

Cotswold Canals Restoration

Phase 1b. Saul Junction to The Ocean, Stonehouse

Project S04

The Stroudwater Pillboxes: A Review of the WWII Pillboxes Along the Stroudwater Canal

by Alan Strickland March 2007 Issue 1

This report has been produced by volunteers from the Gloucestershire Society for Industrial Archaeology.

The report reviews the WWII pillboxes situated along the Stroudwater Canal, examining the reasons and purpose for their construction and locations as part of the overall defence strategy of the period.

The design and construction of each pillbox is individually reviewed and illustrated, identifying particular features of interest.

The historical significance of the pillboxes at local level and as part of our national military heritage is discussed and considered in relation to their long term conservation as part of the proposals for the restoration of the Stroudwater Canal.

All illustrations and photographs are included as appendices at the end of the report.

THE STROUDWATER PILLBOXES

A review of the WWII pillboxes along the Stroudwater Canal



Gloucestershire Society for Industrial Archaeology
www.gsia.org.uk

March 2007
Alan R. Strickland

TABLE OF CONTENTS

CONTENTS	1
1. INTRODUCTION	3
1.1 Executive Summary	3
1.2 Purpose of Report	3
1.3 Production of Report.....	4
1.4 Timescale and Limitations	4
1.5 Scope of Report and Terms of Reference	4
1.6 Methodology	5
1.7 Acknowledgements	6
2. MILITARY DEFENCES AROUND THE STROUDWATER CANAL	7
2.1 Defence Strategy prior to 1939	7
2.2 Defence Strategy in 1940	7
2.3 Types of Fixed Defences	8
2.4 Stop-lines	9
2.4.1. GHQ Lines and Corps Lines.....	9
2.4.2. Stop-line Green	9
2.5 Defences around the Stroudwater Canal	10
3. PILLBOXES ALONG THE STROUDWATER CANAL	12
3.1 Types of Pillbox along the Stroudwater Canal	12
3.2 Type FW3/24 Shellproof Pillbox.....	12
3.3 Type FW3/26 Infantry Pillbox	13
3.4 Requisition of Land and Surveys	13
3.5 Construction Techniques	14
3.6 Camouflage	14
3.7 Particular Points of Interest of these Pillboxes	15
3.8 Usage of Pillboxes.....	16
3.9 Bond's Mill Area	17
3.10 Description of each Pillbox along the Stroudwater Canal and River Frome.....	18-24
4. HISTORICAL SIGNIFICANCE	24
4.1 20 th Century Military Heritage	24
4.2 Historical Significance of the Stroudwater Canal Pillboxes...	25
4.3 Conservation and Interpretation for the future	26
5. CONCLUSION	27
5.1 Summary.....	27

6. BIBLIOGRAPHY.....	28
6.1 Main Reference Sources	28
6.2 General reference Sources.....	28
6.3 Aerial Photographs.....	28

7. APPENDICES -

A	Stroudwater Canal Pillbox Schedule
B	Plan of GHQ Stop-lines
C	Plan of Stop-line Green
D	Plan of Pillboxes around the Stroudwater Canal Area
E	Location of Pillboxes along the Stroudwater Canal
F	Typical FW3/24 Pillbox along the Stroudwater Canal
G	Typical FW3/26 Pillbox along the Stroudwater Canal
H	Particular Pillbox points of Interest Sheets H1 and H2
J	Pillbox Record Sheets CCA - CCR

© Gloucestershire Society for Industrial Archaeology 2007

All photographs and illustrations by Alan and Susan Strickland

In researching and compiling this report, it has been found that different sources have often provided conflicting evidence regarding locations, types of pillbox, usage etc. To clarify these discrepancies it has been necessary to visit all the locations, inspect aerial photographs from the period taken by the RAF (Courtesy of the National Monuments Record) and generally review all the information received. Whilst every effort has been made to ensure the accuracy of information contained in the report, errors may have occurred for which we apologise.

The majority of the sites are easily visible from public highways and footpaths. Where the pillboxes are on private land (as indicated in the listings), prior permission to gain access to the pillboxes must be sought from the Landowner. Visitors should be aware that some of these pillboxes are not in good repair and are flooded. Dangers and risks should be ascertained before entering any of these sites.

INTRODUCTION

1.1 *Executive Summary*

This report has been produced by volunteers from the Gloucestershire Society for Industrial Archaeology.

The report reviews the WWII pillboxes situated along the Stroudwater Canal, examining the reasons and purpose for their construction and locations as part of the overall defence strategy of the period.

The design and construction of each pillbox is individually reviewed and illustrated, identifying particular features of interest.

The historical significance of the pillboxes at local level and as part of our national military heritage is discussed and considered in relation to their long term conservation as part of the proposals for the restoration of the Stroudwater Canal.

All illustrations and photographs are included as appendices at the end of the report.

1.2 *Purpose of Report*

Members of the GSIA have been actively involved in the study and research into the Stroudwater Canal for many years. A considerable knowledge has been built up, which has always been made available to interested parties. The GSIA have supported The Cotswold Canals Trust with their restoration programmes since their formation and are now pleased to support the British Waterways restoration proposals.

In support of the British Waterways bid for funding to “The Big Lottery” Living Landmarks Fund, GSIA volunteers are actively participating in a number of initiatives e.g. archival research, heritage risk assessments, examining and recording little known features of the canal and its history from its construction to the present day etc. This review of the pillboxes along the canal is just one facet of the overall programme of research.

The research findings of the GSIA volunteers, including this report reviewing the canal pillboxes, will be made freely available to British Waterways to assist them in the formulation of their funding bid.

1.3 Production of Report

The report has been produced by a number of GSIA members led by Alan Strickland.

1.4 Timescale and Limitations

GSIA became actively involved in the research work during the autumn of 2006 and to allow British Waterways to be in possession of the reports in good time to allow their Lottery bid to be submitted, it was necessary to complete the work by the end of March 2007.

As this research was being done by volunteers, the short timescale did limit the amount of research that could be undertaken. There are a number of areas which could be expanded to reveal more historical information on the defences of the area. This would require a number of visits to the National Archives at Kew to carry out further examination of the records, further detailed research of local archives, NMR and the collection of more oral information from local sources.

1.5 Scope of Report and Terms of Reference

The report has been drawn up to specifically consider the pillboxes along the Stroudwater Canal between Ocean Bridge and the River Severn at Upper Framilode.

The aim has been to examine and record each known site along the route together with its historical significance, and its relationship with local and national defences constructed during WWII.

The report is compiled to provide the following information:-

- Record location of each pillbox site. To include both extant and known demolished sites.
- Record details of type, construction, condition etc. for each location.
- Provide a photograph of each pillbox/site.
- Review the historical significance of the pillboxes, their association with other local and national defences of the period and their usage.
- Record particular items of interest associated with these pillboxes.
- To provide details of current usage of these pillboxes and suggest possible future options for consideration and discussion.

1.6 Methodology

To gather the information to compile this report it was necessary to consult a number of resources, including military databases, local records, aerial photographs, personal records and local historians.

To be able to fully understand the purpose and background to the pillboxes situated along the Stroudwater Canal, an investigation of similar structures and their purpose around the area needed to be undertaken.

From the large quantity of information gathered, a list of references to WWII defences along and around the immediate area of the Stroudwater Canal was drawn up. The list contained over 150 possible sites, with many references, which when plotted, were found to have common details.

It was apparent that military and other recorders over a period of over sixty years had used different maps and scales when noting locations of defence structures. This resulted in the same sites being listed as separate structures/sites when they actually referred to the same site.

After considering and reviewing each reference, it was possible to reduce the list from 150 sites to around 35 sites. Of these 35 sites, 16 represented pillboxes close to the Stroudwater Canal and the adjacent River Frome.

The next stage of the survey was to carry out a physical survey of the Stroudwater Canal and all the pillbox sites along its route both demolished and extant.

During November and December 2006, seven visits were made to the canal area, to walk along the towpaths of the canal, adjacent footpaths, along the banks of the adjacent River Frome and other pillbox sites around the area. These walks included:-

- A general walk along the canal from Saul Junction to Meadow Bridge with a party of GSIA members.
- A circular walk from Eastington to Ocean Bridge with David Viner from British Waterways and Sue Strickland.
- A review of sites around Saul junction, Eastington and Stonehouse with Timothy and Judith Peters and Sue Strickland.
- The remaining surveys were general reviews of particular locations around the canal and were made by myself and Sue Strickland.

1.6 ***Methodology (contd)***

Each known site was inspected and details of remaining structures recorded in a common format, to include particular details of construction, map references, condition, local variations. A digital recording was made of these positions together with taking a GPS grid reference.

Details of each location and descriptions are given in section 3.10 and Appendix J.

To confirm details of pillbox positions, aerial photographs from the RAF vertical collection taken in 1947 and deposited with the NMR in Swindon were consulted. It was possible to confirm exact positions of all but one of the now demolished pillboxes, including verifying their type and the direction of field of fire.

1.7 Acknowledgements

The assistance and support of Sue Strickland and Dr. Ray Wilson and other fellow members of the GSIA in obtaining data, reviewing and commenting on the draft report is gratefully acknowledged.

Particular thanks are also due to the staff at the National Monuments Record in Swindon for their help with locating photographs from the RAF 1947 vertical photographic collection, and providing background information from "Pastscape". The information derived from these resources compiled by and/or copyright of English Heritage was of considerable assistance in verifying the many details from other sources previously unconfirmed.

Thanks also to Gloucestershire County Council Archaeology Service for providing information and records from the Gloucestershire SMR.

The support of Dr Timothy and Judith Peters with information regarding similar surveys in other areas was also of considerable assistance.

Alan R. Strickland March 2007

2 MILITARY DEFENCES AROUND THE STROUDWATER CANAL

2.1 Defence Strategy prior to 1939

To understand the reasons for building and the purpose of the pillboxes along the canal, it is necessary to look at the events leading up to their construction.

The defence of Great Britain prior to the 20th Century had relied upon the concept of the country being an island and defence from invasion being by the maintaining of an effective navy.

With major advances and developments in the field of aviation in the late 19th century and following on from WWI, the threat of invasion changed. The Germans proved with their “Blitzkrieg” methods of warfare and successful progress across Europe, that new approaches to defence must be considered, as the mainland could no longer be adequately protected by naval forces alone.

The German advance across Europe in May 1940 forced British troops back to the channel coast and it was only the mass emergency evacuation from Dunkirk that averted a serious disaster. The continuing progress of the German army seemed unstoppable. The Channel Islands were occupied and it seemed that an invasion of mainland Britain was inevitable. The Germans had been preparing invasion plans since 1939 (Operation Sealion). Military forces were being built up across the Channel and it was thought that this threatened invasion would soon be forthcoming.

2.2 Home Defence Strategy in 1940

In June 1940. General Sir Edmund Ironside, the Commander-in-Chief of Home Forces drew up emergency plans to build static defences to interrupt and delay progress of any invading forces.

The strategy was to strengthen the coastal defences (Coastal Crust) as the first line of defence with remaining AA guns being utilised, where available to support this. The next stage was to build defensive lines to impede the progress of an invading force, if they managed to break through the Coastal Crust. Further fixed defences of important manufacturing areas, airfields, factories etc. were also designed and construction started.

The construction of defence lines was intended to delay enemy progress sufficiently long enough to allow mobile defending forces to reach the invasion points and counter attack.

The construction of the defences proceeded immediately, however, in late summer 1940 concern was expressed that General Ironside's

2.2 Home Defence Strategy in 1940 (contd)

Proposals were outdated and short-sighted. This resulted in General Ironside being replaced as Commander-in-Chief by Sir Alan Brooke, who was appointed by Churchill as his immediate replacement.

The defence approach put in place by General Ironside was soon radically changed with greater emphasis on attack and defence of important road crossings, defended towns etc. The concept of defending fixed linear defence lines was withdrawn. This policy change put a halt to the large scale construction of the defence lines. The effect was that some lengths of defence lines were abandoned, trenches etc. being filled in and road blocks in many cases removed.

This change in defence strategy meant the large scale construction of linear defences was stopped, although it appears that some partially completed projects currently in progress were allowed to be finished. Many of the structures and defences already constructed were retained and adapted to become part of the new strategy.

2.3 Types of Fixed Defences

- **The Coastal Crust** – This consisted of defence batteries, pillboxes, barbed wire, scaffolding, mined beaches and anti-tank obstacles etc. All designed to slow down an invading force long enough for a direct attack to be carried out against them.
- **Anti-tank Islands/Nodal Points.** These were “Centres of Resistance” designed to protect main road/rail/canal crossing points to restrict any enemy progress. They were often centred on towns and villages. These positions were developed on the orders of Sir Alan Brooke to replace the static stop-lines. The defended positions often utilised pillboxes as part of their defensive layout (a good example of this is to be found outside Pewsey where the Kennet & Avon Canal and main road cross) and were often manned by the Home Guard with a backup of regular forces. Many pillboxes and defences built for the stop-lines were utilised for these defended positions.
Tetbury, Nailsworth and Stroud were all designated as Anti-Tank Islands.
- **Anti-tank Obstacles and Road Blocks.** Road blocks were constructed on all major roads and crossing points. These were sometimes large concrete cylinders, (a good example is to be found at Latton on the A419), rails set into sockets in the ground, cables across roads and other locally produced obstructions.

2.3 Types of Fixed Defences(contd)

- **Railways and Bridges.** Concrete blocks alongside railways were provided (examples remain alongside disused lines near Stonehouse, Nailsworth and Tetbury). A number of bridges crossing strategic points were also identified for demolition if it became necessary. It is not known if any of the bridges along the Stroudwater Canal were thus designated. The important main A38/Canal bridge would probably have been a likely candidate for possible demolition.
- **Flooding.** The low lying ground along the Stroudwater Canal and the River Frome, with its regular flooding, would have been an important additional strength for the Stop-line along the canal.

2.4 STOP- LINES

2.4.1 GHQ, Corps and Command Lines

The main General Headquarters Lines (GHQ), were linear defence lines designed to provide protection to London and important industrial manufacturing areas in the Midlands and the North, and were a final defensive position. (See plan Appendix B).

The main defence lines were supplemented by further Command and Corps stop-lines.

The Eastern GHQ stop-line was designed to run from north of Edinburgh, inland and south along the east coast, around the east of London to meet the south coast near Eastbourne. Two further lines ran from this east-west to impede forces progress northwards. Stop-line "Red" followed the Thames from Reading and crossed the Cotswolds to Great Somerford in Wiltshire, and Stop-line "Blue" followed the Kennet and Avon Canal to Semington. These lines met Stop-line Green, which encircled Bristol. Further GHQ lines were constructed to protect Plymouth.

The pillboxes along the Stroudwater Canal and River Frome formed part of Stop-line "Green".

2.4.2 Stop-line Green

Stop-line Green, often referred to as "The Bristol Outer Defence Line", was constructed during 1940, on the instructions of General Ironside.

The line encircled Bristol, and its purpose was to protect the industry of Bristol and the port of Avonmouth from an inland attack from the east.

2.4.2 Stop-line Green (contd)

The protected area would also have included the Severn railway tunnel and the Severn railway bridge.

The proposed line was surveyed by Royal Engineers from Southern Command in early 1940. Once agreed, the Royal Engineers set out and supervised the works.

Stop-lines were designed to take advantage of natural terrain wherever possible and this principle was applied to Stop-line Green. It was agreed that the route would run from the Severn, south of Bristol, to again meet the Severn near Upper Framilode in Gloucestershire.

The route chosen for Stop-line Green was:-

- To commence at Highbridge at the Severn Estuary.
- From Highbridge to follow the River Brue to Wells.
- From Wells the line to cross the Mendip hills to Masbury Station.
- From Masbury the line followed the railway to near Radstock.
- Natural waterways were followed to the Avon at Malmesbury.
- From Malmesbury an anti-tank ditch was excavated to Avening.
- For the section between Avening and Stroud, the Nailsworth gorge formed the natural defence.
- The Stroudwater Canal and River Frome then became the final section from Stroud to Upper Framilode and the River Severn.

The stop-line ran for approximately 90 miles and included 18 miles of dug anti-tank ditch, around 370 pillboxes planned/built and over 250 road blocks.

The line was partially completed when the order from Sir Alan Brooke to cease construction was received. It appears that a lot of partially started works were completed; however any further works were concentrated on the southern sections of Stop-line Green.

The full extent of all the works originally planned for the area by General Ironside are not clear, however the remaining pillboxes give an indication of how important the defence of this area was considered. Further archival research is needed to establish the full extent of the original plans and the degree of completion achieved.
(See plan Appendix C)

2.5 Defences around the Stroudwater Canal (See Appendix D)

The section of Stop-line Green along the Stroudwater Canal and River Frome was not only part of the outer defences around Bristol, but also that of the surrounding defences of the local area.

2.5 ***Defences around the Stroudwater Canal (contd)***

This particular part of Gloucestershire was considered important with many important features that would have been very beneficial to an invading army, e.g.

- A navigable route along the River Severn to Tewkesbury
- The Gloucester and Sharpness Canal as a vital supply route.
- The shallow beach/mudflats along the Severn could have afforded easy landing access to an invading force.
- Main railway routes, including the Severn Tunnel and Severn railway bridge
- Industrial manufacturing sites
- The Stroudwater Canal another possible inland route.

All these areas required to be defended.

The Severn Estuary itself was defended with heavy AA positions situated at various points including Brean Down, Steep Holm, Flat Holm, Lavernock Point and around Bristol.

A number of pillboxes remain along the eastern bank of the Severn Estuary (See plan Appendix D). From a point south of the end of Stop-line Green at Upper Framilode they stretched south past Arlingham and Slimbridge towards Sharpness Docks.

A number of pillboxes remain along the Dumbles at Slimbridge, and are now within the wildlife sanctuary. Several remain around Arlingham and can be visited, however further examples have gradually disappeared due to erosion along the estuary, causing them to sink into the soft mud.

One of the pillboxes at Arlingham was constructed in the bow of a former "Severn Trow" boat called the "Finis". This would have looked out over the ferry route to Newnham-on Severn.

The risk of invasion from across the Severn was also considered, and a command line was constructed along the Wye valley between Chepstow and Symond's Yat, many pillboxes are still to be found along this route.

3 PILLBOXES ALONG THE STROUDWATER CANAL (See plan Appendix E)

3.1 Types of Pillbox along the Stroudwater Canal

The construction of pillboxes took place over a period of a few months starting immediately following the announcement of General Ironside's defence plans.

The designs for the different types were developed by the Fortifications and Works Department 3 of the War Office, under the leadership of Major General G. B. O. Taylor.

A number of standard designs were produced by the department to meet different requirements, e.g. types of guns, whether bullet-proof or shell-proof, vulnerability, siting etc.

Along this section of Stop-line Green, the pillboxes are of two specific defined types with one non-standard pillbox.

- FW3/24 Shell-proof Infantry pillbox
- FW3/26 Bullet-proof Infantry pillbox
- "Special " Two storey pillbox adjacent to Bond's Mill

3.2 Type FW3/24 Shellproof Pillbox

(See plan drawing Appendix F)

The Type FW3/24 shellproof was designed as an upgraded version of the standard FW3/22. The wall and roof thicknesses were increased to afford protection against mortar shells.

The pillbox is of an irregular hexagonal shape with the rear entrance wall longer than the other faces.

The rear walls are approx 17ft. long with adjacent walls 11ft. and the three remaining faces each of 9ft.

The wall thickness varies and is around 3ft. 6in. with reinforced concrete roof thicknesses of 16in.

These boxes all contain a central internal anti-ricochet protective wall.

Due to particular requirements of different situations, changes made by builders etc., have resulted in many variations of the basic designs.

The type FW3/24 pillboxes along Stop-line Green have a number of variations. Particular to this stop-line, is the addition of a brick built porch protecting the entrance.

The embrasures were designed to be used for light machine guns.

3.2 Type FW3/24 Shellproof Pillbox (contd)

All the type FW3/24 pillboxes along this section of the line (with the exception of the Meadow Bridge box) are constructed with prefabricated concrete panels used as shuttering and infilled with reinforced concrete.

3.3 Type FW3/26 Infantry Pillbox

(See plan drawing Appendix G)

The type FW3/26 design is a small pillbox to protect against bullets. This box has embrasures in each wall and is designed for LMG and rifle use.

The box is rectangular in shape with external walls of 10ft. 9in. and 10ft. The reinforced concrete roof is approx 6in. thick with walls of 17 ½ in.

A number of the type FW3/26 boxes along Stop-line Green also contain a brick protective porch.

Both of the remaining type FW3/26 pillboxes along the Stroudwater Canal are also constructed using prefabricated shuttering panels infilled with concrete.

3.4 Requisition of Land and Surveys

The Royal Engineers undertook the surveying and were responsible for the construction of Stop-line Green. The urgency of the construction did not allow for long consultations with land owners. Certainly, where large areas were requisitioned for military airfields etc. then this was agreed with landowners; however it would appear that for the siting of pillboxes and excavation of anti-tank trenches, works often proceeded ahead of negotiations.

The construction workers quickly moved into previously quiet villages and farmland and started work. This caused considerable complaints from Landowners, and a letter in the Gloucestershire Archives dated 15th August 1940 from Basil E. King of the Berkeley Estate to Gloucestershire County Council “strongly deplores” the unauthorized trespassing of workers on to the New Grounds Slimbridge and “demands” that the concrete constructions be immediately removed and the damage made good forthwith,

This letter is useful in establishing the construction dates for the pillboxes and tells us that by mid-August 1940, works in this area were well in hand.

3.5 Construction Techniques

The large-scale construction of the defence lines was an enormous project and proved to be a very heavy strain on the limited manpower and materials resources available at that time.

The majority of works were carried out by civilian building contractors and many of these companies are still well known names today. Large companies like Mowlems and McAlpines together with many local sub-contractors were employed. Cowlins, Stansells, Waddingtons, and Chivers all carried out work in the south and southwest.

With so many different contractors and the urgency of the works, the inevitable result was that local variations occurred with no two pillboxes being identical.

The construction process was to work in gangs. First the area was cleared, followed by the casting of the concrete base. Reinforcing bars were inserted vertically into the base and shuttering was then installed. Concrete infill was added and the reinforced roof completed the works.

The problem of material shortages was acute and where possible local sands and aggregates that were readily available would be utilised. Timber for shuttering was scarce and alternatives were used in the form of corrugated iron, brickwork and also prefabricated concrete panels. With the exception of Meadow Bridge which has brick internal and external shuttering, all the Stroudwater pillboxes are formed using prefabricated panels.

Standard embrasures were also prefabricated.

The heavy usage of materials for the construction of these defences was a major discussion issue, with standard pillboxes using around 5 tons of cement and similar weights of reinforcing bar.

3.6 Camouflage

The importance of concealing defences started at the construction stage. Construction workers were instructed to ensure access tracks were moved around to minimize damage and disclosure of works from the air and any damage had to be repaired immediately. This was necessary to also reduce the risk of workers being attacked from the air, which happened in other areas on a number of occasions.

When deciding the locations of pillboxes, the Royal Engineers selected locations to assist the concealment of the pillboxes. Many of the Stroudwater pillboxes were located close to hedgerows and existing structures and trees. Merging with adjacent backgrounds was a very effective means of disguise.

3.6 Camouflage(contd)

Pillbox concealment could also be improved by sinking into the ground. An example of this is the type FW3/24 west of the A38 near the road bridge crossing the River Frome. As the majority of the Stroudwater/River Frome boxes were mainly sited on low lying flood plains this would not have been a realistic option.

The new concrete would have stood out when first constructed. Most of the pillboxes examined had a grassed over roof which seems to have been the main method of disguise along the Stroudwater.

None of the boxes examined appeared to have any remaining signs that the external walls were ever painted, although this was done in other areas with the use of distemper. External hooks were often fitted for the attachment of camouflage netting, again no visible remaining hooks were found.

3.7 Particular Points of Interest of these Pillboxes

A number of interesting features are to be found in the pillboxes along this section of the River Frome and the Stroudwater Canal. These help to understand their construction, design and use.

- A.** Many of the pillboxes along Stop-line Green had the addition of a brick built protective porch with reinforced roof. This was very much a local variation not generally found along other defence lines.

(See illustration Appendix H-A)

- B.** The prefabricated panels are located with steel bolts. These bolts are now becoming heavily corroded.

(See illustrations Appendix H-B)

- C.** Stonepitts Type FW3/26 has attached to the rear face the remains of previously fixed chains. These may have been used to stretch across the adjacent towpath.

(See illustration Appendix H-C)

- D.** Example of camouflaging a position of a pillbox by covering with earth and grass.

(See illustration Appendix H-D)

- E.** The pillbox at Eastington, (CCM) Meadow Bridge is the only pillbox under review not built using precast sectional panels.

3.7 Particular Points of Interest of these Pillboxes (contd)

The shuttering on this pillbox is of red brick. The box is built on a high point in a corner between the Frome and road bridge. The visible corner of the porch is not complete and appears to have been built around something. From the way the brickwork widens at the base, it suggests that the box was built up against an existing tree, which has now been removed.

(See illustration Appendix H-E)

- F.** Single brick shelves below type FW3/24 pillbox embrasures. Within each of the type FW3/24 boxes, added below each embrasure is a narrow shelf. The supports are bricks built against the walls with a narrow concrete shelf of approximately 12 cm width.

The shelf is too narrow to have been used as a seat. Recent research suggests that the purpose of these brick piers may have been to support the rear mounting legs of a Bren gun.

(See illustration Appendix H-F)

- G.** Within the type FW3/26 pillboxes, support shelves were mounted below each embrasure. The fixing of these timber shelves required the mounting of angle brackets onto the walls. Without the advantage of modern electric drills, this would have been a time consuming job probably using hand rawlbits. The mounting task has been made easy by including a piece of timber within the shuttering at each fixing position, thus making the fixing a simple matter of screwing into the cast in timber.

(See illustrations Appendix H-G)

3.8 Usage of Pillboxes

The pillboxes along the Frome were designed to be part of Stop-line Green and impede the advance of an invading force from the east. The original linear line principle allowed for the pillboxes to be used as fixed defence positions.

The strategy changed when Sir Alan Brooke took over from General Ironside, and the focus was then on defending nodal points/anti-tank islands. The pillbox defences between these points and along the stop-lines were maintained to be occupied if and when required. The risk of attack with a grenade or flamethrower were a serious danger to be considered when using a pillbox.

The pillbox was then considered to be part of the defences, and whilst providing protection from bullets and possible protection from shells, they provided poor visibility, restricted troop movement and reduced the ability to attack the enemy.

3.8. Usage of pillboxes (contd)

The guidance was then for the defending troops to have an observer outside the box to be able to see what was happening in the surrounding area.

In the event of needing protection, shelter was to be taken within the pillbox and if possible to then attack the enemy by firing through the loopholes. If this was not possible, then the forces were to move the guns outside and attack, probably from trenches adjacent to the pillbox.

The Home Guard would have utilized the pillboxes with additional military support in the event of attack.

The type FW3/24 supported up to 8 men with machine guns and rifles. The embrasure design indicates they were constructed to be used for the standard Bren gun.

The type FW3/26 supported up to 6 men armed with light machine guns and rifles.

3.9 Bond's Mill Area

The pillbox situated at the canal crossing entrance to Bonds Mill (see Appendix J – CCP) is not a standard design, but a two storey building. Whilst this pillbox is at an important canal crossing point and on the line of Stop-line Green, its location suggests it also had other defensive purposes associated with the usage of this particular area.

The re-location of important government departments and manufacturing units to an area considered to be relatively safe from aerial attack around London and the South-East was given high priority. The Bond's Mill area was selected for wartime relocation.

Bond's Mill was taken over by Sperry's Gyroscope Company who moved from their factory in Brentford to avoid possible air attacks. The factory was engaged in the manufacture of instruments for the aircraft industry.

In 1938, behind Avenue Terrace, a new factory was built for the manufacture of roller bearings. This was a shadow factory for Hoffman's bearings from Chelmsford. The factory produced large numbers of bearings for military purposes, and it is suggested that bullets may have also been produced; however evidence to support this has not been found.

The factory building can be seen on the 1947 aerial photographs of the area and the camouflaged roofs are evident.

3.10 Bond's Mill Area (contd)

Whilst ownership has changed on a number of occasions since being built, the site is still utilised by SKF Bearings, who continue to manufacture high quality specialist industrial bearings.

Wycliffe College was taken over by the war-time equivalent of the Met Office.

West of the Bond's Mill pillbox and on the north side of the canal adjacent to the bridge, the wartime photographs show a military type site with rows of Nissen huts, and possibly an air raid shelter nearby. The purpose of this area is not known, but may have been accommodation for the large numbers of workers necessary to support the adjacent factories. The area has recently been developed for business purposes and no remains of this encampment are now visible.

Sperry's Gyroscope had its own Home Guard Platoon, which consisted of around one hundred members. The platoon would have been responsible for defending this industrial area and the Bond's Mill pillbox would have formed part of these defences.

3.10 *Description of each Pillboxes along the Stroudwater Canal and River Frome.*

Pillboxes were sited along the line of natural and man-made barriers, supported by defensive trenches, banks and barbed wire. There have been many changes to the landscape in the last 60 years, particularly with drainage and anti-flood defences being constructed.

There do not appear to be any clear indications remaining where trenches may have been dug, banks built up or wire defences laid out. This may be due to the changes over time, or that when a halt to the construction along the northern section of Stop-line Green was called for, these ancillary supporting defences were never completed.

Locations of pillboxes in isolated positions often appear to the general public as being a ridiculous waste of time and energy, however when looked at in relation to overall defences, they can be seen as having a clear and defined purpose.

3.10 Description of Individual Pillboxes along the Canal (contd)

Pillbox Ref:- CCA – SO 7523 1009 Upper Framilode.

This is a type FW3/24 shell-proof pillbox situated south of Upper Framilode Mill and on the north side of the River Frome.

Facing back towards the River Frome and Saul, it is not clear why the field of fire was in this direction, and this suggests that there was a serious error at the time of construction.

The entrance is blocked with builder's rubbish, however the interior appears to be in good condition.

This pillbox is constructed using prefabricated shuttering panels and has a brick protective porch.

The pillbox is on private land.

See Appendix J - CCA for full details

Pillbox Ref:- CCB SO 753 097– Junction of drainage dyke and canal.

This type FW3/24 shell-proof pillbox was situated at the junction of a drainage dyke and the Stroudwater Canal west of Junction Bridge.

Now demolished but extant on 1947 aerial photographs.

Adjacent to the modern bridge are what look to be the remains of the demolished pillbox. It may be that the demolished remains have been used for the foundations of the adjacent bridge.

1947 photographs show the box as facing west across the dyke.

Listed by Henry Wills as polygonal, concrete, facing west.

See Appendix J - CCB for full details

Pillbox Ref:- CCC – SO 7565 0938 -Junction Bridge

A type FW3/26 infantry pillbox sited adjacent to the Gloucester and Sharpness Canal. The pillbox is in excellent condition.

Constructed using prefabricated shuttering panels with a protective brick porch. The box faces northwest.

The pillbox is now used during the annual local water festival and also regularly by the Wycliffe College rowing club, who mount their race timing equipment on the roof.

Adjacent to the pillbox is the large storage and maintenance building belonging to the Wycliffe College Rowing Club. During the war, this building was taken over for military purposes and used for maintenance of emergency rescue craft.

See Appendix J - CCC for full details

3.10 Description of Individual Pillboxes along the Canal (contd)

Pillbox Ref:- CCD SO 7659 0836 – Stonepitts

A type FW3/26 bullet-proof infantry pillbox situated at Stonepitts near the River Frome floodplain and alongside the canal tow path.

Built using prefabricated panels with a concrete infill.

The pillbox faces north with embrasures on all sides, but has very poor visibility.

There is no porch attached to this pillbox or evidence any was ever built. The remains of a chain are affixed to the south side and may have been used to stretch across the tow path.

Good examples of fixings for shelves are to be found within this pillbox. In fair condition, there is evidence of heavy corrosion to shuttering bolts.

See Appendix J - CCD full details

Pillbox Ref:- CCE SO 773 080 – Parklands, Whitminster

Listed by Henry Wills as a polygonal pillbox, concrete facing west.

Despite carefully walking the footpaths around this area, no clear evidence of the location could be found.

Further research of 1947/8 RAF vertical aerial photographs also failed to reveal the exact location.

No other early references were found.

The description suggests a type FW3/24 shellproof, which would match existing adjacent pillboxes.

It is assumed this structure has been demolished.

See Appendix J - CCE for full details

Pillbox Ref:- CCF SO 7721 0748 – S. Bank of the Canal near A38

A type FW3/24 Shellproof pillbox situated on the south bank of the Stroudwater Canal near the A38 road access to Fromebridge Mill.

The pillbox is built with prefabricated shuttering panels, infilled with concrete and has an earth/grass roof covering.

The box faces north towards the A38 and is on private land.

The brick porch has partly collapsed.

There is no access to this pillbox.

See Appendix J - CCF for full details

3.10 Description of Individual Pillboxes along the Canal (contd)

Pillbox Ref:- CCG SO 7710 0733 – Fromebridge Mill approach road

A type FW3/24 Shell-proof pillbox adjacent to the entrance road into Fromebridge Mill.

This pillbox is also built with prefabricated shuttering panels with a concrete infill. Situated close to a hedge line on a slight slope, sited between the A38 and the River Frome.

A brick porch remains, on the rear west entrance.

Embrasures face towards A38 and River Frome.

Situated on private land this pillbox appears to be in fair condition.

See Appendix J - CCG for full details

Pillbox Ref:- CCH SO 696 0701 – Fromebridge/A38

A type FW3/24 shell-proof pillbox. The pillbox is heavily overgrown and well hidden

Situated at the junction of the A38 and the old road to Fromebridge Mill.

This box is sunken, embrasures are at ground level.

Constructed of prefabricated shuttering panels with concrete infill with a rear porch.

The inside was flooded at time of inspection

Faces northeast towards the River Frome.

The condition is fair but deteriorating.

See Appendix J - CCH for full details

Pillbox Ref:- CCJ SO 7705 0699 – East of Fromebridge

A type FW3/24 shell-proof pillbox situated along the line of a field hedge.

This pillbox is clearly visible on 1947 aerial photographs.

The box faced northwest towards the River Frome and A38

The box had a rear protective porch.

This box has now been demolished and no visible evidence could be found on the ground.

See Appendix J - CCJ for full details

3.10 Description of Individual Pillboxes along the Canal (contd)

Pillbox Ref:- CCK SO 7767 0659 – Adjacent M5 Canal Crossing

A type FW3/24 shell-proof pillbox situated on the southern bank of the Stroudwater Canal facing northeast.

Now demolished, this pillbox is clearly visible on the 1947 aerial photographs.

The exact location appears to be under the M5, and demolition may have taken place when the M5 construction took place.

See Appendix J - CCK for full details

Pillbox Ref:- CCL SO 7831 0609 - Pike Lock

A type FW3/24 shell-proof pillbox in the Cotswold Canals works compound near Pike Bridge.

Constructed with prefabricated concrete shuttering panels with concrete infill.

The embrasures face northeast towards Pike Lock and Pike Bridge over the Eastington road.

A brick porch protects the entrance.

The roof has an earth/grass covering.

This box is in fair condition.

See Appendix J - CCL for full details

Pillbox Ref:- CCM SO 7808 0570 - Meadow Bridge

A type FW3/24 shell-proof pillbox on private land adjacent to Meadow Bridge, Eastington.

Unlike the other FW3/24 boxes along the Stroudwater Canal and the River Frome, this box has been constructed using brick shuttering and not pre-fabricated panels.

The box faces north towards the River Frome

The roof has an earth covering.

The box is situated on a small area of raised ground adjacent to the bridge and on the river bank. The corner of the porch looks partially collapsed, but its circular section suggests it was built up against a tree which has now been removed.

There is no access to this pillbox.

The condition appears to be fair.

See Appendix J - CCM for full details

3.10 Description of Individual Pillboxes along the Canal (contd)

Pillbox Ref:- CCN SO 7921 0530 – West of Bond's Mill

This type FW3/24 pillbox was situated on the southern bank of the Stroudwater Canal west of Bond's Mill.

The box is clearly visible on the 1947 aerial photographs on the corner between the towpath and lane beside the mill.

The box faced northeast towards the canal.

From the aerial photographs, this pillbox appears to have been a type FW3/24 shellproof with brick porch.

This box was demolished around 1964.

See Appendix J - CCN for full details

Pillbox Ref:- CCP SO 7933 0527 – Bond's Mill

This is a non-standard pillbox and is a two storey building.

This box is situated on the north side of the canal and is adjacent to the bridge over the canal which allows access to Bond's Mill and the Sperry's Gyroscope factory. (See 3.9)

The box is octagonal in shape with a diameter of approximately 4 metres. The construction consists of a concrete base, reinforced concrete lower section and brick upper floor with a circular parapet on the roof.

The structure has been much altered over the years, particularly with the insertion of modern windows; however a number of the original small embrasures may still be seen with their concrete lintels.

The entrance may have originally been protected by a porch/blast wall.

On the roof is a circular open parapet thought to have been used for the mounting of an AA gun.

This pillbox currently contains the hydraulic controls for the bridge lifting mechanism for the 1994 GRP heavy duty road bridge built by Maunsell Engineering.

See Appendix J - CCP for full details

Pillbox Ref:- CCQ SO 7971 0510 - Canal/Railway Crossing

A FW3/24 shell-proof pillbox situated on the north bank of the canal adjacent to the Bristol/Gloucester railway bridge.

The pillbox is clearly visible on the 1947 aerial photographs and is thought to have been demolished when the new railway bridge over the Stroudwater Canal was constructed.

Its size and shape indicate it being of similar construction to other FW3/24 boxes in the area.

It is not visible on photographs taken in 1964.

See Appendix J - CCQ for full details

3.10 Description of Individual Pillboxes along the Canal (contd)

Pillbox Ref:- CCR SO 7930 0499 - SW of Bond's Mill. North of the River Frome

A type FW3/24 shell-proof pillbox. Constructed using prefabricated concrete shuttering panels with a rear brick porch,

This box is not visible on 1947 aerial photographs, possibly as it is situated close to a field boundary.

This pillbox faces northeast towards the Stroudwater Canal and Bond's Mill.

Sited near to a footpath. This pillbox is in good condition.

See Appendix J - CCR for full details

4. HISTORICAL SIGNIFICANCE

4.1 20th Century Military Heritage

The military heritage of the 20th Century is part of the history of the country in the same way as the Roman Invasion, Vikings, civil wars etc. however, it has only in the last few years been recognised in its own right as part of our military archaeology. In the mid 20th Century interest in Industrial Archaeology was considered of little significance. 20th Century military archaeology has followed the path of Industrial Archaeology and now, like industrial archaeology, become a respected and internationally recognised subject in its own right.

Interest in the subject was greatly increased when Henry Wills researched and published "Pillboxes" in 1985. Public interest has steadily grown in all aspects of 20th Century military matters from WWI through to the Cold War, with TV documentaries attracting large audiences. Major research studies carried out by Colin Dobinson for English Heritage, the CBA "Defence of Britain" Project and further ongoing research projects have identified the diverse nature and significance of remaining defence structures. The pillboxes along the Stroudwater Canal are part of these remaining defence structures.

The study of remaining defence structures is ongoing, yet large numbers of sites have been lost through lack of knowledge and understanding of their significance, and they continue to disappear at an alarming rate. Various reasons have resulted in these historical losses, from war time clearances, development, lack of any maintenance to natural losses from coastal erosion etc. Many of the pillboxes along the Severn Estuary around Arlingham and Slimbridge have now disappeared due to coastal erosion. The remaining pillboxes covered in this study are gradually deteriorating, and if not to be lost forever, need to be surveyed, recorded and conserved.

4.2 Historical Significance of the Stroudwater Pillboxes

The purpose of these pillbox sites, how they fitted into the defence of the country and the effect they had on the history of the country has to be considered in relation to the country's inland defence network for the period.

Better informed interpretation of these areas now provide an understanding of how and what happened at these sites and their effect on the history of the 20th Century.

Oral memories of WWI have all but disappeared and WWII recollections are also disappearing as the years go by. These areas are no longer in living memory. As part of our cultural heritage they need to be recorded before being lost forever.

The remaining defences along this section of Stop-line Green confirm that despite the stoppage of construction work by Sir Alan Brooke, large amounts of works were already in place or partially completed.

There were around 28,000 pillboxes of different types constructed during WWII. Around 8,000 now remain, of which only 1,000 are in good structural condition.

This loss is reflected along the Stroudwater/River Frome area being reviewed, with 6 of the 16 identified sites already having been lost.

The short section of Stop-line Green from Malmesbury to the River Severn is a good example of a stop-line and its different construction methods, adapted to meet the local conditions. A combination of natural and man made features being combined. The Stroudwater Canal, the River Frome flood plain and various mill leats etc. combining to form a coherent defence line.

The type FW3/24 and FW3/26 used along the Stroudwater Canal and the River Frome are good examples of construction methods used by the use of prefabricated shuttering, thus saving valuable resources and speeding up construction time.

The pillboxes along the Stroudwater Canal all have a local link and many local stories of events involving them are to be found. They have been used for a number of purposes over the years, for farm storage, bat roosts etc. The pillboxes around the Wetlands Trust at Slimbridge have long been used as lookouts and are noted as having been used by Sir Peter Scott. The FW3/26 pillbox at Junction Bridge is regularly used as part of the Saul Festival and also by the Wycliffe Rowing Club for mounting their timing machine for the races held on the adjacent Gloucester & Sharpness Canal. Further along Stop-line Green, west of Tetbury, a type FW3/24 was regularly used as accommodation for a gentleman who enjoyed setting up his deckchair on the roof on sunny days.

4.3 Conservation and Interpretation for the future

The pillboxes along the canal are difficult to interpret as individual units, however, when considered in association with other pillboxes between Stonehouse and the River Severn, tell the story of the grave situation in 1940 when the invasion of this country was considered inevitable. The desperate attempts to quickly construct fortifications in 1940 to provide some form of defence to hold back invading forces are reflected by these pillboxes.

When further considered with other defences along the Severn around Arlingham/Slimbridge, together with the fact that they formed part of the GHQ defences of Stop-line Green to defend Bristol from attack, it makes a fascinating story.

Many people seeing a remote pillbox, dismiss them as “Home Guard shelters” and of little meaning. Further inspection identifies them as pointing inland rather than towards a coast, again resulting in dismissal as being “a total waste of time”. This lack of understanding is due to the failure to provide information and interpretation of the pillboxes within their historical context. The area around this section of Canal and the River Frome have towpath and footpaths passing close to most of them and could easily form several themed walks, with guide leaflets explaining the background to these defences. The addition of a number of interpretation panels would also benefit and provide information to the many walkers, and in due course, canal travellers, about this part of the history of the area.

The section of Stop-line Green from the Avon at Malmesbury to the River Severn is a particularly good area to demonstrate the stop-line principles of construction with examples of a variety of different construction techniques, including:-

- Revetted river banks at Malmesbury.
- Type FW3/24 and Type FW3/22 pillboxes.
- Routes of excavated anti-tank ditches from Malmesbury to Avening. (Poor backfilling identify these trenches on the ground).
- A natural defence through the Nailsworth valley gorge.
- A combination of canal, river and minor water courses along a flood plain, combined to form a continuous line from Stonehouse to the Severn.
- Many remaining concrete anti-tank cubes and barriers.
- Concrete blocks along railway lines.

The large amount of remaining structures along this short length of the Stop-line provide sufficient for future studies by local schools etc. if supported by suitable information packs.

4.3 Conservation and Interpretation for the future (contd)

The recent *Power of Place and Force for the Future* reports by English Heritage have set out an holistic approach to managing the future of recent military structures, putting them in context as part of the history of the landscape.

The change from clearing away untidy military structures has resulted in the recognition of the important part they have played in our political and social history. These structures are now being recorded and their significance reviewed.

The pillboxes constructed along the Stroudwater Canal have a direct relationship to the canal and the WWII period. This is an important part of the overall history of the canal from its inception to the current restoration proposals.

If these historic pillboxes are to form part of the long term interpretation of the regenerated Stroudwater Canal, then it will be necessary to have the pillboxes adjacent to and part of the restoration area carefully examined and condition surveys carried out to establish works needed for their long term conservation and ensure any Health and Safety issues are addressed.

5. CONCLUSION

5.1 Summary

A long term conservation and management plan for these sites is essential if they are to form part of the plans to bring the Stroudwater Canal back to life.

To make the remaining pillboxes part of the story of the canal, the background and history, as outlined in this report, needs to be made available for all.

This could be achieved by interpretation panels, information leaflets and educational packs.

Works to ensure the pillboxes are inspected and maintained in a safe condition is essential to their long term conservation.

With the growing interest and research into 20th Century wartime structures, the understanding of their military and social history has to be taken into account when viewing the long term restoration of the Stroudwater Canal and how the plans come together for its future presentation and interpretation.

6. BIBLIOGRAPHY

6.1 Main Reference Sources

1. Defence of Britain Database - CBA
2. "Pastscape" English Heritage on-line resource
English Heritage NMR Aerial Photography Section
3. Wills, H. *Pillboxes- A study of U.K. Defences 1940*, Secker & Warburg 1985
4. Alexander, Colin, *Ironside's Line*, Historic Military Press 1998
5. Gloucestershire SMR

6.2 General Reference Sources

1. Foot, William, *Beaches, fields, streets and hills*, CBA 2006
2. Fleming, Peter, *Invasion 1940*, Rupert Hart-Davis 1957
3. Longmate, N, *Island Fortress*, Grafton 1993
4. Gander, Terry, *Military Architecture*, PSL, 1979
5. Macleod, R, *The Ironside Diaries*, Constable, 1962
6. Mackenzie, S.P, *The Home Guard*, OUP, 1995
7. CBA, *20th Century Defences in Britain*, CBA, 1995
8. Symonds, P.R. *CD Area 8*, Stroud & Nailsworth Defence Committee 1945
9. Ruddy, Austin J. *British Anti-invasion Defences 1940* HMP 2003
10. Home Guard instruction manuals – 1943
11. Thacker, Joy, *Survival & Revival*, Alan Sutton 1995
12. Osborne, Mike, *Defending Britain*, Tempus 2004
13. "Loopholes" Various, Pillbox Study Group
14. Green, Major M. *Warwalks*, Reardon 1999

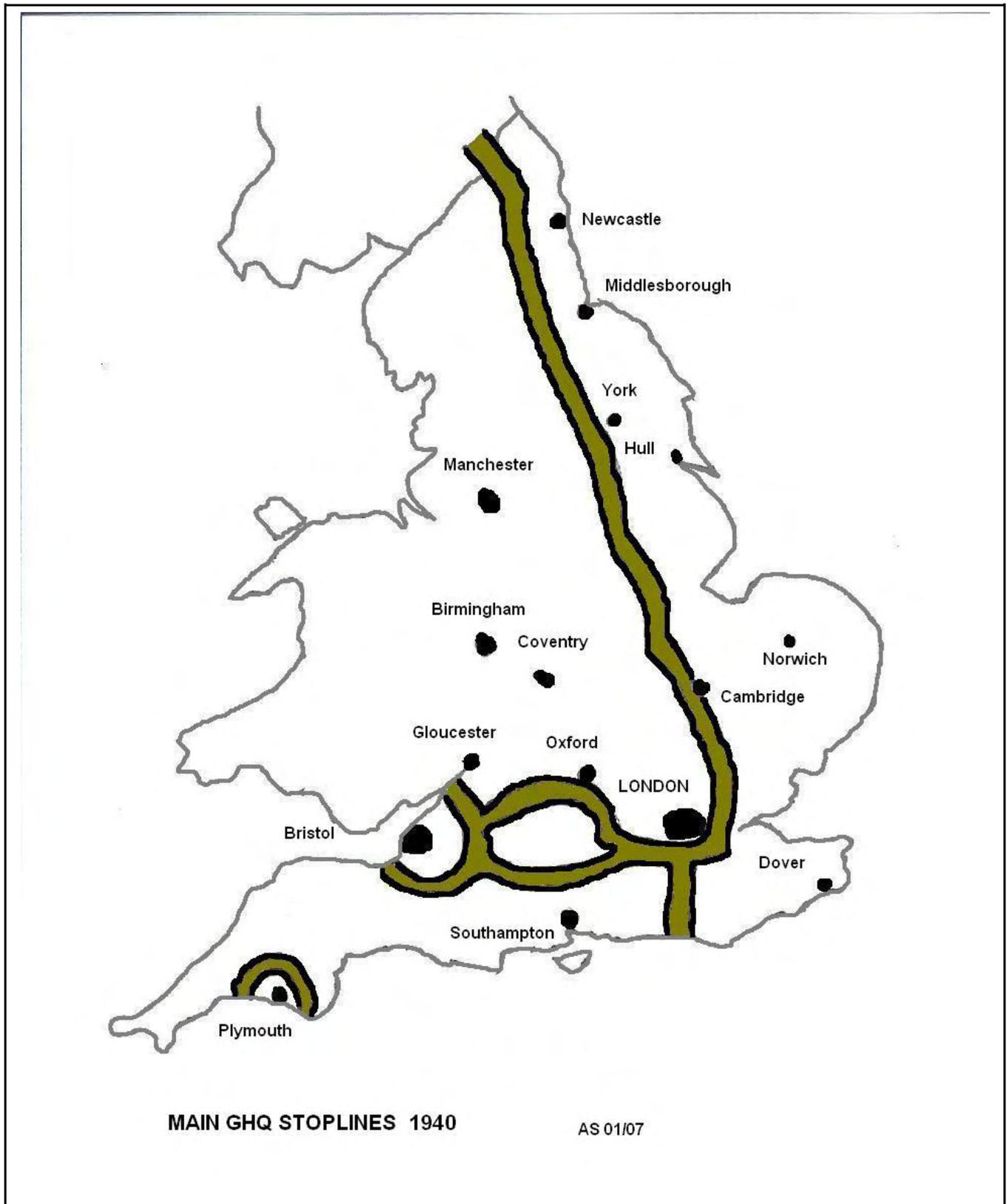
6.3 Aerial Photographs

The area covered by this report is well supported by aerial photographs taken by the RAF 1947/1948 period, when military remains were still extant and visible. The photographs from the vertical collection may be viewed by appointment with the National Monuments Record at Swindon.

Report Ref	Location	Grid Ref	NMR Ref	SMR Ref	Type	Condition	Parish
CCA	Upper Framilode South of the mill	SO 7523 1009	1246321	20847	FW3/24	Fair	Fretherne with Saul
CCB	North bank of canal at junction with drainage dyke	SO 753 097	1246323	20854	FW3/24	Demolished	Fretherne with Saul
CCC	Junction Bridge at junction with G&S Canal	SO 7565 0938	1422173 1246324	20848	FW3/26	Good	Fretherne with Saul
CCD	Stonepitts. Adj. to River Frome floodplain	SO 7659 0836	1422128	20853	FW3/26	Fair	Whitminster
CCE	Parklands area Whitminster	SO 773 080	1246353	Nil	FW3/24	Unknown Demolished	Whitminster
CCF	North bank of the canal near A38 access to Fromebridge Mill	SO 7721 0748	1422131	14097	FW3/24	Fair	Whitminster
CCG	Fromebridge Mill Adj. to entrance road	SO 7710 0733	1246329 1422130	20852	FW3/24	Fair	Whitminster
CCH	Frome Bridge A38	SO 7696 0701	1246328	Nil	FW3/24	Fair	Frampton on Severn
CCJ	East side of Frome Bridge near A38	SO 7705 0699	1445482	Nil	FW3/24	Demolished	Eastington
CCK	M5 crossing over canal	SO 7767 0659	1445487	Nil	FW3/24	Demolished	Eastington
CCL	Pike Lock in works compound	SO 7831 0609	1422133 1246356	6818	FW3/24	Fair	Eastington
CCM	Meadow Bridge Eastington	SO 7808 0570	1422132	Nil	FW3/24	Fair	Eastington
CCN	West of Bond's Mill South bank of canal	SO 7921 0530	1445490	Nil	FW3/24	Demolished	Stonehouse
CCP	Bond's Mill road bridge	SO 7933 0527	1422134 1246357	6820	Special	Good	Stonehouse
CCQ	Railway/canal crossing	SO 7971 0510	1445492	Nil	FW3/24	Demolished	Stonehouse
CCR	SW Bonds Mill. Near River Frome	SO 7930 0499	None	Nil	FW3/24	Good	Stonehouse

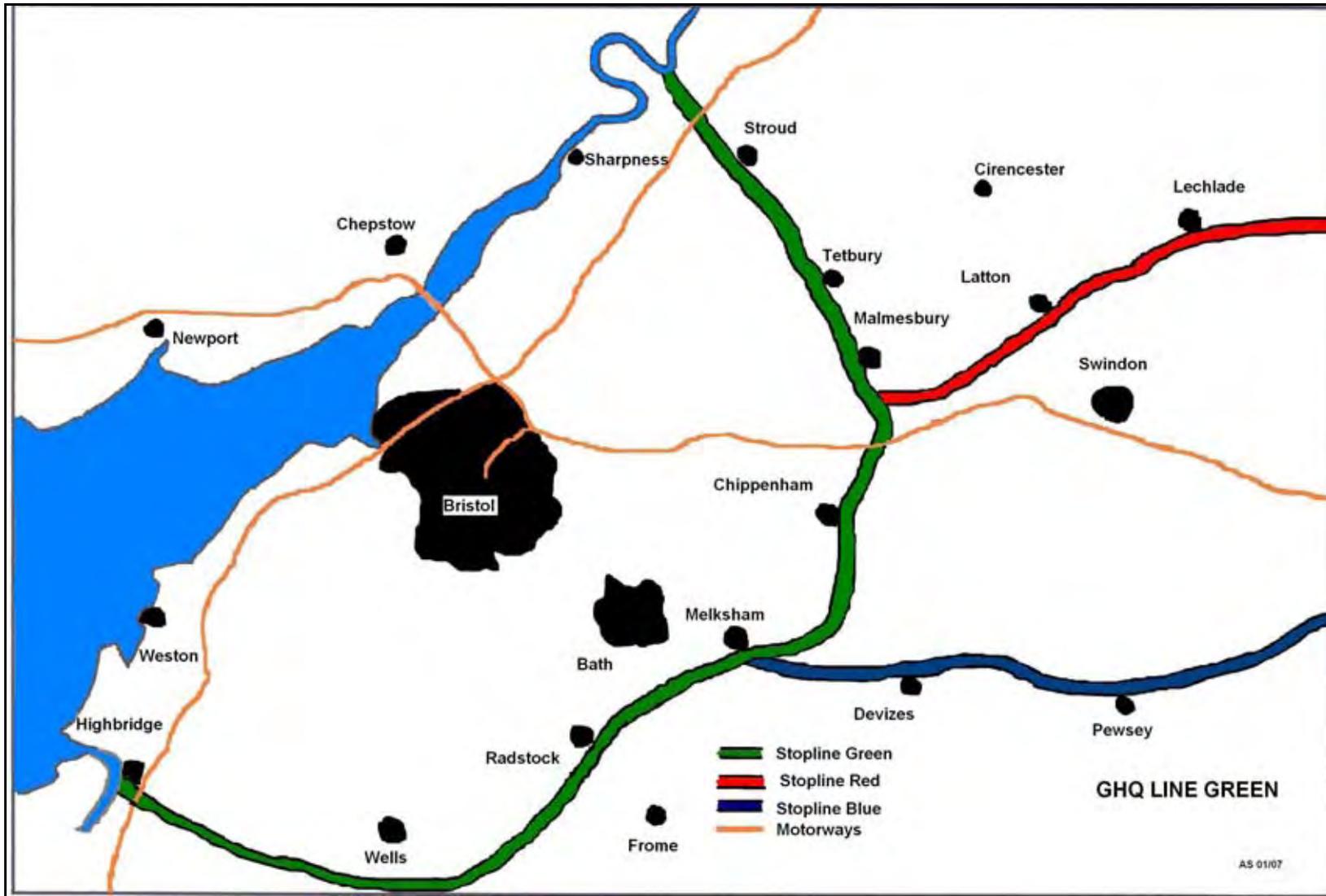
PILLBOX LOCATIONS IDENTIFIED ALONG THE STROUDWATER CANAL

APPENDIX A



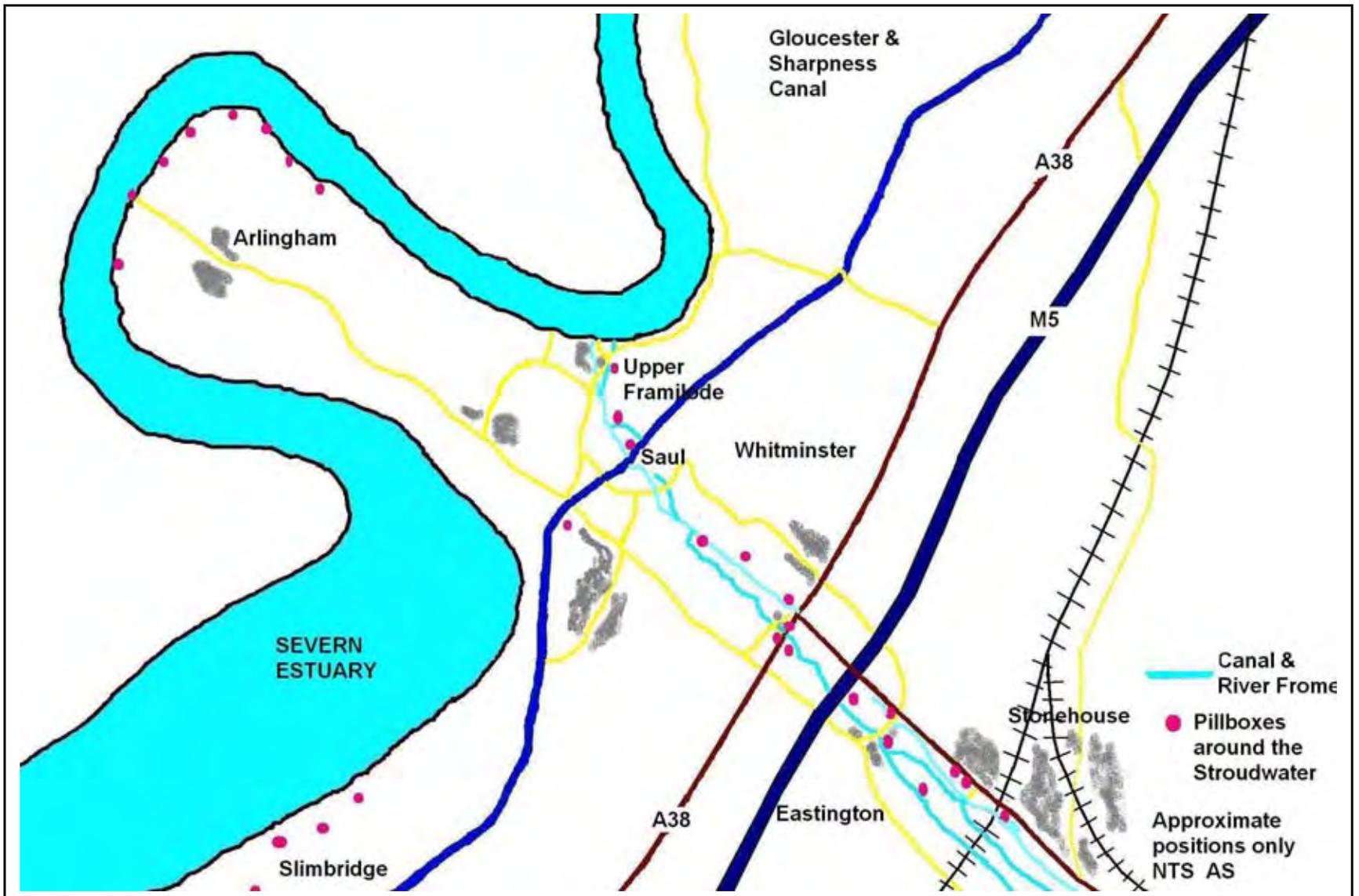
MAIN GHQ STOP-LINES 1940

APPENDIX B



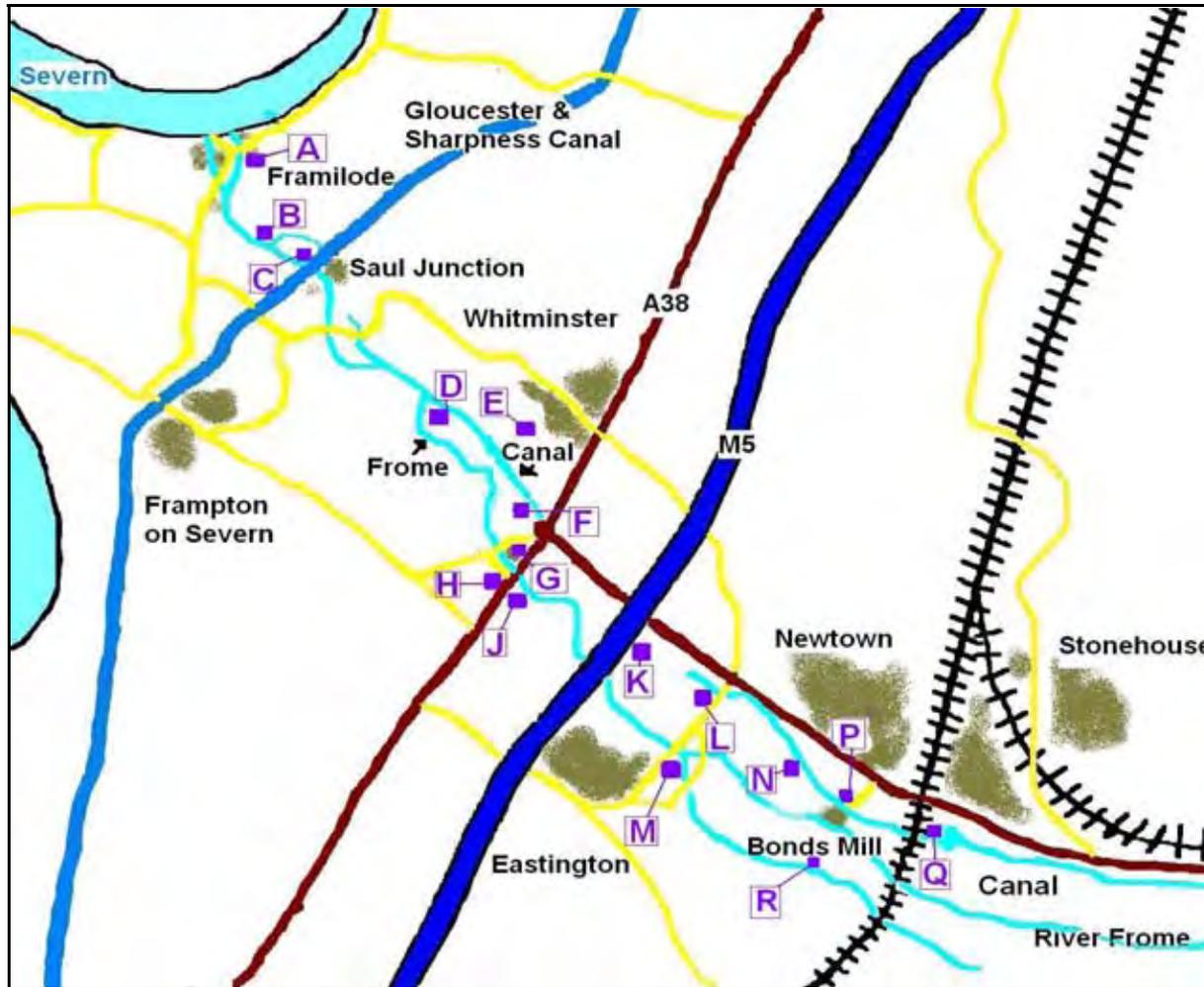
STOP-LINE GREEN

APPENDIX C



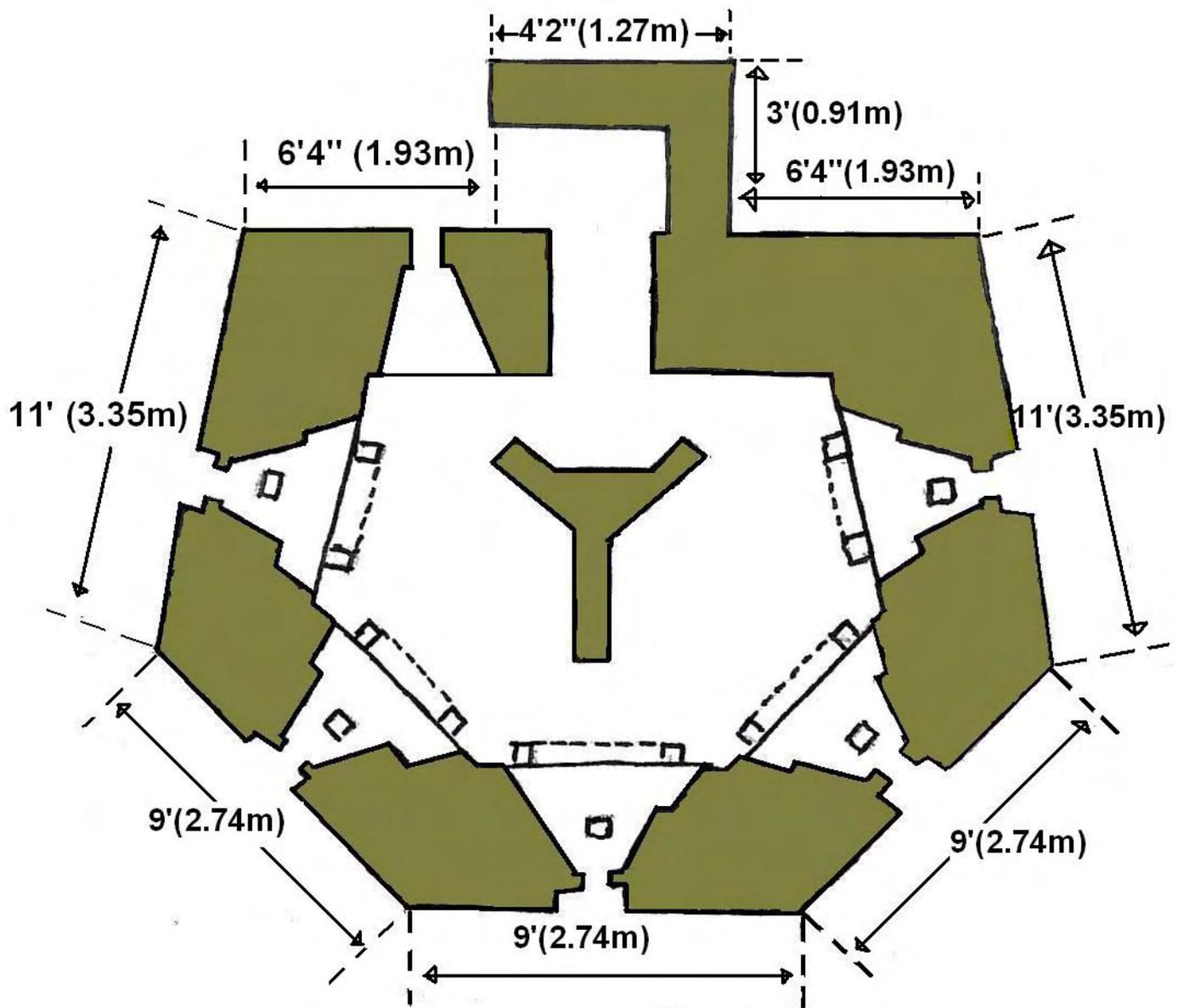
PILLBOXES AROUND THE STROUDWATER CANAL AREA

APPENDIX D



**LOCATION OF PILLBOXES ALONG THE STROUDWATER CANAL AND RIVER FROME
CCA -CCR**

APPENDIX E



TYPICAL PLAN LAYOUT OF FW3/24 SHELLPROOF PILLBOX

The FW3/24 is a version of the type FW3/22 upgraded to shellproof standards.

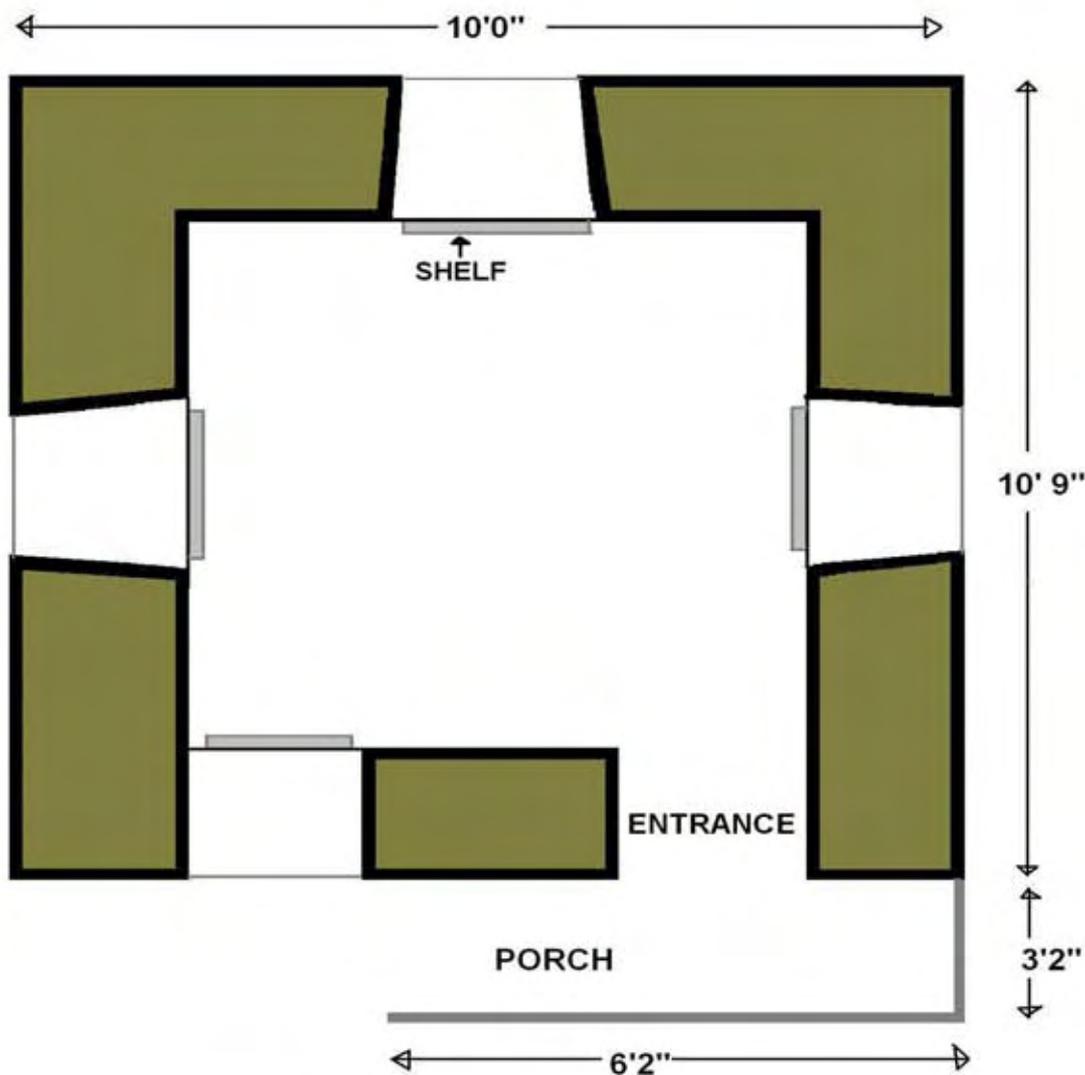
The rear entrance wall is longer than the other walls, and along the section of Stop-line Green being reviewed, included a rear protective brick porch.

The wall thicknesses vary slightly, but are around 3' 6" constructed from prefabricated shuttering panels with reinforced concrete infill.

An anti-ricochet wall is built into all these boxes.

The roof is of reinforced concrete and approximately 1'4" thick. Often earth covered as camouflage.

APPENDIX F



TYPE 26 PILLBOX

TYPICAL PLAN LAYOUT OF FW4/26 PILLBOX

The FW3/26 is a small infantry pillbox.

Rectangular in shape with the entrance at the rear. Many of this type of pillbox along Stop-line Green have brick protective porches.

The walls are approx 1' 6" in thickness with a reinforced concrete roof of 6"

The Type FW3/26 along the Stroudwater Canal are constructed with prefabricated shuttering panels with a concrete infill

APPENDIX G



REF 3.7 A
Example of brick built porch added to a
standard Type FW3/24 Shellproof Pillbox
Along Stop-line Green
Site CCR



REF 3.7 A
Example of a brick built porch added to a
standard Type FW3/26 Pillbox
Along Stop-line Green
Site CCC



Ref 3.7 B
Rusting of panel retaining bolts
Site CCD



Ref 3.7 C
Remains of chain fixed to Type FWR/26 pillbox
at Stonepitts.
Site CCD

APPENDIX H A-C



Ref 3.7 D
Example of pillbox roof covered in earth/grass to disguise location from the air
Site CCR



Ref 3.7 E
Example of brick shuttering of pillbox and porch that appears to have been built against the trunk of a tree, now removed
Site CCM



Ref 3.7 F
Narrow shelf built below embrasures in FW3/24 pillboxes. Thought to have been used to support rear mounting legs of Bren gun
Site CCR



Ref 3.7 G
Mountings for support shelves below embrasures FW3/26 pillbox showing remains of metal angle bracket screwed to timber fixing which has been cast into the wall
Site CCD

APPENDIX H D-G



Location	Upper Framilode	Notes
Grid Reference	SO 7523 1009	<p>Situated on north bank of the River Frome near Framilode Mill. The pillbox faces back towards Saul, rather than away from Bristol. Possibly an error by the builders at the time of construction.</p> <p>The entrance is blocked; however the interior appears in good order. Constructed with prefabricated concrete shuttering panels with a brick protective porch.</p>
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Fretherne with Saul	
Build Date	Summer 1940	
Type	FW3/24 Shellproof	
Materials	Prefabricated panels with concrete infill	
Direction	S. towards Frome	
Condition	Fair	
Access	Private Land	
Date Visited	Dec 2006	
Visited by	A. Strickland	
SMR Ref	20847	
NMR Ref	1246321	

Appendix J Site CCA



Location	North bank of canal junction with drainage dyke	Notes
Grid Reference	SO 753 097	<p>Situated between Framilode and Junction Bridge on the north side of Stroudwater Canal</p> <p>Listed by Henry Wills as polygonal, concrete, facing west.</p> <p>Is clearly visible on 1947 and 1971 aerial photographs.</p> <p>Scattered remains around site, suggest demolished pillbox may have been used for foundations of new adjacent bridge.</p> <p>Debris around the area may be from the original brick porch.</p>
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Fretherne with Saul	
Build Date	Summer 1940	
Type	FW3/24 Shellproof	
Materials	Prefabricated panels with concrete infill	
Direction	West	
Condition	Demolished	
Access	Private Land	
Date Visited	Dec 2006	
Visited by	A Strickland	
SMR Ref	20854	
NMR Ref	1246323	

DEMOLISHED

Appendix J Site CCB



Location	Junction Bridge on west side of G&S canal	Notes
Grid Reference	SO 7565 0938	<p>Situated on the west bank of the Gloucester & Sharpness Canal at Junction Bridge.</p> <p>Constructed with prefabricated concrete shuttering panels with a concrete infill. A brick porch protects the entrance. Used by the Wycliffe Rowing Club to mount their race timing equipment. The box is also used during the annual water festival.</p>
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Fretherne with Saul	
Build Date	Summer 1940	
Type	FW3/26 Infantry	
Materials	Prefabricated panels with concrete infill	
Direction	North-West	
Condition	Good	
Access	Open land	
Date Visited	Dec 2006	
Visited by	A & S Strickland T & J Peters	
SMR Ref	20848	
NMR Ref	1422173/1246324	

Appendix J SITE CCC



Location	Stonepitts. Adj. to River Frome flood plain	Notes Situated near Stonepitts Bridge alongside the Stroudwater Canal. The pillbox has embrasures on all sides. There is very poor visibility from this position. No porch is attached to the entrance, and there is no indication that any porch was ever built on this pillbox. The remains of chains remain on the south side and may have been used to stretch across the tow path. Good examples of fixings for support shelves are to be found in this box. The pillbox is in fair condition, however there is considerable corrosion to bolts holding shuttering in place.
Grid Reference	SO 7659 0836	
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Whitminster	
Build Date	Summer 1940	
Type	FW3/26 Infantry	
Materials	Prefabricated panels with concrete infill	
Direction	Faces North	
Condition	Fair	
Access	On footpath	
Date Visited	Dec & Jan 2006/7	
Visited by	A & S Strickland T & J Peters	
SMR Ref	20853	
NMR Ref	1422128	



Location	Parklands area of Whitminster	Notes
Grid Reference	SO 773 080	<p>Listed by Henry Wills as polygonal, concrete facing west.</p> <p>A survey of the area failed to locate pillbox or debris/base of demolished pillbox.</p> <p>1947 RAF vertical photographs also failed to reveal the location.</p> <p>The description matches the type FW3/24 along this Stop-line.</p> <p>This box may have been situated close to a hedge line and trees making identification difficult'</p>
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Whitminster	
Build Date	Summer 1940	
Type	FW3/24 Shellproof	
Materials	Prefabricated panels with concrete infill	
Direction	Facing West	
Condition	Demolished?	
Access	Near canal	
Date Visited	Jan 2007	
Visited by	A & S Strickland T & J Peters	
SMR Ref	nil	
NMR Ref	1246353	



Location	South of canal near A38 Fromebridge Mill entrance road	Notes Situating on the south bank of the Stroudwater Canal. Prefabricated shuttering panels with concrete infill. The box has brick protective porch which has partially collapsed. The roof has evidence of earth/grass cover.
Grid Reference	SO 7721 0748	
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Whitminster	
Build Date	Summer 1940	
Type	FW3/24 Shellproof	
Materials	Prefabricated panels with concrete infill	
Direction	Faces North	
Condition	Fair	
Access	No access	
Date Visited	Nov/Dec 2006	
Visited by	A & S Strickland	
SMR Ref.	14097	
NMR Ref.	1422131	

Appendix J Site CCF



Location	Fromebridge Mill adjacent to entrance road from A38	Notes
Grid Reference	SO 7710 0733	<p>Situated along slight slope along a hedge line adjacent to the new access road to Fromebridge Mill.</p> <p>Built with a brick porch and evidence of earth/grass roof covering.</p> <p>Embrasures face towards A38 and River Frome</p> <p>Appears to be in a fair condition</p>
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Whitminster	
Build Date	Summer 1940	
Type	FW3/26 Shellproof	
Materials	Prefabricated panels with concrete infill	
Direction	Facing Northeast	
Condition	Fair	
Access	Private land	
Date Visited	Nov/Dec 2006	
Visited by	A & S Strickland	
SMR Ref.	20852	
NMR Ref.	1246329/1422130	

Appendix J Site CCG



Location	Frome Bridge Adjacent to A38	Notes
Grid Reference	SO 7565 0938	<p>At the junction of the A38 and old road to Fromebridge Mill. This pillbox is heavily overgrown. The box is sunken with embrasures at ground level. A brick porch protects the entrance. At time of visit, the pillbox was flooded. The pillbox faces towards the A38 bridge over the River Frome. The condition is fair but deteriorating</p>
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Frampton on Severn	
Build Date	Summer 1940	
Type	FW3/26 Shellproof	
Materials	Prefabricated panels with concrete infill	
Direction	Faces northeast	
Condition	Fair	
Access	Adjacent to road	
Date Visited	Dec/Jan 2006/7	
Visited by	A & S Strickland	
SMR Ref.	Nil	
NMR Ref.	1246328	



Location	East side of Frome bridge near A38	Notes This pillbox has been demolished. It was situated along a hedge line and faced northwest towards the A38 and the bridge over the River Frome The box is visible on 1947 aerial photographs and had a brick protective porch over the entrance.
Grid Reference	SO 7707 0699	
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Eastington	
Build Date	Summer 1940	
Type	FW3/26 Shellproof	
Materials	Prefabricated panels with concrete infill	
Direction	Northwest	
Condition	Demolished	
Access	Adjacent to road	
Date Visited	Dec 2006	
Visited by	A & S Strickland	
SMR Ref.	Nil	
NMR Ref.	1445482	

DEMOLISHED



Location	North side of canal. under M5	Notes Situated on the southern bank of the Stroudwater Canal. This box is clearly visible on the 1947 RAF vertical photographs. This is a typical type FW3/24 found in this area with a brick porch. The exact location appears to be under the M5 motorway, and it is probable that its demolition took place when the motorway was constructed. The box faced towards the canal and the A419
Grid Reference	SO 7767 0659	
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Eastington	
Build Date	Summer 1940	
Type	FW3/24	
Materials	Prefabricated panels with concrete infill	
Direction	Faced Northeast.	
Condition	Demolished	
Access	N/A	
Date Visited	Dec 2006	
Visited by	A & S Strickland	
SMR Ref.	Nil	
NMR Ref,	1445487	

DEMOLISHED

Appendix J Site CCK



Location	Pike Lock in works compound	Notes Situated in the Cotswold Canals Trust works compound and sited adjacent to a hedge line. Prefabricated shuttering panels infilled with concrete and with a brick porch. This box faces towards Pike Lock/and Pike Bridge over the Eastington road. The roof has an earth/grass covering.
Grid Reference	SO 7831 0609	
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Eastington	
Build Date	Summer 1940	
Type	FW3/26 Shellproof	
Materials	Prefabricated panels with concrete infill	
Direction	Northeast	
Condition	Fair	
Access	Adjacent to road	
Date Visited	Dec/Jan 2006/7	
Visited by	A & S Strickland D Viner	
SMR Ref.	6818	
NMR Ref.	1422133/1246356	

Appendix J Site CCL

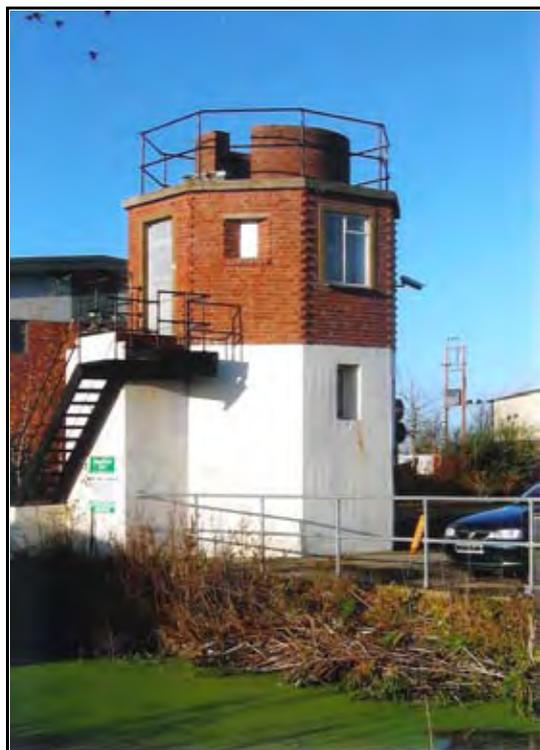


Location	East side of Meadow Bridge. Eastington	Notes
Grid Reference	SO 7808 0570	<p>Situated on a high point adjacent to the bridge overlooking the river</p> <p>This pillbox is the only box along the Stroudwater/River Frome section of Stop-line Green built using red brick shuttering.</p> <p>The box faces northeast across the River Frome.</p> <p>The corner of the brick porch looks partially collapsed, but its circular shape suggests it was built up against a tree which has now been removed.</p> <p>There is no access to this pillbox,</p>
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Eastington	
Build Date	Summer 1940	
Type	FW3/26 Shellproof	
Materials	Brick shuttering with concrete infill	
Direction	Facing Northwest	
Condition	Fair	
Access	Adjacent to road Private land	
Date Visited	Dec 2006	
Visited by	A & S Strickland D. Viner	
SMR Ref	Nil	
NMR ref	1422132	

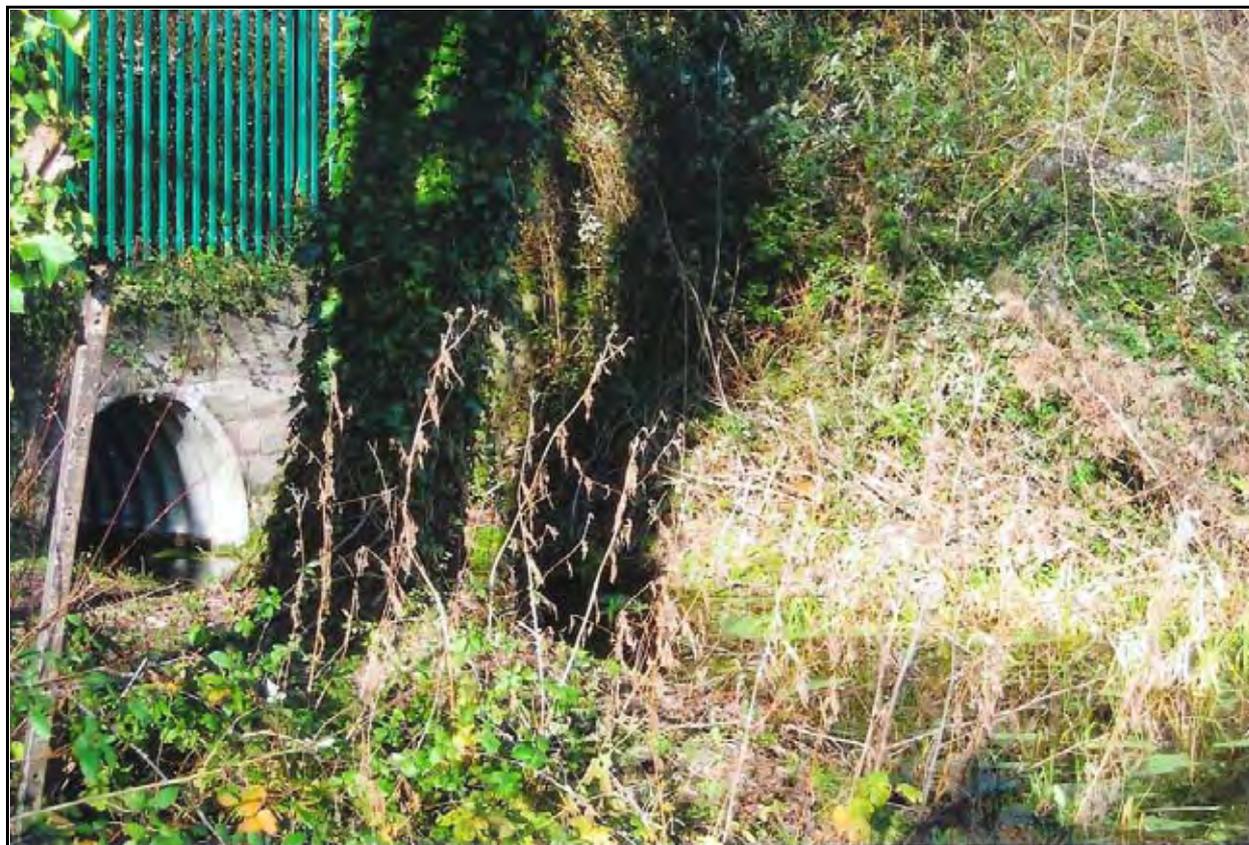


Location	West of Bond's Mill. South of Canal	Notes This box was situated on the southern bank of the Stroudwater Canal. The 1947 aerial photographs show this box to be on the corner of the tow path and the lane beside Bond's Mill. The shape indicates a FW3/24 with porch. This pillbox was not visible in 1964.
Grid Reference	SO 7921 0530	
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Stonehouse	
Build Date	Summer 1940	
Type	FW3/26 Shellproof	
Materials	Prefabricated panels with concrete infill	
Direction	North-East	
Condition	Demolished	
Access	Adjacent to towpath	
Date Visited	Nov/Dec 2006	
Visited by	A&S Strickland D. Viner	
SMR Ref.	Nil	
NMR Ref.	1445490	

Demolished



Location	Bond's Mill road bridge	Notes
Grid Reference	SO 7933 0527	<p>Adjacent to Bond's Mill Bridge Octagonal in shape, 2 storey pillbox. Approx Diameter 4 metres. Lower section of concrete and upper of brick with roof parapet. Some original embrasures (with concrete lintels) remain in situ. Signs that entrance had a protective blast porch, now removed. The roof parapet is thought to have been used for an AA gun position. Currently contains the controls for the hydraulic raising mechanism for the GRP bridge. External staircase to 1st floor.</p>
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Stonehouse	
Build Date	1939/1940	
Type	Special	
Materials	Concrete and brick	
Direction	All Round Vision	
Condition	Good.	
Access	From Towpath	
Date Visited	Nov/Dec 2006	
Visited by	A & S Strickland D. Viner T and J Peters	
SMR Ref.	6820	
NMR Ref.	1422134/1246357	



Location	Railway/Canal crossing the Ocean	Notes
Grid Reference	SO 7971 0449	<p>Situated alongside the crossing of the Bristol/Gloucester railway line and Stroudwater Canal.</p> <p>On the north bank of the canal adjacent to the crossing.</p> <p>The 1947 aerial photographs show the box, which appears to be a FW3/24 Shellproof.</p> <p>The box had been demolished by 1964.</p>
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Stonehouse	
Build Date	1940	
Type	FW3/24 Shellproof	
Materials	Prefabricated panels with concrete infill	
Direction	Unknown	
Condition	Demolished	
Access	None	
Date Visited	Dec 2006	
Visited by	A & S Strickland D. Viner	
SMR Ref.	None	
NMR Ref.	1445492	

DEMOLISHED



Location	SW of Bond's mill near River Frome	Notes
Grid Reference	SO 7930 0499	<p>Located south of Bond's Mill on north bank of River Frome</p> <p>Constructed with prefabricated shuttering panels and concrete infill. A rear brick porch remains.</p> <p>The box was not clearly visible on the 1947 aerial vertical photographs, possibly due to its location in the corner of the field beside the hedge line.</p> <p>Earth and grass covering to roof</p>
Gen Description	Pillbox	
County	Gloucestershire	
Parish	Stonehouse	
Build Date	1940	
Type	FW3/24 Shellproof	
Materials	Prefabricated panels with concrete infill	
Direction	Faces North-East	
Condition	Good	
Access	From footpath	
Date Visited	December 2006	
Visited by	A & S Strickland D Viner	
SMR Ref.	None	
NMR Ref.	None	

Appendix J Site CCR