defences | 265976 | 192640 | | ✓ | | ✓ |
| PB S8 | South Dock | Pillbox | South Dock Sub-Sector Defences | 266038 | 192655 | | ✓ | | ✓ |
| PB S9 | South Dock | Pillbox | South Dock Sub-Sector Defences | 266064 | 192485 | | ✓ | | ✓ |
| PB S10 | South Dock | Pillbox | South Dock Sub-Sector Defences | 266306 | 192693 | | ✓ | | ✓ |
| BT S11 | South Dock | Rifle Pit | South Dock Sub-Sector Defences | 266326 | 192639 | | ✓ | | ✓ |
| AW S12 | South Dock | Allan Williams Turret | South Dock Sub-Sector Defences | 266125 | 192901 | | ✓ | | ✓ |
| PB S13 | South Dock | Pillbox | South Dock Sub-Sector Defences | 266140 | 192960 | | ✓ | | ✓ |
| S14 | South Dock | Defended Building | South Dock Sub-Sector Defences | 265926 | 192930 | | ✓ | | ✓ |
| S15 | South Dock | Rifle Pit | South Dock Sub-Sector Defences | 265929 | 192812 | | ✓ | | ✓ |
| Gun No. 7. 4-in gun emplacement | East of shoreline APOC oil storage tanks | Beach Defence Battery | Eastern Docks Sub-Sector Defences | 269580 | 192715 | | ✓ | ✓ | ✓ |
| Gun No. 6. 4.7-in gun emplacement | East of Q4 | Beach Defence Battery | Eastern Docks Sub-Sector Defences | 268377 | 192235 | | ✓ | ✓ | ✓ |
| Gun No. 5. 4.7-in gun emplacement | South of South Dock | Beach Defence Battery | South Dock Sub-Sector Defences | 265520 | 192281 | | ✓ | ✓ | ✓ |
| Gun No. 4. 4-in gun emplacement | West of South Dock | Beach Defence Battery | South Dock Sub-Sector Defences | 265224 | 192277 | | ✓ | ✓ | ✓ |
| Flame Fougasse 01 | Cadle | Barrel Flame Trap | | 262346 | 197083 | | ✓ | | |
| Flame Fougasse 02 | Olchfa | Barrel Flame Trap | | 261096 | 193207 | | ✓ | | |
| Flame Fougasse 03 | Blackpill | Barrel Flame Trap | | 261619 | 190599 | | ✓ | | |
| Flame Fougasse 04 | Whiterock | Barrel Flame Trap | | 266400 | 194847 | | ✓ | | |
| Flame Fougasse 05 | Parkmill | Barrel Flame Trap | | 253843 | 188950 | | ✓ | | |
| Flame Fougasse 06 | Cockett | Barrel Flame Trap | | 262898 | 193925 | | ✓ | | |
| Flame Fougasse 07 | Llangyfelach | Barrel Flame Trap | | 264679 | 198882 | | ✓ | | |

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| Flame Fougasse 08 | Pont-lasau | Barrel Flame Trap | | 265958 | 200089 | | ✓ | | |
| Flame Fougasse 09 | Dunvant | Barrel Flame Trap | | 259413 | 193699 | | ✓ | | |
| Flame Fougasse 10 | Mumbles Head | Barrel Flame Trap | | 262871 | 187428 | | ✓ | | |
| Flame Fougasse 11 | Caswell Bay | Barrel Flame Trap | | 258806 | 187702 | | ✓ | | |
| Flame Fougasse 12 | Wernbwll | Barrel Flame Trap | | 255588 | 194668 | | ✓ | | |
| Roadblock A1 | Lonlas | Roadblock | 1/A Swansea Sub-Sector Defences | 270759 | 197165 | | ✓ | | |
| Roadblock A2 | Peniel Green | Roadblock | 1/A Swansea Sub-Sector Defences | 269656 | 197855 | | ✓ | | |
| Roadblock A3 | Llansamlet | Roadblock | 1/A Swansea Sub-Sector Defences | 268776 | 197989 | | ✓ | | |
| Canadian Pipe Mine 01 | Oxwich Bay | Canadian Pipe Mine | | 250264 | 187634 | | ✓ | | |
| Canadian Pipe Mine 02 | Oxwich Bay | Canadian Pipe Mine | | 250267 | 187665 | | ✓ | | |
| Canadian Pipe Mine 03 | Oxwich Bay | Canadian Pipe Mine | | 250146 | 186331 | | ✓ | | |
| Canadian Pipe Mine 04 | Pennard Burrows | Canadian Pipe Mine | | 253960 | 188293 | | ✓ | | |
| Canadian Pipe Mine 05 | Oxwich Burrows | Canadian Pipe Mine | | 250199 | 186572 | | ✓ | | |
| Canadian Pipe Mine 06 | Oxwich Burrows | Canadian Pipe Mine | | 250281 | 187456 | | ✓ | | |
| Canadian Pipe Mine 07 | Parkmill | Canadian Pipe Mine | | 254638 | 189165 | | ✓ | | |
| Canadian Pipe Mine 08 | Parkmill | Canadian Pipe Mine | | 254650 | 188910 | | ✓ | | |
| Canadian Pipe Mine 09 | Llethryd | Canadian Pipe Mine | | 253081 | 191361 | | ✓ | | |
| Canadian Pipe Mine 10 | Cwm Ivy | Canadian Pipe Mine | | 243774 | 194065 | | ✓ | | |
| Canadian Pipe Mine 11 | Pwlldu Bay | Canadian Pipe Mine | | 257496 | 187208 | | ✓ | | |
| Canadian Pipe Mine 12 | Penrice Wood | Canadian Pipe Mine | | 250342 | 188077 | | ✓ | | |
| Canadian Pipe Mine 13 | Penrice Wood | Canadian Pipe Mine | | 250278 | 187867 | | ✓ | | |
| Canadian Pipe Mine 14 | Port-Eynon | Canadian Pipe Mine | | 246443 | 185592 | | ✓ | | |
| Canadian Pipe Mine 15 | Weobley Castle | Canadian Pipe Mine | | 247716 | 192793 | | ✓ | | |
| Canadian Pipe Mine 16 | Killay | Canadian Pipe Mine | | 260091 | 192124 | | ✓ | | |
| Canadian Pipe Mine 17 | Killay | Canadian Pipe Mine | | 260195 | 192124 | | ✓ | | |
| Canadian Pipe Mine 18 | Killay | Canadian Pipe Mine | | 259520 | 192618 | | ✓ | | |
| Canadian Pipe Mine 19 | Bishwell Common | Canadian Pipe Mine | | 259420 | 195168 | | ✓ | | |
| Canadian Pipe Mine 20 | Bishwell Common | Canadian Pipe Mine | | 259432 | 195268 | | ✓ | | |
| Canadian Pipe Mine 21 | Bevexe-fach | Canadian Pipe Mine | | 259394 | 194842 | | ✓ | | |
| Canadian Pipe Mine 22 | Island House | Canadian Pipe Mine | | 257946 | 197041 | | ✓ | | |
| Canadian Pipe Mine 23 | Island House | Canadian Pipe Mine | | 257931 | 197142 | | ✓ | | |
| Canadian Pipe Mine 24 | Langland Bay | Canadian Pipe Mine | | 260570 | 187250 | | ✓ | | |
| Canadian Pipe Mine 25 | Langland Bay | Canadian Pipe Mine | | 260570 | 187350 | | ✓ | | |
| Canadian Pipe Mine 26 | Langland Bay | Canadian Pipe Mine | | 260670 | 187350 | | ✓ | | |

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|--------------------------------|---------------------|------------------------------|---------------------------------|--------|--------|---|---|--|---|
| Canadian Pipe Mine 27 | Langland Bay | Canadian Pipe Mine | | 260630 | 187350 | | ✓ | | |
| Canadian Pipe Mine 28 | Langland Bay | Canadian Pipe Mine | | 260600 | 187350 | | ✓ | | |
| Canadian Pipe Mine 29 | Langland Bay | Canadian Pipe Mine | | 260770 | 187350 | | ✓ | | |
| Canadian Pipe Mine 30 | Langland Bay | Canadian Pipe Mine | | 260850 | 187350 | | ✓ | | |
| Minefield Serial 03a (Hillend) | Rhossili Bay | Minefield | Gower West Sector Defences | 241293 | 190529 | | ✓ | | |
| Minefield Serial 03b (Hillend) | Rhossili Bay | Minefield | Gower West Sector Defences | 241215 | 190785 | | ✓ | | |
| Minefield Serial 03c (Hillend) | Rhossili Bay | Minefield | Gower West Sector Defences | 241215 | 190685 | | ✓ | | |
| Minefield Serial 05 | Horton Bay | Minefield | Gower West Sector Defences | 247466 | 185541 | | ✓ | | |
| Minefield Serial 06a | Oxwich Bay | Minefield | Gower West Sector Defences | 250254 | 186636 | | ✓ | | |
| Minefield Serial 06b | Oxwich Bay | Minefield | Gower West Sector Defences | 250213 | 186344 | | ✓ | | |
| Minefield Serial 06c | Oxwich Bay | Minefield | Gower West Sector Defences | 250080 | 188157 | | ✓ | | |
| Minefield Serial 07 | Nicholaston | Minefield | | 252072 | 187868 | | ✓ | | |
| Minefield Serial 08a | Three Cliffs Bay | Minefield | Gower East Sector Defences | 253674 | 187966 | | ✓ | | |
| Minefield Serial 08b | Three Cliffs Bay | Minefield | Gower East Sector Defences | 253810 | 188078 | | ✓ | | |
| Minefield Serial 09 | Popples Bay | Minefield | Gower East Sector Defences | 254015 | 187753 | | ✓ | | |
| Minefield Serial 10 | Caswell Bay | Minefield | Gower East Sector Defences | 259329 | 187655 | | ✓ | | |
| Minefield Serial 11 | Blackpill | Minefield | 2/E Swansea Sub-Sector Defences | 261895 | 190399 | | ✓ | | |
| Minefield Serial 14 | Island House | Minefield | 2/D Swansea Sub-Sector Defences | 257855 | 197211 | | ✓ | | |
| Minefield Serial 15 | Parkmill | Minefield | Gower East Sector Defences | 254643 | 189148 | | ✓ | | |
| Weapons Pit FC30 | RAF Fairwood Common | Weapons Pit | RAF Fairwood Common Defences | 256332 | 191737 | ✓ | | | |
| Weapons Pit FC31 | RAF Fairwood Common | Weapons Pit | RAF Fairwood Common Defences | 256304 | 191617 | ✓ | | | |
| Weapons Pit FC32 | RAF Fairwood Common | Weapons Pit | RAF Fairwood Common Defences | 256286 | 191639 | ✓ | | | |
| Weapons Pit FC33 | RAF Fairwood Common | Weapons Pit | RAF Fairwood Common Defences | 256286 | 191660 | ✓ | | | |
| Weapons Pit FC34 | RAF Fairwood Common | Weapons Pit | RAF Fairwood Common Defences | 256318 | 191692 | ✓ | | | |
| Weapons Pit FC35 | RAF Fairwood Common | Weapons Pit | RAF Fairwood Common Defences | 256301 | 191659 | ✓ | | | |
| Weapons Pit FC42 | RAF Fairwood Common | Weapons Pit | RAF Fairwood Common Defences | 256159 | 191178 | ✓ | | | |
| RAF Fairwood Common BHQ | RAF Fairwood Common | Battle Headquarters 11008/41 | RAF Fairwood Common Defences | 256628 | 191990 | | | | ✓ |
| ROC Post J1 | Rhossili | Observation Post | | 241843 | 188162 | | ✓ | | |
| ROC Post J2 | Penmaen | Observation Post | | 252880 | 188868 | | ✓ | | |
| ROC Post J3 | Sketty | Observation Post | | 262303 | 193780 | | ✓ | | |

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|--|---------------|-----------------------------|------------------------------|--------|--------|---|---|--|--|
| ROC Post J4 | Penclawdd | Observation Post | | 253115 | 195581 | | ✓ | | |
| HAA Regt Battery HQ | Morrison | Army Headquarters | Swansea Gun Defended Area | 266248 | 198724 | | ✓ | | |
| HAA Regt Battery HQ | Jersey Marine | Army Headquarters | Swansea Gun Defended Area | 271335 | 193481 | | ✓ | | |
| HAA Regt Battery HQ | Sketty | Army Headquarters | Swansea Gun Defended Area | 262204 | 191711 | | ✓ | | |
| Swansea Heavy Anti-Aircraft Battery N.1 | Morrison | Heavy Anti-Aircraft Battery | Swansea Gun Defended Area | 269458 | 198360 | | ✓ | | |
| Swansea Heavy Anti-Aircraft Battery N.3 | Jersey Marine | Heavy Anti-Aircraft Battery | Swansea Gun Defended Area | 271255 | 193404 | | ✓ | | |
| Swansea Heavy Anti-Aircraft Battery N.23 | Jersey Marine | Heavy Anti-Aircraft Battery | Swansea Gun Defended Area | 271250 | 193400 | | ✓ | | |
| Swansea Heavy Anti-Aircraft Battery N.4 | Ravenhill | Heavy Anti-Aircraft Battery | Swansea Gun Defended Area | 264250 | 196302 | | ✓ | | |
| Swansea Heavy Anti-Aircraft Battery N.5 | Mumbles | Heavy Anti-Aircraft Battery | Swansea Gun Defended Area | 262232 | 187586 | ✓ | ✓ | | |
| Swansea Heavy Anti-Aircraft Battery N.6 | Sketty | Heavy Anti-Aircraft Battery | Swansea Gun Defended Area | 262290 | 191610 | | ✓ | | |
| Swansea Heavy Anti-Aircraft Battery N.26 | Sketty | Heavy Anti-Aircraft Battery | Swansea Gun Defended Area | 262300 | 191610 | | ✓ | | |
| LAA Regt Battery HQ | Jersey Marine | Army Headquarters | | 271345 | 193702 | | ✓ | | |
| Fairwood Common Light Anti-Aircraft Battery N.46 | Runway | Light Anti-Aircraft Battery | RAF Fairwood Common Defences | 257225 | 192533 | | ✓ | | |
| Fairwood Common Light Anti-Aircraft Battery N.47 | Tower | Light Anti-Aircraft Battery | RAF Fairwood Common Defences | 257567 | 191524 | | ✓ | | |
| Fairwood Common Light Anti-Aircraft Battery N.48 | Command | Light Anti-Aircraft Battery | RAF Fairwood Common Defences | 257379 | 190713 | | ✓ | | |
| Fairwood Common Light Anti-Aircraft Battery N.49 | Lakemoor | Light Anti-Aircraft Battery | RAF Fairwood Common Defences | 256875 | 190052 | | ✓ | | |
| Fairwood Common Light Anti-Aircraft Battery N.50 | Court House | Light Anti-Aircraft Battery | RAF Fairwood Common Defences | 256109 | 190386 | | ✓ | | |
| Fairwood Common Light Anti-Aircraft Battery N.51 | Copse | Light Anti-Aircraft Battery | RAF Fairwood Common Defences | 256101 | 191246 | | ✓ | | |
| Fairwood Common Light Anti-Aircraft Battery N.52 | The Mound | Light Anti-Aircraft Battery | RAF Fairwood Common Defences | 256220 | 191437 | | ✓ | | |
| Fairwood Common Light Anti-Aircraft Battery N.53 | Hill | Light Anti-Aircraft Battery | RAF Fairwood Common Defences | 256436 | 191894 | | ✓ | | |
| AA Z Regt Battery HQ | Neath | Army Headquarters | | 275728 | 196729 | | ✓ | | |

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|--|-------------------|--------------------------|------------------------------|--------|--------|---|---|---|---|
| AA Z Regt Battery HQ | Sketty | Army Headquarters | Swansea Gun Defended Area | 261800 | 191064 | | ✓ | | |
| Swansea Z Anti-Aircraft Battery K.70 | South Dock | Z Battery | Swansea Gun Defended Area | 266252 | 192510 | | ✓ | | |
| Swansea Z Anti-Aircraft Battery K.71 | King's Dock | Z Battery | Swansea Gun Defended Area | 266845 | 192059 | | ✓ | | |
| Swansea Z Anti-Aircraft Battery K.73 | Blackpill Burrows | Z Battery | Swansea Gun Defended Area | 262408 | 191317 | | ✓ | | |
| Swansea Z Anti-Aircraft Battery K.74 | Jersey Marine | Z Battery | Swansea Gun Defended Area | 271942 | 193324 | | ✓ | | |
| Searchlight Regt Battery HQ | Britton Ferry | Army Headquarters | Swansea Gun Defended Area | 269143 | 197239 | | ✓ | | |
| Searchlight Serial 6A4 (later S/L B1 (Troop HQ)) | Dunvant | Searchlight Emplacement | Swansea Gun Defended Area | 259625 | 193739 | | ✓ | | |
| Searchlight Serial 7D4 | Hareslade | Searchlight Emplacement | Swansea Gun Defended Area | 258147 | 187747 | | ✓ | | |
| Searchlight Serial No Name | Penclawdd | Searchlight Emplacement | Swansea Gun Defended Area | 253315 | 195284 | | ✓ | | |
| Searchlight Serial 6A5 (later S/L B6) | Limeslade | Searchlight Emplacement | Swansea Gun Defended Area | 256234 | 187090 | | ✓ | | |
| Searchlight Serial B2 (later S/L B4) | Port Tennant | Searchlight Emplacement | Swansea Gun Defended Area | 269651 | 192703 | | ✓ | | |
| Searchlight Serial A6 (later S/L B3) | Morrison | Searchlight Emplacement | Swansea Gun Defended Area | 265857 | 197676 | | ✓ | | |
| Searchlight Serial B3 | St Helens | Searchlight Emplacement | Swansea Gun Defended Area | 264445 | 192457 | | ✓ | | |
| Searchlight Serial A1 (Troop HQ) | Brynmoel | Searchlight Emplacement | RAF Fairwood Common Defences | 258045 | 191120 | | ✓ | | |
| Searchlight Serial A2 | Kittle Hill | Searchlight Emplacement | RAF Fairwood Common Defences | 256838 | 190263 | | ✓ | | |
| Searchlight Serial A3 | Court House Farm | Searchlight Emplacement | RAF Fairwood Common Defences | 255768 | 190393 | | ✓ | | |
| Searchlight Serial A4 | Fairwood Common | Searchlight Emplacement | RAF Fairwood Common Defences | 255621 | 191790 | | ✓ | | |
| Searchlight Serial A5 | Fairwood Corner | Searchlight Emplacement | RAF Fairwood Common Defences | 256921 | 192453 | | ✓ | | |
| Searchlight Serial A6 | Upper Killay | Searchlight Emplacement | RAF Fairwood Common Defences | 257864 | 192301 | | ✓ | | |
| Searchlight Serial B2 | Penllergaer | Searchlight Emplacement | Swansea Gun Defended Area | 261996 | 198769 | | ✓ | | |
| Searchlight Serial B5 | Singleton | Searchlight Emplacement | Swansea Gun Defended Area | 262725 | 192140 | | ✓ | | |
| Mumbles Port War Signal Station | Tutt's Head | Coastal Observation Post | HM Coastguard | 262737 | 187042 | ✓ | ✓ | ✓ | ✓ |
| Langland Bay Coast Watching Post | Langland Bay | Coastal Observation Post | HM Coastguard | 260744 | 187422 | | ✓ | | |
| Caswell Bay Coast Watching Post | Caswell Bay | Coastal Observation Post | HM Coastguard | 259197 | 187701 | | ✓ | | |
| Pwlldu Coast Watching Post | Pwlldu | Coastal Observation Post | HM Coastguard | 257380 | 187010 | ✓ | ✓ | | |

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| Hunts Bay Coast Watching Post | Hunts Bay | Coastal Observation Post | HM Coastguard | 256344 | 186875 | | ✓ | | |
| Great Tor Coast Watching Post | Great Tor | Coastal Observation Post | HM Coastguard | 252985 | 187713 | | ✓ | | |
| Oxwich Coast Guard Station | Oxwich | Coastal Observation Post | HM Coastguard | 250301 | 186556 | | ✓ | | |
| Port Eynon Slade Coast Watching Post | Port Eynon Slade | Coastal Observation Post | HM Coastguard | 248724 | 185581 | | ✓ | | |
| Port Eynon Point Coast Watching Post | Port Eynon Point | Coastal Observation Post | HM Coastguard | 246763 | 184432 | | ✓ | | |
| Mewslade Bay Coast Watching Post | Mewslade Bay | Coastal Observation Post | HM Coastguard | 242098 | 187228 | | ✓ | | |
| Rhossili Coastguard Station | Rhossili | Coastal Observation Post | HM Coastguard | 241545 | 188070 | | ✓ | | |
| Broughton Bay-Whiteford Sands Coast Watching Post | Broughton Bay-Whiteford Sands | Coastal Observation Post | HM Coastguard | 242676 | 193656 | | ✓ | | |
| Roadblock B1 | | Roadblock | 1/B Swansea Sub-Sector Defences | 269520 | 193034 | | ✓ | | |
| Roadblock B2 | | Roadblock | 1/B Swansea Sub-Sector Defences | 266405 | 194694 | | ✓ | | |
| Roadblock B3 | | Roadblock | 1/B Swansea Sub-Sector Defences | 268285 | 192940 | | ✓ | | |
| Roadblock C1 | Pont-lasau | Roadblock | 2/C Swansea Sub-Sector Defences | 265954 | 199948 | | ✓ | | |
| Roadblock C2 | Pont-lasau | Roadblock | 2/C Swansea Sub-Sector Defences | 265953 | 200111 | | ✓ | | |
| Roadblock C3 | Pont-lasau | Roadblock | 2/C Swansea Sub-Sector Defences | 266038 | 200127 | | ✓ | | |
| Roadblock C4 | Pont-lasau | Roadblock | 2/C Swansea Sub-Sector Defences | 265831 | 199908 | | ✓ | | |
| Roadblock C5 | Morrison | Roadblock | 2/C Swansea Sub-Sector Defences | 267030 | 197408 | | ✓ | | |
| Roadblock C6 | Morrison | Roadblock | 2/C Swansea Sub-Sector Defences | 267239 | 197921 | | ✓ | | |
| Roadblock C7 | Morrison | Roadblock | 2/C Swansea Sub-Sector Defences | 266943 | 197306 | | ✓ | | |
| Roadblock C8 | Morrison | Roadblock | 2/C Swansea Sub-Sector Defences | 266643 | 198653 | | ✓ | | |
| Roadblock C9 | Morrison | Roadblock | 2/C Swansea Sub-Sector Defences | 267368 | 197880 | | ✓ | | |
| Roadblock C10 | Morrison | Roadblock | 2/C Swansea Sub-Sector Defences | 266441 | 198362 | | ✓ | | |
| Roadblock C11 | Morrison | Roadblock | 2/C Swansea Sub-Sector Defences | 266466 | 197624 | | ✓ | | |
| Roadblock C12 | Morrison | Roadblock | 2/C Swansea Sub-Sector Defences | 266829 | 199109 | | ✓ | | |

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|---------------|------------------------|-----------|---------------------------------|--------|--------|--|---|--|--|
| Roadblock C13 | Morrison | Roadblock | 2/C Swansea Sub-Sector Defences | 266745 | 197763 | | ✓ | | |
| Roadblock C14 | Morrison | Roadblock | 2/C Swansea Sub-Sector Defences | 266958 | 199421 | | ✓ | | |
| Roadblock C15 | Morrison | Roadblock | 2/C Swansea Sub-Sector Defences | 266655 | 199539 | | ✓ | | |
| Roadblock C16 | Llangyfelach | Roadblock | 2/C Swansea Sub-Sector Defences | 264577 | 199051 | | ✓ | | |
| Roadblock C17 | Brynhyfryd | Roadblock | 2/C Swansea Sub-Sector Defences | 265419 | 195796 | | ✓ | | |
| Roadblock C18 | Brynhyfryd | Roadblock | 2/C Swansea Sub-Sector Defences | 265472 | 195834 | | ✓ | | |
| Roadblock C19 | Mynydd-bach Common | Roadblock | 2/C Swansea Sub-Sector Defences | 265117 | 197677 | | ✓ | | |
| Roadblock C20 | Mynydd-Newydd Colliery | Roadblock | 2/C Swansea Sub-Sector Defences | 263806 | 196418 | | ✓ | | |
| Roadblock D1 | Cadle | Roadblock | 2/D Swansea Sub-Sector Defences | 262417 | 197053 | | ✓ | | |
| Roadblock D2 | Cadle | Roadblock | 2/D Swansea Sub-Sector Defences | 262562 | 196280 | | ✓ | | |
| Roadblock D3 | Cadle | Roadblock | 2/D Swansea Sub-Sector Defences | 262773 | 196196 | | ✓ | | |
| Roadblock D4 | Gowerton | Roadblock | 2/D Swansea Sub-Sector Defences | 259280 | 196192 | | ✓ | | |
| Roadblock D5 | Gowerton | Roadblock | 2/D Swansea Sub-Sector Defences | 258779 | 196311 | | ✓ | | |
| Roadblock D6 | Gowerton | Roadblock | 2/D Swansea Sub-Sector Defences | 258295 | 196493 | | ✓ | | |
| Roadblock D7 | Forest-fach | Roadblock | 2/D Swansea Sub-Sector Defences | 262755 | 195157 | | ✓ | | |
| Roadblock D8 | Cadle | Roadblock | 2/D Swansea Sub-Sector Defences | 262772 | 196264 | | ✓ | | |
| Roadblock E1 | Blackpill | Roadblock | 2/E Swansea Sub-Sector Defences | 261780 | 190303 | | ✓ | | |
| Roadblock E2 | Olchfa | Roadblock | 2/E Swansea Sub-Sector Defences | 261209 | 193180 | | ✓ | | |
| Roadblock E3 | Brynmill | Roadblock | 2/E Swansea Sub-Sector Defences | 263491 | 191935 | | ✓ | | |
| Roadblock E4 | Black Pill | Roadblock | 2/E Swansea Sub-Sector Defences | 261958 | 190767 | | ✓ | | |
| Roadblock E5 | Dunvant | Roadblock | 2/E Swansea Sub-Sector Defences | 259394 | 193712 | | ✓ | | |
| Roadblock E6 | Dunvant | Roadblock | 2/E Swansea Sub-Sector Defences | 259366 | 193740 | | ✓ | | |
| Roadblock E7 | Killay | Roadblock | 2/E Swansea Sub-Sector Defences | 259721 | 192415 | | ✓ | | |

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|--------------------|------------------|-----------|-----------------------------------|-----------|-----------|--|---|--|---|
| Roadblock E8 | Sketty | Roadblock | 2/E Swansea Sub-Sector Defences | 262245 | 193422 | | ✓ | | |
| Roadblock E9 | Dunvant | Roadblock | 2/E Swansea Sub-Sector Defences | 259423 | 194455 | | ✓ | | |
| Roadblock F1 | Brynmill | Roadblock | 2/F Swansea Sub-Sector Defences | 263801 | 192268 | | ✓ | | |
| Roadblock F2 | Brynmill | Roadblock | 2/F Swansea Sub-Sector Defences | 264327 | 192280 | | ✓ | | |
| Roadblock F3 | Brynmill | Roadblock | 2/F Swansea Sub-Sector Defences | 263490 | 191929 | | ✓ | | |
| Roadblock Docks 1 | Maritime Quarter | Roadblock | Eastern Docks Sub-Sector Defences | 266102 | 192904 | | ✓ | | ✓ |
| Roadblock Docks 2 | Maritime Quarter | Roadblock | Eastern Docks Sub-Sector Defences | 266123 | 192849 | | ✓ | | ✓ |
| Roadblock Docks 3 | Maritime Quarter | Roadblock | Eastern Docks Sub-Sector Defences | 266137 | 192813 | | ✓ | | ✓ |
| Roadblock Docks 4 | Town centre | Roadblock | South Dock Sub-Sector Defences | 265872 | 192813 | | ✓ | | ✓ |
| Roadblock Docks 5 | Town centre | Roadblock | South Dock Sub-Sector Defences | 265895 | 192920 | | ✓ | | ✓ |
| Roadblock Docks 6 | Maritime Quarter | Roadblock | South Dock Sub-Sector Defences | 265929 | 192661 | | ✓ | | ✓ |
| Roadblock Docks 7 | Maritime Quarter | Roadblock | South Dock Sub-Sector Defences | 265985 | 192680 | | ✓ | | ✓ |
| Roadblock Docks 8 | Maritime Quarter | Roadblock | South Dock Sub-Sector Defences | 265821 | 192627 | | ✓ | | ✓ |
| Roadblock Docks 9 | Eastern Docks | Roadblock | Eastern Docks Sub-Sector Defences | 267557 | 192978 | | ✓ | | ✓ |
| Roadblock Docks 10 | Eastern Docks | Roadblock | Eastern Docks Sub-Sector Defences | 267526 | 192958 | | ✓ | | ✓ |
| Roadblock Docks 11 | Eastern Docks | Roadblock | Docks Sector Defences | 266243 | 193182 | | ✓ | | ✓ |
| Roadblock Docks 12 | Eastern Docks | Roadblock | Docks Sector Defences | 266194 | 193183 | | ✓ | | ✓ |
| Roadblock Docks 13 | Eastern Docks | Roadblock | Docks Sector Defences | 268834 | 192691 | | ✓ | | ✓ |
| Roadblock Gower 1 | | Roadblock | Gower Sector Defences | Not cited | Not cited | | ✓ | | |
| Roadblock Gower 2 | Caswell Bay | Roadblock | Gower Sector Defences | 259362 | 187687 | | ✓ | | |
| Roadblock Gower 3 | | Roadblock | Gower Sector Defences | Not cited | Not cited | | ✓ | | |
| Roadblock Gower 4 | Parkmill | Roadblock | Gower Sector Defences | 254927 | 189110 | | ✓ | | |
| Roadblock Gower 5 | Penclawdd | Roadblock | Gower Sector Defences | 254035 | 195872 | | ✓ | | |
| Roadblock Gower 6 | Parkmill | Roadblock | Gower Sector Defences | 254529 | 189182 | | ✓ | | |
| Roadblock Gower 7 | Oxwich Burrows | Roadblock | Gower Sector Defences | 250262 | 187160 | | ✓ | | |
| Roadblock Gower 8 | Oxwich | Roadblock | Gower Sector Defences | 250029 | 186456 | | ✓ | | |
| Roadblock Gower 9 | Oxwich | Roadblock | Gower Sector Defences | 249907 | 186538 | | ✓ | | |
| Roadblock Gower 10 | Llanrhidian | Roadblock | Gower Sector Defences | 249806 | 191967 | | ✓ | | |

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| Roadblock Gower 11 | Poundffald | Roadblock | Gower Sector Defences | 256487 | 194490 | | ✓ | | |
| Roadblock Gower 12 | Poundffald | Roadblock | Gower Sector Defences | 256575 | 194618 | | ✓ | | |
| Roadblock Gower 13 | Poundffald | Roadblock | Gower Sector Defences | 256637 | 194408 | | ✓ | | |
| Roadblock Gower 14 | Llethryd | Roadblock | Gower Sector Defences | 253096 | 191374 | | ✓ | | |
| Roadblock Gower 15 | Caswell Bay | Roadblock | Gower Sector Defences | 259001 | 187728 | | ✓ | | |
| Roadblock Gower 16 | Bishopston | Roadblock | Gower Sector Defences | 257459 | 189318 | | ✓ | | |
| Roadblock Gower 17 | Penclawdd | Roadblock | Gower Sector Defences | 254187 | 195700 | | ✓ | | |
| Roadblock Gower 18 | | Roadblock | Gower Sector Defences | Not cited | Not cited | | ✓ | | |
| 958 Barrage Balloon Squadron HQ | Sketty | Air Force Headquarters | RAF Balloon Sites | 262353 | 192887 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight HQ | Swansea | Air Force Headquarters | RAF Balloon Sites | 263947 | 192682 | | ✓ | | |
| 958 Barrage Balloon Squadron 'B' Flight HQ | Neath | Air Force Headquarters | RAF Balloon Sites | 275859 | 198705 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 02 | Palmer's Dry Dock | Barrage Balloon Mooring | RAF Balloon Sites | 267123 | 192140 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 03 | Graigola Works, King's Dock | Barrage Balloon Mooring | RAF Balloon Sites | 267852 | 192534 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 04 | Old Arsenic Works, Port Tennant | Barrage Balloon Mooring | RAF Balloon Sites | 267409 | 192829 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 05 | Transit Site, King's Dock | Barrage Balloon Mooring | RAF Balloon Sites | 268869 | 192861 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 13 | GWR Strand, Swansea | Barrage Balloon Mooring | RAF Balloon Sites | 265868 | 193627 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 14 | Fish Docks, Swansea | Barrage Balloon Mooring | RAF Balloon Sites | 266155 | 192458 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 17 | West of King's Dock, Swansea | Barrage Balloon Mooring | RAF Balloon Sites | 266852 | 192306 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 18 | West Pier | Barrage Balloon Mooring | RAF Balloon Sites | 266570 | 191902 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Shore | West of King's Dock, Swansea | Barrage Balloon Centre | RAF Balloon Sites | 266852 | 192290 | | ✓ | | |

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| Servicing Station | | | | | | | | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 06 | Tir John Power Station | Barrage Balloon Mooring | RAF Balloon Sites | 269164 | 193608 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 08 | Elba | Barrage Balloon Mooring | RAF Balloon Sites | 269911 | 193214 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 11 | William Street | Barrage Balloon Mooring | RAF Balloon Sites | 265313 | 192738 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 12 | Grammar School | Barrage Balloon Mooring | RAF Balloon Sites | 265336 | 193407 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 15 | Maesteg Park, Swansea | Barrage Balloon Mooring | RAF Balloon Sites | 266700 | 193412 | | ✓ | | |
| 958 Barrage Balloon Squadron 'A' Flight Site No. 16 | Jersey Park | Barrage Balloon Mooring | RAF Balloon Sites | 267238 | 193403 | | ✓ | | |
| 958 Barrage Balloon Squadron 'B' Flight Site No. 01 | Near Tir-gwylt | Barrage Balloon Mooring | RAF Balloon Sites | 268126 | 194286 | | ✓ | | |
| 958 Barrage Balloon Squadron 'B' Flight Site No. 07 | Cefn Hengoed | Barrage Balloon Mooring | RAF Balloon Sites | 268503 | 195567 | | ✓ | | |
| 958 Barrage Balloon Squadron 'B' Flight Site No. 09 | Trallion, Llansamlet | Barrage Balloon Mooring | RAF Balloon Sites | 269357 | 196378 | | ✓ | | |
| 958 Barrage Balloon Squadron 'B' Flight Site No. 10 | Pentwyn Farm, Lonlas | Barrage Balloon Mooring | RAF Balloon Sites | 270741 | 196976 | | ✓ | | |
| 958 Barrage Balloon Squadron 'B' Flight Site No. 19 | West of Crymlyn Bog | Barrage Balloon Mooring | RAF Balloon Sites | 268790 | 194667 | | ✓ | | |
| 958 Barrage Balloon Squadron 'B' Flight Site No. 20 | South of Pentre-dwr | Barrage Balloon Mooring | RAF Balloon Sites | 269288 | 195985 | | ✓ | | |
| 958 Barrage Balloon Squadron 'B' Flight Site No. 21 | Crymlyn Farm, Llansamlet | Barrage Balloon Mooring | RAF Balloon Sites | 270040 | 196577 | | ✓ | | |
| 958 Barrage Balloon Squadron 'B' Flight Site No. 22 | Cefn-yr-Eskyn | Barrage Balloon Mooring | RAF Balloon Sites | 271271 | 197076 | | ✓ | | |

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| Bishopston Church Belfry | Bishopston | | Gower East Sector Defences | 257781 | 189362 | ✓ | ✓ | | |
| Pennard Church Belfry | Pennard | | Gower East Sector Defences | 256541 | 188740 | ✓ | ✓ | | |
| Penclawdd Church Belfry | Penclawdd | | Gower East Sector Defences | 254851 | 194828 | ✓ | ✓ | | |
| Reynoldston Church Belfry | Reynoldston | | Gower West Sector Defences | 247940 | 190025 | ✓ | ✓ | | |
| Llandewi Church Belfry | Llandewi | | Gower West Sector Defences | 245998 | 189052 | ✓ | ✓ | | |
| Port Eynon Church Belfry | Port Eynon | | Gower West Sector Defences | 246675 | 185381 | ✓ | ✓ | | |
| Rhossili Church Belfry | Rhossili | | Gower West Sector Defences | 241658 | 188081 | ✓ | ✓ | | |
| Llangennith Church Belfry | Llangennith | | Gower West Sector Defences | 242861 | 191415 | ✓ | ✓ | | |
| Llanmadoc Church Belfry | Llanmadoc | | Gower West Sector Defences | 243883 | 193434 | ✓ | ✓ | | |
| Llanrhidian Church Belfry | Llanrhidian | | Gower West Sector Defences | 249660 | 192252 | ✓ | ✓ | | |
| HQ Swansea Garrison | Swansea | Army Headquarters | | 264221 | 192639 | | ✓ | | |
| Swansea Garrison Alternative Operational HQ | Sketty | Army Headquarters | | 262081 | 192341 | | ✓ | | |
| Swansea Garrison Alternative Operational HQ | Hafod | Army Headquarters | | 266045 | 194882 | | ✓ | | |
| 'D' Coy, 30 Bn. South Wales Borderers HQ | Queens Dock | Army Headquarters | | 268908 | 192833 | | ✓ | | |
| 194 Coy, Pioneer Corps HQ | Mumbles | Army Headquarters | | 259675 | 187953 | | ✓ | | |
| 285 Coy, Pioneer Corps HQ | Jersey Marine | Army Headquarters | | 270346 | 192986 | | ✓ | | |
| Det 294 Coy, Pioneer Corps HQ | Prince of Wales Dock | Army Headquarters | | 267352 | 192747 | | ✓ | | |
| RASC Command Supply Depot | Cockett | Army Headquarters | | 262935 | 195157 | | ✓ | | |
| 14 Defence Regt HQ | Sketty Green | Army Headquarters | | 262969 | 192748 | | ✓ | | |
| Royal Marine Light Infantry | Swansea | Royal Naval Base | | 266085 | 192934 | | ✓ | | |
| 559 Coast Regt HQ | Mumbles | Army Headquarters | | 263278 | 187512 | | ✓ | | |
| 97 Bomb Disposal Section | Mumbles | Army Headquarters | | 261029 | 187959 | | ✓ | | |
| 165 Bomb Disposal section | Mumbles | Army Headquarters | | 261151 | 187497 | | ✓ | | |
| Experimental Station Penclawdd | Penclawdd | Army Headquarters | | 252473 | 195422 | ✓ | ✓ | ✓ | ✓ |
| 6 Det 39 Maritime AA Regt, RA HQ | King's Dock | Army Headquarters | | 266861 | 192180 | | ✓ | | |
| 294 (F) Coy Pioneer Corps HQ | Swansea | Army Headquarters | | 263438 | 193346 | | ✓ | | |

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| 318 (F) Coy. Pioneer Corps HQ | Jersey Marine | Army Headquarters | | 270336 | 192996 | | ✓ | | |
| Camp Reception Station | Swansea | Army Headquarters | | 263763 | 192231 | | ✓ | | |
| Swansea Group Glamorgan Home Guard HQ | Swansea | Army Headquarters | | 262336 | 192777 | | ✓ | | |
| 12 Bn. Glamorgan Home Guard HQ | Swansea | Army Headquarters | | 262336 | 192797 | | ✓ | | |
| 14 Bn. Glamorgan Home Guard HQ | Swansea | Army Headquarters | | 264174 | 192627 | | ✓ | | |
| 15 Bn. Glamorgan Home Guard HQ | Bishopston | Army Headquarters | | 257910 | 189121 | | ✓ | | |
| 18 (PO) Bn. Glamorgan Home Guard HQ | Jersey Marine | Army Headquarters | | 265359 | 193103 | | ✓ | | |
| 'H' Coy, 4 Bn. Glamorgan Home Guard HQ (operational only) | Jersey Marine | Army Headquarters | | 270036 | 193266 | | ✓ | | |
| HMS Lucifer, Naval Base Swansea | Swansea | Royal Naval Base | | 266075 | 192924 | | ✓ | | ✓ |
| RAF Station Fairwood Common | Fairwood Common | Royal Air Force Base | | 256837 | 191331 | ✓ | ✓ | ✓ | ✓ |
| Bishopston Pillbox | Bishopston | Pillbox (Type FW3/24) | | 259730 | 192420 | | | | |
| Rhossili Down Gun Emplacement | Rhossili | Gun Emplacement | | 241490 | 188470 | | | | |
| Observation Post | Swansea Docks | Observation Post | | 266748 | 192697 | | | | |
| Whiteford Burrows Range Quadrant Tower | Whiteford | Bombing Range Tower | Llanrhidian Artillery Ranges | 244523 | 195726 | ✓ | ✓ | ✓ | ✓ |
| Gun No. 1. 4- in Gun Emplacement (Maes-y- gwaelod Battery (Berth- lwyd)) | Berth-lwyd | Beach Defence Battery | Coastal Defences | 256235 | 196306 | ✓ | ✓ | ✓ | |
| Oxwich CD/CHL Radar Station | Oxwich Point | Coast Defence Chain Home Low Station | | 250883 | 184932 | ✓ | ✓ | ✓ | |
| Port Eynon Pillbox | Port Eynon | Pillbox | | 246421 | 185824 | | | | |
| Port Eynon Pillbox | Port Eynon | Pillbox | | 246385 | 185720 | | | | |
| Mynydd Carn- goch Anti- Landing Trench | Llwchwr | Anti-Landing Trench | | 260400 | 197300 | | | | |
| Mynydd Carn- goch Anti- | Llwchwr | Anti-Landing Trench | | 260690 | 197269 | | | | |

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| Landing Trench | | | | | | | | | |
| Mynydd Carn-goch Anti-Landing Trench | Llwchwr | Anti-Landing Trench | | 260940 | 197250 | | | | |
| Llangennith Beach Obstacles | Llangennith Beach | Anti-Landing Obstacle | Coastal Defences | 240800 | 190600 | ✓ | | | |
| Swansea Bay Anti-Landing Obstacles | Swansea Bay | Anti-Landing Obstacle | Coastal Defences | 263646 | 290990 | ✓ | | ✓ | |
| Rhossili CHL Radar Station | Rhossili Down | Chain Home Low Station | | 241830 | 189940 | ✓ | ✓ | ✓ | |
| Llanrhidian Sands Range Quadrant Tower | Llanrhidian Sands | Bombing Range Tower | Llanrhidian Artillery Ranges | 247264 | 194910 | ✓ | ✓ | ✓ | ✓ |
| Dunvant Spigot Mortar Emplacement | Dunvant | Spigot Mortar Emplacement | | 259579 | 194074 | ✓ | | | |
| Tutt's Head: Coast Artillery Searchlight Emplacement No. 1 | Tutt's Head | Coast Artillery Searchlight | Gower Mumbles Sector Defences | 262736 | 186967 | ✓ | ✓ | ✓ | ✓ |
| Tutt's Head: Coast Artillery Searchlight Emplacement No. 2 | Tutt's Head | Coast Artillery Searchlight | Gower Mumbles Sector Defences | 262772 | 186974 | ✓ | ✓ | ✓ | ✓ |
| Mumbles Island Coast Artillery Battery: Coast Artillery Searchlight Emplacement No. 3 | Mumbles Island | Coast Artillery Searchlight | Gower Mumbles Sector Defences | 263490 | 187146 | ✓ | ✓ | ✓ | ✓ |
| Mumbles Island Coast Artillery Battery: Coast Artillery Searchlight Emplacement No. 4 | Mumbles Island | Coast Artillery Searchlight | Gower Mumbles Sector Defences | 263503 | 187191 | ✓ | ✓ | ✓ | ✓ |
| Mumbles Island Coast Artillery Battery: No. 1 4.7-in Gun Emplacement | Mumbles Island | Coast Battery Gun Site | Gower Mumbles Sector Defences | 263494 | 187158 | ✓ | ✓ | ✓ | ✓ |
| Mumbles Island Coast Artillery Battery: No. 2 4.7-in Gun Emplacement | Mumbles Island | Coast Battery Gun Site | Gower Mumbles Sector Defences | 263495 | 187174 | ✓ | ✓ | ✓ | ✓ |
| Mumbles Island Coast Artillery Battery: Battery Observation Post | Mumbles Island | Battery Observation Post | Gower Mumbles Sector Defences | 263484 | 187167 | ✓ | ✓ | ✓ | ✓ |
| Mumbles Island Coast Artillery Battery: New Battery | Mumbles Island | Battery Observation Post | Gower Mumbles Sector Defences | 263487 | 187159 | ✓ | ✓ | ✓ | ✓ |

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| Observation Post | | | | | | | | | |
| Mumbles Island Coast Artillery Battery: Landward Target No. 1 | Blackpill | Landward Target | | 261964 | 190763 | | ✓ | | ✓ |
| Mumbles Island Coast Artillery Battery: Landward Target No. 2 | Singleton Park | Landward Target | | 262711 | 191501 | | ✓ | | ✓ |
| Mumbles Island Coast Artillery Battery: Landward Target No. 3 | Swansea Gas Works | Landward Target | | 265468 | 192652 | | ✓ | | ✓ |
| Mumbles Island Coast Artillery Battery: Landward Target No. 4 | Victoria Station | Landward Target | | 265810 | 192734 | | ✓ | | ✓ |
| Mumbles Island Coast Artillery Battery: Landward Target No. 5 | South Dock Lock Gate | Landward Target | | 266306 | 192672 | | ✓ | | ✓ |
| Mumbles Island Coast Artillery Battery: Landward Target No. 6 | Prince of Wales Dock Lock Gate | Landward Target | | 266924 | 192762 | | ✓ | | ✓ |
| Mumbles Island Coast Artillery Battery: Landward Target No. 7 | Electric Generating Station | Landward Target | | 267006 | 192785 | | ✓ | | ✓ |
| Mumbles Island Coast Artillery Battery: Landward Target No. 8 | King's Dock Locks | Landward Target | | 266978 | 192304 | | ✓ | | ✓ |
| Mumbles Island Coast Artillery Battery: Landward Target No. 9 | Hydraulic Power Station | Landward Target | | 268437 | 192927 | | ✓ | | ✓ |
| Mumbles Hill Coast Artillery Battery: No. 1 6-in Gun Emplacement | Mumbles Hill | Coast Battery Gun Site | Gower Mumbles Sector Defences | 262613 | 187422 | | ✓ | ✓ | ✓ |
| Mumbles Hill Coast Artillery Battery: No. 2 6-in Gun Emplacement | Mumbles Hill | Coast Battery Gun Site | Gower Mumbles Sector Defences | 262659 | 187387 | | ✓ | ✓ | ✓ |
| Mumbles Hill Coast Artillery Battery: Observation Post | Mumbles Hill | Battery Observation Post | Gower Mumbles Sector Defences | 262659 | 187472 | | ✓ | ✓ | ✓ |

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| Mumbles Hill Coast Artillery Battery: Landward Target No. 1 | King's Dock Lock Gates | Landward Target | | 266721 | 192810 | | ✓ | | |
| Mumbles Hill Coast Artillery Battery: Landward Target No. 2 | King's Dock Swing Bridge | Landward Target | | 266927 | 192775 | | ✓ | | |
| Mumbles Hill Coast Artillery Battery: Landward Target No. 3 | Chemical Works | Landward Target | | Not cited | Not cited | | ✓ | | |
| Mumbles Hill Coast Artillery Battery: Landward Target No. 4 | Halfway House Road Junction | Landward Target | | 269226 | 196338 | | ✓ | | |
| Mumbles Hill Coast Artillery Battery: Landward Target No. 5 | Jersey Marine | Landward Target | | 271196 | 193865 | | ✓ | | |
| Port Tennant Heavy Anti-Aircraft Battery | Port Tennant | Heavy Anti-Aircraft Battery | Neath Sector Defences | 271259 | 193391 | | ✓ | | |
| Crymlyn Ridge Searchlight Emplacement | Crymlyn Ridge | Searchlight Emplacement | Neath Sector Defences | 269914 | 194254 | | ✓ | | |
| Crymlyn Ridge Gun Emplacement | Crymlyn Ridge | Gun Emplacement | Neath Sector Defences | 269831 | 194205 | | ✓ | | |
| Crymlyn Ridge Gun Emplacement | Crymlyn Ridge | Gun Emplacement | Neath Sector Defences | 269824 | 194304 | | ✓ | | |
| Crymlyn Ridge Gun Emplacement | Crymlyn Ridge | Gun Emplacement | Neath Sector Defences | 270001 | 194231 | | ✓ | | |
| Rhossili Down Anti-Aircraft Battery | Rhossili Down | Anti-Aircraft Battery | | 241830 | 189940 | | ✓ | | |
| Clyne Valley Pillbox | Clyne Valley | Pillbox | | 260087 | 192099 | ✓ | | | |
| Railway Pillbox | Eastern Docks | Pillbox (Type FW3/24) | | 268780 | 193070 | | | | |
| Whiteford Point Anti-Boat Landing Obstacle | Whiteford Point | Anti-Boat Landing Obstacle | | 244612 | 196950 | ✓ | ✓ | ✓ | |
| Rhossili Down CD/CHL Barbed Wire Entanglement | Rhossili Down | Barbed Wire Entanglement | | 241816 | 189919 | | | ✓ | |
| Oxwich Point CD/CHL Barbed Wire Entanglement | Oxwich Point | Barbed Wire Entanglement | | 250817 | 184943 | | | ✓ | |
| RAF Fairwood Common Barbed Wire Entanglement 1 | RAF Fairwood Common – E side | Barbed Wire Entanglement | RAF Fairwood Common Defences | 257445 | 191621 | | | ✓ | |
| RAF Fairwood Common Barbed Wire Entanglement 2 | RAF Fairwood Common – N side | Barbed Wire Entanglement | RAF Fairwood Common Defences | 257318 | 192420 | | | ✓ | |

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| RAF Fairwood Common Barbed Wire Entanglement 3 | RAF Fairwood Common – NW side | Barbed Wire Entanglement | RAF Fairwood Common Defences | 256622 | 192185 | | | ✓ | |
| RAF Fairwood Common Barbed Wire Entanglement 4 | RAF Fairwood Common – W side | Barbed Wire Entanglement | RAF Fairwood Common Defences | 256373 | 191621 | | | ✓ | |
| Tutt's Head PWSS Barbed Wire Entanglement | Tutt's Head | Barbed Wire Entanglement | Gower Mumbles Sector Defences | 262714 | 186958 | | | ✓ | |
| Mumbles Hill Coast Artillery / HAA Barbed Wire Entanglement | Mumbles Hill | Barbed Wire Entanglement | Gower Mumbles Sector Defences | 262507 | 187451 | | | ✓ | |
| Mumbles Hill Road Camp Barbed Wire Entanglement | Mumbles Hill Road | Barbed Wire Entanglement | Gower Mumbles Sector Defences | 262731 | 187197 | | | ✓ | |
| Halfway House Anti-Tank Block Alignment | Halfway House | Anti-Tank Block | | 256723 | 196622 | ✓ | | ✓ | |
| Swansea Docks East Anti-Tank Block Alignment | Swansea Docks | Anti-Tank Block | | 268851 | 192690 | ✓ | | ✓ | |
| Blackpill Anti-Tank Block Alignment | Blackpill | Anti-Tank Block | | 261816 | 190220 | | | ✓ | |
| West Cross Anti-Tank Block Alignment | West Cross | Anti-Tank Block | | 261502 | 189141 | | | ✓ | |
| George Bank Anti-Tank Block Alignment | George Bank | Anti-Tank Block | | 262282 | 187767 | | | ✓ | |
| Halfway House Anti-Tank Ditch N | Halfway House | Anti-Tank Ditch | Gower Sector Defences | 256722 | 196734 | ✓ | | ✓ | |
| Halfway House Anti-Tank Ditch S | Halfway House | Anti-Tank Ditch | Gower Sector Defences | 256731 | 196551 | | | ✓ | |
| Llanmorlais Defended Locality | Llanmorlais | Defended Locality | Gower Sector Defences | 252894 | 194656 | | ✓ | | ✓ |
| Penclawdd Defended Locality | Penclawdd | Defended Locality | Gower Sector Defences | 254147 | 195769 | | ✓ | | ✓ |
| Poundffald Defended Locality | Poundffald, Three Crosses | Defended Locality | Gower Sector Defences | 256605 | 194502 | | ✓ | | ✓ |
| Upper Killay Defended Locality | Upper Killay | Defended Locality | Gower Sector Defences | 258456 | 192647 | | ✓ | | ✓ |
| Llanrhidian Defended Locality | Llanrhidian | Defended Locality | Gower Sector Defences | 249714 | 192148 | | ✓ | | ✓ |
| Llanmadoc Defended Locality | Llanmadoc | Defended Locality | Gower Sector Defences | 243996 | 193366 | | ✓ | | ✓ |
| Llangennith Defended Locality | Llangennith | Defended Locality | Gower Sector Defences | 242874 | 191482 | | ✓ | | ✓ |

| | | | | | | | | | |
|--|------------------------|-------------------|---------------------------------------|--------|--------|--|---|--|---|
| Rhossili Defended Locality | Rhossili | Defended Locality | Gower Sector Defences | 241624 | 188070 | | ✓ | | ✓ |
| Reynoldston Defended Locality | Reynoldston | Defended Locality | Gower Sector Defences | 248211 | 189976 | | ✓ | | ✓ |
| Port-Eynon Defended Locality | Port-Eynon | Defended Locality | Gower Sector Defences | 246737 | 185409 | | ✓ | | ✓ |
| Oxwich Bay Defended Locality | Oxwich Bay | Defended Locality | Gower Sector Defences | 251383 | 187406 | | ✓ | | ✓ |
| Parkmill- Southgate Defended Locality | Parkmill- Southgate | Defended Locality | Gower Sector Defences | 255022 | 188548 | | ✓ | | ✓ |
| Bishopston Defended Locality | Bishopston | Defended Locality | Gower Sector Defences | 257919 | 189414 | | ✓ | | ✓ |
| Newton Defended Locality | Newton | Defended Locality | Gower Sector Defences | 260077 | 188308 | | ✓ | | ✓ |
| Lonlas Defended Locality | Lonlas | Defended Locality | Swansea – A Sub-Sector Defences | 270637 | 197400 | | ✓ | | ✓ |
| Peniel Green Tunnel Defended Locality | Peniel Green Tunnel | Defended Locality | Swansea – A Sub-Sector Defences | 269766 | 197630 | | ✓ | | ✓ |
| Llansamlet Church Defended Locality | Llansamlet Church | Defended Locality | Swansea – A Sub-Sector Defences | 268625 | 197874 | | ✓ | | ✓ |
| Llansamlet Square Defended Locality | Llansamlet Square | Defended Locality | Swansea – A Sub-Sector Defences | 268613 | 197398 | | ✓ | | ✓ |
| Halfway Inn Defended Locality | Halfway Inn | Defended Locality | Swansea – A Sub-Sector Defences | 269227 | 196339 | | ✓ | | ✓ |
| Winch Wen Defended Locality | Winch Wen | Defended Locality | Swansea – A Sub-Sector Defences | 268353 | 196348 | | ✓ | | ✓ |
| Bonymaen Defended Locality | Bonymaen | Defended Locality | Swansea – B Sub-Sector Defences | 267836 | 195100 | | ✓ | | ✓ |
| Pentrechwyth Defended Locality | Pentrechwyth | Defended Locality | Swansea – B Sub-Sector Defences | 266977 | 195050 | | ✓ | | ✓ |
| White Rock Defended Locality | White Rock | Defended Locality | Swansea – B Sub-Sector Defences | 266285 | 194823 | | ✓ | | ✓ |
| Tir John Defended Locality | Tir John | Defended Locality | Swansea – B Sub-Sector Defences | 268778 | 193681 | | ✓ | | ✓ |
| Cemetery Defended Locality | Cemetery | Defended Locality | Swansea – B Sub-Sector Defences | 267580 | 193491 | | ✓ | | ✓ |
| St Thomas Defended Locality | St Thomas | Defended Locality | Swansea – B Sub-Sector Defences | 266342 | 193801 | | ✓ | | ✓ |
| Ynysforgan Viaduct Defended Locality | Ynysforgan Viaduct | Defended Locality | Swansea C – Sub-Sector Defences | 267637 | 199193 | | ✓ | | ✓ |
| Chemical Road Defended Locality | Chemical Road | Defended Locality | Swansea C – Sub-Sector Defences | 266835 | 199096 | | ✓ | | ✓ |

| | | | | | | | | | |
|--|---------------------------|-------------------|---------------------------------------|--------|--------|--|---|--|---|
| School Defended Locality | Cwmrhydyceirw | Defended Locality | Swansea C – Sub-Sector Defences | 266739 | 199562 | | ✓ | | ✓ |
| Golf Links Defended Locality | Golf Links | Defended Locality | Swansea C – Sub-Sector Defences | 265936 | 199247 | | ✓ | | ✓ |
| Pentrepoeth Defended Locality | Pentrepoeth | Defended Locality | Swansea C – Sub-Sector Defences | 266633 | 198619 | | ✓ | | ✓ |
| Chris Williams Defended Locality | Chris Williams | Defended Locality | Swansea C – Sub-Sector Defences | 267018 | 198308 | | ✓ | | ✓ |
| Forest Bridge Defended Locality | Fforest Bridge | Defended Locality | Swansea C – Sub-Sector Defences | 267305 | 198083 | | ✓ | | ✓ |
| Duke Hotel Defended Locality | Duke Hotel | Defended Locality | Swansea C – Sub-Sector Defences | 266912 | 197275 | | ✓ | | ✓ |
| Bryn Rock Defended Locality | Bryn Rock | Defended Locality | Swansea C – Sub-Sector Defences | 266433 | 197501 | | ✓ | | ✓ |
| Pontlassau Defended Locality | Pontlassau | Defended Locality | Swansea C – Sub-Sector Defences | 265927 | 200043 | | ✓ | | ✓ |
| Llangyfelach Defended Locality | Llangyfelach | Defended Locality | Swansea C – Sub-Sector Defences | 264668 | 198776 | | ✓ | | ✓ |
| Mynyddbach Defended Locality | Mynyddbach | Defended Locality | Swansea C – Sub-Sector Defences | 264868 | 197587 | | ✓ | | ✓ |
| Mynydd Cadle Common Defended Locality | Mynydd Cadle Common | Defended Locality | Swansea C – Sub-Sector Defences | 264296 | 196950 | | ✓ | | ✓ |
| Mynydd Newydd Colliery Defended Locality | Mynydd Newydd Colliery | Defended Locality | Swansea C – Sub-Sector Defences | 263932 | 196453 | | ✓ | | ✓ |
| Ravenhill Defended Locality | Ravenhill | Defended Locality | Swansea C – Sub-Sector Defences | 263747 | 195942 | | ✓ | | ✓ |
| Fforestfach Defended Locality | Fforestfach | Defended Locality | Swansea D – Sub-Sector Defences | 262916 | 195942 | | ✓ | | ✓ |
| White City Defended Locality | White City | Defended Locality | Swansea D – Sub-Sector Defences | 262670 | 195665 | | ✓ | | ✓ |
| Cockett Defended Locality | Cockett | Defended Locality | Swansea D – Sub-Sector Defences | 263151 | 195077 | | ✓ | | ✓ |
| Cadle Defended Locality | Cadle | Defended Locality | Swansea D – Sub-Sector Defences | 262416 | 197057 | | ✓ | | ✓ |
| Island House Defended Locality | Island House | Defended Locality | Swansea D – Sub-Sector Defences | 257932 | 197146 | | ✓ | | ✓ |
| New Elba Colliery | New Elba Colliery | Defended Locality | Swansea D – Sub-Sector Defences | 258364 | 196612 | | ✓ | | ✓ |
| Elba Works Defended Locality | Elba Works | Defended Locality | Swansea D – Sub-Sector Defences | 258793 | 196639 | | ✓ | | ✓ |
| Gowerton Station Defended Locality | Gowerton Station | Defended Locality | Swansea D – Sub-Sector Defences | 259262 | 196415 | | ✓ | | ✓ |
| Winder Terrace Defended Locality | Winder Terrace | Defended Locality | Swansea D – Sub-Sector Defences | 259492 | 195927 | | ✓ | | ✓ |

| | | | | | | | | | |
|---|---------------------------|-------------------|---------------------------------------|--------|--------|--|---|--|---|
| Gorwydd Defended Locality | Gorwydd | Defended Locality | Swansea D – Sub-Sector Defences | 259361 | 195576 | | ✓ | | ✓ |
| Allt-wen Defended Locality | Allt-wen | Defended Locality | Swansea D – Sub-Sector Defences | 257843 | 195973 | | ✓ | | ✓ |
| Waunarlwydd Defended Locality | Waunarlwydd | Defended Locality | Swansea D – Sub-Sector Defences | 260486 | 195413 | | ✓ | | ✓ |
| Gowerton- Dunvant Road Defended Locality | Gowerton- Dunvant Road | Defended Locality | Swansea E – Sub-Sector Defences | | | | ✓ | | ✓ |
| Brickworks Defended Locality | Brickworks | Defended Locality | Swansea E – Sub-Sector Defences | 259583 | 194229 | | ✓ | | ✓ |
| Dunvant Post Office Defended Locality | Dunvant Post Office | Defended Locality | Swansea E – Sub-Sector Defences | 259413 | 193713 | | ✓ | | ✓ |
| Dunvant Parish Hall Defended Locality | Dunvant Parish Hall | Defended Locality | Swansea E – Sub-Sector Defences | 259893 | 193388 | | ✓ | | ✓ |
| Killay Defended Locality | Killay | Defended Locality | Swansea E – Sub-Sector Defences | 259717 | 192414 | | ✓ | | ✓ |
| Race Course Defended Locality | Race Course | Defended Locality | Swansea E – Sub-Sector Defences | 260760 | 192359 | | ✓ | | ✓ |
| Clyne Valley Colliery Defended Locality | Clyne Valley Colliery | Defended Locality | Swansea E – Sub-Sector Defences | 261627 | 191560 | | ✓ | | ✓ |
| Blackpill Defended Locality | Blackpill | Defended Locality | Swansea E – Sub-Sector Defences | 261922 | 190705 | | ✓ | | ✓ |
| Clyne Farm Defended Locality | Clyne Farm | Defended Locality | Swansea E – Sub-Sector Defences | 260711 | 190914 | | ✓ | | ✓ |
| Sketty Defended Locality | Sketty | Defended Locality | Swansea E – Sub-Sector Defences | 262570 | 192918 | | ✓ | | ✓ |
| Singleton Defended Locality | Singleton | Defended Locality | Swansea E – Sub-Sector Defences | 263049 | 191789 | | ✓ | | ✓ |

**Appendix 7.1: Text of Counter-invasion Scheme No. 2 as preserved in
Carmarthen Sub-Area HQ war diary at The National Archives (WO 166/6729)**

S E C R E T

CARMARTHEN SUB-AREA

COUNTER-INVASION SCHEME No. 2. Our ref S/0.1/

Ref. Map O.S. 1" to 1 mile sheets 68, 69, 78, 79, 88, 90, 100, 101.

PART I.

APPRECIATION.

1. OBJECT

To attack enemy arriving in the Sub-Area by sea or air, harass and delay him until the arrival of Field Formations.

2. FACTORS.

- i) Carmarthen Sub-Area is a part of South Wales District and consists of the Counties of CARMARTHENSHIRE, CARDIGANSHIRE and PEMBROKESHIRE, the Southern part of PEMBROKESHIRE being separated from the rest of that County by MILFORD HAVEN, the River DAUCLEDDAU and its tributary the EASTEN CLEDDAU.
- ii) The Sub-Area is mainly agricultural and sparsely populated with the exception of the LLANELLY (100/9522)-AMMANFORD (89/0734) industrial areas, MILFORD HAVEN (99/3528) and PEMBROKE DOCK (99/4025) areas, and the following towns: CARMARTHEN (89/8542), TENBY (99/5723) (with SAUNDERSFOOT 99/5827), HAVERFORDWEST (99/4038), FISHGUARD (88/4059), CARDIGAN (88/6268) and ABERYSTWYTH (68/0303).

3. GEOGRAPHY.

The Sub-Area has a Coast Line of 200 miles and covers an area of 2,500 square miles. It is mountainous in the East, sloping gradually to the coast in CARMARTHENSHIRE and PEMBROKESHIRE. It is some 12 to 18 hrs journey by sea from Occupied France and about 200 miles by air from the NORMANDY Coast. Airborne landings are possible almost anywhere throughout the Sub-Area. There are however few objectives of military value except MILFORD HAVEN, the industrial area of LLANELLY and the bottleneck for communications at CARMARTHEN and LLANDOVERY (90/2052).

BEACHES

On the South and West Coast Lines of the Sub-Area from PEMBREY 100/8723 to ST. DAVID'S HEAD 88/1751 there are numerous beaches suitable for seaborne or airborne landings.

4. ANCHORAGES.

The deep water anchorage extending from MILFORD HAVEN to PEMBROKE DOCK is of great importance.

5. COMMUNICATIONS.

Road communications North and South throughout the Sub-Area are good but in many cases too narrow for large vehicles. Communications from West to East are restricted to the following main routes:

- a) FISHGUARD – CARDIGAN – ABERYSTWYTH and thence to SHROPSHIRE and the MIDLANDS or NORTH WALES and CHESTER.
- b) HAVERFORDWEST – CARMARTHEN – LLANDOVERY and thence either to BUILTH WELLS and SHREWSBURY or to BRECON – ABERGAVENNY.
- c) CARMARTHEN – SWANSEA – NEATH – CARDIFF.

Communications are vulnerable at CARMARTHEN and LLANDOVERY.

6. RAILWAYS.

The Main Line runs from SWANSEA through CARMARTHEN to WHITLAND 99/6439. From WHITLAND branches run to a) TENBY and PEMBROKE DOCK, b) HAVERFORDWEST – NEYLAND 99/4127, c) FISHGUARD, d) CARDIGAN.

Railway communication west of CARMARTHEN depends on the one bascule bridge at CARMARTHEN.

Other Railway Lines are:–

CARMARTHEN – BUILTH WELLS – CRAVEN ARMS.

CARMARTHEN – ABERYSTWYTH – (Branches to NEWCASTLE EMLYN 89/7563 and ABERAYRON 78/9085).

Branch Lines in the Industrial Area of LLANELLY.

7. AERODROMES

Aerodromes in the Sub-Area are:–

ANGLE 99/3025 (Fighter Comd. 10 Gp.)

PEMBREY (Training Comd. 25 Gp.)

CAREW CHERITON 99/4925 (Coastal Comd. 19 Gp.)

PEMBROKE DOCK (Sea Plane Base, Coastal Comd. 19 Gp.)

ABERPORTH 78/7073 (Army Co-op. 70 Gp.)

MANORBIER 99/5120

HAVERFORDWEST and TEMPLETON 99/5534 (Bomber Comd. 7 Gp.) Under Con.

TALBENNY 99/2834 and DALE 99/2528 (Coastal Comd. 19 Gp.) Under Con.

Of the above ANGLE is classed as the most important by the RAF.

8. TPS AVAILABLE.

- a) Tps whose location in the Sub-Area may be classed as permanent and who are under operational command of Comd. Sub-Area.

31 Welch.

35 Gp. HQ and 3 Coys. Pioneer Corps.

Ten Home Guard Bns.

12 Fd. Trg. Regt, RA.

532 Coast Regt, RA. (under operational command only in regard to Land defence).

30 E. Lancs.
 13 LAA Trg. & Practice Camp.
 1 HAA Trg. & Practice Camp.
 SAA Arty, (MANORBIER).
 3 HAA Trg. & Practice Camp.
 AFV Range.
 RAF Defence Squadrons.
 Various Maintenance and other small Units.
 Armed Coast Watchers.

- b) Troops whose location in the Sub-Area is permanent, but who are NOT under operational control:-

61 AA Bde.

- c) Tps at present in Sub-Area which may or may not be available:-

9 KOSB [Subsequently struck out]

15 RM

18 RM

178 Fd. Regt, RA [Subsequently struck out]

Certain Fd. and other RE Coys.

Belgian Contingent. [Subsequently struck out]

36 Bde. RASC

31 Motor Coach Coy. RASC. [Subsequently struck out]

Also – certain Royal Naval Personnel.

- d) Field force tps. training in the District:-

49 Div. (which includes 70 Inf. Bde. & 2 Kensingtons in this Sub-Area

[Subsequently struck out]

RM Div. (101 & 102 Bdes. and certain Div. Tps.) in this Sub-Area.

9. DEDUCTIONS.

- a) Owing to distance alone, Invasion without warning is improbable, but raids with limited objectives are very possible at any time.
- b) Seaborne invasion in force is possible in so far as the Coast Line and suitable objectives are concerned, and is unlikely only for so long as the situation in South Ireland remains as at present.
- c) Owing to distance air invasion in force is unlikely except as a diversion in connection with the main attack elsewhere or in circumstances envisaged in b) above. Air Landings are possible in many places other than on Aerodromes.

10. POSSIBLE OBJECTIVES FOR ENEMY ATTACK.

- a) As part of a full scale Invasion plan enemy may endeavour to:-

- i) Capture MILFORD HAVEN and/or PEMBROKE DOCK and establish a Bridgehead in South PEMBROKESHIRE.
- ii) Capture CARMARTHEN and possibly LLANDOVERY, thus cutting the main artery of communications.
- iii) Capture PEMBREY (Aerodrome and ROF) and LLANELLY as a preliminary to an attack on SWANSEA and the industrial area of South Wales.

(Combination of any or all of the above are possible).

- iv) Create a diversion as part of a major operation elsewhere by widespread air attack and landing of airborne tps in various Localities.
- b) Raids on Military objectives are likely to include:-
 - i) Aerodromes – more especially ANGLE.
 - ii) AME Stations – especially those near the Coast.
 - iii) Coast Btys – especially those covering the entrance to MILFORD HAVEN.
 - iv) Industrial areas – LLANELLY and the LOUGHOR Valley.
 - v) Bottle Necks on Lines of Communication, i.e. (CARMARTHEN
(LOUGHOR BRIDGE
(LLANDOVERY.
- vi) Certain vulnerable VPs. other than AME Stations.

11. PLAN ADOPTED TO MEET POSSIBLE ENEMY ACTIONS.

Certain Harbours are protected by fixed defences, those Btys. being capable of defending themselves from Land attack for a considerable period.

The general plan is

- a) To hold Columns ready to attack enemy wherever he may land whether by sea or air to destroy, harass or delay him until the arrival of re-enforcements.
- b) To obtain early information by watching Beaches and Coast Line in conjunction with Coast Watchers, by co-ordination of all means of communication and close Liaison with HM Coastguards, Royal Observer Corps, HG Patrols and OPs, Police, etc.
- c) To prepare for occupation certain defensive positions to prevent any further breakthrough of enemy who may succeed in landing.
- d) To prepare "Islands of Resistance" mainly along Lines of Communication which the enemy cannot by-pass, these "Islands of Resistance" being garrisoned in strength primarily by the HG.

METHOD.

12. ORGANISATION.

To facilitate Comd the Sub-Area is divided into nine Sectors under Sector Comds – details in Appendix "A".

Sector Comds are responsible for the co-ordination of all counter invasion plans in their Sector.

13. MOBILE COLUMNS.

All units will maintain Mob. Columns at the state of readiness laid down from time to time by SOUTH WALES DISTRICT.

Whenever personnel and equipment make it practicable, each Mob. Column will approximate as nearly as possible to that of an Inf. Bn. Mob. Colm., i.e.

1 rifle coy.

1 Sec. Carriers
Det. 3" Mortars

This does NOT apply to cols. furnished by AFV Range and Special Bns.

The larger Columns have been given definite primary Tasks - See Appendix "C".

Normally Mob. Columns will receive orders to move from Sub-Area HQ but Comds. in emergency will act on their own initiative reporting immediately to this HQ. Units providing Mob. Cols. for the relief of Aerodromes (see para. "Aerodromes and VPs.") will answer calls from PANDA CONTROLS or from the Aerodrome Garrison. (For complete details see this HQ. S/A.11/12 dated 4 May 42) which gives separate instructions to units concerned).

14. AERODROMES AND VPs.

Mob. Cols. are detailed with the Primary task of relief to aerodromes in event of attack as under:

| <u>Aerodrome.</u> | <u>Mob Column from unit located at:</u> | <u>Name of present Unit</u> |
|----------------------------------|---|--|
| ANGLE | AFV Range, CASTLEMARTIN, PEMBROKE | 3 Tps. from AFV Range and Column from: 8 RM PEMBROKE DOCK |
| CAREW CHERITON | PENALLY Camp [subsequently HOLLOWAY CAMP] | 18 RM (primary role) |
| PEMBREY | CARMARTHEN and LLANELLY | 1 Blg. Fus. Belgian AC Sq. [subsequently 5 RM] |
| PEMROKE DOCK | Llanion Bks., PEMBROKE DOCK, PEMBROKE | 8 RM PEMBROKE DOCK |
| ABERPORTH | ABERPORTH | 1 HAA Trg. & Practice Camp |
| MANORBIER | MANORBIER | 3 HAA Trg. & Practice Camp |
| HAVERFORDWEST (and RUDBAXTON) | HAVERFORDWEST | 2 RM HAVERFORDWEST |
| TEMPLETON | TENBY | 10 RM |
| TALBENNY / DALE | MILFORD HAVEN | 31 Welch HAVERFORDWEST [subsequently 2 RM and 30 E. Lancs.] |

15. VPs.

Immediate assistance to VPs will be given in emergency on orders from Sub-Area HQ.

TRECWN RNA Depot

Unit stationed at FISHGUARD or
HAVERFORDWEST [subsequently ST.
DOGMAELS].

PEMBREY ROF

Unit stationed at LLANELLY
[subsequently YSTRAD CAMP,
CARMARTHEN].

16. AME Stations.

A list is given in Appendix "H".

Comd. officers will maintain close liaison with all AME Stations within 10 miles of their Stations and will be prepared to send immediate aid in the event of a raid or call for help.

AME Stations near the coast are particularly vulnerable to raids.

17. DEFENSIVE MEASURES.

a) CANASTON – TEMPLETON – WISEMANS BR defences.

A series of defended localities have been prepared on the general line:-

CANASTON BRIDGE 99/5137 – TEMPLETON 99/5534 – STEPASIDE 99/5830 –
WISEMANS BRIDGE 99/5928.

to prevent infiltration Eastwards of enemy landing in South PEMBROKESHIRE.
Garrison, HG and such other units as may be detailed at the time.

b) CARMARTHEN – HENLLAN – LLANGRANOG defences.

A series of Localities on the Line:-

LLANGRANOG 78/7676 – RHYD LEWIS 78/7969 – HENLLAN 89/8062 –
CONVIL ELVET 89/8249 – CARMARTHEN 89/8342 – FERRYSIDE 100/8132.
Garrison HG.

c) CARMARTHEN – AMMANFORD defences.

A series of Localities on the Line:-

CARMARTHEN – LLANDAROG 89/9438 – PORTH Y RHYD 89/9638 –
AMMANFORD and thence PONTARDDULAI – LOUGHOR against a landing in
South CARMARTHENSHIRE.

18. ISLANDS OF RESISTANCE.

Home Guard Bns. have prepared defence schemes and allotted garrisons for the defence of certain important localities which include the following:

PEMBROKESHIRE.

| | | |
|------------------|--------------------------|-----------|
| <u>1 PEMS HG</u> | TENBY | 99/5723 |
| | CANASTON BRIDGE | 99/512378 |
| | ROBESTON WATHEN | 00531384 |
| | STEPASIDE | 99/5830 |
| | TEMPLETON | 99/5534 |
| | WISEMANS BRIDGE | 99/5928 |
| <u>2 PEMS HG</u> | Exits to FISHGUARD | 88/4060 |
| | MILFORD HAVEN | 99/3528 |
| | Road Blocks nr. TALBENNY | 99/285348 |
| | Road Blocks nr. DALE | 99/255288 |
| | HAVERFORDWEST | 99/4038 |
| | NEWPORT (Pem) | 88/5061 |

CARMARTHENSHIRE.

| | | |
|-------------------|--|------------|
| <u>1 CARMS HG</u> | CARMARTHEN | 89/8542 |
| | ST CLEARS | 89/7238 |
| | LAUGHARNE | 100/7433 |
| | CONWIL ELVET | 89/8249 |
| | WHITLAND | 99/6439 |
| <u>2 CARMS HG</u> | LOUGHOR BRIDGE | 100/006202 |
| | LLANELLY)FURNACE | 100/949238 |
| |)CWM BACH | 100/933242 |
| |)PWLL | 100/926234 |
| | FELINFOEL | 100/964242 |
| | PEMBERTON | 100/9722 |
| <u>3 CARMS HG</u> | KIDWELLY | 100/8529 |
| | DREFACH | 89/972355 |
| | Crossings of GWENDRAETH RIVER noted by OC 3 CARMS. | |
| <u>4 CARMS HG</u> | LLANDOVERY | 90/2156 |
| | LLANDILO | 89/0744 |
| | LLANDYBIE | 89/063374 |
| | AMMANFORD | 89/0734 |
| | LLANGADOCK | 90/1550 |
| <u>5 CARMS HG</u> | NEWCASTLE EMLYN | 89/7562 |
| | LLANYBYTHER | 78/9766 |

CARDIGANSHIRE.

| | | |
|-------------------|-------------|---------|
| <u>1 CARDS HG</u> | ABERYSTWYTH | 68/0304 |
| | PONTERWYD | 68/2002 |

| | | |
|-------------------|------------|-----------|
| <u>2 CARDS HG</u> | CARDIGAN | 88/6268 |
| | RHYD LEWIS | 78/796698 |
| | NEW INN | 78/788745 |
| | SYNOD INN | 78/854768 |
| | HENLLAN | 89/807629 |
| <u>3 CARDS HG</u> | NEWQUAY | 78/8482 |
| | LAMPETER | |

Those localities will be held to the end – garrisons include mobile reserves in addition to the garrison for static defence. HG not included in the above garrisons are allotted roles of:-

Reconnoitring, Harassing and Fighting Patrols and OPs.

19. INTERCOMMUNICATION.

Detailed arrangements are given in Appendix "H".

20. LIAISON.

Close liaison is to be maintained at all levels with all services, particularly with the following:-

ARP, Police, HG, Coast Guards and Watchers, Royal Observer Corps sites, isolated RAF posts, Searchlight and AA Bty. sites. It is the duty of regular units to make contact with the above.

Every possible assistance is to be given at all times to HG, RAF Posts, etc., in training.

Carmarthen
29/May/42
/HGB

F. Macartney
Colonel,
Commander, Carmarthen Sub-Area.

Appendix 7.2: Selected extracts from Carmarthen Sub-Area HQ war diaries, 08/40-12/41 (WO 166/1270) and 01-12/42 (WO 166/6729)

| Date | Note |
|----------|--|
| 20/08/40 | RE Works – progressing with excavation of A/T ditches – Pembrey – Nant y Ci – Blaen Nantgwyn – Brithvir Mill. Pillboxes in construction through whole line. Limited output owing to shortage of cement. Roadblock on A/T line vertical rail 4' 0 centre 14' 0 depth, staggered type started today. |
| 21/08/40 | Inspection of pillboxes and A/T blocks in Pembrey aerodrome neighbourhood. OC raised question of enlarging landing ground by removing fences. A/T ditches and pillbox construction making progress. |
| 29/08/40 | Comdr. visited ROF Pembrey with OC 9 Bn. Gloucester Regt. to inspect position of gun emplacements, pillboxes and general defence arrangements. |
| 06/09/40 | Rhydlewis defences (pillboxes, A/T ditch, dragons teeth & sandbagged emplacements). |
| 16/09/40 | Comdr. visited stop line and inspected pillboxes and roadblocks at Carmarthen. |
| 17/09/40 | Position of guns and pillboxes at on shore at Burry Port discussed. |
| 27/09/40 | 1 Coy. Belgians moved from Tenby to Llanelly to be attached to 9 Bn. Gloucester Regt. |
| 30/09/40 | Troops from 1 S/L Regt. at Kidwelly. |
| 04/10/40 | 2/9 Bn. Manchester Regt. detachment at Pendine. |
| 09/10/40 | 9 Bn. Gloucester Regt. left the Sub-Area. |
| 12/10/40 | 9 Bn. N. Staffs. Regt. arrived at Carmarthen. |
| 15/10/40 | Comdr. visited Pendine with OC 9 Bn. N. Staffs. Regt. |
| 21/10/40 | Comdr. went to Pembrey to see 19 Bn. Welch Regt. |
| 29/10/40 | Comdr. inspected 240 Coast Battery at Burry Port. |
| 31/10/40 | Comdr. visited 38 AMPC Coy. at Laugharne. |
| 14/11/40 | Comdr. visited Pembrey to inspect pillbox sites. |
| 18/11/40 | Comdr. visited Pendine to see disposition of 72 Coy, AMPC. |
| 28/11/40 | Comdr. visited Ystrad Camp, Carmarthen. |
| 04/12/40 | Comdr. went to Pembrey and Llanelly and visited OC 19 Bn. Welch Regt. |
| 04/01/41 | Comdr. visited Pendine with Garrison Engineer and met OC 961 Defence Battery. |
| 10/01/41 | 72 Coy, AMPC relieved by 17 (HD) Bn. Welch Regt. at Pendine. |
| 11/01/41 | A Coy, 9 Bn. N. Staffs. Regt. moved to Laugharne. |
| 15/01/41 | Comdr. inspected A/T ditch at Nant-y-Ci. |
| 01/02/41 | C-in-C, Western Command visited Llanelly and Pembrey. Called at this HQ, also Comdr. 224 Ind. Inf. Bde. and OC 9 Bn. N. Staffs Regt. |
| 19/02/41 | 224 Ind. Inf. Bde. left the Sub-Area. |
| 19/02/41 | 9 Bn. N. Staffs Regt. left the Sub-Area. |
| 20/02/41 | 1 Bn. Belgian Fusiliers arrived at Ystrad Camp, Carmarthen. |
| 20/02/41 | 12 Bn. Worcester Regt. arrived at Llanelly. |
| 21/02/41 | 19 Bn. Welch Regt. left the Sub-Area. |
| 08/03/41 | Comdr. went to Pendine to meet Comd. 36 Ind. Inf. Bde. |
| 11/03/41 | GSO III accompanied GSO II (Ops), South Wales Area to site 13-pdr. Guns. |
| 14/03/41 | Comdr. went to Burry Port to inspect 402 Battery, RA. |
| 18/03/41 | 1 Bn. Belgian Fusiliers carried out practice occupation of Carmarthen west defences. |
| 27/03/41 | GSO III met Comdr., 36 Ind. Inf. Bde. to discuss Belgian Carmarthen west defences. |
| 31/03/41 | Comdr. met Comdr. 36 Ind. Inf. Bde. re Belgian position at Green Castle, Carmarthen. |
| 08/04/41 | Comdr. visited Ferryside to visit a troop of 961 Bty., RA. |
| 27/04/41 | Comdr. visited No. 2 Bn. Cardiganshire Home Guard at Rhydlewis. |
| 30/05/41 | Comdr. visited Llanelly to bid farewell to 12 Bn. Worcester Regt. |
| 03/06/41 | Comdr. went to Pembrey and called on OC 18 Bn. Royal Fusiliers. |
| 23/07/41 | Mr Gwynne Jones, Ministry of Security, called re Urdd Camp, Llangrannog. |
| 26/07/41 | Comdr. visited Pembrey Beaches to meet the CRE re erection of pillboxes. |
| 11/08/41 | Comdr. went to Saundersfoot to bid farewell to 36 Ind. Inf. Bde. |
| 19/08/41 | Comdr. visited 402 Coast Battery at Burry Port. |

| | |
|----------|---|
| 06/09/41 | OC 6 Bn. RIF and OC 35 Gp. PC called to discuss conduct of defence works after 01/10/41. HQ, SWA notified pioneer labour required after 01/10/41. |
| 12/09/41 | Major Clifton Brown (MLO, Western Approaches) called re tubular scaffolding, Llanelly. |
| 15/11/41 | Examination of Ground Defence Squadron officers at RAF Pembrey. |
| 05/01/42 | Comdr. 70 Ind. Inf. Bde. called re arrival of unit in Carmarthen. |
| 20/02/42 | Comdr. 70 Bde. called to bid farewell on departure of Bde. from Sub-Area. |
| 08/03/42 | Comdr. to 402 Coast Battery. |
| 04/04/42 | 1 Bn. Belgian Fusiliers arrived at Ystrad Camp, Carmarthen from Hereford. |
| 06/06/42 | Carmarthen Sub-Area Counter Invasion Scheme of 05/06/42 issued. |
| 29/12/42 | Units of 49 Div. move into Sub-Area. |
| 31/12/42 | Advanced parties of 70 Inf. Bde. arrive in the Carmarthen area. |

Appendix 7.3: List of identified defence sites for Carmarthen Stop Line case study

| Name | Location | Site Type | Group | E | N | Evidence | | | |
|------------------------------------|---|-----------------------------|------------------------------------|--------|--------|----------|-----|----|-------|
| | | | | | | Arch | Doc | AP | Carto |
| Burry Port Coast Artillery Battery | Old Coastguard, Pembrey Harbour, Burry Port | Coast Artillery Searchlight | Burry Port Emergency Coast Battery | 243665 | 199896 | | | ✓ | ✓ |
| Burry Port Coast Artillery Battery | Old Coastguard, Pembrey Harbour, Burry Port | Pillbox | Burry Port Emergency Coast Battery | 243678 | 199899 | | | ✓ | ✓ |
| Burry Port Coast Artillery Battery | Old Coastguard, Pembrey Harbour, Burry Port | Gun Emplacement | Burry Port Emergency Coast Battery | 243645 | 200144 | | | ✓ | ✓ |
| Burry Port Coast Artillery Battery | Old Coastguard, Pembrey Harbour, Burry Port | Coast Artillery Battery | Burry Port Emergency Coast Battery | 243631 | 200154 | | ✓ | ✓ | ✓ |
| Burry Port Coast Artillery Battery | Old Coastguard, Pembrey Harbour, Burry Port | Gun Emplacement | Burry Port Emergency Coast Battery | 243614 | 200160 | | | ✓ | ✓ |
| S end of stop line Pillbox | West end of Pembrey Burrows | Pillbox (Type FW3/24) | Carmarthen Stop Line | 241814 | 200163 | ✓ | | ✓ | ✓ |
| 'G' Coy, 3 Carms. Bn. HG Picquet | ROF Pembrey | Observation Post | | 240700 | 200200 | | ✓ | | |
| Burry Port Coast Artillery Battery | Old Coastguard, Pembrey Harbour, Burry Port | Battery Observation Post | Burry Port Emergency Coast Battery | 243544 | 200205 | | | ✓ | ✓ |
| Burry Port Coast Artillery Battery | Old Coastguard, Pembrey Harbour, Burry Port | Army Camp | Burry Port Emergency Coast Battery | 243554 | 200269 | | | ✓ | ✓ |
| Slit trenches at Pembrey Burrows | Pembrey Burrows | Slit Trench | Coastal Defences | 242510 | 200215 | ✓ | | | |
| ROF Pembrey Vulnerable Point | ROF Pembrey | Vulnerable Point | | 240800 | 200300 | | ✓ | | |
| Burry Port RN Mine Depot | Old Coastguard, Pembrey Harbour, Burry Port | Controlled Minefield | | 243490 | 200310 | | | | ✓ |
| 'G' Coy, 3 Carms. Bn. HG HQ | ROF Pembrey | Headquarters | | 240900 | 200400 | | ✓ | | |
| ROF Pembrey Centre of Resistance | ROF Pembrey | Centre of Resistance | | 240600 | 200500 | | ✓ | | |
| Pillbox at ROF Pembrey | ROF Pembrey | Pillbox (Type FW3/23) | ROF Pembrey Defences | 240882 | 200553 | ✓ | | ✓ | |
| Pillbox at ROF Pembrey | ROF Pembrey | Pillbox | ROF Pembrey Defences | 239911 | 200277 | ✓ | | | |
| Pillbox at ROF Pembrey | ROF Pembrey | Pillbox | ROF Pembrey Defences | 239760 | 200631 | ✓ | | | |
| Pillbox at ROF Pembrey | ROF Pembrey | Pillbox | ROF Pembrey Defences | 240179 | 200576 | ✓ | | | |
| Anti-tank cubes at ROF Pembrey | ROF Pembrey | Anti-Tank Block | ROF Pembrey Defences | 239923 | 201057 | ✓ | | | |

| | | | | | | | | | |
|--|--------------------------------|-------------------------|----------------------|--------|--------|---|---|---|---|
| Halt Area Delay Post | ROF Pembrey | Defence Work | | 241147 | 200589 | | ✓ | | |
| Bombing Range Quadrant Shelter No. 1 | Cefn Sidan Sands South | Quadrant Shelter | Aerial Bombing Range | 239215 | 200703 | ✓ | | ✓ | |
| 'A' Coy, 3 Carms. Bn. HG HQ | Bacus Garage, Burry Port | Headquarters | | 244740 | 200755 | | ✓ | | |
| 'A' Coy, 3 Carms. Bn. HG Picquet | Bacus Garage, Burry Port | Observation Post | | 244746 | 200761 | | ✓ | | |
| 'A' Coy, 3 Carms Bn. HG Mobile Column | Burry Port | Headquarters | | 244800 | 200800 | | ✓ | | |
| GPO Burry Port Vulnerable Point | Burry Port | Vulnerable Point | | 244845 | 200820 | | ✓ | | |
| Pembrey Coastguard Station Observation Post | Pembrey | Observation Post | HM Coastguard | 242154 | 200383 | | ✓ | | |
| Pembrey Pumping Station Vulnerable Point | Pembrey | Vulnerable Point | | 242469 | 201392 | | ✓ | | |
| Bombing Range Searchlight Platform | Cefn Sidan Dunes | Searchlight Emplacement | Aerial Bombing Range | 237834 | 202366 | ✓ | | ✓ | ✓ |
| Roadblock in Pembrey Forest 1 | Pembrey Forest | Anti-Tank Vertical Rail | | 237952 | 202665 | ✓ | | | |
| Roadblock in Pembrey Forest 2 | Pembrey Forest | Anti-Tank Vertical Rail | | 238117 | 202808 | ✓ | | | |
| Roadblock in Pembrey Forest 3 | Pembrey Forest | Anti-Tank Vertical Rail | | 238125 | 202815 | ✓ | | | |
| Roadblock in Pembrey Forest 4 | Pembrey Forest | Anti-Tank Vertical Rail | | 238134 | 202820 | ✓ | | | |
| Bombing Range Control | Cefn Sidan Dunes | Observation Post | Aerial Bombing Range | 237735 | 202482 | ✓ | | ✓ | ✓ |
| Bombing Range Searchlight Platform | Cefn Sidan Dunes | Searchlight Emplacement | Aerial Bombing Range | 237628 | 202620 | ✓ | | ✓ | ✓ |
| Wing Markers Shelter No. 1 | Cefn Sidan Dunes | Observation Post | Aerial Bombing Range | 237388 | 202988 | ✓ | | | ✓ |
| Tywyn Burrows 4-inch Beach Defence Gun House | Tywyn Burrows | Gun Emplacement | Coastal Defences | 237068 | 203531 | ✓ | | ✓ | |
| Wing Markers Shelter No. 2 | Cefn Sidan Dunes | Observation Post | Aerial Bombing Range | 237053 | 203515 | ✓ | | | ✓ |
| Main Markers Shelter | Tywyn Burrows | Observation Post | Aerial Bombing Range | 237229 | 203262 | ✓ | | ✓ | ✓ |
| Rhiwlas Searchlight Battery | Rhiwlas, Mynydd Pen-bre | Searchlight Battery | | 244973 | 203304 | | ✓ | | |
| Military Structure | Tywyn Burrows | | Coastal Defences | 237139 | 203404 | ✓ | | ✓ | |
| AWR Pembrey Pillbox 1 | ESE of AWR Pembrey Range Tower | Pillbox | Coastal Defences | 236502 | 204349 | ✓ | | ✓ | |

| | | | | | | | | | |
|---|------------------------------------|-----------------------|----------------------|--------|--------|---|---|---|---|
| 4-in Beach Defence Gun House | N of AWR Pembrey Range Tower | Gun Emplacement | Coastal Defences | 236401 | 204503 | ✓ | | ✓ | |
| AWR Pembrey Pillbox 2 | W of northern dive bombing range | Pillbox | Coastal Defences | 236165 | 205283 | ✓ | | ✓ | |
| AWR Pembrey Pillbox 3 | W side of headland | Pillbox | Coastal Defences | 236161 | 205881 | ✓ | | ✓ | |
| AWR Pembrey Pillbox 4 | N of northern dive bombing range | Pillbox | Coastal Defences | 236452 | 205694 | ✓ | | ✓ | |
| Tywyn Burrows Slit Trench | Tywyn Burrows | Slit Trench | Coastal Defences | 236182 | 205242 | ✓ | | | |
| Meusydd Bridge Pillbox | Meusydd Bridge, Meusydd, Pembrey | Pillbox (Type FW3/24) | Carmarthen Stop Line | 241678 | 200786 | ✓ | | ✓ | ✓ |
| Meusydd Bridge Roadblock | Meusydd Bridge, Meusydd, Pembrey | Roadblock | Carmarthen Stop Line | 241678 | 200798 | ✓ | | ✓ | |
| Pillbox SW of Penybedd Wood | Swan Pool Drain, Penybedd, Pembrey | Pillbox (Type FW3/24) | Carmarthen Stop Line | 241267 | 201350 | ✓ | | ✓ | ✓ |
| Pillbox W of Penybedd Wood | Swan Pool Drain, Penybedd, Pembrey | Pillbox (Type FW3/24) | Carmarthen Stop Line | 240920 | 201720 | ✓ | | ✓ | ✓ |
| Pillbox W of Penybedd Farm | Swan Pool Drain, Penybedd, Pembrey | Pillbox (Type FW3/24) | Carmarthen Stop Line | 240700 | 202716 | ✓ | | ✓ | ✓ |
| Pillbox NW of Penybedd Farm | Penybedd, Pembrey | Pillbox (Type FW3/24) | Carmarthen Stop Line | 241007 | 203056 | ✓ | | ✓ | ✓ |
| Pillbox NE of Brooklands | Brooklands, Pembrey | Pillbox (Type FW3/24) | Carmarthen Stop Line | 241338 | 203230 | ✓ | | ✓ | ✓ |
| Pillbox N of Brooklands | Brooklands, Pembrey | Pillbox (Type FW3/24) | Carmarthen Stop Line | 241147 | 203652 | | | ✓ | ✓ |
| Roadblock N of Brooklands | Brooklands, Pembrey | Roadblock | Carmarthen Stop Line | 241249 | 203616 | ✓ | | | |
| Pillbox E of Glanrhyd Farm | Glanrhyd Farm, Pembrey | Pillbox (Type FW3/24) | Carmarthen Stop Line | 241183 | 204067 | ✓ | | ✓ | ✓ |
| Pillbox NE of Glanrhyd Farm | Glanrhyd Farm, Pembrey | Pillbox (Type FW3/24) | Carmarthen Stop Line | 241137 | 204402 | ✓ | | ✓ | ✓ |
| Pillbox NNE of Glanrhyd Farm | Glanrhyd Farm, Pembrey | Pillbox (Type FW3/24) | Carmarthen Stop Line | 241083 | 204997 | ✓ | | ✓ | ✓ |
| Anti-Tank Girder NNE of Glanrhyd Farm 1 | Glanrhyd Farm, Pembrey | Anti-Tank Girder | Carmarthen Stop Line | 241106 | 204846 | ✓ | | ✓ | |
| Anti-Tank Girder NNE of Glanrhyd Farm 2 | Glanrhyd Farm, Pembrey | Anti-Tank Girder | Carmarthen Stop Line | 241081 | 205003 | ✓ | | ✓ | |
| Pembrey HG Observation post | Pembrey | Observation Post | | 241270 | 202143 | | ✓ | | |
| Pembrey House Fougasse | Pembrey | Fougasse | | 243405 | 201261 | | ✓ | | |
| Pembrey Centre of Resistance | Western exit of Pembrey village | Centre of Resistance | | 242361 | 201401 | | ✓ | | |
| Pembrey Delay Post 1 | Pembrey | Defence Work | | 241558 | 202844 | | ✓ | | |

| | | | | | | | | | |
|--|--|-----------------------|----------------------|--------|--------|---|---|---|---|
| Pembrey Delay Post 2 | Pembrey | Defence Work | | 241990 | 202264 | | ✓ | | |
| Pembrey Delay Post 3 | Pembrey | Defence Work | | 242789 | 201590 | | ✓ | | |
| RAF Pembrey | Pembrey | Airfield | | 240100 | 203558 | ✓ | ✓ | ✓ | ✓ |
| RAF Pembrey Battle Headquarters | Pembrey | Battle Headquarters | RAF Pembrey Defences | 240120 | 202830 | ✓ | | | ✓ |
| Pillbox SE of Pen-yr-heol | Pinged | Pillbox | | 242696 | 203895 | | | ✓ | |
| Eastern pillbox on Banc-y-Lord sea wall | RAF Pembrey | Pillbox (Type FW3/23) | RAF Pembrey Defences | 240693 | 204886 | ✓ | | ✓ | ✓ |
| Western pillbox on Banc-y-Lord sea wall | RAF Pembrey | Pillbox (Type FW3/23) | RAF Pembrey Defences | 239974 | 204641 | ✓ | | ✓ | |
| Possible pillbox on Banc-y-Lord sea wall | RAF Pembrey | Pillbox | RAF Pembrey Defences | 238860 | 204280 | ✓ | | ✓ | |
| RAF Pembrey Gun Post | RAF Pembrey | Airfield Defence Site | RAF Pembrey Defences | 240299 | 203895 | | | | ✓ |
| RAF Pembrey Gun Post | RAF Pembrey | Airfield Defence Site | RAF Pembrey Defences | 240309 | 203895 | | | | ✓ |
| RAF Pembrey Gun Post | RAF Pembrey | Airfield Defence Site | RAF Pembrey Defences | 240327 | 203935 | | | | ✓ |
| RAF Pembrey Gun Post | RAF Pembrey | Airfield Defence Site | RAF Pembrey Defences | 239957 | 204009 | | | | ✓ |
| RAF Pembrey Pickett Hamilton Fort | RAF Pembrey | Pickett Hamilton Fort | RAF Pembrey Defences | 240517 | 203379 | ✓ | ✓ | | |
| RAF Pembrey Pickett Hamilton Fort | RAF Pembrey | Pickett Hamilton Fort | RAF Pembrey Defences | 240223 | 204147 | ✓ | ✓ | | |
| 'B' Coy, 3 Carms Bn. HG Mobile Column | Trimsaran | Headquarters | | 244233 | 205377 | | ✓ | | |
| Trimsaran Pillbox (F) | Trimsaran Road, Pen-y-bont | Pillbox (Type FW3/24) | | 243803 | 205606 | ✓ | | | |
| Trimsaran Road Roadblock | Trimsaran Road, Pen-y-bont | Roadblock | | 243797 | 205598 | | ✓ | | |
| Pillbox W of Commissioner s' Bridge | Kidwelly | Pillbox (Type FW3/24) | Carmarthen Stop Line | 240658 | 205815 | ✓ | | ✓ | ✓ |
| Pillbox on N bank of Gwendraeth Fawr | Dinas, Kidwelly | Pillbox (Type FW3/24) | Carmarthen Stop Line | 240122 | 205742 | ✓ | | ✓ | ✓ |
| Kidwelly Railway Station Pillbox | Kidwelly Railway Station, Kidwelly | Pillbox (Type FW3/24) | Carmarthen Stop Line | 239935 | 206574 | ✓ | | ✓ | ✓ |
| Kidwelly Keep | Kidwelly | Keep | | 240772 | 207097 | | ✓ | | |
| 'B' Coy, 3 Carms Bn. HG HQ | 21 Station Road, Kidwelly | Headquarters | | 240590 | 206682 | | ✓ | | |
| ROC Post No Q4 | Gwendraeth Stores, Lady Street, Kidwelly | Headquarters | | 240920 | 206730 | | ✓ | | |
| Kidwelly Centre of Resistance | Kidwelly | Centre of Resistance | | 240752 | 206737 | | ✓ | | |
| 'B' Coy, 3 Carms Bn. HG Picquet | The Bridge, Kidwelly | Observation Post | | 240683 | 206864 | | ✓ | | |
| Rhiwlon Farm Home Guard | Rhiwlon Farm, Kidwelly | Observation Post | | 240300 | 207300 | ✓ | ✓ | | |

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|---|---|----------------------------|------------------|--------|--------|---|---|---|--|
| Observation Post | | | | | | | | | |
| Mynyddygarreg Home Guard Observation Post | Mynyddygarreg, Kidwelly | Observation Post | | 243100 | 208400 | ✓ | ✓ | | |
| Broomhill Fougasse, Kidwelly | Kidwelly | Fougasse | | 241184 | 207596 | | ✓ | | |
| Bridge McNaughton Tube, Kidwelly | Kidwelly | Canadian Pipe Mine | | 240687 | 206853 | | ✓ | | |
| Rogerlay Ambush Site | Rogerlay, Kidwelly | Anti-Invasion Defence Site | | 241610 | 208100 | | ✓ | | |
| Meinciau Road Roadblock | Mynyddygarreg, Kidwelly | Roadblock | | 242975 | 207933 | | ✓ | | |
| River Roadblock | The River Bridge, Bridge Street, Kidwelly | Roadblock | | 240695 | 206841 | | ✓ | | |
| Trimsaran Road Roadblock | Trimsaran Road, Kidwelly | Roadblock | | 241282 | 206514 | | ✓ | | |
| Broadford Farm Roadblock | | Roadblock | | 241997 | 207785 | | ✓ | | |
| Kidwelly Pumping Station Vulnerable Point | Kidwelly | Vulnerable Point | | 240519 | 207456 | | ✓ | | |
| Kidwelly Pumping Station Delay Post | Kidwelly | Defence Work | | 240533 | 207302 | | ✓ | | |
| St Ishmael Coastguard Station | St Ishmael | Observation Post | HM Coastguard | 236404 | 207741 | | ✓ | | |
| Kidwelly Cross Roads Delay Post | Mynyddygarreg, Kidwelly | Defence Work | | 242966 | 207932 | | ✓ | | |
| Llansaint Home Guard Observation Post | Llansaint, Kidwelly | Observation Post | | 238459 | 208050 | | ✓ | | |
| St Ishmael Weapons Pit | St Ishmael | Weapons Pit | Coastal Defences | 236206 | 208166 | ✓ | | | |
| St Ishmael 4-inch Beach Defence Gun House | St Ishmael | Gun Emplacement | Coastal Defences | 236199 | 208209 | ✓ | ✓ | ✓ | |
| Nimpwll Pillbox (K) | Nimpwll, Llansaint, Kidwelly | Pillbox (Type FW3/22) | | 239274 | 208498 | | ✓ | | |
| Glantaf Home Guard Observation Post | Glantaf, Ferryside | Observation Post | | 236390 | 208960 | | ✓ | | |
| Ferryside Home Guard Observation Post 1 | Ferryside | Observation Post | | 236357 | 208982 | | ✓ | | |
| Ferryside Home Guard Observation Post 2 | Ferryside | Observation Post | | 237277 | 210195 | | ✓ | | |
| GPO Ferryside Vulnerable Point | Ferryside | Vulnerable Point | | 236643 | 210343 | | ✓ | | |

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|---|---|-------------------------|----------------------|--------|--------|---|---|---|---|
| Pillbox at Fountain Inn | Laugharne | Pillbox | | 230075 | 210731 | | | ✓ | |
| Defended Building at the Mill, Laugharne | Laugharne | Defended Building | | 230083 | 210753 | | | ✓ | |
| Cwmffrwd Pillbox | Llwyn-yr-eos, Cwmffrwd, Carmarthen | Pillbox (Type FW3/26) | | 242606 | 216584 | ✓ | | | |
| Llansteffan Road Roadblock | S of Towy Lodge | Roadblock | Carmarthen Stop Line | 239137 | 217302 | | | ✓ | |
| Anti-Tank Vertical Rail W of Werncorgam Farm | Werncorgam, Heol Smyrna, Llangain | Anti-Tank Vertical Rail | Carmarthen Stop Line | 238401 | 218134 | ✓ | | ✓ | |
| Pillbox WNW of Werncorgam Farm | Werncorgam, Heol Smyrna, Llangain | Pillbox (Type FW3/24) | Carmarthen Stop Line | 238333 | 218236 | | | ✓ | ✓ |
| Anti-Tank Vertical Rail NW of Werncorgam Farm | Werncorgam, Heol Smyrna, Llangain | Anti-Tank Vertical Rail | Carmarthen Stop Line | 238331 | 218312 | ✓ | | ✓ | |
| Pillbox in SW corner of Cattle Market | Glyn-siw, Llanllwch | Pillbox | Carmarthen Stop Line | 237760 | 218880 | ✓ | | ✓ | ✓ |
| Bascule Bridge Pillbox | Towy Railway Bridge Embankment, Pensarn | Pillbox (Type FW3/24) | Carmarthen Keep | 240607 | 219192 | ✓ | | ✓ | ✓ |
| 1 Carms. Bn. Home Guard HQ | The Barracks, Carmarthen | Headquarters | | 240368 | 219945 | ✓ | ✓ | ✓ | |
| Carmarthen Sub-Area/District HQ | Bronydre, Penllwyn Park, Carmarthen | Headquarters | | 240255 | 219975 | ✓ | ✓ | ✓ | |
| Pillbox on Llysonen Road | Llysonen Road, Llanllwch | Pillbox (Type FW3/24) | Carmarthen Stop Line | 237568 | 219155 | | | ✓ | ✓ |
| Roadblock on Llysonen Road | Llysonen Road, Llanllwch | Roadblock | Carmarthen Stop Line | 237570 | 219162 | | | ✓ | |
| Roadblock S of Waundolau | Waundolau, Travellers' Rest, Carmarthen | Anti-Tank Vertical Rail | Carmarthen Stop Line | 237665 | 219669 | ✓ | | ✓ | |
| Pillbox S of Waundolau | Waundolau, Travellers' Rest, Carmarthen | Pillbox (Type FW3/24) | Carmarthen Stop Line | 237660 | 219680 | | | ✓ | ✓ |
| Pillbox ESE of Fynnon saint | Pentre'r-hydd, Pentremeurig Road | Pillbox (Type FW3/24) | Carmarthen Stop Line | 237790 | 220790 | | | ✓ | ✓ |
| Roadblock SE of Nantyci | Bridge on Pentremeurig Road | Roadblock | Carmarthen Stop Line | 238007 | 221209 | | | ✓ | |
| Pillbox NE of Nantyci | Pentre'r-hydd, Pentremeurig Road | Pillbox (Type FW3/24) | Carmarthen Stop Line | 238100 | 221520 | | | ✓ | ✓ |
| Pillbox S of Foelcwan | Foelcwan, Newchurch | Pillbox | Carmarthen Stop Line | 238773 | 221844 | ✓ | | | ✓ |
| Roadblock SE of Foelcwan | Foelcwan, Newchurch | Roadblock | Carmarthen Stop Line | 239034 | 221916 | | | ✓ | |
| Pillbox SE of Foelcwan | Foelcwan, Newchurch | Pillbox | Carmarthen Stop Line | 239045 | 221921 | | | ✓ | ✓ |
| Pillbox ENE of Foelcwan | Foelcwan, Newchurch | Pillbox | Carmarthen Stop Line | 239184 | 222331 | ✓ | | ✓ | ✓ |
| Pillbox SW of Pistyllgwion | Foelcwan, Newchurch | Pillbox (Type FW3/24) | Carmarthen Stop Line | 239320 | 222430 | | | ✓ | ✓ |

| | | | | | | | | | |
|--|----------------------|----------------------------|----------------------|--------|--------|---|---|---|---|
| Roadblock S of Pistyllgwion | Pistyllgwion | Roadblock | Carmarthen Stop Line | 239629 | 222531 | | | ✓ | |
| Pillbox SE of Clynmelyn | Cwmdu, Carmarthen | Pillbox (Type FW3/24) | Carmarthen Stop Line | 240980 | 222830 | | | ✓ | ✓ |
| Pillbox E of Pante | Pante, Bronwydd Arms | Pillbox (Type FW3/24) | Carmarthen Stop Line | 241999 | 223065 | ✓ | | ✓ | ✓ |
| Roadblock E of Pante | Pante, Bronwydd Arms | Roadblock | Carmarthen Stop Line | 242002 | 223060 | | | ✓ | ✓ |
| Pillbox at Bronwydd Arms | Bronwydd Arms | Pillbox | Carmarthen Stop Line | 241770 | 223610 | | | ✓ | ✓ |
| Observation post at spot height 717 | Ty Cwm Tawel | Observation Post | Carmarthen Stop Line | 237581 | 225796 | | ✓ | | |
| Observation post near Crynfryn | Crynfryn | Observation Post | Carmarthen Stop Line | 236730 | 225883 | | ✓ | | |
| Observation post N of Allt Pen-llwyn-iorwg | Ty Cwm Tawel | Observation Post | Carmarthen Stop Line | 239231 | 226393 | | ✓ | | |
| Vital point at railway bridge over river | Cynwyl Station | Vulnerable Point | Carmarthen Stop Line | 238539 | 226429 | | ✓ | | |
| Vital point at reservoir | Ty Cwm Tawel | Vulnerable Point | Carmarthen Stop Line | 238446 | 225701 | | ✓ | | |
| Vital point at Crynfryn | Crynfryn | Vulnerable Point | Carmarthen Stop Line | 236402 | 225802 | | ✓ | | |
| Rear seal at Crynfryn | Crynfryn | Roadblock | Carmarthen Stop Line | 236239 | 226326 | | ✓ | | |
| Roadblocks at Crynfryn | Crynfryn | Roadblock | Carmarthen Stop Line | 236381 | 225814 | | ✓ | | |
| Observation post at Blaenyrcoed | Blaenyrcoed | Observation Post | Carmarthen Stop Line | 234857 | 227351 | | ✓ | | |
| Pillbox at Ty Cwm Tawel | Ty Cwm Tawel | Pillbox (Type FW3/24) | Carmarthen Stop Line | 238972 | 225882 | ✓ | | | ✓ |
| Rear seal at Cwm-coy | Cynwyl Station | Roadblock | Carmarthen Stop Line | 238479 | 226391 | | ✓ | | |
| Roadblock at Ty Cwm Tawel | Ty Cwm Tawel | Anti-Tank Vertical Rail | Carmarthen Stop Line | 238920 | 225855 | ✓ | | | |
| Railblock at Ty Cwm Tawel | Ty Cwm Tawel | Railblock | Carmarthen Stop Line | 238984 | 225913 | ✓ | | | |
| Rock & Fountain Barbed Wire Entanglement | Ty Cwm Tawel | Barbed Wire Entanglement | Carmarthen Stop Line | 238956 | 225914 | ✓ | | | |
| Strongpoint at Ty Cwm Tawel | Ty Cwm Tawel | Defended Building | Carmarthen Stop Line | 238972 | 225894 | ✓ | | | |
| Cynwyl Elfed Searchlight Battery | Cynwyl Elfed | Searchlight battery | | 237560 | 227020 | | | ✓ | |
| Pillbox at Danallt-y-gog 1 | Cynwyl Elfed | Pillbox (Type FW3/24) | Carmarthen Stop Line | 237356 | 227079 | ✓ | | | ✓ |
| Pillbox at Danallt-y-gog 2 | Cynwyl Elfed | Pillbox (Type CP/6/40/111) | Carmarthen Stop Line | 237375 | 227055 | ✓ | | | ✓ |
| Pillbox at Danallt-y-gog 3 | Cynwyl Elfed | Pillbox (Type CP/6/40/111) | Carmarthen Stop Line | 237262 | 227089 | ✓ | | | |
| Pillbox at Danallt-y-gog 4 | Cynwyl Elfed | Pillbox (Type CP/6/40/111) | Carmarthen Stop Line | 237341 | 227121 | ✓ | | | |
| Pillbox at Bronllwyn | Cynwyl Elfed | Pillbox (Type FW3/24) | Carmarthen Stop Line | 237496 | 227312 | ✓ | | | ✓ |
| Roadblock at Pont Cynwyl | Cynwyl Elfed | Roadblock | Carmarthen Stop Line | 237303 | 227469 | ✓ | | | |

| | | | | | | | | | |
|---------------------------------|-----------------|----------------------------|----------------------|--------|--------|---|--|---|---|
| Fortified House at Llwyndorw | Cynwyl Elfed | Fortified House | Carmarthen Stop Line | 237314 | 227479 | ✓ | | | |
| Defended building at Lleine | Cynwyl Elfed | Defended Building | Carmarthen Stop Line | 237323 | 227654 | ✓ | | | |
| Pillbox S of Blaenantgwyn | Carn-wern, Rhos | Pillbox (Type CP/6/40/111) | Carmarthen Stop Line | 236128 | 233820 | | | ✓ | ✓ |
| Pillbox W of Blaenantgwyn | Carn-wern, Rhos | Pillbox (Type CP/6/40/111) | Carmarthen Stop Line | 236034 | 233847 | ✓ | | ✓ | ✓ |
| Pillbox NW of Blaenantgwyn | Carn-wern, Rhos | Pillbox (Type FW3/24) | Carmarthen Stop Line | 235984 | 233956 | ✓ | | ✓ | ✓ |
| Pillbox SE of Carn-wern | Carn-wern, Rhos | Pillbox (Type FW3/24) | Carmarthen Stop Line | 235969 | 234113 | ✓ | | ✓ | ✓ |
| Pillbox ENE of Carn-wern | Carn-wern, Rhos | Pillbox (Type FW3/24) | Carmarthen Stop Line | 235984 | 234273 | ✓ | | ✓ | ✓ |
| Roadblock ENE of Carn-wern | Carn-wern, Rhos | Roadblock | Carmarthen Stop Line | 235980 | 234279 | | | ✓ | |
| Pillbox WSW of Larkhill | Carn-wern, Rhos | Pillbox (Type FW3/24) | Carmarthen Stop Line | 235989 | 234525 | ✓ | | ✓ | ✓ |
| Pillbox at Gilwern Terrace | Waungilwen | Pillbox | Carmarthen Stop Line | 234709 | 239120 | ✓ | | | |
| Pillbox N of Pont Allt-y-cafan | Pentre-cwrt | Pillbox (Type FW3/24) | Carmarthen Stop Line | 238696 | 239305 | ✓ | | | ✓ |
| Henllan Bridge Pillbox | Henllan Bridge | Pillbox (Type FW3/24) | Carmarthen Stop Line | 235578 | 240035 | ✓ | | ✓ | ✓ |
| Henllan Bridge Pillbox East | Henllan Bridge | Pillbox | Carmarthen Stop Line | 235735 | 240096 | ✓ | | | |
| Pillbox at Aber-banc 1 | Aber-banc | Pillbox | Carmarthen Stop Line | 235642 | 241755 | | | ✓ | ✓ |
| Pillbox at Aber-banc 2 | Aber-banc | Pillbox | Carmarthen Stop Line | 235530 | 241819 | | | ✓ | ✓ |
| Pillbox at Nantgwynlan | Penrhiw-pal | Pillbox | Carmarthen Stop Line | 234877 | 245728 | | | ✓ | ✓ |
| Pillbox at Hawen | Rhyd Lewis | Pillbox | Carmarthen Stop Line | 234600 | 246816 | | | ✓ | ✓ |
| Pillbox E of Felin-ganol | Rhyd Lewis | Pillbox | Carmarthen Stop Line | 234066 | 247118 | | | ✓ | ✓ |
| Pillbox at Pont-y-Brithdir | Rhyd Lewis | Pillbox | Carmarthen Stop Line | 234106 | 247529 | | | ✓ | ✓ |
| Pillbox SW of Maelgwyn | Rhyd Lewis | Pillbox | Carmarthen Stop Line | 234761 | 247618 | | | ✓ | ✓ |
| Pillbox at Pont Rhyd Lewis | Rhyd Lewis | Pillbox | Carmarthen Stop Line | 234725 | 247407 | | | ✓ | ✓ |
| Pillbox N of Anwylyfa | Rhyd Lewis | Pillbox | Carmarthen Stop Line | 234739 | 247171 | | | ✓ | ✓ |
| Possible roadblock at Aberbarre | Aberbarre | Roadblock | Carmarthen Stop Line | 234487 | 249014 | | | ✓ | |
| Roadblock at Aberedw Farm | Aberbedw | Roadblock | Carmarthen Stop Line | 234001 | 249942 | | | ✓ | |
| Pen Garn-wen Pillbox | Capel Cynon | Pillbox (Type FW3/24) | | 237327 | 249388 | ✓ | | | ✓ |
| Possible pillbox E of Alltgoch | Brynhoffnant | Pillbox | Carmarthen Stop Line | 234004 | 250529 | | | ✓ | |
| Pillbox at Brynhoffnant | Brynhoffnant | Pillbox | Carmarthen Stop Line | 233149 | 251339 | | | ✓ | ✓ |
| Roadblock WSW of Bryn Ceri | Brynhoffnant | Roadblock | Carmarthen Stop Line | 233741 | 251437 | | | ✓ | |
| Roadblock NE of New Inn | Brynhoffnant | Roadblock | Carmarthen Stop Line | 233852 | 252103 | | | ✓ | |
| Pillbox at Dolau Ceri | Brynhoffnant | Pillbox | Carmarthen Stop Line | 233930 | 252157 | | | ✓ | ✓ |
| Roadblock NE of Dolau Ceri | Brynhoffnant | Roadblock | Carmarthen Stop Line | 233983 | 252229 | | | ✓ | |

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|--------------------------------------|---------------|--------------------------------|-------------------------------------|--------|--------|---|---|---|---|
| Pillbox at Pontgarreg | Pontgarreg | Pillbox | Carmarthen Stop Line | 233933 | 254212 | | | ✓ | ✓ |
| RAF Blaenannerch / Aberporth | Aberporth | Airfield | | 224860 | 249470 | ✓ | ✓ | ✓ | ✓ |
| Aberporth Beach Pillbox | Aberporth | Pillbox | Coastal Defences | 225863 | 251482 | ✓ | | | |
| RAF Blaenannerch Pillbox 01 | Aberporth | Pillbox (Air Ministry Pattern) | RAF Blaenannerch Perimeter Defences | 225026 | 248883 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 02 | Aberporth | Pillbox (Type FW3/22) | RAF Blaenannerch Perimeter Defences | 224690 | 249180 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 03 | Aberporth | Pillbox (Type FW3/24) | RAF Blaenannerch Perimeter Defences | 225276 | 249319 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 04 | Aberporth | Pillbox (Air Ministry Pattern) | RAF Blaenannerch Perimeter Defences | 225372 | 249363 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 05 | Aberporth | Pillbox (Air Ministry Pattern) | RAF Blaenannerch Perimeter Defences | 225599 | 249596 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 06 | Aberporth | Pillbox (Air Ministry Pattern) | RAF Blaenannerch Perimeter Defences | 225382 | 249628 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 07 | Aberporth | Pillbox (Type FW3/24) | RAF Blaenannerch Perimeter Defences | 225196 | 249754 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 08 | Aberporth | Pillbox (Air Ministry Pattern) | RAF Blaenannerch Perimeter Defences | 225265 | 249865 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 09 | Aberporth | Pillbox (Air Ministry Pattern) | RAF Blaenannerch Perimeter Defences | 224975 | 249905 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 10 | Aberporth | Pillbox (Air Ministry Pattern) | RAF Blaenannerch Perimeter Defences | 224821 | 249772 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 11 | Aberporth | Pillbox (Air Ministry Pattern) | RAF Blaenannerch Perimeter Defences | 224768 | 249975 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 12 | Aberporth | Pillbox (Type FW3/24) | RAF Blaenannerch Perimeter Defences | 224624 | 249774 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 13 | Aberporth | Pillbox (Air Ministry Pattern) | RAF Blaenannerch Perimeter Defences | 224445 | 249726 | ✓ | | ✓ | |
| RAF Blaenannerch Pillbox 14 | Aberporth | Pillbox (Air Ministry Pattern) | RAF Blaenannerch Perimeter Defences | 224515 | 249355 | ✓ | | ✓ | |
| Possible pillbox at RAF Blaenannerch | Aberporth | Pillbox | RAF Blaenannerch Perimeter Defences | 225210 | 249220 | | | ✓ | |
| Pillbox at Synod Inn | Synod Inn | Pillbox | | 240363 | 254348 | | | ✓ | |
| 6-pdr Gun Emplacement | Tywyn Burrows | Gun Emplacement | Coastal Defences | 238424 | 202900 | | ✓ | ✓ | |

| | | | | | | | | | |
|--|-------------------------|----------------------------|----------------------|--------|--------|---|---|---|---|
| 6-pdr Gun Emplacement | Tywyn Burrows | Gun Emplacement | Coastal Defences | 238283 | 203095 | | ✓ | ✓ | |
| 6-pdr Gun Emplacement | Cefn Sidan Sands | Gun Emplacement | Coastal Defences | 236955 | 203492 | | ✓ | ✓ | |
| 4-in Beach Defence gun House | Laugharne Burrows | Gun Emplacement | Coastal Defences | 229047 | 207040 | | ✓ | ✓ | |
| 6-pdr Gun Emplacement | W end of St John's Hill | Gun Emplacement | Coastal Defences | 228840 | 209512 | | ✓ | ✓ | |
| 6-pdr Gun Emplacement | S of Westmead Farm | Gun Emplacement | Coastal Defences | 225927 | 209036 | | ✓ | ✓ | |
| 4-in Beach Defence gun House | Dolwen Point | Gun Emplacement | Coastal Defences | 223230 | 207822 | | ✓ | ✓ | |
| Laugharne McNaughton Tube 2 | Gosport, Laugharne | Canadian Pipe Mine | | 229931 | 210400 | | ✓ | | |
| Laugharne McNaughton Tube 3 | Laugharne | Canadian Pipe Mine | | 229853 | 210802 | | ✓ | | |
| Laugharne McNaughton Tube 4 | Laugharne | Canadian Pipe Mine | | 229934 | 210790 | | ✓ | | |
| Laugharne McNaughton Tube 5 | Laugharne | Canadian Pipe Mine | | 230092 | 210847 | | ✓ | | |
| Laugharne McNaughton Tube 6 | N end of Causeway | Canadian Pipe Mine | | 228736 | 209490 | | ✓ | | |
| Pendine McNaughton Tube | Pendine | Canadian Pipe Mine | | 223219 | 208386 | | ✓ | | |
| Pendine Anti-Landing Obstacle | Pendine | Anti-Landing Obstacle | Coastal Defences | 228009 | 206855 | | ✓ | | |
| Pembrey Anti-Landing Obstacle | Pembrey | Anti-Landing Obstacle | Coastal Defences | 236531 | 204028 | ✓ | ✓ | | |
| Burry Port Anti-Boat Landing Scaffolding | Burry Port | Anti-Boat Landing Obstacle | Coastal Defences | 243484 | 199314 | | ✓ | ✓ | |
| Pembrey Forest Minefield 1 | Pembrey Forest | Minefield | Coastal Defences | 238219 | 202867 | | | ✓ | |
| Pembrey Forest Minefield 2 | Pembrey Forest | Minefield | Coastal Defences | 238049 | 202766 | | | ✓ | |
| Pembrey Forest Minefield 3 | Pembrey Forest | Minefield | Coastal Defences | 238013 | 202702 | | | ✓ | |
| Pembrey Forest Minefield 4 | Pembrey Forest | Minefield | Coastal Defences | 238096 | 202666 | | | ✓ | |
| Pembrey Forest Minefield 5 | Pembrey Forest | Minefield | Coastal Defences | 237865 | 202630 | | | ✓ | |
| Pembrey Forest Minefield 6 | Pembrey Forest | Minefield | Coastal Defences | 237771 | 202675 | | | ✓ | |
| Pembrey Forest Minefield 7 | Pembrey Forest | Minefield | Coastal Defences | 237797 | 202577 | | | ✓ | |
| Rhos Llangeler Minefield | Rhos Llangeler | Minefield | Carmarthen Stop Line | 235961 | 234485 | | | ✓ | |
| Carmarthen Keep | Carmarthen | Keep | Carmarthen Defences | | | | ✓ | | |
| Rhos Llangeler Anti- | Rhos Llangeler | Anti-Tank Block | Carmarthen Stop Line | 236015 | 234609 | ✓ | | ✓ | ✓ |

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|--|---------------------------|------------------------------------|----------------------|--------|--------|---|--|---|---|
| Tank Cube Alignment 1 | | | | | | | | | |
| Rhos Llangeler Anti-Tank Cube Alignment 2 | Rhos Llangeler | Anti-Tank Block | Carmarthen Stop Line | 235991 | 234402 | ✓ | | ✓ | ✓ |
| Rhos Llangeler Anti-Tank Cube Alignment 3 | Rhos Llangeler | Anti-Tank Block | Carmarthen Stop Line | 235977 | 234193 | ✓ | | ✓ | ✓ |
| Henallt Fawr Anti-Tank Cube Alignment 1 | Bronwydd Arms | Anti-Tank Block | Carmarthen Stop Line | 242002 | 223031 | | | ✓ | ✓ |
| Henallt Fawr Anti-Tank Cube Alignment 2 | Bronwydd Arms | Anti-Tank Block | Carmarthen Stop Line | 242046 | 222924 | | | ✓ | ✓ |
| Banc-y-Lord Anti-Tank Cube Alignment | Banc-y-Lord | Anti-Tank Block | Carmarthen Stop Line | 241097 | 204926 | ✓ | | ✓ | ✓ |
| Pembrey Industrial Estate Anti-Tank Cube Alignment | Pembrey Industrial Estate | Anti-Tank Block | Carmarthen Stop Line | 241213 | 203785 | ✓ | | ✓ | ✓ |
| Brooklands Farm Anti-Tank Cube Alignment | Brooklands Farm | Anti-Tank Block | Carmarthen Stop Line | 241323 | 203293 | ✓ | | ✓ | ✓ |
| Gwendraeth Fawr estuary Anti-Tank Ditch | Commissioner's Bridge | Anti-Tank Ditch (Natural Improved) | Carmarthen Stop Line | 240987 | 205294 | ✓ | | ✓ | ✓ |
| Swan Pool Drain Anti-Tank Ditch | Pembrey | Anti-Tank Ditch (Natural Improved) | Carmarthen Stop Line | 240909 | 201735 | ✓ | | ✓ | ✓ |
| Anti-Tank Ditch SE of Carmarthen Agricultural Showground | Carmarthen | Anti-Tank Ditch (Natural Improved) | Carmarthen Stop Line | 237815 | 218707 | ✓ | | ✓ | ✓ |
| Pembrey Burrows Anti-Tank Ditch | Pembrey Burrows | Anti-Tank Ditch | Carmarthen Stop Line | 241739 | 200424 | ✓ | | ✓ | ✓ |
| Pembrey Industrial Estate Anti-Tank Ditch | Pembrey Industrial Estate | Anti-Tank Ditch | Carmarthen Stop Line | 241154 | 204325 | | | ✓ | ✓ |
| Pwlldu Anti-Tank Ditch | Pwlldu | Anti-Tank Ditch | Carmarthen Stop Line | 239373 | 217092 | | | ✓ | ✓ |
| Anti-Tank Ditch S of Werncorgam | Werncorgam | Anti-Tank Ditch | Carmarthen Stop Line | 238818 | 217527 | | | ✓ | ✓ |
| Anti-Tank Ditch W of Werncorgam | Werncorgam | Anti-Tank Ditch | Carmarthen Stop Line | 238531 | 217990 | | | ✓ | ✓ |
| Anti-Tank Ditch W of Werncorgam Fawr | Werncorgam Fawr | Anti-Tank Ditch | Carmarthen Stop Line | 238334 | 218222 | | | ✓ | ✓ |
| Anti-Tank Ditch N of Allt Werncorgam | Allt Werncorgam | Anti-Tank Ditch | Carmarthen Stop Line | 237899 | 218507 | | | ✓ | ✓ |
| Carmarthen Agricultural Showground Anti-Tank Ditch | Carmarthen | Anti-Tank Ditch | Carmarthen Stop Line | 237697 | 219016 | | | ✓ | ✓ |

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|--------------------------------------|-----------------|-----------------|----------------------|--------|--------|--|--|---|---|
| Nantyci Anti-Tank Ditch | Nantyci | Anti-Tank Ditch | Carmarthen Stop Line | 237567 | 219439 | | | ✓ | ✓ |
| Waundolau Anti-Tank Ditch | Waundolau | Anti-Tank Ditch | Carmarthen Stop Line | 237726 | 219884 | | | ✓ | ✓ |
| Melin Trebersed Anti-Tank Ditch | Melin Trebersed | Anti-Tank Ditch | Carmarthen Stop Line | 237734 | 220122 | | | ✓ | ✓ |
| Anti-Tank Ditch N of Melin Trebersed | Melin Trebersed | Anti-Tank Ditch | Carmarthen Stop Line | 237728 | 220417 | | | ✓ | ✓ |
| Anti-Tank Ditch E of Fynnon saint | Fynnon saint | Anti-Tank Ditch | Carmarthen Stop Line | 237850 | 220942 | | | ✓ | ✓ |
| Anti-Tank Ditch N of Pentre'r-hydd | Pentre'r-hydd | Anti-Tank Ditch | Carmarthen Stop Line | 238470 | 221710 | | | ✓ | ✓ |
| Anti-Tank Ditch E of Foelcwan | Foelcwan | Anti-Tank Ditch | Carmarthen Stop Line | 239164 | 222424 | | | ✓ | ✓ |
| Anti-Tank Ditch S of Waunllanau | Waunllanau | Anti-Tank Ditch | Carmarthen Stop Line | 240001 | 222724 | | | ✓ | ✓ |
| Anti-Tank Ditch S of Clynmelyn | Clynmelyn | Anti-Tank Ditch | Carmarthen Stop Line | 240649 | 222743 | | | ✓ | ✓ |
| Anti-Tank Ditch S of Pante | Pante | Anti-Tank Ditch | Carmarthen Stop Line | 241525 | 222976 | | | ✓ | ✓ |
| Cwmdwyfran Anti-Tank Ditch | Cwmdwyfran | Anti-Tank Ditch | Carmarthen Stop Line | 241191 | 224758 | | | ✓ | ✓ |
| Cynwyl Elfed Anti-Tank Ditch | Cynwyl Elfed | Anti-Tank Ditch | Carmarthen Stop Line | 237321 | 226919 | | | ✓ | ✓ |
| Blaenantgwyn Anti-Tank Ditch | Blaenantgwyn | Anti-Tank Ditch | Carmarthen Stop Line | 235637 | 233396 | | | ✓ | ✓ |
| Aber-banc Anti-Tank Ditch | Aber-banc | Anti-Tank Ditch | Carmarthen Stop Line | 235706 | 241850 | | | ✓ | ✓ |
| Coed-y-bryn Anti-Tank Ditch | Coed-y-bryn | Anti-Tank Ditch | Carmarthen Stop Line | 235142 | 245130 | | | ✓ | ✓ |
| Penrhiwpal Anti-Tank Ditch | Penrhiwpal | Anti-Tank Ditch | Carmarthen Stop Line | 234803 | 245670 | | | ✓ | ✓ |
| Rhyd Lewis Anti-Tank Ditch | Rhyd Lewis | Anti-Tank Ditch | Carmarthen Stop Line | 234060 | 247254 | | | ✓ | ✓ |
| Anti-Tank Ditch W of Gwynnant | Gwynnant | Anti-Tank Ditch | Carmarthen Stop Line | 234513 | 248324 | | | ✓ | ✓ |
| Aberbarre Anti-Tank Ditch | Aberbarre | Anti-Tank Ditch | Carmarthen Stop Line | 234535 | 248935 | | | ✓ | ✓ |
| Aberbedw Anti-Tank Ditch | Aberbedw | Anti-Tank Ditch | Carmarthen Stop Line | 234067 | 249780 | | | ✓ | ✓ |
| Anti-Tank Ditch E of Alltgoch | Alltgoch | Anti-Tank Ditch | Carmarthen Stop Line | 234009 | 250676 | | | ✓ | ✓ |
| Anti-Tank Ditch E of Brynhoffnant | Brynhoffnant | Anti-Tank Ditch | Carmarthen Stop Line | 233728 | 251531 | | | ✓ | ✓ |
| Nant Hawen Anti-Tank Ditch | Nant Hawen | Anti-Tank Ditch | Carmarthen Stop Line | 234117 | 252580 | | | ✓ | ✓ |

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|---|--------------------|-----------------------------|-------------------------|--------|--------|--|--|---|---|
| Pontgarreg Anti-Tank Ditch | Pontgarreg | Anti-Tank Ditch | Carmarthen Stop Line | 233825 | 254295 | | | ✓ | ✓ |
| Pendine Barbed Wire Entanglement 1 | Pendine Burrows | Barbed Wire Entanglement | Coast Defences | 225547 | 207574 | | | ✓ | |
| Pendine Barbed Wire Entanglement 2 | Pendine Burrows | Barbed Wire Entanglement | Coast Defences | 225658 | 207564 | | | ✓ | |
| Pendine Barbed Wire Entanglement 3 | Pendine Burrows | Barbed Wire Entanglement | Coast Defences | 226726 | 207298 | | | ✓ | |
| Pendine Barbed Wire Entanglement 4 | Pendine Burrows | Barbed Wire Entanglement | Coast Defences | 227472 | 207138 | | | ✓ | |
| Pembrey Barbed Wire Entanglement | Pembrey Sands | Barbed Wire Entanglement | Coast Defences | 237509 | 202758 | | | ✓ | |

LIST OF PRIMARY SOURCES

List of pieces consulted at The National Archives

| List of war diaries located and examined at The National Archives | | | |
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| Piece No. | War diary name | Year | Date examined |
| GHQ Home Forces | | | |
| WO 166/12 | Chief Engineer | 1940-41 | 14/10/2010 |
| Western Command | | | |
| WO 166/94 | Western Command General Staff | 1939-40 | 02/06/2009 |
| WO 166/96 | Western Command Quartermaster (Ops.) | 1940 | 02/06/2009 |
| WO 166/97 | Western Command Royal Artillery | 1940 | 01/06/2010 |
| WO 166/98 | Western Command Chief Engineer | 1940 | 15/04/2010 |
| WO 166/103 | Western Command General Staff | 1941 | 15/04/2010 |
| WO 166/107 | Western Command Royal Artillery | 1941 | 01/06/2010 |
| WO 166/108 | Western Command Chief Engineer | 1941 | 15/04/2010 |
| WO 166/6025 | Western Command General Staff | 1942 | 15/04/2010 |
| WO 166/6029 | Western Command Royal Engineers | 1942 | 15/04/2010 |
| WO 166/6030 | Western Command Royal Artillery | 1942 | 15/04/2010 |
| WO 199/33 | Western Command Counter-attack Battalions | 1941-43 | 02/06/2010 |
| South Wales Area and Sub-Areas | | | |
| WO 166/1247 | South Wales Area HQ | 1939-41 | 02/06/2009 |
| WO 166/6840 | South Wales District HQ | 1942 | 12/10/2010 |
| WO 166/1314 | Severn Sub-Area HQ | 1940-41 | 02/06/2009 |
| WO 166/6771 | Severn Sub-Area HQ | 1942 | 12/10/2010 |
| WO 166/1270 | Carmarthen Sub-Area HQ | 1940-41 | 02/06/2009 |
| WO 166/6729 | Carmarthen Sub-Area HQ | 1942 | 13/10/2010 |
| North Wales Area and Sub-Areas | | | |
| WO 166/1245 | North Wales Area HQ | 1939-41 | 02/06/2009 |
| WO 166/6838 | North Wales District HQ | 1942 | 12/10/2010 |
| WO 166/1309 | Oswestry Sub-Area HQ | 1940-41 | 02/06/2009 |
| WO 166/1327 | Welsh Border Sub-Area HQ | 1941 | 02/06/2009 |
| WO 166/6783 | Welsh Border Sub-Area HQ | 1942 | 12/10/2010 |
| WO 166/1315 | Shropshire Sub-Area HQ | 1941 | 12/10/2010 |
| WO 166/6774 | Shropshire Sub-Area HQ | 1942 | 12/10/2010 |
| WO 166/1290 | Kinmel Sub-Area HQ | 1940 | 12/10/2010 |
| WO 166/1268 | Cambrian Sub-Area HQ | 1941 | 12/10/2010 |
| WO 166/6727 | Cambrian Sub-Area HQ | 1942 | 12/10/2010 |
| III Corps | | | |
| WO 166/204 | III Corps General Staff | 1940-41 | 15/04/2010 |
| WO 166/208 | III Corps Royal Artillery | 1939-41 | 01/06/2010 |
| WO 166/210 | III Corps Chief Engineer | 1940-41 | 15/04/2010 |
| WO 166/211 | III Corps Commander Royal Engineers | 1940-41 | 15/04/2010 |
| WO 166/3683 | III Corps 214 Army Field Coy., RE | 1939-41 | 01/06/2010 |
| WO 166/3685 | III Corps 216 Army Field Coy., RE | 1940-41 | 01/06/2010 |
| WO 166/3686 | III Corps 217 Army Field Coy., RE | 1939-41 | 01/06/2010 |
| WO 166/3762 | III Corps 293 Field Park Coy., RE | 1940-41 | 01/06/2010 |

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|--|--|---------|------------|
| 53 (Welsh) Infantry Division | | | |
| WO 166/655 | 53 Inf. Division General Staff | 1939-40 | 12/10/2010 |
| WO 166/656 | 53 Inf. Division General Staff | 1941 | 12/10/2010 |
| WO 166/658 | 53 Inf. Division Commander Royal Artillery | 1939-41 | 12/10/2010 |
| WO 166/659 | 53 Inf. Division Commander Royal Engineers | 1939-41 | 12/10/2010 |
| WO 166/3713 | 53 Inf. Division 244 Field Coy., RE | 1939-41 | 12/10/2010 |
| WO 166/3751 | 53 Inf. Division 282 Field Coy., RE | 1939-41 | 12/10/2010 |
| WO 166/3793 | 53 Inf. Division 555 Field Coy., RE | 1939-41 | 12/10/2010 |
| WO 166/3754 | 53 Inf. Division 285 Field Park Coy., RE | 1939-41 | 12/10/2010 |
| 38 (Welsh) Infantry Division | | | |
| WO 166/482 | 38 Inf. Division General Staff | 1939-41 | 15/04/2010 |
| WO 166/485 | 38 Inf. Division Commander Royal Engineers | 1939-41 | 15/04/2010 |
| WO 166/3752 | 38 Inf. Division 283 Field Coy., RE | 1939-41 | 01/06/2010 |
| WO 166/3753 | 38 Inf. Division 284 Field Coy., RE | 1939-41 | 01/06/2010 |
| WO 166/3799 | 38 Inf. Division 561 Field Coy., RE | 1940-41 | 01/06/2010 |
| 5 Infantry Division | | | |
| WO 166/419 | 5 Inf. Division General Staff | 1939-41 | 01/06/2010 |
| WO 166/421 | 5 Inf. Division Commander Royal Artillery | 1940-41 | 01/06/2010 |
| WO 166/422 | 5 Inf. Division Commander Royal Engineers | 1939-41 | 01/06/2010 |
| WO 166/3714 | 5 Inf. Division 245 Field Coy., RE | 1939-41 | 14/10/2010 |
| WO 166/3721 | 5 Inf. Division 252 Field Coy., RE | 1939-41 | 01/06/2010 |
| WO 166/3767 | 5 Inf. Division 501 Field Coy., RE | 1939-41 | 14/10/2010 |
| 2 / 47 (London) Infantry Division | | | |
| WO 166/566 | 2 / 47 London Inf. Div. General Staff | 1939-40 | 01/06/2010 |
| WO 166/567 | 47 London Inf. Division General Staff | 1941 | 01/06/2010 |
| WO 166/3691 | 47 London Inf. Division 222 Field Coy., RE | 1940-41 | 01/06/2010 |
| WO 166/3768 | 47 London Inf. Division 502 Field Coy., RE | 1939-41 | 01/06/2010 |
| WO 166/3769 | 47 London Inf. Division 503 Field Coy., RE | 1939-41 | 01/06/2010 |
| 18 (East Anglian) Infantry Division | | | |
| WO 166/465 | 18 Inf. Division General Staff | 1941 | 12/10/2010 |
| WO 166/467 | 18 Inf. Division Commander Royal Artillery | 1939-41 | 12/10/2010 |
| WO 166/468 | 18 Inf. Division Commander Royal Engineers | 1939-41 | 12/10/2010 |
| WO 166/3756 | 18 Inf. Division 287 Field Coy., RE | 1939-41 | 12/10/2010 |
| WO 166/3757 | 18 Inf. Division 288 Field Coy., RE | 1939-41 | 12/10/2010 |
| WO 166/3798 | 18 Inf. Division 560 Field Coy., RE | 1940-41 | 02/06/2010 |
| WO 166/3720 | 18 Inf. Division 251 Field Park Coy., RE | 1939-41 | 12/10/2010 |
| 49 (West Riding) Infantry Division | | | |
| WO 166/8197 | 49 Inf. Division 294 Field Coy., RE | 1942 | 12/10/2010 |
| WO 166/8325 | 49 Inf. Division 756 Field Coy., RE | 1942 | 12/10/2010 |
| WO 166/8326 | 49 Inf. Division 757 Field Coy., RE | 1942 | 12/10/2010 |
| WO 166/8195 | 49 Inf. Division 289 Field Park Coy., RE | 1942 | 12/10/2010 |
| 50 (Northumbrian) Infantry Division | | | |
| WO 166/605 | 50 Inf. Division General Staff | 1939-41 | 12/10/2010 |
| 54 (East Anglian) Infantry Division | | | |
| WO 166/674 | 54 Inf. Division General Staff | 1941 | 12/10/2010 |
| 36 Independent Infantry Brigade | | | |

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| WO 166/950 | 36 Inf. Brigade HQ | 1939-41 | 12/10/2010 |
| 31 Independent Brigade Group | | | |
| WO 166/942 | 31 (Ind.) Brigade Group HQ | 1940-41 | 12/10/2010 |
| WO 166/3706 | 31 Ind. Bde. Gp. 237 Field Coy., RE | 1940-41 | 02/06/2010 |
| 73 Independent Infantry Brigade | | | |
| WO 166/971 | 73 Ind. Inf. Bde. HQ | 1941 | 13/10/2010 |
| Other units | | | |
| WO 166/3654 | 173 Special Tunnelling Coy., RE | 1940-41 | 02/06/2010 |
| WO 166/3655 | 179 Special Tunnelling Coy., RE | 1940-41 | 02/06/2010 |
| WO 166/3600 | 100 Army Field Coy., RE | 1940-41 | 02/06/2010 |
| WO 166/2043 | 959 Defence Battery (Mobile), RA | 1940-41 | 13/10/2010 |
| WO 166/2044 | 960 Defence Battery (Mobile), RA | 1940-41 | 13/10/2010 |
| WO 166/2045 | 961 Defence Battery (Mobile), RA | 1940-42 | 02/06/2010 |
| WO 166/1921 | 51 Medium Regt., RA | 1940-41 | 14/10/2010 |
| WO 166/1971 | 3 Survey Regt., RA | 1939-41 | 02/06/2010 |
| WO 166/3539 | Royal Engineers: Fortress Companies: Carmarthen Fortress Company | 1939-40 | 13/10/2010 |
| WO 166/3547 | Royal Engineers: Fortress Companies: Glamorgan Fortress Company | 1939-40 | 13/10/2010 |
| WO 166/ 6880 | HQ Swansea Garrison | 1942 | 14/10/2010 |
| Royal Artillery Coast Defence Fort Record Books | | | |
| WO 192/155 | Flat Holm Fort Record Book | 1737-1944 | 13/10/2010 |
| WO 192/156 | Mumbles Island Fort Record Book | 1791-1943 | 02/06/2010 |
| WO 192/158 | Coast Artillery School, Llandudno Fort Record Book | 1940-45 | 02/06/2009 |
| WO 192/160 | West Blockhouse Battery Fort Record Book [Incorrectly named as contents relate to Watch House Point Battery] | 1940-44 | 14/10/2010 |
| WO 192/315 | West Blockhouse Fort Record Book | 1904-54 | 02/06/2009 |
| WO 192/316 | Lavernock Point Fort Record Book | 1916-56 | 01/06/2010 |
| WO 192/317 | Lavernock Battery Fort Record Book [Incorrectly named as contents relate to East Blockhouse Battery] | 1918-55 | 14/10/2010 |
| WO 192/320 | Mumbles Hill Fort Record Book | 1939-55 | 01/06/2010 |
| WO 192/321 | Nell's Point Fort Record Book | 1939-55 | 02/06/2009 |
| WO 192/323 | St Anne's Head FC Post Fort Record Book | 1914-49 | 02/06/2009 |
| Royal Artillery Coast Regiment and Fixed Defences War Diaries | | | |
| WO 166/1877 | Glamorgan Heavy Regiment, RA | 1939-40 | 13/10/2010 |
| WO 166/2067 | Swansea Fixed Defences | 1939-40 | 02/06/2009 |
| WO 166/2065 | 531 Coast Regt. / Cardiff Fixed Defences | 1940-41 | 02/06/2009 |
| WO 166/1733 | 531 Coast Regt. HQ / Cardiff Fire Command | 1941-42 | 02/06/2009 |
| WO 166/7153 | 531 Coast Regt. / Cardiff Fire Command | 1942 | 02/06/2009 |
| WO 166/7278 | Fixed Defences Severn HQ | 1942 | 13/10/2010 |
| WO 199/1175 | Fixed Defences: Severn | 1943-45 | 13/10/2010 |
| WO 166/1734 | 532 Coast Regt. HQ | 1940-41 | 02/06/2009 |
| WO 166/2066 | Milford Haven Fixed Defences | 1941 | 13/10/2010 |
| WO 166/7154 | 532 Coast Regt. [Milford Haven] | 1942 | 13/10/2010 |
| WO 166/1758 | 21 Coast Arty. Group / 559 Coast Regt. HQ | 1940-41 | 02/06/2009 |
| WO 166/1759 | 22 Coast Arty. Group / 560 Coast Regt. HQ | 1940-41 | 02/06/2009 |
| WO 199/1174 | Fixed Defences: Milford Haven | 1941-45 | 02/06/2009 |

| Royal Artillery Coast Battery War Diaries | | | |
|--|--|---------|------------|
| WO 166/1769 | 130 Coast Battery, RA [Nell's Point] | 1941 | 02/06/2009 |
| WO 166/7191 | 130 Coast Battery, RA [Nell's Point] | 1942 | 13/10/2010 |
| WO 166/7195 | 170 Coast Battery, RA [Nell's Point] | 1942 | 13/10/2010 |
| WO 166/1774 | 145 Coast Battery, RA [Lavernock Point] | 1940-41 | 02/06/2009 |
| WO 166/1843 | 366 Coast Battery, RA [Cardiff] | 1941 | 13/10/2010 |
| Royal Artillery Coast Artillery: Other | | | |
| WO 33/1897 | Coast artillery and AA defence of merchant shipping: Order of Battle | 1941 | 13/10/2010 |
| WO 33/1969 | Coast artillery and AA defence of merchant shipping: Order of Battle | 1942 | 13/10/2010 |
| WO 32/10051 | Coast artillery: reorganisation of headquarters formations | 1941-42 | 13/10/2010 |
| WO 33/306 | Western District Defence Scheme | 1904 | 14/10/2010 |

| List of anti-invasion defence registry files located and examined at The National Archives | | | |
|---|--|-------------|----------------------|
| Piece No. | File name | Year | Date examined |
| Admiralty 'F' (Oil Fire Defence) Schemes | | | |
| ADM 265/3 | Schemes Nos. 1-43 | 1941-42 | 02/06/2010 |
| ADM 265/4 | Proposals for schemes at twenty-two further sites | 1941-42 | 02/06/2010 |
| ADM 265/10 | Layout schemes | 1941-43 | 02/06/2010 |
| ADM 265/15 | Flame throwers for harbour defence | 1941-42 | 02/06/2010 |
| Minefields | | | |
| WO 199/37 | Anti-tank minefields | 1940-44 | 02/06/2010 |
| WO 199/38 | Anti-tank minefields: clearance | 1944 | 02/06/2010 |
| WO 199/39 | Standing instructions for home defence minefields | 1941-44 | 02/06/2010 |
| WO 199/47 | Defences: anti-tank mines | 1939-44 | 14/10/2010 |
| WO 199/94 | Beach mines | 1940-44 | 02/06/2010 |
| WO 199/98 | Minefield clearance certificates | 1944-45 | 02/06/2010 |
| Anti-invasion defences | | | |
| WO 199/36 | Defences: pillboxes | 1940-44 | 02/06/2010 |
| WO 199/40 | Employment of tunnelling companies | 1942-43 | 02/06/2010 |
| WO 199/41 | Defences: barbed wire and other obstacles | 1941-44 | 14/10/2010 |
| WO 199/44 | Defences: concrete defences, policy | 1941 | 14/10/2010 |
| WO 199/48 | Defence works | 1940-42 | 02/06/2009 |
| WO 199/51 | Defences: roadblocks | 1940-41 | 14/10/2010 |
| WO 199/52 | Defences: roadblocks - McNaughton tubes | 1940-42 | 14/10/2010 |
| WO 199/53 | Inundation: flood schemes | 1940-43 | 02/06/2010 |
| WO 199/54 | Scheme of anti-tank obstacles for defence of Great Britain | 1940-43 | 02/06/2010 |
| WO 199/95 | Beach defences: scaffolding | 1941-44 | 14/10/2010 |
| WO 199/96 | Beach defences: scaffolding | 1945 | 14/10/2010 |
| WO 199/103 | Charting of obstructions on foreshore | 1943-45 | 02/06/2009 |
| WO 199/336 | Obstruction of landing grounds: Western Command | 1940-42 | 02/06/2009 |
| WO 199/479 | Roadblocks | 1940-42 | 14/10/2010 |
| WO 199/544 | Keeps and fortified villages, nodal points and anti-tank islands | 1940-42 | 02/06/2010 |
| WO 199/657 | Vulnerable points: lists | 1942 | 14/10/2010 |
| WO 199/1735 | Construction of GHQ Zones: River Wye defences | 1941-42 | 02/06/2009 |

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| MAF 112/204 | Removal of defence works and other obstacles in the interest of food production | 1944-50 | 14/10/2010 |
| Directorate of Military Training: Pamphlets | | | |
| WO 231/146 | Military Training Pamphlet No. 15: Notes on defence (provisional) | 1939 | 14/10/2010 |
| WO 231/164 | Military Training Pamphlet No. 23: Operations. Part II: Defence | 1940 | 14/10/2010 |
| WO 231/178 | Military Training Pamphlet No. 26: Notes on concealment and camouflage | 1939 | 14/10/2010 |

List of pieces identified at local record offices

| Ref. code | Content | Date | Date examined |
|--|---|-------------------------------|---------------|
| Anglesey Archives | | | |
| | Includes programme of winter drills for Anglesey Home Guard to Sergeant J. C. Parry. | n.d. | Not viewed |
| Bangor University Archives | | | |
| | Eight Home Guard instructional and training pamphlets. | n.d. | Not viewed |
| Carmarthenshire Archive Service | | | |
| CDX/429 | Kidwelly-Pembrey Home Guard: defence schemes and correspondence. | 1941-42 | 19/08/2010 |
| CDX/553 | 3 Bn., Carmarthenshire Home Guard: correspondence | 1943-45 | 19/08/2010 |
| CDX/629 | 1 Bn., Carmarthenshire Home Guard: Passive Air Defence Scheme | 1944 | 19/08/2010 |
| Ceredigion Archives | | | |
| ADX/1150 | 3 Bn., Cardiganshire Home Guard: photocopy of a handbook detailing the unit's history. It includes a map and some photographs and many details of the Home Guard activities in the local area. | 1947 | Not viewed |
| DSO/93 | 1 Bn., Cardiganshire Home Guard: (1) Lists of those serving in the Home Guard stationed in Aberystwyth (15 items) (2) Operational notes and instructions relating to Home Guard Training exercises in Aberystwyth and Devil's Bridge areas (3) Correspondence relating to the Home Guard including two personal letters to Major W.G. Rowlands (3 items) | 1941-44 1941-42 1942-44 | Not viewed |
| MUS/83/1 | 1 Bn., Cardiganshire Home Guard: Scrapbook-style book [photographs & duplicated typed notes]. Contains a history, information on individuals in the regiment, an illustration of the command structure and a number of photographs. | n.d. | Not viewed |
| MUS/83/2 | Photocopy of the same scrapbook as MUS/83/1. Also copy of newspaper cutting re the Battalion and copy of Certificate of Appreciation awarded to Lt. Col. D. C. Lewis, the Battalion's Commanding Officer, by Western Command. | 01/01/45 | Not viewed |
| ADX/1024 | 1 Bn., Cardiganshire Home Guard: records including lists of members, operational notes relating to training in Aberystwyth area | 1941-44 | Not viewed |
| ADX/1031 | Copies of wartime papers: 1. Certificate given to the depositor's father at the end of his Home Guard duties 2. Special Order of the Day (relating to the Home Guard) 3. Message from Lieut. Col. Ernest Evans, Cardiganshire Sector, Home Guard | 03/12/44 03/12/44 | Not viewed |
| PRO/C/1 | Handwritten transcripts of speeches by E R D Prosser. 2 documents. Includes one given to the Home Guard concerning the role of searchlights in | 1943 | Not viewed |

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| | national defence and the daily duties of a searchlight detachment, and another given to Sarn Young People's Guild entitled 'Somewhere in Windland' recounting his three years in the searchlight detachment. | | |
| ADX/71 | <p>Papers of I.T. Hughes.</p> <p>1. Folder stamped '2 Bn., Cardiganshire Home Guard, B Company Headquarters, Albion House, Llandyssul' and labelled 'Operation Role 1943' includes Battalion orders, operational orders for combined exercises and for the defence and invasion schemes, notes on guerrilla tactics and duties of personnel, scheme for mobile columns, report on sources of German power (energy) as bombing targets, forms of Government in the Commonwealth, proficiency tests including lists of entrants, map of Llandyssul</p> <p>2. Papers of Peterwell Masonic Lodge.</p> <p>Folder of Home Guard papers including weekly and monthly time tables for 'B' Coy.; muster numbers, duties of sentries and post commanders, rifle numbers, operational orders for exercises, lecture notes on various topics</p> | <p>1942-45</p> <p>1941-44</p> | Not viewed |
| ARD/9/2 | 3 Bn., Cardiganshire Home Guard: Correspondence files for Gwendraeth area | 1943-45 | Not viewed |
| Denbighshire Record Office | | | |
| DRO DD/DM/913/1 | Notebook of G.F. Wilkinson of Acrefair, instructor in the Home Guard | 1940 | Not viewed |
| DRO NTD/572 | Memorandum from commander of Denbighshire Home Guard concerning parachutists | 1940 | Not viewed |
| DRO DD/DM/874/1-6 | 9 Bn., Denbighshire Home Guard: circulars, training manuals, etc. of member No. 5 Pl., 'B' Coy. - Pentrecelyn/ Ruthin | 1940-44 | Not viewed |
| DRO DD/DM/815/1-2 | 2 Bn., Denbighshire Home Guard: battalion roll, photographs, correspondence and papers | 1940-45 | Not viewed |
| DRO DD/DM/1402/29 | Notes of service in the Home Guard | 1942 | Not viewed |
| DRO DD/DM/757/12-13 | ABC for special constable and police war reserves, and Home Guard certificate of proficiency | 1942-44 | Not viewed |
| DRO DD/DM/1546/1-2 | 4 Bn., Merionethshire Home Guard: part II Orders, 'A' Coy. armoury, Corwen | 1943-44 | Not viewed |
| DRO DD/DM/99 | 9 Bn., Denbighshire Home Guard: menu card, public notice and badges | 1944 | Not viewed |
| DRO PCD/89/73 | 7 Bn., Denbighshire/Flintshire Home Guard: 'A brief history of 7 Den Flint Battalion Home Guard' | 1945 | Not viewed |
| DRO NTD/1567 | Photograph of 'F' Coy., Home Guard, and staff on railway platform, Rhyl | 1945-46 | Not viewed |
| DRO NCD/405 | Photograph of Wrexham Home Guard | n.d. | Not viewed |
| DRO NCD/969 | Photographs of 'Wings for Victory' parade and member of the Home Guard with Sten gun, Colwyn Bay | c. 1943 | Not viewed |
| Flintshire Record Office | | | |

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|---------------------------|--|---------------------|------------|
| D/HA/1753-5 | Miscellaneous papers of Home Guard in Hawarden area | 1941-44 | Not viewed |
| D/CK/694 | Enrolment book of Connah's Quay Home Guard | 1941-43 | Not viewed |
| D/DM/584/15 | Home Guard pamphlets and training manuals | 1942-55 | Not viewed |
| D/DM/1090/4 | Home Guard proficiency certificate | 1943 | Not viewed |
| D/DM/1271/1 | Photograph of Home Guard (5 Battalion Royal Welch Fusiliers) in Hawarden Park | 1943 | Not viewed |
| | Papers of Tom Jones, 1874-1990, including Home Guard | 1940-44 | Not viewed |
| Glamorgan Archives | | | |
| D184 | 21 Bn., Glamorgan Home Guard | 1941-56 | 12/08/2010 |
| D509 | 16 (Cardiff) Bn., Glamorgan Home Guard: Includes 'E' Coy. defence scheme Plan and papers for Penarth and Sully. | 23/01/42 1942-45 | 12/08/2010 |
| D882/4 | 22 Bn., Glamorgan Home Guard: photograph of Western Mail and Echo, S.A. Brain and Co., and Glamtax Ltd. platoons. | 1944 | 12/08/2010 |
| DCAEHS/7/1/94 | Photograph of Home Guard mounted patrol at Groeswen, Caerphilly | 1940-44 | 12/08/2010 |
| DHG 1-25 | 6, 8 and 11 Bns., Glamorgan Home Guard: membership records, and of other unidentified battalions | 1940-46 | 12/08/2010 |
| DHG/24 | 186 (101 Glamorgan HQ) 'M; rocket anti-aircraft battery. No. 4 relief list for Cardiff, Rhondda, Pentyrch and Whitchurch | 13/11/44 | 12/08/2010 |
| DLL/E/349/47-50 | 3 (Bridgend) Bn., Glamorgan Home Guard: papers and accounts | 1940-46 | 12/08/2010 |
| DX47 | Reminiscences of the Home Guard | 1975 | 12/08/2010 |
| DX 391/1-2 | Home Guard: Penarth and Sully | 1940-44 | 12/08/2010 |
| DX618/1 | Home Guard, Melingriffith: Film of manoeuvres | 1940-44 | 12/08/2010 |
| DXFC/22/10/1-2 | Photograph of Home Guard mounted patrol at Groeswen, Caerphilly | 1942 | 12/08/2010 |
| DXFX2/1-3 | Glamorgan Home Guard Pictorial | 1943-44 | 12/08/2010 |
| DXJ13 | 3 Bn., Glamorgan Home Guard: 'A' Coy., Pencoed | 1944 | 12/08/2010 |
| Gwent Archives | | | |
| D3132.3 | Papers relating to the Home Guard and Civil Defence | | 24/08/2010 |
| D3132.4 | 6 Bn., Monmouthshire Home Guard: history booklet | 1939-44 | 24/08/2010 |
| D4321 | Maps of the Ebbw Vale area showing Home Guard activities | 1940-41 | 24/08/2010 |
| Gwynedd Archives | | | |
| XD/32/1199 | 4 Bn., Caernarvonshire Home Guard: 'D' Coy. history | n.d. | Not viewed |
| XM/1301 | 3 Bn., Caernarvonshire Home Guard: includes files, booklets, maps, catalogues and programmes (96 items) | 1940-44 | Not viewed |
| XS2009/69 | Lloyd George reviewing the Home Guard | n.d. | Not viewed |
| XS/3066/218 | Bangor Home Guard [photo] | 1940 | Not viewed |
| XS/3318/1 | Members of Caernarvon Home Guard | n.d. | Not viewed |
| XS/1077/10/8 | Home Guard at ?Bangor | 1939-45 | Not viewed |
| | Records of the Merioneth Home Guard and Merioneth and Montgomery Territorial and Auxiliary Forces Association, including handbooks and | 1931-67 | Not viewed |

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|---|---|---------|------------|
| | regulations, 1935-55; personnel records, 1940; financial records, 1942-55; correspondence, 1940-1967; magazines, 1942; notebooks, 1942-43; and miscellaneous papers, 1931-55 | | |
| ZDDW | Merioneth Home Guard: company rolls and list of members, correspondence and notes relating to home defence matters | 1940-57 | Not viewed |
| Llantwit Major Local History Society | | | |
| None | 10 (Cowbridge) Bn., Glamorgan Home Guard: 'B' Coy. defence scheme | 1943 | 17/06/2009 |
| National Library of Wales: Department of Collection Services | | | |
| | 1 Bn., Carmarthenshire Home Guard: transfer register | 1940-45 | Not viewed |
| | 3 Bn., Pembrokeshire Home Guard: 'A', 'D', 'E' and 'F' Coy. rolls | 1940-45 | Not viewed |
| | 6 Bn., Denbighshire Home Guard: papers, mostly relating to 'D' Coy. | 1940-42 | Not viewed |
| Pembrokeshire Record Office | | | |
| D/MOR/15 | Ledger containing information on Home Guard shelters built in the Fishguard area | 1943-44 | 10/09/2010 |
| D/ROC/428 | 1 Bn., Pembrokeshire Home Guard: file on Home Guard (Pembroke area) | 1940-43 | 10/09/2010 |
| DFC/M/7/115 | Letters re use of Jeffreyston Methodist Hall by Home Guard | 1943 | 10/09/2010 |
| HDX/58/57 | Notes on the Home Guard in Pembrokeshire [photocopy] | 1943 | 10/09/2010 |
| HDX/443/4 | 2 Bn., Pembrokeshire Home Guard: official programme of the final parade, Haverfordwest | 1944 | 10/09/2010 |
| HDX/1101/40 | Photograph of Carew Home Guard (not in uniform, but partly named) [photocopy] | n.d. | 10/09/2010 |
| HDX/1520 | Pembrokeshire Home Guard, 'E' Coy.: company roll | 1940-44 | 10/09/2010 |
| Powys County Archives Office | | | |
| M/B/WE65-72a | Wartime matters including evacuation, billeting, civil casualties, and the Home Guard | 1938-47 | Not viewed |
| R/SOC/5/157-185 | Radnor Home Guard papers | 1940-57 | Not viewed |
| R/X/63/1/1-48 | 2 Bn., Radnorshire Home Guard: bundle of miscellaneous papers | 1944-48 | Not viewed |
| R/X/63/2/1 | Photograph of group of officers at Army and Home Guard conference | 1944 | Not viewed |
| R/X/63/2/2-3 | Photograph of Home Guard Signallers, taken during conference | 1944 | Not viewed |
| R/X/63/3/1 | Exercise messages | 1942-44 | Not viewed |
| West Glamorgan Archive Service | | | |
| D/D Z 402/1/1-26 | 4 (Neath) Bn., Glamorgan Home Guard: Battalion orders, with papers including details of exercises, 1940-44; details of competitions, 1941 and 1943; Special Army Order: message from His Majesty The King to Home Guard, 14 Nov 1944; account of ceremonial parade at Hyde Park, London, on 3 Dec 1944. 22 May 1940 – 7 Dec 1944 and n.d. [1 volume, 25 papers] | 1940-44 | 24/09/2010 |

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| D/D Z 402/2 | 4 (Neath) Bn., Glamorgan Home Guard: programme of final inter-platoon competition and military, Home Guard and AFS displays held at Neath football field [1 paper] | 13/09/41 | 24/09/2010 |
| D/D Z 402/3/1,2 | Programme of Neath and District Salute the Soldier week [2 papers] | 22-29/04/44 | 24/09/2010 |
| D/D Z 402/4/1,2 | Programme of Home Guard, South Wales District, weapons meeting at Black Mountain range [2 papers] | 17/09/44 | 24/09/2010 |
| D/D Z 402/5 | Programme of complimentary smoking concert to Lt-Col C. Leslie Thomas, Commanding 4 (Neath) Bn., Glamorgan Home Guard and Captain S. Donaldson, Adjutant 4 (Neath) Bn., Glamorgan Home Guard, given by Company commanders and officers of Battalion at British Legion Club and Institute, Eastland Road, Neath [1 card] | 11/11/44 | 24/09/2010 |
| D/D Z 402/6/1-46 | 4 (Neath) Bn., Glamorgan Home Guard: photographs of activities and personnel including Bryncoch battle course competition held on 26 Sep 1942; Neath and District Salute the Soldier week, Apr 1944; 'I' Coy. bomb disposal unit, Dec 1944; Lieutenant-Colonel C. Leslie Thomas, Commanding Officer of Battalion. [46 photographs] | 1941-44 and n.d. | 24/09/2010 |
| D/D Z 402/7 | Illustrated including article and photographs concerning competition held over battle course of Battalion at Bryncoch. [1 volume] | 17/10/42 | 24/09/2010 |
| D/D Z 402/8/1-6 | Souvenir of Home Guard Stand Down concert given by Daily Mail, Sunday Dispatch and Evening News at the Royal Albert Hall with reports on visit to London to attend Stand Down Parade 1944. [1 booklet, 5 papers] | 03/12/44 | 24/09/2010 |
| D/D Z 402/9 | Home Guard Humour [1 booklet] | Post-05/1945 | 24/09/2010 |
| D/D Z 712/1-2 | Swansea Home Guard register and related papers | 1940-44 | 24/09/2010 |

List of RAF Medmenham aerial photographs consulted at the Aerial Photographs Unit, Welsh Government

Catalogue organised by Welsh Government Aerial Photographs Unit library reference (M) number. RAF sortie number, date, frames and locational information provided where known.

Catalogue of high-resolution scans created as part of this research
28/12/2011-25/01/2012. High-resolution imagery scanned in 2009.

| Date | Sortie ID | Frames | Subject |
|--------------|-----------|--------------------------------|---|
| M220 | | | |
| 27/05/41 | 2/3 | 5 oblique frames (1-5) | Military convoy at unknown location, possibly Llandegla, Denbighshire |
| 09/05/41 | 2/5 | 2 oblique frames (12940-12941) | West Blockhouse coast battery, Pembrokeshire |
| 09/05/41 | 2/5 | 1 oblique frame (12942) | East Blockhouse coast battery, Pembrokeshire |
| 09/05/41 | 2/5 | 3 oblique frames (12943-12945) | Railway and camp W of Carmarthen, Carmarthenshire |
| 09/05/41 | 2/5 | 3 oblique frames (12947-12950) | Sennybridge Camp, Brecknockshire |
| 26/05/41 | 2/2 | 4 oblique frames (A1-A4) | Vehicles N of Llandegla, Denbighshire |
| M221 | | | |
| 27/05/41 | 3/4 | 5 vertical frames (A1-A5) | N of Llandegla, Denbighshire |
| M224 | | | |
| 09/05/41 | 6/1 | 17 vertical frames (1-17) | Towyn, Merionethshire. [Includes RAF Towyn] |
| 09/05/41 | 6/1 | 10 vertical frames (18-27) | Aberporth, Cardiganshire |
| 09/05/41 | 6/1 | 7 vertical frames (28-34) | Manorbier area, Pembrokeshire |
| 12/06/41 | 5/4 | 19 vertical frames (39-57) | Brecon area, Brecknockshire |
| 26/05/41 | 6/3 | 5 vertical frames (A3-A7) | N of Llandegla, Denbighshire |
| M225a | | | |
| 20/06/41 | 9/2 | 4 vertical frames (12-15) | Abergavenny, Monmouthshire |
| 20/06/41 | 9/2 | 16 vertical frames (16-31) | Crickhowell, Monmouthshire |
| 20/06/41 | 9/2 | 2 vertical frames (32-33) | Llanvihangel Gobion, Monmouthshire |
| 20/06/41 | 9/2 | 4 vertical frames (34-37) | Usk, Monmouthshire |
| M229 | | | |
| 21/07/41 | 13/2 | 8 oblique frames (1-8) | Area N of Llanfilhangel Nant Bran, Brecknockshire |

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|-------------|-------|--|--|
| 21/07/41 | 13/2 | 20 oblique frames (9-34) | Llanfilhangel Nant Bran, Brecknockshire |
| 09/07/41 | 12/1 | 12 vertical frames (117-128) | Llangollen E along Vale of Llangollen to Cefn Mawr, Denbighshire |
| M261 | | | |
| 27/04/42 | AC/40 | 3 oblique frames (1-3) | Unknown airfield |
| 27/04/42 | AC/40 | 2 oblique frames (4-5) | Wynnstay, near Ruabon, Denbighshire |
| 27/04/42 | AC/41 | 8 vertical frames (1-8) | HAA site E of Hundleton, Pembrokeshire |
| 27/04/42 | AC/41 | 3 vertical frames (9-11) | RAF Angle, Pembrokeshire |
| 27/04/42 | AC/41 | 8 vertical frames (12-19) | Pennar, Pembrokeshire |
| 27/04/42 | AC/43 | 1 oblique frame (1) | Nell's Point, Barry, Glamorgan |
| 27/04/42 | AC/39 | 7 vertical frames (51-57) | Military camp at Ty Croes, Anglesey |
| M262 | | | |
| 27/04/42 | AC/42 | 3 vertical frames (1-3) | Mumbles Head, Swansea, Glamorgan |
| 27/04/42 | AC/42 | 3 vertical frames (4-6) | HAA site and GL mat at Neath Abbey, Glamorgan |
| 27/04/42 | AC/42 | 4 vertical frames (7-10) | HAA site E of Cwmavon, Glamorgan |
| 27/04/42 | AC/42 | 4 vertical frames (11-14) | HAA site and GL mat at Jersey Marine, Swansea, Glamorgan |
| 27/04/42 | AC/42 | 3 vertical frames (15-17) | HAA site and anti-landing trenches at Porthkerry, Glamorgan |
| 27/04/42 | AC/42 | 2 vertical frames (18-19) | HAA site and GL mat at Sully, Glamorgan |
| 27/04/42 | AC/42 | 2 vertical frames (20-21) | HAA site at Llandough, Glamorgan |
| 27/04/42 | AC/42 | 6 vertical frames (22-27) | HAA site at Ely, Cardiff, Glamorgan |
| 27/04/42 | AC/42 | 4 vertical frames (28-31) | HAA site, GL mat and roadblock at Llandaff, Cardiff, Glamorgan |
| 27/04/42 | AC/42 | 5 vertical frames (32-36) | HAA site at Penylan, Cardiff, Glamorgan |
| 27/04/42 | AC/42 | 2 vertical frames (37-38) | HAA site at Lamby, Cardiff, Glamorgan |
| M279 | | | |
| 24/06/40 | 61/1 | 6 vertical frames (10429, 10475-10479) | West Blockhouse coast battery, Pembrokeshire |
| 24/06/40 | 61/1 | 6 vertical frames (0480-0485) | East Blockhouse coast battery, Pembrokeshire |
| 24/06/40 | 61/1 | 7 vertical frames (0486-0492) | Mumbles Island coast battery, Glamorgan |
| 24/06/40 | 61/1 | 6 vertical frames (0493-0498) | Nell's Point coast battery, Glamorgan |
| M286 | | | |
| 01/07/40 | 68/1 | 16 oblique frames (A1-A16) | N side of River Dovey estuary from Aberdovey E to Pennal, Merionethshire |
| 01/07/40 | 68/1 | 17 oblique frames (B1-B17) | S side of River Dovey estuary from Dovey Station W to Ynyslas, Cardiganshire |
| 01/07/40 | 68/1 | 8 oblique frames (C1-C8) | Ynyslas S to Borth, Cardiganshire |
| 01/07/40 | 68/1 | 3 oblique frames (D1-D3) | Barmouth, Merionethshire |
| 01/07/40 | 68/1 | 9 oblique frames (E1-E9) | N side of River Mawddach estuary from Aberdovey E to Pennal, Merionethshire |
| 01/07/40 | 68/1 | 6 oblique frames (F1-F6) | N side of River Dovey Valley E to Dolgellau, Merionethshire |
| 01/07/40 | 68/1 | 12 oblique frames (G1-G12) | S side of River Dovey estuary W to Arthog, Merionethshire |
| 01/07/40 | 68/1 | 15 oblique frames (H1-H12) | Barmouth Junction Station S via Fairbourne to Llwyngwrl, Merionethshire |
| 01/07/40 | 68/1 | 3 oblique frames (J1-J3) | Coast at Newport, Pembrokeshire |
| 01/07/40 | 68/1 | 1 oblique frame (K10322) | Coast at Aber Mawr, Granston, Pembrokeshire |

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| 01/07/40 | 68/1 | 1 oblique frame (K10325) | Coast at Abereiddy Bay, Pembrokeshire |
| M296 | | | |
| 31/03/41 | 1/5 | 2 vertical frames (A1(N15063)-A2(N15064)) | River Usk at Llangattock, Monmouthshire |
| 31/03/41 | Unknown | 1 vertical frame (N15062) | Unknown location |
| M298 | | | |
| 14/03/41 | 78/3 | 9 vertical frames (A1-A5, B1-B4) | ROF Glascoed, Monmouthshire |
| 14/03/41 | 78/3 | 3 vertical frames (4273-4275) | Brecon, Brecknockshire |
| 20/03/41 | 78/1 | 18 vertical frames (4342-4360) | Carmarthen, Carmarthenshire |
| 14/03/41 | 78/3 | 2 vertical frames (C1-C2) | Holyhead emergency coast battery, Anglesey |
| M326 | | | |
| 04/09/40 | 13N/ UK746 | 24 vertical frames (B1-B20) | Abergavenny NW along Usk Valley to Brecon, Monmouthshire & Brecknockshire |
| 04/09/40 | 13N/ UK746 | 1 oblique frame (B21) | W along Usk Valley from Brecon, Brecknockshire. |
| M327 | | | |
| 13/03/41 | 108/4 | 8 vertical frames (A1-A8) | St Brides SE to St Ishmaels, Pembrokeshire |
| 13/03/41 | 108/4 | 9 vertical frames (B1-B9) | Nab Head SE to Watch House Point, Pembrokeshire |
| 13/03/41 | 108/4 | 7 vertical frames (C1-C7) | Marloes SE to Dale, Pembrokeshire |
| 13/03/41 | 108/4 | 7 vertical frames (AA1-AA7) | Newgale Beach, Pembrokeshire |
| 13/03/41 | 108/4 | 5 vertical frames (BB1-BB5) | Newgale Beach, Pembrokeshire |
| 13/03/41 | 108/4 | 6 vertical frames (CC1-CC6) | Newgale Beach, Pembrokeshire |
| M328 | | | |
| 30/08/40 | 110/1 | 6 vertical frames (11695-11700) | Burry Port, Carmarthenshire |
| 30/08/40 | 109/1 | 4 vertical frames (11701-11704) | Porthcawl, Glamorgan |
| 30/08/40 | 109/1 | 3 vertical frames (11705-11707) | Ogmore to Glan-y-Mor, Glamorgan |
| 30/08/40 | 109/1 | 2 vertical frames (11708-11709) | Dunraven Castle, Glamorgan |
| 30/08/40 | 109/1 | 12 vertical frames (11710-11721) | St Donats E to Limpert Bay, Glamorgan |
| M330 | | | |
| 08/09/40 | 111/6 | 3 oblique frames (A1-A3) | Dunraven Castle, Glamorgan |
| 08/09/40 | 111/6 | 3 oblique frames (B1-B3) | Coast from Ogmore to Ogmore-by-Sea, Glamorgan |
| 08/09/40 | 111/6 | 7 oblique frames (C1-C7) | Ogmore-by-Sea, Glamorgan |
| 08/09/40 | 111/6 | 6 oblique frames (D1-D6) | Sandy Bay and Trecco Bay, Porthcawl, Glamorgan |
| M331 | | | |
| 14/06/40 | 112/5 | 32 oblique frames (A1-A32) | Coast from Point of Air W to Rhyl, Flintshire |
| 14/06/40 | 112/5 | 16 oblique frames (B1-B16) | Mostyn Beach N to Point of Air, Flintshire |

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| M341 / MWO 1 | | | |
| 11/06/40 | Unknown | 18 oblique frames (A1-A18) | Dwygyfylchi via Penmaenmawr and Llanfairfechan to Talybont, Caernarvonshire |
| M1255 | | | |
| 10/02/44 | LOC/176 | 76 vertical frames (7001-7016, 7019-7031, 8001-8047) | South Gower, Glamorgan |
| M1272 | | | |
| 05/03/44 | LOC/200 | 2 vertical frames (1001-1002) | Unknown reservoir |
| 05/03/44 | LOC/200 | 3 vertical frames (1003-1005) | Llandeilo, Carmarthenshire |
| 05/03/44 | LOC/200 | 33 vertical frames (1006-1039) | Carmarthen, Carmarthenshire |
| 05/03/44 | LOC/200 | 11 vertical frames (1040-1050) | RAF Pembrey, Carmarthenshire |
| 05/03/44 | LOC/200 | 3 vertical frames (3001-3003) | Llandeilo, Carmarthenshire |
| 05/03/44 | LOC/200 | 3 vertical frames (4001-4003) | Llandeilo, Carmarthenshire |
| M1274 | | | |
| 06/03/44 | LOC/202 | 85 vertical frames (1001-1013, 12001-12039, 13001-13033) | Inland and coastal areas of the Gower, Glamorgan |
| M1281 | | | |
| 08/03/44 | LOC/212 | 4 vertical frames (1001-1004) | RAF St Athan and RAF Llandow, Glamorgan |
| 08/03/44 | LOC/212 | 4 vertical frames (1005-1008) | Oxwich Bay, Glamorgan N to Llanelli, Carmarthenshire |
| 08/03/44 | LOC/212 | 6 vertical frames (1009-1014) | Llanmadoc S to Rhossili, Gower, Glamorgan |
| 08/03/44 | LOC/212 | 20 vertical frames (1015-1034) | Carmarthen area, Carmarthenshire |
| 08/03/44 | LOC/212 | 7 vertical frames (1035-1041) | Worm's Head E to Mumbles, Glamorgan. [Includes RAF Fairwood Common] |
| 08/03/44 | LOC/212 | 4 vertical frames (3001-3004) | RAF Llandow, Glamorgan |
| 08/03/44 | LOC/212 | 16 vertical frames (3005-3020) | Oxwich Bay N to Llanelli, Carmarthenshire |
| 08/03/44 | LOC/212 | 13 vertical frames (3021-3033) | Burry Port, Carmarthenshire S to Port Eynon, Gower, Glamorgan |
| 08/03/44 | LOC/212 | 13 vertical frames (3034-3046) | Coast from Rhossili N to Bury Holmes, Gower, Glamorgan |
| 08/03/44 | LOC/212 | 24 vertical frames (3047-3070) | Carmarthen area, Carmarthenshire |
| 08/03/44 | LOC/212 | 36 vertical frames (3071-3106) | Worm's Head E to Mumbles, Glamorgan |
| 08/03/44 | LOC/212 | 4 vertical frames (4001-4004) | RAF Llandow, Glamorgan |
| 08/03/44 | LOC/212 | 14 vertical frames (4005-4018) | Three Cliffs Bay, Gower, Glamorgan N via Crofty to Llanelli, Carmarthenshire |
| 08/03/44 | LOC/212 | 13 vertical frames (4019-4031) | Burry Port, Carmarthenshire S to Port Eynon, Gower, Glamorgan |
| 08/03/44 | LOC/212 | 14 vertical frames (4032-4045) | Pilton N to Whitford Point, Gower, Glamorgan |
| 08/03/44 | LOC/212 | 25 vertical frames (4066-4090) | Worm's Head E to Oxwich Point, Gower, Glamorgan |

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| M1302 | | | |
| 24/03/44 | LOC/253 | 30 oblique frames (0001-0030) | Area around Neath and Briton Ferry, Glamorgan |
| 24/03/44 | LOC/253 | 23 vertical frames (1001-1023) | Area around Neath and Briton Ferry, Glamorgan |
| 24/03/44 | LOC/253 | 22 oblique frames (2001-2022) | Area around Neath and Briton Ferry, Glamorgan |
| M1404 | | | |
| 24/08/44 | LOC/393 | 39 vertical frames (8001-8039) | Area from Beacons Reservoir WSW to Onllwyn, Brecknockshire |
| M1407 | | | |
| 11/09/44 | LOC/417 | 4 vertical frames (5001-5004) | Cwmbran area, Monmouthshire |
| 11/09/44 | LOC/417 | 28 vertical frames (5005-5033) | Ebbw Vale, Blaina, Bryn Mawr and Beaufort areas, Monmouthshire |
| M1468 | | | |
| 02/03/44 | LOC/C4 | 13 oblique frames (0001-0013) | Carmarthen Hospital, Carmarthenshire |
| M1470 | | | |
| 04/03/44 | LOC/E2 | 2 vertical frames (0024-0025) | Carmarthen Hospital, Carmarthenshire |
| M1494 | | | |
| 12/04/44 | LOC/31 | 29 vertical frames (0001-0029) | Sennybridge Infantry Range, Brecknockshire |
| M1497 | | | |
| 22/04/44 | LOC/37A | 171 vertical frames (1003-1016, 1025-40, 1042-54, 1057-87, 1098-1107, 2003-2015, 2025-2040, 2042-2054, 2057-2087, 2098-2111) | Sennybridge Infantry Range, Brecknockshire |
| M1505 | | | |
| 26/04/44 | LOC/35 | 51 vertical frames (0001-0051) | Haverfordwest and area to south including Milford Haven, Neyland, Lawrenny, Pembroke Docks to St Anne's Head. [Includes RAF Talbenny (0020-0021), RAF Carew Cheriton (0034-0035), RAF Dale (0046-0048) and Pembroke Dock (0039-0040)] |
| M2070 | | | |
| 05/01/45 | 106G/LA93 | 9 oblique frames (0001-0006, 1, 3, 5) | RAF Llandow, Glamorgan |
| M2074 | | | |
| 14/01/45 | 106G/LA97 | 15 vertical frames (1002-1014) | Area between Lavan Sands (S of Beaumaris, Anglesey) ESE to Bwlch-y-Ddeufaen, Caernarvonshire |

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| 14/01/45 | 106G/LA97 | 15 vertical frames (1015-1030) | Area from Llanbedr-y-cennin, Caernarvonshire W to Gallow's Point, S coast of Anglesey |
| 14/01/45 | 106G/LA97 | 20 vertical frames (1031-1050) | Area from Porth Penrhyn, Bangor, Caernarvonshire ESE to Llanbedr-y-cennin, Caernarvonshire |
| 14/01/45 | 106G/LA97 | 6 vertical frames (1051-1056) | Bangor, Caernarvonshire SE to Rachub, N of Bethesda, Caernarvonshire |
| 14/01/45 | 106G/LA97 | 15 vertical frames (2001-2015) | Penrhyn Castle, Caernarvonshire ESE to Rowen, Caernarvonshire |
| 14/01/45 | 106G/LA97 | 16 vertical frames (2016-2030) | Rowen area NW via Gorddinog, S of Llanfairfechan to Gallow's Point, Anglesey |
| 14/01/45 | 106G/LA97 | 20 vertical frames (2031-2050) | Llandygai, Caernarvonshire ESE to Dolgarrog, Caernarvonshire |
| 14/01/45 | 106G/LA97 | 3 vertical frames (2051-2053) | Glasinfryn SE to Tregarth, Bethesda, Caernarvonshire |
| M2144 | | | |
| 31/08/40 | HLA/060 | 74 oblique frames (1-77) | Pembroke Dock, Pembrokeshire. [Includes RAF Pembroke Dock, Defensible Barracks and burning oil tanks]. |
| 31/08/40 | HLA/060 | 21 vertical frames (1-21) | Ludchurch SW via Lawrenny Ferry, Neyland and Pembroke Dock to Rhoscrowther, Pembrokeshire |
| M2174 | | | |
| 10/02/41 | HLA/113 | 52 vertical frames (1-12, 301-318, 601-624) | Briton Ferry W to Caswell Bay, Glamorgan. [Cloud obscured] |
| M2181 | | | |
| 01/03/41 | HLA/134 | 60 vertical frames (1-18, 20-26, 301-303, 311-319, 321-322, 326, 601-604, 616-630, 634-636) | Cardiff area, Glamorgan |
| M2204 | | | |
| 10/10/41 | HLA/326 | 63 vertical frames (1-36, 43-62) | Bodewryd SW to Holyhead, Anglesey |
| M2261 | | | |
| 23/03/42 | HLA/423 | 86 vertical frames (2001-2079, 2093-2098) | Haverfordwest to Dale area, Pembrokeshire. [Includes St Anne's Head, RAF Dale, RAF Talbenny and RAF Withybush] |
| 23/03/42 | HLA/423 | 86 vertical frames (1001-1075, 1089-1090) | Haverfordwest area, Pembrokeshire. [Includes RAF Rudbaxton and Canaston Wood] |
| M2262 | | | |
| 23/03/42 | HLA/424 | 1 vertical frame (6001) | Scoveston, Pembrokeshire |
| 23/03/42 | HLA/424 | 1 vertical frame (6002) | Unknown location |
| 23/03/42 | HLA/424 | 6 vertical frames (6003-6008) | Milford Haven, Pembrokeshire |
| 23/03/42 | HLA/424 | 1 vertical frame (6009) | Unknown location |
| 23/03/42 | HLA/424 | 6 vertical frames (6010-6015) | Musselwick Sands S to Dale airfield, Pembrokeshire |

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| 23/03/42 | HLA/424 | 28 vertical frames (6016-6049) | Mumbles NW to Fairwood Common and Pennard S to sea, Glamorgan. [Includes anti-landing obstacles on 6018 and RAF Fairwood Common] |
| M2267 | | | |
| 26/03/42 | HLA/429 | 6 vertical frames (6001-6006) | Aberthaw Cement Works NE to Moulton, Glamorgan |
| 26/03/42 | HLA/429 | 6 vertical frames (6007-6012) | Llancarfan SE to Tredogan, Glamorgan |
| 26/03/42 | HLA/429 | 6 vertical frames (6013-6018) | Northcliff SW to Rhoose, Glamorgan |
| 26/03/42 | HLA/429 | 7 vertical frames (6019-6025) | Moulton SE to Barry, Glamorgan |
| 26/03/42 | HLA/429 | 6 vertical frames (6026-6031) | Treguff SW to St Athan, Glamorgan, Glamorgan |
| 26/03/42 | HLA/429 | 6 vertical frames (6032-6037) | St Mary Church S to St Athan, Glamorgan |
| 26/03/42 | HLA/429 | 8 vertical frames (6038-6045) | Llanbethery SW to Trebeferad, Glamorgan |
| 26/03/42 | HLA/429 | 9 vertical frames (6046-6054) | Colwinston SE to Llanmaes, Glamorgan |
| 26/03/42 | HLA/429 | 7 vertical frames (6055-6061) | Llanblethian SW to Monkton, Glamorgan. [Above includes RAF St Athan, RAF Llandow] |
| 26/03/42 | HLA/429 | 9 vertical frames (6062-6070) | Gowerton S to Ilston, Gower, Glamorgan |
| 26/03/42 | HLA/429 | 9 vertical frames (6071-6079) | Clyne Wood W to Llethryd, Gower, Glamorgan |
| 26/03/42 | HLA/429 | 7 vertical frames (6080-6086) | Park Woods NE to Gowerton, Gower, Glamorgan |
| 26/03/42 | HLA/429 | 7 vertical frames (6087-6093) | Three Crosse S to Barland Common, Gower, Glamorgan |
| 26/03/42 | HLA/429 | 18 vertical frames (6094-611) | RAF Pembrey, Carmarthenshire |
| M2324 | | | |
| 15/04/42 | HLA/489 | 1 vertical frame (1 1) | Location unknown |
| 15/04/42 | HLA/489 | 1 vertical frame (1 2) | Location unknown |
| 15/04/42 | HLA/489 | 11 vertical frames (1 3-1 13) | Rhosgadfan, Caernarvonshire W via Llanwnda to Morfa Dinlle, Caernarvonshire |
| 15/04/42 | HLA/489 | 6 vertical frames (1 14-1 19) | Sea and part of RAF Llandwrog, Caernarvonshire |
| 15/04/42 | HLA/489 | 3 vertical frames (1 20-1 22) | Llandwrog and Dinas Dinlle, Caernarvonshire |
| 15/04/42 | HLA/489 | 3 vertical frames (1 23-1 25) | Sea |
| 15/04/42 | HLA/489 | 7 vertical frames (1 26-1 32) | Coast from Llanddwyn Island, NW along Newborough Warren, to Afon Cefni and Malltraeth Sands, Anglesey |
| 15/04/42 | HLA/489 | 4 vertical frames (1 33-1 36) | Llangwyfan ESE via Aberffraw to Llangadwaladr, Anglesey. [Includes anti-landing obstacles on flood plain of Afon Ffraw W of Llangadwaladr] |
| 15/04/42 | HLA/489 | 7 vertical frames (1 37-1 43) | Llanfaelog NW via Rhosneigr to W side of RAF Valley, Anglesey |
| 15/04/42 | HLA/489 | 13 vertical frames (1 44-1 53) | RAF Valley, Anglesey |
| 15/04/42 | HLA/489 | 9 vertical frames (1 54-1 63) | Capel Mawr NW to Gwalchmai, Anglesey |
| 15/04/42 | HLA/489 | 11 vertical frames (1 70-1 80) | Morfa Harlech, Merionethshire S to Llanbedr, Merionethshire |
| 15/04/42 | HLA/489 | 5 vertical frames (1 81-1 85) | Morfa Dyffryn N to RAF Llanbedr, Merionethshire |
| 15/04/42 | HLA/489 | 2 vertical frames (1 86-1 87) | Foel Wylt NE of Towyn, Merionethshire |

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| 15/04/42 | HLA/489 | 11 vertical frames (1 94-1103) | Brynhoffnant, Cardiganshire SW to Beulah, Cardiganshire. [Includes Carmarthen Stop Line anti-tank ditch] |
| 15/04/42 | HLA/489 | 11 vertical frames (2 3-2 13) | Waunfawr W to Foryd Bay on Afon Gwyrfa, Caernarvonshire |
| 15/04/42 | HLA/489 | 6 vertical frames (2 14-2 25) | Sea |
| 15/04/42 | HLA/489 | 8 vertical frames (2 26-2 32) | Penrhyn NW via Newborough to Malltraeth Sands, Anglesey |
| 15/04/42 | HLA/489 | 7 vertical frames (2 33-2 36) | Cribinau ESE via Aberffraw Sands to Newborough Burrows, Anglesey. [Includes possible anti-landing obstacles behind Aberffraw Sands] |
| 15/04/42 | HLA/489 | 7 vertical frames (2 37-2 43) | Pencarnisiog NW to RAF Valley, Anglesey |
| 15/04/42 | HLA/489 | 10 vertical frames (2 44-2 53) | Rhoscolyn area SE via Rhosneigr to Llangwyfan, Anglesey |
| 15/04/42 | HLA/489 | 10 vertical frames (2 54-2 63) | Afon Cefni and Malltraeth Marsh NW via Cerrigceinwen to Gwalchmai, Anglesey. [Includes RAF Mona under construction] |
| 15/04/42 | HLA/489 | 7 vertical frames (2 64-2 70) | Gwalchmai SE to RAF Mona, Anglesey |
| 15/04/42 | HLA/489 | 10 vertical frames (2 71-2 80) | Coast line from Morfa Harlech S via Llanfair to Llandanwg, Merionethshire |
| 15/04/42 | HLA/489 | 5 vertical frames (2 81-2 85) | Coed Ystumgwern S following GWR railway to estuary of Afon Ysgethin W of Talybont, Merionethshire |
| 15/04/42 | HLA/489 | 7 vertical frames (2 86-2 92) | Abertrinant to Towyn, Merionethshire |
| 15/04/42 | HLA/489 | 11 vertical frames (2 93-2103) | Pontgarreg SW to Glasnant (SE of Blaenporth), Cardiganshire |
| 15/04/42 | HLA/489 | 9 vertical frames (2104-2111) | Hafod N to Aberporth, Cardiganshire. [Includes part of RAF Blaenannerch/Aberporth and Royal Aircraft Establishment Aberporth] |
| M2327 | | | |
| 16/04/42 | HLA/492 | 1 vertical frame (1 15) | Unknown location [includes practice trenches] |
| 16/04/42 | HLA/492 | 1 vertical frame (1 45) | Unknown location |
| M2330 | | | |
| 24/04/42 | HLA/495 | 5 vertical frames (1 1-1 5) | Ogmore SE to Wick, Glamorgan |
| 24/04/42 | HLA/495 | 7 vertical frames (1 6-1 12) | Flemingston NW to Colwinston, Glamorgan. [Includes anti-landing obstacles, RAF St Athan and RAF Llandow] |
| 24/04/42 | HLA/495 | 5 vertical frames (1 18-1 24) | Landshipping E to Templeton, Pembrokeshire. [Includes RAF Templeton] |
| 24/04/42 | HLA/495 | 6 vertical frames (1 25-1 30) | Redberth W via Carew Cheriton to Milton, Pembrokeshire. [Includes RAF Carew Cheriton] |
| 24/04/42 | HLA/495 | 6 vertical frames (1 31-1 36) | Lamphey N to Lawrenny, Pembrokeshire |
| 24/04/42 | HLA/495 | 5 vertical frames (2 1-2 5) | Dunraven SE to Monknash, Glamorgan |
| 24/04/42 | HLA/495 | 5 vertical frames (2 6-2 12) | St Hilary NW to Crack Hill, Glamorgan. [Includes anti-landing obstacles on 2 9 and 2 10] |
| 24/04/42 | HLA/495 | 1 vertical frame (2 18) | Manorbier, Pembrokeshire |
| 24/04/42 | HLA/495 | 5 vertical frames (2 19-2 25) | Lawrenny E to Loveston, Pembrokeshire. [Includes part of RAF Templeton under construction] |

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| 24/04/42 | HLA/495 | 6 vertical frames (2 26-2 31) | Jeffreyston W via Carew to Upton, Pembrokeshire |
| 24/04/42 | HLA/495 | 6 vertical frames (2 32-2 37) | Carew Cheriton, Pembrokeshire. [Includes RAF Carew Cheriton] |
| 24/04/42 | HLA/495 | 7 vertical frames (2 38-2 44) | Yerbeston W to Loveston, Pembrokeshire |
| 24/04/42 | HLA/495 | 6 vertical frames (2 45-2 50) | Area N of St David's, Pembrokeshire |
| 24/04/42 | HLA/495 | 5 vertical frames (2 51-2 55) | Solva N to Abereiddy Bay, Pembrokeshire |
| 24/04/42 | HLA/495 | 6 vertical frames (2 56-2 61) | Nolton Haven E to Camrose, Pembrokeshire |
| 24/04/42 | HLA/495 | 6 vertical frames (2 62-2 67) | Treffgarne S to Pelcomb Bridge, Pembrokeshire |
| 24/04/42 | HLA/495 | 5 vertical frames (2 68-2 72) | Sutton W to Broad Haven, Pembrokeshire |
| 24/04/42 | HLA/495 | 4 vertical frames (2 73-2 76) | Ripperston S to Watch House Point, Pembrokeshire. [Includes RAF Talbenny and Watch House Point coast battery] |
| 24/04/42 | HLA/495 | 9 vertical frames (2 77-2 85) | Area S of Pembroke NE to Broadmoor, Pembrokeshire |
| 24/04/42 | HLA/495 | 5 vertical frames (2 86-2 90) | Llanygwydd N to Blaenporth, Cardiganshire |
| 24/04/42 | HLA/495 | 4 vertical frames (2 91-2 94) | Coast W of Parcllyn S to Upton, Cardiganshire |
| 24/04/42 | HLA/495 | 5 vertical frames (2 95-2 99) | Beulah NW to RAF Blaenannerch, Cardiganshire |
| 24/04/42 | HLA/495 | 4 vertical frames (2100-2103) | Ferwig SE to Penparc, Cardiganshire |
| M2392 | | | |
| 01/06/42 | HLA/557 | 75 vertical frames (6 1- 6 75) | GWR railway from Newport E via Caldicot to Portskewett, Monmouthshire. [Includes W portal to Severn Tunnel] |
| M2413 | | | |
| 05/06/42 | HLA/578 | 24 vertical frames (1 1-1 24) | Llangadwaladr S via Malltraeth Sands to Llanddwyn Island E via Newborough Warren, N to Newborough and W to Llangadwaladr, Anglesey |
| 05/06/42 | HLA/578 | 1 oblique frame (1 14) | Looking W across RAF Llandwrog airfield, Caernarvonshire |
| 05/06/42 | HLA/578 | 4 vertical frames (1 62-1 65) | Llanegryn area N of Towyn, Merionethshire |
| 05/06/42 | HLA/578 | 13 vertical frames (2 1-2 13) | Aberffraw area, Anglesey. [Includes anti-landing obstacles on frames 2 3 and 2 4] |
| 05/06/42 | HLA/578 | 1 oblique frame (2 14) | Looking SE across Llandwrog area, Caernarvonshire |
| 05/06/42 | HLA/578 | 1 oblique frame (2 15) | Looking S across Llanfaglan area, Caernarvonshire |
| 05/06/42 | HLA/578 | 2 vertical frames (2 16-2 17) | River bank opposite Caernarvon, Caernarvonshire |
| 05/06/42 | HLA/578 | 1 oblique frame (2 18) | Looking NE across Penmynydd area, Anglesey |
| 05/06/42 | HLA/578 | 2 vertical frames (2 19-2 20) | Railway crossing Malltraeth Marsh, SE of Trefdraeth, Anglesey |
| 05/06/42 | HLA/578 | 1 oblique frame (2 21) | Looking N across Trefdraeth area, Anglesey |
| 05/06/42 | HLA/578 | 3 vertical frames (2 22-2 24) | Llangadwaladr area, Anglesey |
| 05/06/42 | HLA/578 | 8 vertical frames (2 62-2 69) | Coast from Llangelynnin S to Tonfanau, Merionethshire |

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| M2578 | | | |
| 22/04/42 | NLA/35 | 22 vertical frames (11-18, 21-28, 51-56) | Holyhead, Anglesey |
| M2594 | | | |
| 13/11/42 | NLA/53 | 7 vertical frames (1001-1007) | Cymyran Bay N to Llyn Penrhyn, Anglesey. [Includes RAF Valley] |
| 13/11/42 | NLA/53 | 3 vertical frames (1008-1010) | Llangadwaladr S to Malltraeth Sands, Anglesey |
| 13/11/42 | NLA/53 | 4 vertical frames (1011-1014) | RAF Penrhos, Caernarvonshire |
| 13/11/42 | NLA/53 | 8 vertical frames (1015-1022) | Wrexham, Denbighshire. [Includes RAF Wrexham] |
| 13/11/42 | NLA/53 | 7 vertical frames (2001-2007) | Rhosneigr N to Llanfihangel yn Nhowyn, Anglesey. [Includes RAF Valley] |
| 13/11/42 | NLA/53 | 3 vertical frames (2008-2010) | Aberffraw S to Dinas Bach, Anglesey |
| 13/11/42 | NLA/53 | 4 vertical frames (2011-2014) | Rhydyclafdy S to Llanbedrog, Caernarvonshire |
| 13/11/42 | NLA/53 | 2 vertical frames (2021-2022) | Part of RAF Wrexham, Denbighshire |
| 13/11/42 | NLA/53 | 9 vertical frames (5001-5009) | RAF Valley, Anglesey |
| 13/11/42 | NLA/53 | 4 vertical frames (5010-5013) | Area E and SE of Aberffraw, Anglesey |
| 13/11/42 | NLA/53 | 6 vertical frames (5014-5019) | Rhydyclafdy S to Llanbedrog, Caernarvonshire |
| 13/11/42 | NLA/53 | 12 vertical frames (5020-5031) | Wrexham, Denbighshire. [Includes RAF Wrexham] |
| 12/08/43 | AC/33 | 1 vertical frame (5028) | RAF Wrexham, Denbighshire |
| M2630 | | | |
| 16/04/42 | AC/31 | 42 vertical frames (1-21, 42-46, 49, 51-65) | Conwy, Maenan, Trefriw, Llanrwst, Betws-y-coed, Caernarvonshire |
| M2659 | | | |
| 12/12/42 | AC/47 | 97 vertical frames (5001-5097) | Mynydd Epynt and Builth Wells area, Brecknockshire |
| M2660 | | | |
| 30/12/42 | AC/149 | 37 vertical frames (5001-5037) | Cefn Cantref, Brecknockshire N via Brecon and Builth Wells to Newbridge-on-Wye, Radnorshire |
| 30/12/42 | AC/149 | 18 vertical frames (5038-5055) | Area from Llanafan Fawr, Brecknockshire S via Llanafan Fechan to Fan Fawr, Brecknockshire |
| 30/12/42 | AC/149 | 28 vertical frames (5056-83) | Area from Glyntawe, Brecknockshire N via Cray Reservoir, Trecastle and Llanwrtyd Wells to Beulah, Brecknockshire |
| 30/12/42 | AC/149 | 14 vertical frames (5084-5097) | Area from Llanwrtyd, Brecknockshire S to Cray Reservoir, Brecknockshire |
| 30/12/42 | AC/149 | 17 vertical frames (5098-5114) | Area from Esgair Ddu N to E of Llandovery, Carmarthenshire |
| M2869 | | | |
| 27/06/41 | S/261 | 6 vertical frames (2-7) | Coastal area N of Lavernock Point to Penarth, Glamorgan |
| M2934 | | | |
| 10/08/41 | S/389 | 12 oblique frames (4-40) | Coastal area from Llanbadrig W to Cemaes Bay, Anglesey |

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| 10/08/41 | S/389 | 21 oblique frames (45-109) | Coastal area from Rhoscolyn Head SE to Rhosneigr, Anglesey. [Includes RAF Valley]. |
| M2935 | | | |
| 10/08/41 | S/390 | 95 vertical frames (16-42, 49-118) | Coastal area W of Prestatyn, Flintshire via Rhyl to Llanddulas, Denbighshire |
| M2945 | | | |
| 16/08/41 | S/408 | 21 oblique frames (2-22) | Coastal area from Llanbedrog N to Pwllheli, Llŷn, Caernarvonshire |
| 16/08/41 | S/408 | 20 oblique frames (30-50) | Coastal area from Pen y Cil via Aberdaron NE to Penrhyn, Llŷn, Caernarvonshire |
| 16/08/41 | S/408 | 10 oblique frames (55-64) | Coastal area from Pistyll SW to Nefyn, Llŷn, Caernarvonshire |
| 16/08/41 | S/408 | 20 oblique frames (67-75) | Coastal area from Penrhyn Nefyn SW to Morfa Nefyn, Llŷn, Caernarvonshire |
| 16/08/41 | S/408 | 3 oblique frames (79-81) | Coastal area at Carreg Ddu, Llŷn, Caernarvonshire |
| M2952 | | | |
| 20/08/41 | S/421 | 71 oblique frames (1-71) | Coastal area from Llanddeiniol, Cardiganshire S to Llanarth, Cardiganshire |
| M2962 | | | |
| 24/08/41 | S/438 | 26 oblique frames (22a-39a, 41a-48a) | Coastal area from Penrhos W via Pwllheli to Abererch Sands, Caernarvonshire |
| 24/08/41 | S/438 | 19 vertical frames (32-50) | Coastal area from Llanfair, Merionethshire N via Harlech and Morfa Harlech to Criccieth, Caernarvonshire |
| 24/08/41 | S/438 | 10 vertical frames (53-60) | Area from Morfa Abererch W to Pwllheli, Caernarvonshire |
| 24/08/41 | S/438 | 50 oblique frames (62a-111a) | Area from W of Criccieth, Caernarvonshire SE to Harlech, Merionethshire |
| M2963 | | | |
| 24/08/41 | S/439 | 43 oblique frames (1-43) | Coast from Llandanwg S via Llanbedr to Barmouth, Merionethshire. [Includes coastal crust defences including mine fields and pillboxes at Llanbedr and trenches at Barmouth] |
| 24/08/41 | S/439 | 34 oblique frames (45-88) | Coast S from Rhoscolyn via Rhosneigr, Aberffraw to Malltraeth Sands, Anglesey. [Includes coastal crust defences at RAF Valley] |
| 24/08/41 | S/439 | 55 vertical frames (A1-A34, B1-B6) | Coast S from Rhoscolyn via Rhosneigr, Aberffraw to Malltraeth Sands, Anglesey. [Includes RAF Valley] |
| 24/08/41 | S/439 | 45 vertical frames (C1-C45) | Coast from Llanfair S to Barmouth, Merionethshire. [Includes RAF Llanbedr and trenches at Barmouth] |
| M2985 | | | |
| 15/09/41 | S/489 | 105 oblique frames (1-67, 70-88, 92-112) | Coastal area Llanddulas, Denbighshire W via Colwyn Bay and Rhos-on-Sea to Llandudno, Caernarvonshire |

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| M2990 | | | |
| 20/09/41 | S/516 | 30 oblique frames (1-56) | Malltraeth Bay to Abermenai Point, Anglesey |
| 20/09/41 | S/516 | 27 oblique frames (58-110) | Tonfanau to Aberdovey, Merionethshire |
| M3006 | | | |
| 10/10/41 | S/614 | 54 vertical frames (1-26, 32-59) | Area S of Ruabon, Denbighshire |
| M3009 | | | |
| 10/10/41 | S/606 | 12 vertical frames (37-48) | Giltar Point to Tenby, Pembrokeshire |
| 10/10/41 | S/606 | 34 vertical frames (B1-B36) | Pendine, including Marros and Laugharne Sands, Carmarthenshire |
| M3022 | | | |
| 22/10/41 | S/632 | 47 vertical frames (2-35) | Porthcawl to Black Pill, Swansea, Glamorgan |
| 22/10/41 | S/632 | 75 vertical frames (36-118) | Mumbles Head, Swansea to Burry Holms, Gower, Glamorgan |
| M3031 | | | |
| 08/12/41 | S/697 | 38 vertical frames (23-49, 73-79) | Solva and Marloes Sands, Pembrokeshire. [Includes CH station and RAF Dale airfield] |
| M3044 | | | |
| 06/01/41 | S/731 | 21 vertical frames (28-49) | Llangollen, Denbighshire, W to Corwen, Merionethshire and then SW to Llandrillo, Merionethshire |
| 06/01/41 | S/731 | 27 vertical frames (50-76) | Bala, Merionethshire SW to Dolgellau, Merionethshire |
| 06/01/41 | S/731 | 21 vertical frames (83-103) | Maentwrog, Merionethshire E along GWR railway / A4212 via Trawsfynydd to Tynddol, Merionethshire |
| 06/01/41 | S/731 | 25 vertical frames (110-134) | Dinmael, Denbighshire NW along A5 road via Cerrigydruidion, Pentrefoelas to Capel Garmon, Denbighshire |
| M3048 | | | |
| 15/01/42 | S/739 | 46 vertical frames (6 1-6 46) | Coast from Porthkerry to Porthcawl, Glamorgan. [Includes anti-landing and anti-tank obstacles] |
| M3051 | | | |
| 31/01/42 | S/745 | 116 oblique frames (4 1-4116) | Coast from Porthcawl to St Donats, Glamorgan |
| M3056 | | | |
| 08/02/42 | S/753 | 30 vertical frames (5003-5032) | Coastline from New Quay, Cardiganshire via Aberaeron to Llansantffraid, Cardiganshire |
| M3058A | | | |
| 10/02/42 | S/755 | 35 oblique frames (3070-3103) | Oxwich Burrows W to Graves End, Gower, Glamorgan |

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| M3058B | | | |
| 10/02/42 | S/755 | 21 oblique frames (3172-3192) | Gravel Bay S to Linney Burrows, Pembrokeshire |
| M3058C | | | |
| 10/02/42 | S/755 | 7 vertical frames (6003-6009) | Bulliber Broomhill Burrows, W of Castlemartin, Pembrokeshire |
| M3061A | | | |
| 11/02/42 | S/759 | 18 vertical frames (6077-6094) | Coastal area from south Criccieth, Caernarvonshire W to Penychain, Caernarvonshire |
| M3061B | | | |
| 11/02/42 | S/759 | 25 vertical frames (6052-6076) | Coastal area from Aberdovey N via Tywyn to Tonfanau, Merionethshire. [Includes trenches] |
| M3061C | | | |
| 11/02/42 | S/759 | 45 vertical frames (6002-6046) | Coastal area from Wernllaeth NE via Llanon, Llanrhystud and Llanddeiniol to Llanychaearn, Cardiganshire |
| M3066 | | | |
| 14/02/42 | S/765 | 10 vertical frames (5001-5010) | Rhydycroesau, Denbighshire W to Llanarmon Dyffryn Ceiriog, Denbighshire |
| 14/02/42 | S/765 | 19 vertical frames (5020-5038) | Chirk, Denbighshire W to Cynwyd, Merionethshire |
| 14/02/42 | S/765 | 9 vertical frames (5042-5050) | Connah's Quay N to the Dee estuary, Flintshire |
| M3112 | | | |
| 25/06/42 | FNO/17 | 115 vertical frames (6001-6115) | Coast from Cardiff to Porthkerry, Glamorgan. [Includes Flat Holm Island] |
| MWO 2 | | | |
| 08/06/40 | Unknown | : 29 vertical frames (A1-A29) | Prestatyn, Flintshire to Abergele, Denbighshire |
| MWO 3A | | | |
| 11/06/40 | Unknown | 20 oblique frames (A1-A20) | Rhyl, Flintshire W via Kinnel Bay and Towyn to Abergele, Denbighshire |
| MWO 4B | | | |
| 14/06/40 | Unknown | 25 oblique frames (B1-B25) | Tremadog Bay from Morfa Bychan, Caernarvonshire to Llanbedr, Merionethshire |
| MWO 4C | | | |
| 14/06/40 | Unknown | 10 oblique frames (C1-C10) | Dyffryn Ardudwy to Barmouth, Merionethshire |
| MWO 5 | | | |
| 01/07/40 | Unknown | 7 oblique frames (A1-A7) | The Burrows and Tenby, Pembrokeshire |
| 01/07/40 | Unknown | 5 oblique frames (B1-B5) | Saundersfoot Bay, Pembrokeshire |

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| MWO 6 | | | |
| 16/06/40 | Unknown | 5 oblique frames (D1-D5) | Poppit Sands and mouth of River Teifi, Cardiganshire |
| MWO 7 | | | |
| 11/06/40 | Unknown | 14 oblique frames (A1-A14) | Tywyn from Tonfanau to Aberdovey, Merionethshire |
| 14/06/40 | Unknown | 27 oblique frames (D1-D27) | Tywyn from Tonfanau to Aberdovey, Merionethshire |
| MWO 8 | | | |
| 11/06/40 | Unknown | 7 oblique frames (A1-A7) | River Dovey mouth and Borth Sands, Cardiganshire |
| MWO 9 | | | |
| 11/06/40 | Unknown | 16 oblique frames (A1-A16) | Morfa Bychan, Caernarvonshire S to Harlech, Merionethshire |
| MWO 10 | | | |
| 17/08/40 | Unknown | 10 vertical frames (A1-A10) | River Usk Valley between Abergavenny and Usk, Monmouthshire |
| MWO 11 | | | |
| 14/06/40 | Unknown | 9 oblique frames (A1-A9) | South Beach, Pwllheli, Caernarvonshire |
| MWO 12 | | | |
| 16/06/40 | Unknown | 4 oblique frames (C1-C4) | Tresaith Beach E of Aberporth, Cardiganshire |
| MWO 13 | | | |
| 12/10/40 | Unknown | 21 vertical frames (A1-A21) | Nash Point to River Thaw mouth, Glamorgan |
| MWO 14 | | | |
| 20/06/40 | Unknown | 4 oblique frames (A1-A4) | Porthkerry Beach, Glamorgan. [Includes search light emplacement] |
| 20/06/40 | Unknown | 8 oblique frames (B1-B8) | Aberthaw from Breaksea Point to Watch House Point, Glamorgan. [Includes E side of RAF St Athan and RASC camp at Gileston] |
| 20/06/40 | Unknown | 6 oblique frames (C1-C6) | St Donats including Tresilian Bay, Glamorgan |
| MWO 15 | | | |
| 16/06/40 | Unknown | 4 oblique frames (A1-A4) | Aberaeron, Cardiganshire |
| 16/06/40 | Unknown | 6 oblique frames (B1-B6) | New Quay Bay and Little Quay Bay, Cardiganshire |
| MWO 16 | | | |
| 28/06/40 | Unknown | 3 oblique frames (A1-A3) | Whitesands Bay, St David's, Pembrokeshire |
| 28/06/40 | Unknown | 6 oblique frames (B1-B6) | Newgale Sands, Pembrokeshire |
| 28/06/40 | Unknown | 5 oblique frames (C1-C5) | The Burrows between Tenby and Penally, Pembrokeshire |
| 28/06/40 | Unknown | 1 oblique frame (D1) | Broad Haven, Pembrokeshire |

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| MWO 17 | | | |
| 01/07/40 | Unknown | 19 oblique frames (D1-D19) | Pembrey Beach, Carmarthenshire |
| MWO 18 | | | |
| 24/03/44 | LOC/253 | 6 vertical frames (5001-5005) | Area NE of Wrexham. [Includes RAF Poulton, Cheshire] |
| MWO 19 | | | |
| 01/07/40 | Unknown | 18 oblique frames (C1-C18) | Unknown location |
| MWO 20 | | | |
| 28/06/40 | Unknown | 1 oblique frame (13) | Unknown location |
| MWO 21 | | | |
| 28/06/40 | Unknown | 2 oblique frames (13, 16) | Unknown location |
| MWO 22 | | | |
| 01/07/40 | Unknown | 8 oblique frames (E1-E8) | Unknown location |
| MWO 23 | | | |
| 12/08/41 | S/400 | 75 oblique frames (3-78) | Malltraeth Bay and Sands, Llanddwyn Sands to Newborough Warren, Anglesey |
| 12/08/41 | S/400 | 11 oblique frames (80-90) | Fort Belan coast, Caernarvonshire |
| Uncatalogued - no M reference | | | |
| 15/09/41 | S/488 | 2 oblique frames (65, 78) | Unknown location |
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