

Severn Estuary Rapid Coastal Zone
Assessment Survey:
Purton Hulks Aerial Photographic
Progression Study

(English Heritage Project No. 3885 2a PILOT)



Version 2.3 – Final

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Front Cover: Purton Hulks in 2007 (NMR SP6804/018 NMR 24763/14 05-OCT-2007
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Summary

The Purton Hulks are a collection of deliberately wrecked vessels on the Severn Estuary foreshore, which have been the subject of recent study by the voluntary group The Friends of Purton. English Heritage recognised that the on-going research into the vessels and their significance would benefit from a rapid aerial photographic progression study using new and existing mapping to understand how the group of vessels developed over time.

The study of aerial photographs has resulted in the accurate location and mapping of sixty-five vessels which were intentionally beached to provide protection for the Sharpness to Gloucester Canal and Sharpness Docks. The study resulted in the mapping of 21 vessels not previously recorded on the National Monuments Record Database; mainly those hulked at Sharpness, and also updated the mapping of five other vessels.

The aerial photographs used in this study were used to determine the development of the vessels through time from their initial abandonment to their subsequent burial and/or destruction by natural and human actions.

The list made of the hulks visible on the aerial photographs will complement past surveys and thus facilitate future comparative work.

During the preparation of the report into the aerial survey an opportunity arose to incorporate detailed research undertaken by Paul Barnett and The Friends of Purton in order to formulate an effective benchmark of the current state of knowledge of the Purton Hulks.

Acknowledgements

The first version of this report dealing solely with aerial photographic evidence was written by Amanda Dickson. When the opportunity arose to substantially increase the scope of the report, due to Paul Barnett kindly offering further information held by The Friends of Purton, the report was revised with sections being written and revised by the named authors. Final collation and editing was undertaken by Toby Catchpole.

The project was funded by the English Heritage Historic Environment Enabling Programme as part of the Severn Estuary Rapid Coastal Zone Assessment Survey and was monitored by Jan Wills of Gloucestershire County Council Archaeology Service as the Project Executive. Peter Busby acted as the English Heritage Project Assurance Officer. Mark Dunkley of English Heritage also provided helpful information and advice.

Aerial photographic sources were provided by the National Monuments Record Enquiry and Research Service team, in particular Luke Griffin; and the Cambridge University Unit for Landscape Modelling (ULM). HER data was provided by Toby Catchpole at Gloucestershire County Council Archaeological Service (GCCAS).

Thanks also go to Laurie Coleman Head of Archaeology, The Friends of Purton and Paul Wilson, Site Surveyor, for freely providing access to current survey data produced as part of an ongoing Friends of Purton funded Differential Geographical Position System linear site survey.

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1 Introduction

by Amanda Dickson and Toby Catchpole

1.1 Project background

The Purton Hulks are a collection of wrecks deliberately beached onto the eastern foreshore of the Severn Estuary south of Purton, Gloucestershire, throughout much of the twentieth century. They were identified as an assemblage requiring further study in the Severn Estuary Rapid Coastal Zone Assessment Survey (RCZAS) Phase 2a Project Design (Catchpole and Chadwick 2009: 34, section 10.4).

English Heritage recognised that the Purton Hulks would benefit from a rapid aerial photographic progression study using new and existing mapping from the Forest of Dean National Mapping Programme (NMP) (Small and Stoertz 2006) to understand how this group of vessels developed over time, primarily using aerial photographs. It was therefore requested that the team at Gloucestershire County Council undertaking the Severn Estuary RCZAS should produce this study as an additional task of the Stage 2a pilot fieldwork phase in progress during 2009.

The vessels discussed in this study are located on the foreshore between the Severn Estuary and the Gloucester and Sharpness Canal, at Purton and Sharpness. The study area is known as 'The Purton Ships Graveyard' and extends from Tites Point, Purton, in the north to Sharpness Docks (Figure 1). Other vessels wrecked within the canal basin east of the Purton Hulks that were mapped by the Forest of Dean NMP, are also included here.

The first version of this report was written by Amanda Dickson and described the information regarding the hulks available from aerial photographs. The body of that report has been retained as section 3 here. This revised version of the report now also incorporates further information made available by Paul Barnett, Chairman of The Friends of Purton, who has been researching the site since 1999.

1.2 Aims and Objectives

The overall aim of the project is to provide information on the development of this unique group of hulks and wrecks through time, primarily using historic and recent aerial photographs.

The specific aims of the Purton Hulks aerial photographic progression study are:

- To map the Purton hulks visible on aerial photographs, using standard NMP methodology;
- To show the development of the hulks through time from original beaching to subsequent destruction, erosion or burial;
- To produce a brief report summarising results.

The main objectives of the Purton Hulks aerial photographic progression study are:

- To provide accurate baseline information and local context that will assist potential future projects to place the collection of wrecks at Purton in their national context;
- To supplement the detailed survey and historical research carried out by The Friends of Purton, Birmingham University, Wessex Archaeology and the Nautical Archaeology Society.

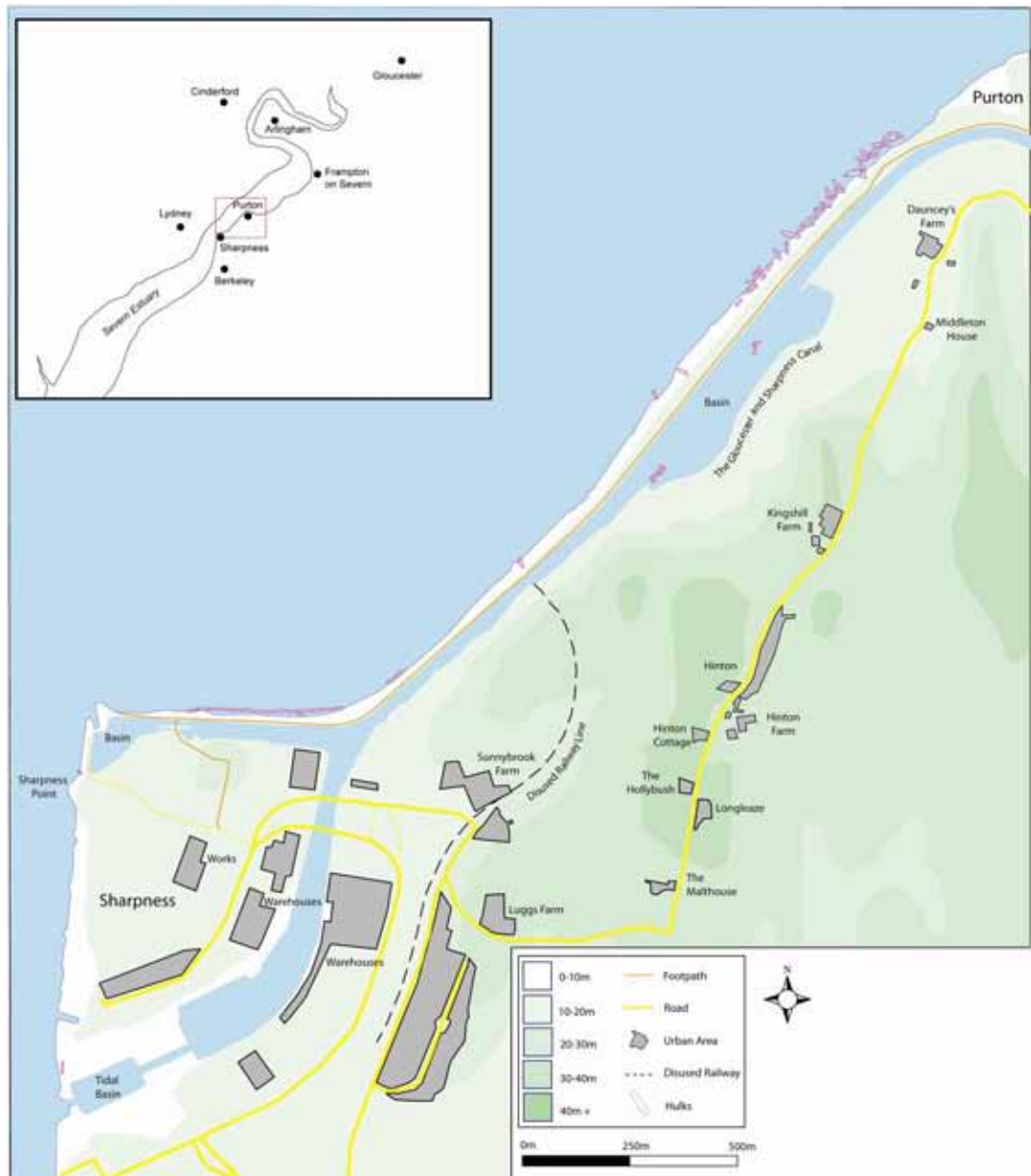


Figure 1. Location map.

Location of the Purton and Sharpness Hulks visible on aerial photographs mapped as part of the Forest of Dean NMP by English Heritage and added to during this study. (Base map derived from Ordnance Survey 1:10,000 © Crown copyright, all rights reserved. Gloucestershire County Council 100019134 2010.)

2 Background to the hulks

by Amanda Dickson and Paul Barnett

2.1 History and development of the collection of hulks

A landslip of the river bank and overlying hedge south of Purton in 1909 left the Gloucester to Sharpness Canal in danger of a breach. The temporary solution devised by the Chief Engineer of the canal company, A.J. Cullis, was to procure and deliberately run aground redundant vessels to help reinforce the existing river bank as well as initiate new bank development. Although this was largely successful, continual erosion of the bank by the strong Severn Estuary tides saw additional periodic beaching at Purton in 1951, 1956, 1963 and as late as 1965, and at Sharpness until c. 1971-1973 (Barnett 2008: 2).

The use of old boats to reinforce river banks and shorelines is widespread (Parker 1998), although large groups of such vessels are rare (e.g. Tyson *et. al.* 1997: 88-89), and those at Purton are by far the largest concentration in England (English Heritage 2009). As soon as a working boat became unprofitable it would normally be broken up – the shoreline at Purton therefore became a convenient place for boat owners to dispose of redundant vessels (Parker 1998). The first record of the hulked vessels at Purton was made by Farr in 1935; however, in his book ‘Chepstow Ships’ (Farr 1954) he notes the existence of the vessel *Sally*, built in 1780, which he states ‘was sunk to form a breakwater in the Severn at Purton’, as early as 1875.

Further vessels were beached here in the 1940s, as noted by Macgregor in 1952. Additional vessels were beached during 1952-1969, including the concrete barges (*ibid.*), and in the early 1970s several more were beached at Sharpness to protect the northern wall of the old dock. Timber vessels were usually beached and then broken in order to recover valuable materials, making the survival of large numbers of intact vessels at Purton a potentially unique collection. They can also be seen as an economic barometer of the region’s maritime trade, as the site expanded at times of recession in the coastal and inland shipping industries (Barnett 2008).

The history of the site and of the individual vessels is available in greater detail at www.friendsofpurton.org.uk.

2.2 Previous fieldwork and surveys

The first description of the vessels placed at Purton to reinforce the riverbank and protect the canal was produced by Graham Farr in 1935 (Barnett 2008). In 1952 and 1964 David R. MacGregor noted, sketch planned and photographed the existing boats and new vessels which had been brought to the site in the 1940s (Parker 1998), and was able to match several against the name boards which remained at that time.

In 1996-7, Dr Anthony Parker and students of the University of Bristol carried out the first archaeological survey of the site (Parker 1998). This resulted in a site plan of the vessels that were numbered and matched to MacGregor's (1952) boat numbers and names. Both Parker's and MacGregor's numbering system have been used in this study (Appendix 1).

1999 saw the commencement of a privately funded research project by Paul Barnett who, by cataloguing and incorporating the work of Farr 1935, Greenhill 1940, Woodward 1951, MacGregor 1952-1964, Schopland 1958, Stuckey 1961, Wheeler 1965, Wood *et. al.* 1971, Crissup 1986, Parker *et. al.* 1996 and Small and Stoertz 2006, purports that there are the remains of some 81 vessels. Subsequent historical research has established the identity of seventy-seven of the beached vessels (Barnett 2004) (see Appendix 1, Table 1).

The English Heritage Forest of Dean NMP aerial survey (Small and Stoertz 2006) covered the Purton area, and as part of that project the Purton hulks visible on aerial photographs were mapped and recorded in the National Monument Records database (AMIE).

In 2009 detailed survey work on the Purton hulks was undertaken as a joint venture between the Nautical Archaeology Society, The Friends of Purton and Wessex Archaeology (NAS *et. al.* 2009). This is complemented by a history of the individual trows and barges with an accompanying schematic diagram produced by Barnett (2004, 2008).

Further fieldwork on the hulks including a DGPS survey of the visible Hulk remains (Figure 22, Wilson, Coleman & Barnett 2009) and more detailed recording of the 'Harriett' is currently being undertaken by The Friends of Purton and Birmingham University Visual and Spatial Technology Centre (Bryan, Coleman and Fitch 2009).

2009 also saw the Friends of Purton finance a gradiometer survey of the area to the north of the Severn and Wye railway bridge abutment. During this survey Stratascan Ltd. discovered five anomalies within the area and work to investigate these is currently ongoing.

The Friends of Purton have also recently completed Phase One of a project to survey, record and document historical, current and ongoing levels of damage to 36 vessels (Friends of Purton 2010). It is hoped that Phase Two will be initiated during 2010.

The remains of the Harriett have recently been recognised as being of national importance, through the designation of the vessel as a Scheduled Monument in June 2010.

3 Aerial photographic evidence

by Amanda Dickson

3.1 Methodology

Existing mapping from the Forest of Dean NMP (Small and Stoertz 2006) was used for the aerial photographic progression study. Some hulks that were originally transcribed as partial wrecks were more intact and/or visible on earlier aerial photographs, so some mapping was modified to more accurately reflect the original state in which the boats were first apparent on the aerial images. New mapping was also undertaken on the hulks and wrecks located around Sharpness docks, which was not part of the Forest of Dean NMP.

The progression study utilised the National Monuments Record Centre (NMRC) aerial photographic archive which holds vertical and specialist oblique photographs of the Purton foreshore. These included RAF aerial photographs from 1945-1947; Ordnance Survey photographs from 1969, 1974 and 1979; and specialist oblique photographs from 1996, 2000, 2001 and 2007. Aerial photographs taken by Google Earth (earth.google.com) from 1999, 2005 and 2006 were also consulted (See Appendix II for further details on the aerial photographs used).

The aerial photographs were used to note which year the hulks were first visible, thereby creating a simple phasing for the beached vessels. The images were also used to record the state of preservation of the vessels once they were beached on the foreshore and (with the exception of the concrete vessels) their deterioration over time until 2007 (the date of the latest aerial photograph) (see Figures 15-21).

The position and assigned number of the vessels was correlated with Parker's 1998 survey plan (Parker 1998: 93) (including his data on MacGregor's sketch plan) and Barnett's 2004 survey plan which includes Macgregor's 1964 vessel additions, to facilitate further comparison and discussion, and future survey work (see Table 1). This is especially pertinent for those hulks no longer visible above ground, or those that have been destroyed by natural processes or human agency.

3.2 The aerial photographs

There was less aerial photographic coverage of the area than anticipated, as many early RAF vertical sorties were concentrated around Sharpness Docks rather than Purton. However, there were enough RAF and Ordnance Survey sorties available to allow the development of the assemblage of hulks to be viewed through time, particularly those at Purton. The main aerial photographic sorties used to determine when the boats first appeared were from 1945, 1946, 1969 and 1979, producing four phase plans of hulked vessels. Photographs taken after 1969 were mainly used to determine the physical state of the hulks as they were eroded, destroyed or buried.

There were some time gaps in between the aerial photographs. There were no aerial photographs available of Purton from the 1950s and most of the 1960s, a period when vessels were beached there. The 1969 aerial photographs showed that some vessels had been beached on top of others, largely obscuring some vessels beached during 1947-1969. Overall, the aerial photographs proved very useful and produced some quite detailed views of many individual vessels, which in future may allow further details of their construction and typology to be identified.

Further aerial photography, in the form of Luftwaffe aerial sorties of 1939, is believed to be held in America within Washington D.C archives. This may be able to add to our overall understanding of the assemblage at that time (L. P. Barnett pers. comm. 2009).

3.3 Factors affecting visibility

The main factors affecting the aerial photographic record were the number of photographs and the years in which they were available. If additional vertical photographs had been available from a wider time period, then a more detailed progression study could have been produced.

The chronological gaps in the photographic collection inevitably limited the recording of some vessels, and their deterioration over time. Particularly in the north of the study area, some boats were hulked on top of earlier vessels, partly obscuring the earlier examples from view. The visible remains of some wrecks changed dramatically in aerial photographs taken between 1979 and 1996, but the sequence of changes is not clear as there are no available photographs for those years. Barnett (2008: 3),

however, notes that arson destroyed the remains of eight hulks and damaged many others in 1986.

The visibility of the wrecks on aerial photographs was also affected by vegetation. The mature hedge along the canal bank may have obscured any vessels beached immediately adjacent to it, Barnett acknowledges this is certainly the case with four vessels known to be located within the former entrance half pound (old dock) of the Gloucester to Berkeley Canal.

The same may also be the case regarding five vessels plotted by Wheeler in 1965 (L. P. Barnett pers. comm. 2009), located north of vessel 44 *Severn Falcon* (see Figure 2), but which were not visible on aerial photographs in 1969. They may also have been obscured by dense vegetation, or by 1969 might already have become buried. It is also possible that some vessels were beached and then buried beneath new land reclamations in the periods between available aerial photographs.

3.4 Results of the aerial photographic progression study

For ease of discussion the hulks have been separated into two groups at Purton and Sharpness, divided by the old railway bridge (Figures 2 and 3). The area to the west of Sharpness Docks is currently the subject of research by Barnett to be published at a future date. It was originally planned to give the vessels visible on the aerial photographs new reference numbers from north to south, but once it had been pointed out that three numbering systems had already been devised, it was decided that this project should tie in with Barnett's numbering system to avoid potential confusion in future identification of individual hulks. Larger versions of Figures 2 and 3 are included in Appendix 1, along with a list of the vessel numbers and their National Grid References (NGRs). Broad phasing of the beaching sequence and physical changes in the vessels are illustrated in Figures 15 to 21.

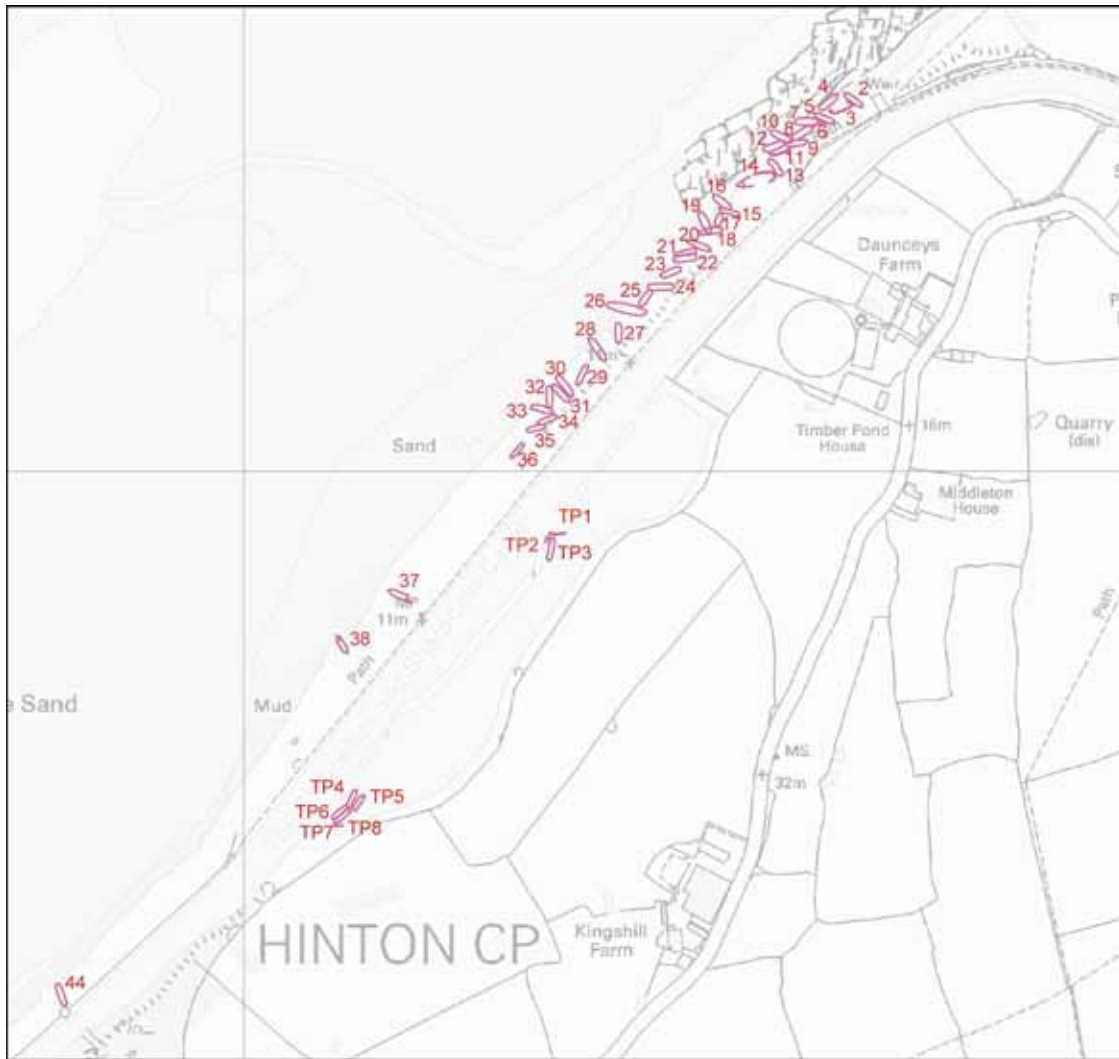


Figure 2. Purton hulks mapping from APs.

The Purton hulks, mapping primarily from the Forest of Dean NMP (Small and Stoertz 2006), with additional mapping of vessels No. 44 (*Severn Falcon*) and No. 6 (*40 ton flat*), and modifications to Nos. 14 (*Petrus*), 15 (*Mary Ann*), 22 (*Rockby*), 24 (*Catherine Ellen*) and 35 (*Dursley*). (Base Map © Crown copyright, All rights reserved. Gloucestershire County Council 100019134 2010).

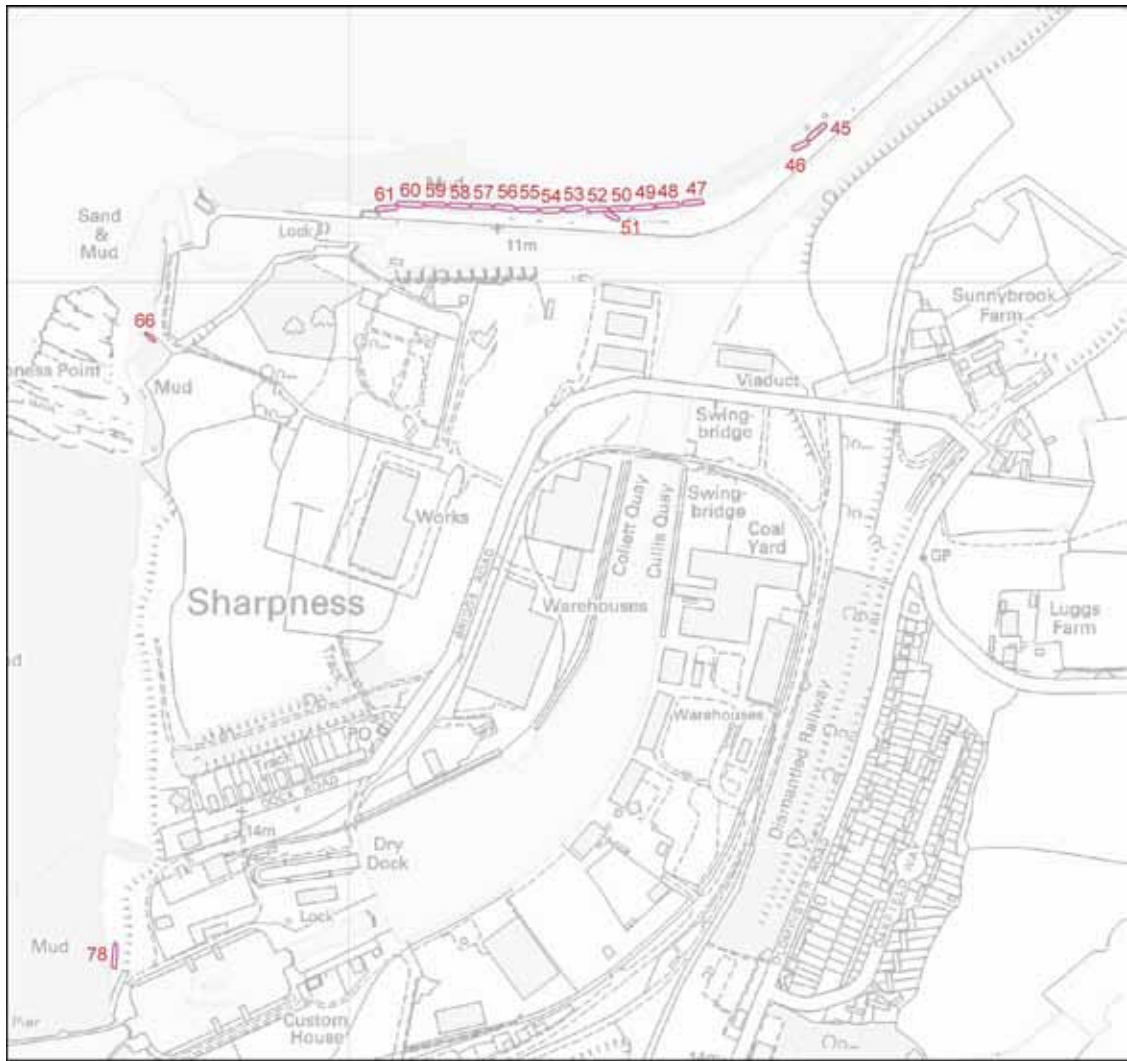


Figure 3. Sharpness hulks mapping from APs.

The Sharpness hulks, not originally mapped by the Forest of Dean NMP. These include hulked vessels on the canal bank (Nos. 45-61), and two wrecks (Nos. 66 and 78) on the river's edge. (OS base Map © Crown copyright, All rights reserved. Gloucestershire County Council 100019134 2010).

3.5 The Purton hulks

3.5.1 Wooden boats were first beached at Purton after a rotational slump in 1909, and further hulking continued until 1965 (Barnett 2008: 2). Additional boats are recorded on aerial photographs until 1969. Eight hulks identified on the foreshore in 1945 photographs may date from the initial period of hulking. Five more vessels were visible by 1946, but most appear to have been beached sometime between 1947 and 1969. Unfortunately, the lack of aerial photographs between 1947 and 1969 does not allow a detailed sequence of beaching and vessel deterioration to be established from that source of information alone (see Barnett, section 4 below).

3.5.2 Evidence from 1945 photographs

Sixteen vessels were identified on aerial photographs taken in 1945 (Figures 4-5), including several within the ship canal which are believed to have been beached following a bank collapse on the eastern side of the canal into the adjacent timber pond in February 1912 (L. P. Barnett pers. comm. 2009) (Figure 15).

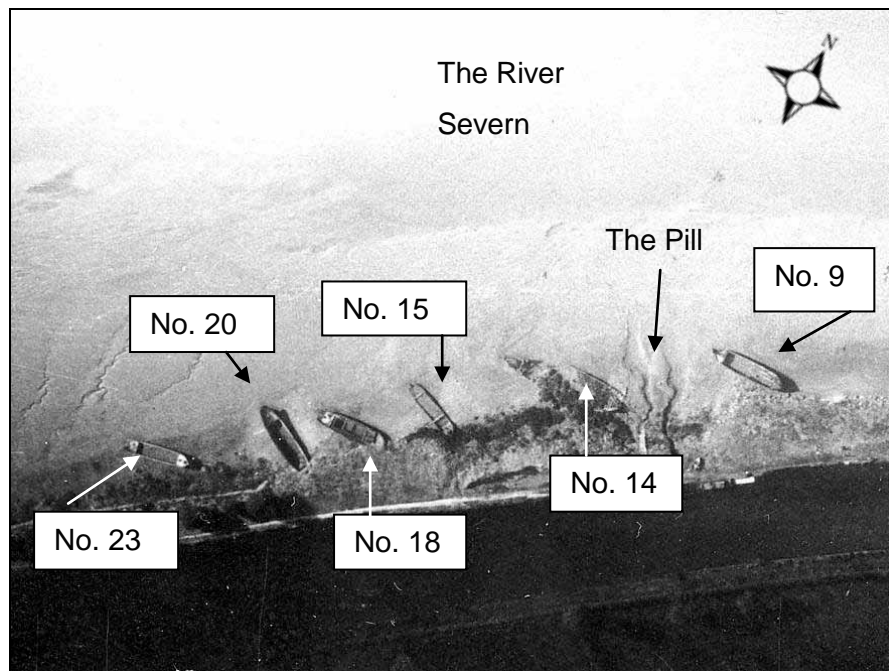


Figure 4. Photograph of vessels in 1945.

Six of the vessels at Purton in 1945. The *Petrus* (No. 14) was beached to try and protect the Pill. NMR RAF/106G/UK/733 4046 26-AUG-1945 © English Heritage (NMR) RAF Photography).

In one photograph (Figure 4) it appears that The *Petrus* (No. 14) was beached earlier than some of the other vessels as it is more deeply buried in mud and vegetation. This is supported by Barnett (2008: 10), who notes that The *Petrus* was beached in 1931 in order to protect the dredging pill (arrowed on Figure 4) from erosion.

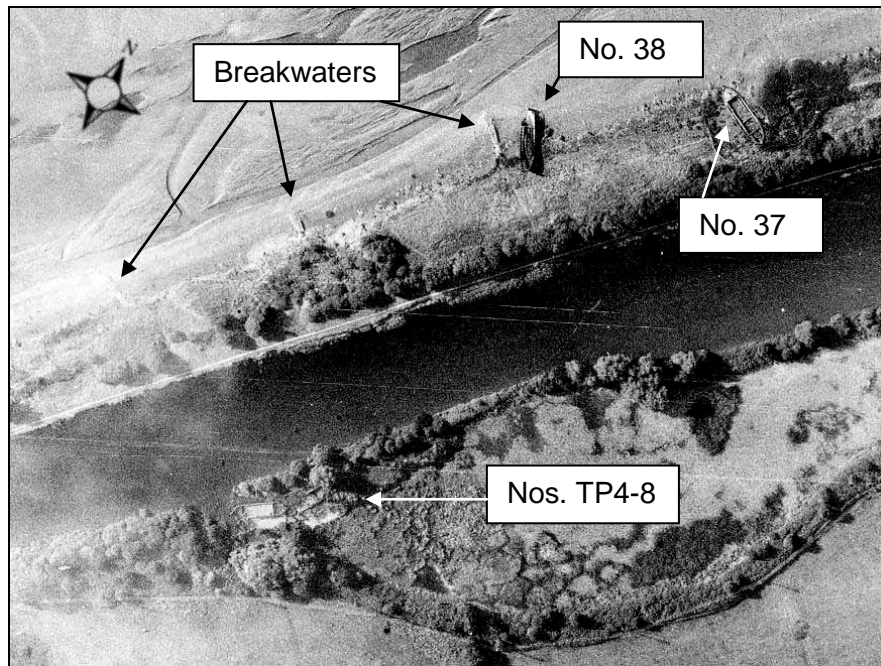


Figure 5. Photograph of vessels to the south in 1945.

This aerial photograph shows hulks Nos. 37 (*Barge Abbey*) and 38 (*Salina Jane*) to the south of Purton, as well as wrecks Nos. TP4 - 8, visible within the canal basin. (NMR RAF/106G/UK/733 3048 26-AUG-1945 © English Heritage (NMR) RAF Photography).

Vessels to the south (Figure 5) include No. 38 (the *Salina Jane*), adjacent to a stone breakwater. The breakwaters are first depicted on the 3rd edition (1: 2500) Ordnance Survey maps from 1921-1922. Research indicates that these breakwaters were often constructed after beaching of vessels, as inspecting engineers reported that strong flood tides were known to cut into the adjacent bank and result in rapid localised erosion (L. P. Barnett pers. comm. 2009). Evidence to support this is evident in the 1945 and 1946 images as it appears that the timberwork of at least two vessels has been removed by erosion leaving behind their accompanying stone breakwaters.

3.5.3 Evidence from 1946 photographs

Aerial photographs from 1946 again show the vessels within the timber ponds (Figure 16), which although observed by MacGregor (1952) and Barnett (2004) were not included in their original surveys. Barnett has suggested that historical evidence indicates that what appears to be a fourth breakwater, located closest to the Severn Railway Bridge, may in fact be the remains of vessel 43 (*Mary*), but it has not been

possible to determine whether this is the case from aerial photographs alone (see also 4.2 below).

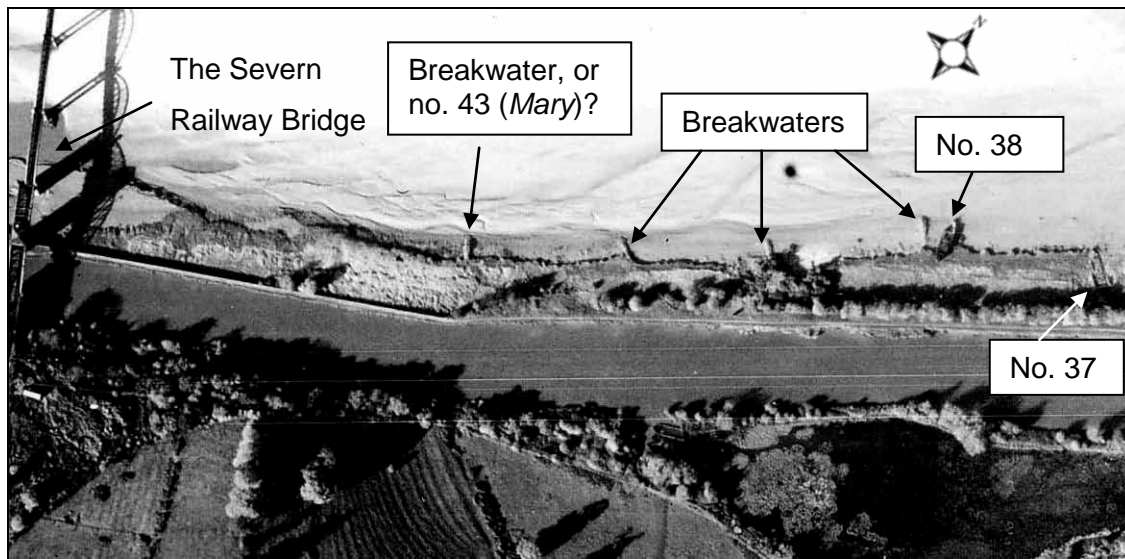


Figure 6. Purton hulks visible in 1946.

Vessels visible on an aerial photograph taken in 1946. This vertical photograph also shows at least three breakwaters down river to the south of vessel Nos. 37-38. (NMR RAF/CPE/UK/1825 4066 04-NOV-1946 © English Heritage (NMR) RAF Photography).

In 1965 Wheeler identified five vessels north of the old Severn and Wye Railway Bridge. None of these vessels was positively identified from aerial photographs, despite good examples taken in 1969 (See 4.2 for further discussion of these vessels). The hulks No. 37 and No. 38 (MacGregor's No 3 & 2) are located immediately to the north of the vessels noted by Wheeler, however, and are not only apparent on aerial photographs from 1945-1946 (Figures 5 and 6) but are still visible in 1969 (Figure 7).

Aerial photographs from 1969 (Figure 7), just four years after Wheeler's plan, show neither breakwaters nor new beached vessels, so it is possible that the hulks were buried between 1965-1969. This suggestion is supported by Barnett who states that the 1940s-60s saw this part of the site being inundated with several thousand tonnes of canal dredging and cuttings which in turn may have aided rapid vessel interment (Woodward pers. comm. to Barnett., see also Figure 14). The 1969 photographs were taken at high tide and it is therefore possible that remains of the breakwaters survived to that date but were underwater and therefore not visible.



Figure 7. The breakwaters in 1969.

The breakwaters are not visible in 1969. Vessel Nos. 37-38 can still be seen. (OS/69117 155 18-APR-1969 © Crown copyright. Ordnance Survey).

3.5.4 Evidence from 1969 photographs

Most Purton hulks were not recorded on aerial photographs until 1969, due to the gap in photographic coverage during 1947-1969, and were run aground in the 1950s or early 1960s (Figure 17). Some vessels visible for the first time in 1969 were already partially buried. In Figure 9, vessel Nos. 3 (*Newark*), 6 (*Forty Tonne Flatie*) and 11 (*J & A. R.*) are obscured underneath later vessels. Vessel No. 6 was especially difficult to discern. It was recorded by MacGregor in 1952 and sketch plotted by Parker (1998: 93), however, so it was eventually identified on 1969 aerial photographs.

Many of the vessels beached after 1947 were Ferrous Concrete Barges (FCBs), seven of which were visible in 1969 (Figure 9). Built in 1941 in order to replace steel harbour lighters lost in the Second World War, they were finally run aground in 1963-1965 (Barnett 2008: 7-8). Vessel No. 16 (*FCB 52*) was re-floated and moved to the National Waterways Museum on 29th March 1990 (Hugh Conway Jones pers. comm. to Barnett

2000). It has now been relocated and remains afloat in the tanker berth at Marshfield (Barnett pers. comm. 2009).

The majority of vessels beached by 1946 were still visible, though some were partially buried, and Nos. 13 (*Barry*), 14 (*Petrus*), 22 (*Rockby*) and 23 (*Britannia*) were just discernible. Vessel No. 15 (*Mary Ann*) was completely buried, and hulk No. 16 (*FCB 52*) had been placed on top of it (Figure 8).

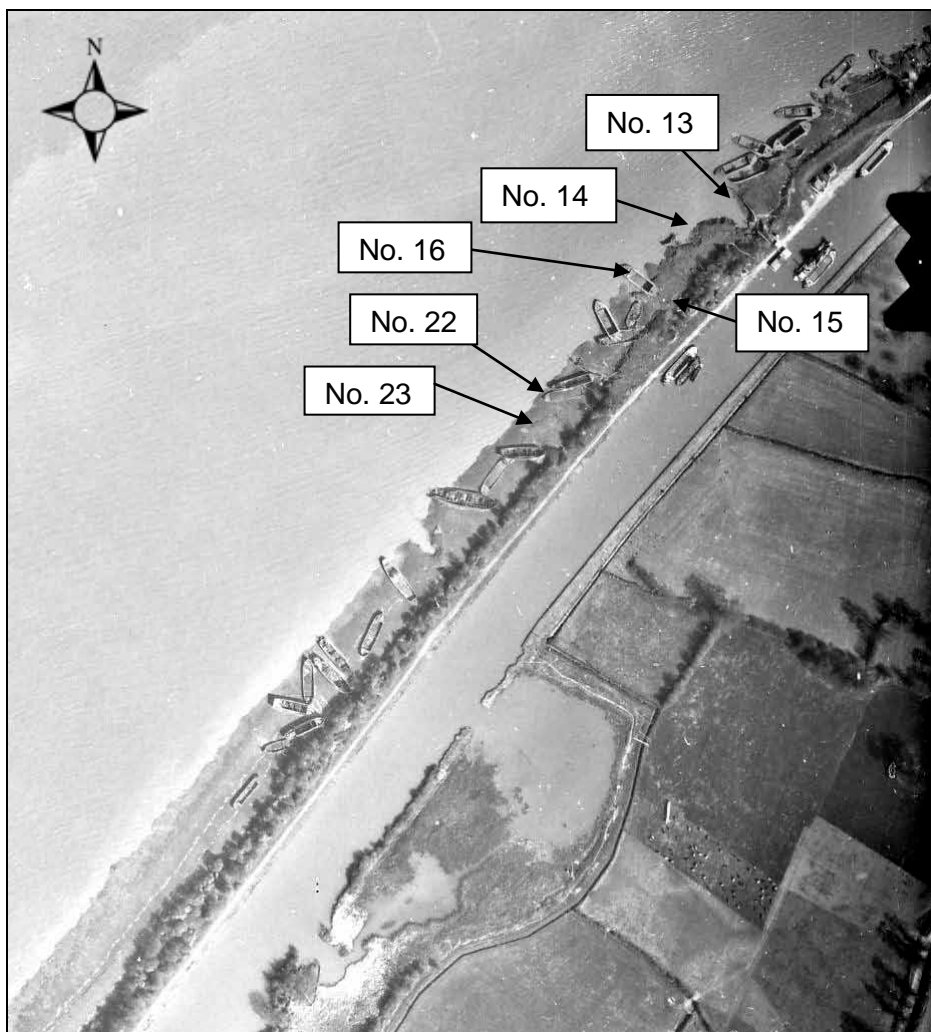


Figure 8. Purton hulks visible in 1969.

The vessels visible in 1969. Vessel Nos. 13 (*Barry*), 14 (*Petrus*), 22 (*Rockby*) and 23 (*Britannia*) are just visible, and No. 15 (*Mary Ann*) has been completely buried. (OS/69117 156 18-APR-1969 © Crown Copyright. Ordnance Survey).

3.5.5 State of preservation

Most of the hulks were still visible on aerial photographs taken in 1974 and 1979, but by the next available series of photographs (1996), many had been either buried or destroyed through natural erosion and/or vandalism (Figures 18-19), including by an arsonist who effectively destroyed eight vessels and damaged others in 1986 (Barnett 2008). This may have done more damage to the vessels than 30 years of natural erosion and decay.

Recent aerial photographs indicate that of the 45 hulks identified and mapped on the Purton foreshore and within the canal timber ponds, only 16 were still largely intact and clearly visible in 1996. Unsurprisingly, all six of the FCBs (with the exception of No. 16, which was removed) were still apparent. The other 10 largely wooden hulks were only partly visible with the bows and sides of the ships exposed above ground. Many have been the subject of deliberate vandalism (Barnett 2008: 3), but some vessels or at least their keels may still be present beneath the ground. Recent Friends of Purton research has investigated the extent of these remaining timbers and the results are to be published in the near future after further analysis (L. P. Barnett pers. comm. 2010).

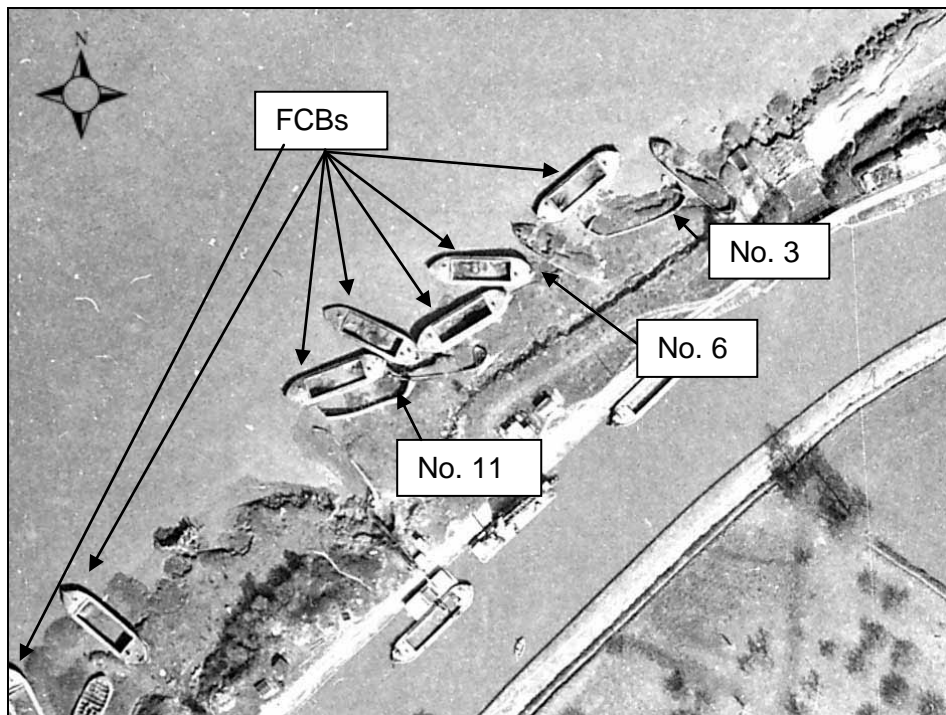


Figure 9. FCBs and partially buried vessels.

This 1969 aerial photograph shows the Ferrous Concrete Lighters beached in 1963-1965. Timber vessel Nos. 3 (*Newark*), 6 (*40 ton Flat*) and 11 (*J & A. R*) were first visible in 1969, but were already largely buried. (OS/69117 234 18-APR-1969 © Crown Copyright. Ordnance Survey).

3.6 The Sharpness hulks

The vessels on the Sharpness foreshore were first beached during 1971-1973, in order to protect the canal's retaining wall from the Severn Estuary's erosive tidal forces (Barnett 2008: 6). The vessels were mainly beached end to end to form a linear barrier (Figure 10). Most were redundant River Lighters and Steel Lighters. All of these vessels (No. 45 - *Severn Conveyor* to No. 61 - *Lighter No 23*) were still clearly visible on the Sharpness foreshore on recent aerial photographs, although they are now being inundated and vegetation has grown over many vessels as the foreshore has stabilised.



Figure 10. The Sharpness hulks in 1979.

The hulks visible on the Sharpness foreshore on a 1979 aerial photograph. Vessels No. 45 (*Severn Conveyor*) and No. 46 (*Lighter No. 9*) are just discernable in the upper right corner of the image. (OS/79034 026 19-MAY-1979© Crown Copyright. Ordnance Survey).

Further south on the east bank were two wrecks (Figure 11) which were also mapped as part of this study (vessel Nos. 66 *Alaska* and 78 *Tribune* (after Barnett 2008). Both were visible on 1945 aerial photographs, but not those taken subsequently. Paul Barnett has provided further details regarding the history of these vessels. They were abandoned and then broken up. The *Alaska* keel eventually drifted off the bank c. 1977 and the remains of the WWI Cruiser *H.M.S. Tribune* were eventually buried after the majority of her steel was recovered by local scrap merchants c.1922 (L. P. Barnett pers. comm. 2009).

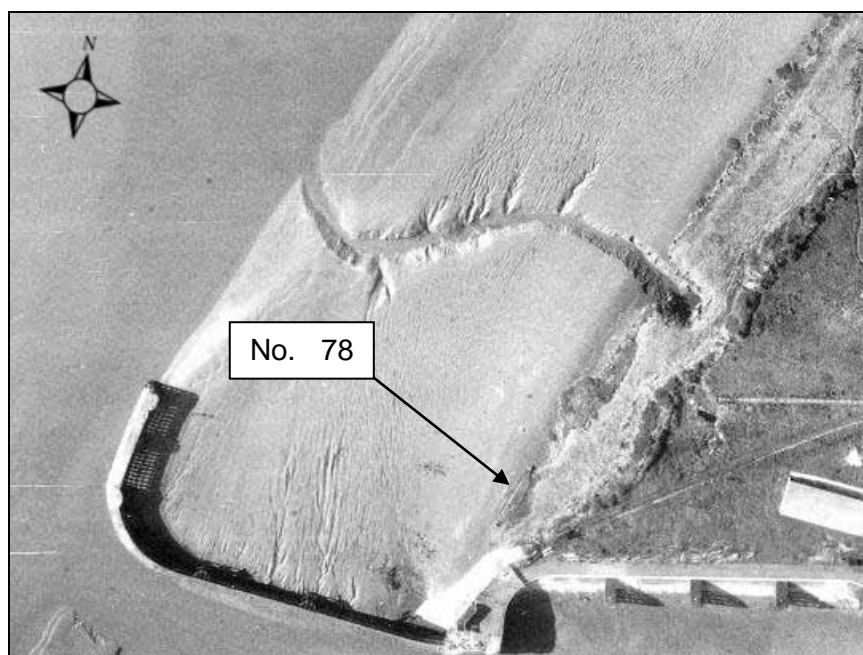
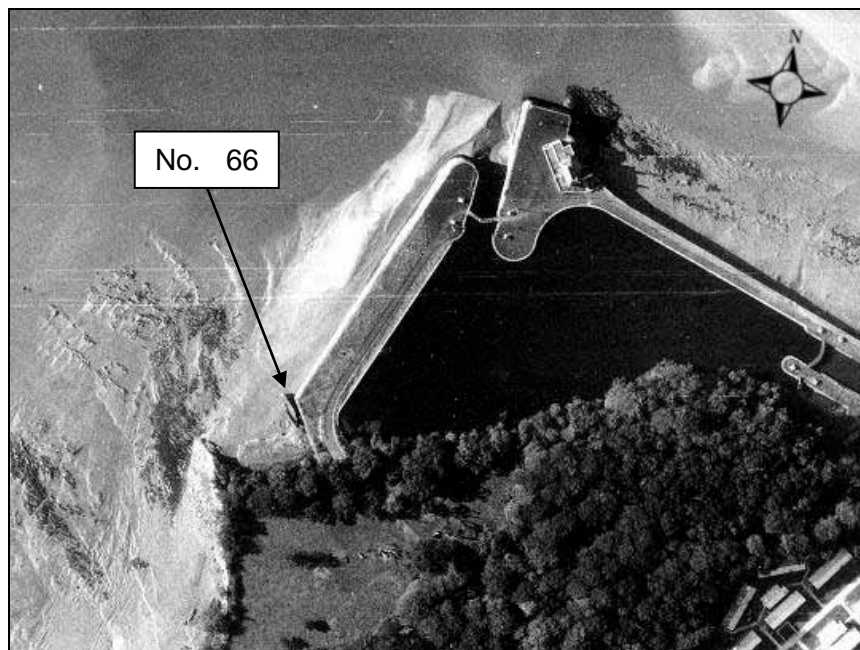


Figure 11. The two wrecks at Sharpness Docks.

The top photograph (Figure 11a) shows vessel No. 66 (*Alaska*), and the bottom photograph (Figure 11b) shows vessel No. 78 (*Tribune*), both visible in 1945. (NMR RAF/106G/UK/733 3052 26-AUG-1945 © English Heritage (NMR) RAF Photography).

4 Recent Research by the Friends of Purton

by Paul Barnett

4.1 Vessels in the area to the north of the former railway bridge

There is significant evidence for additional vessels being beached on the foreshore to the north of the railway bridge. The clearest evidence is contained in the British Waterways archives held at Gloucestershire Archives. From these documents we can demonstrate that at least two and possibly four vessels were beached in the area to the north of the former railway bridge in 1909-10.

Document D2460 4/7/1/52 dates to November 1909 and consists of a location plan and four sections across the foreshore. The sections record that a channel had developed only 230ft from the canal bank behind the Black Cottage and the end of the sea wall, with the slope of the foreshore 200ft nearer to the canal than found by *Beechley* in 1849.

Added in pencil to sections 1 and 2 are two boats pointing up the foreshore with their sterns near to the low water level, one apparently in line with the Black Cottage and the other in line with the end of the sea wall. It has been possible to georeference the 1909 location plan and roughly locate the position and alignment of the two vessels using the section location lines (Figure 12).

Two further boats are located on documents D2460 4/8/2/8-9, dated 18th April 1910, comprising two sections showing barges beached on the foreshore with their sterns close to low water level, together with a copy of the 1903 OS plan that is marked with the location of the sections and barges. The location plan and an examination of the form of the foreshore shown in the sections clearly indicate that these show different areas to those drawn in 1909. The plan is marked with the outlines of the beached boats, allowing their location to be accurately identified (Figure 12).

A further undated document D2460 4/7/1/42 appears to be a neat copy of the same sections (as D2460 4/8/2/8). Document D4260 4/4/6 (531) is a letter drawn up to accompany the plans and sections. It is also dated 18 April 1910, and from A. J. Cullis to The Board of Trade, advising them of two sunken boats which had been located on the river foreshore at the end of the wall in order to protect the company's assets. Presumably this resulted from concerns having been expressed about the affect on navigation, as the letter points out that the channel at this point was on the opposite side of the estuary.

The chief question mark over the interpretation of these documents is whether the 1909 plan and sections show the proposed rather than actual location of beached vessels. As the boats were marked in pencil on the sections after the drawings were inked, were these the intended location for boats, which were later actually placed in the locations indicated in the 1910 documents? If there were two vessels beached on the foreshore in 1909, why were they not included in those notified to the Board of Trade in 1910? In conclusion we can say that it is most likely the 1909 documents indicate the intended location of two vessels and the 1910 documents where they actually ended up.

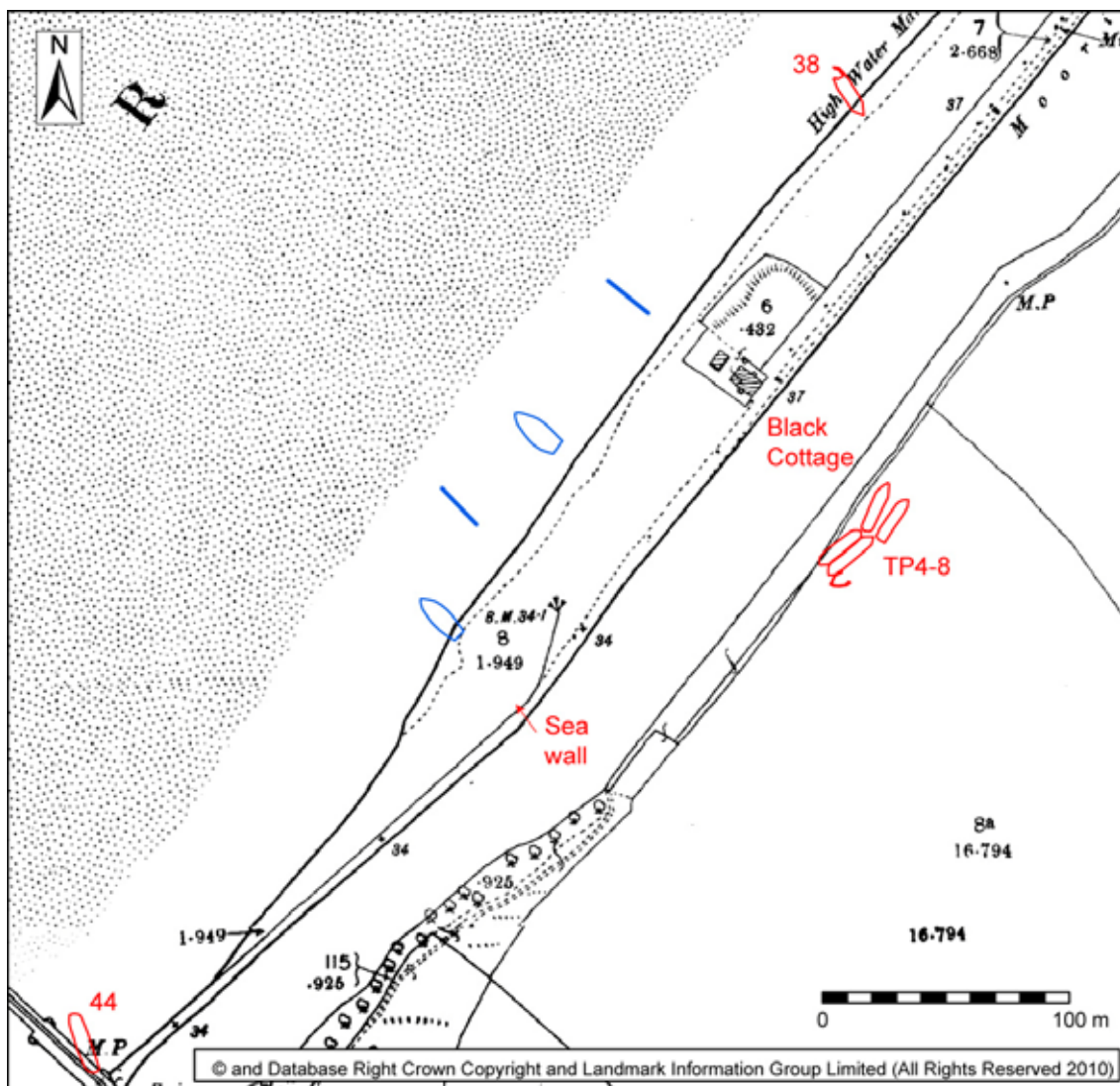


Figure 12. Location of vessels from British Waterways archive documents

Intended vessel locations (blue lines, from Glos Archives document D2460 4/7/1/52) and actual location (blue outlines) of vessels in 1910 (from document D2460 4/8/2/9). Nearby vessels identified from APs and other annotations shown in red. Map base is 1903 Ordnance Survey 1:2500 plan.

It is at present impossible to tie in these vessels with the later records detailed below, further research is required. It is of course possible that later records indicate vessels beached at a later date directly over or near to the vessels recorded in 1909-10.

4.2 Identification of vessels recorded by David Wheeler.

As stated above, David Wheeler produced an unmeasured sketch plan in 1965 locating five timber vessels and *FCB51* in the area to the south of *Harriett* and north of the railway bridge.

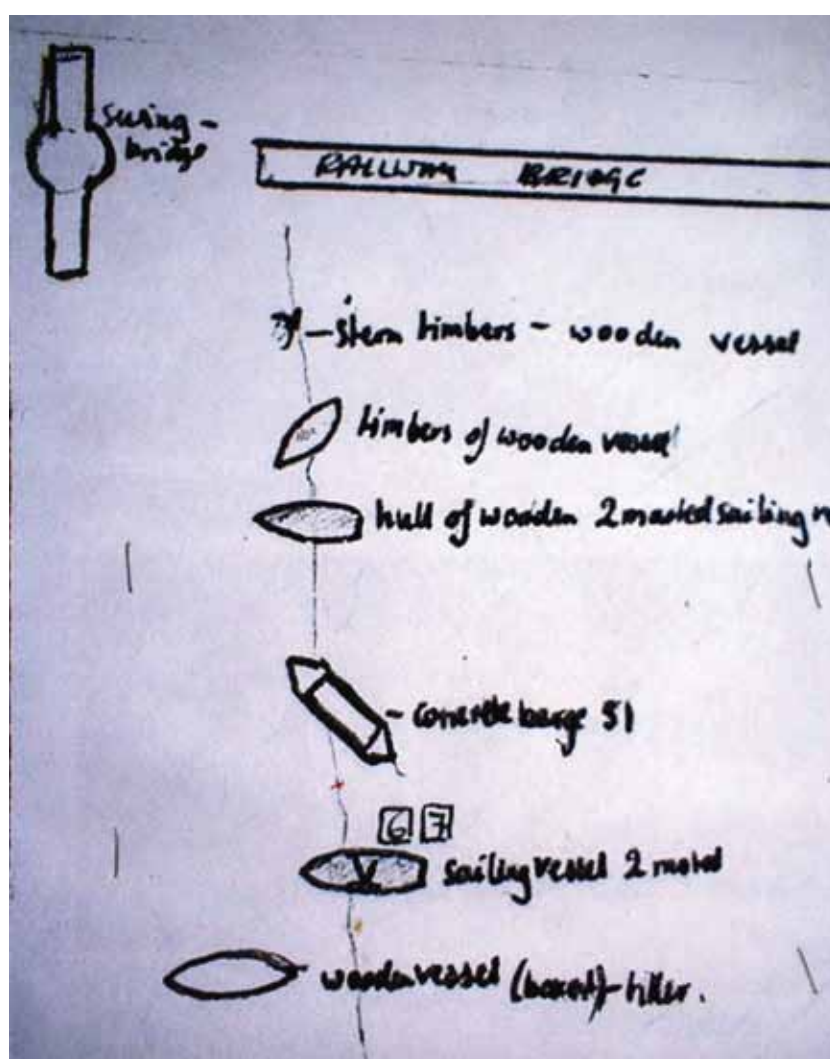


Figure 13. David Wheeler's 1965 sketch plan

Sketch plan showing vessels located to the north of the railway bridge (the top of the plan is to the south-west).

Current research indicates that from north to south these are made up of:

Barge Abbey (37) a vessel referred to by Wheeler as 'wooden vessel (boxed) tiller and marked by MacGregor as No 3 'Barge hidden in rushes' and also seen in the National Monuments held aerial photograph of 26th August 1945 (RAF/106G/UK/733 frame no 3048) alongside what is considered a stone groyne.

Salina Jane (38) identified as 'vessel V – sailing vessel 2 masted and marked by MacGregor as No 2 'Ex – Ketch? Stern Missing' also seen in the National Monuments held aerial photograph of 26th August 1945 (RAF/106G/UK/733 frame no 3048) alongside what is considered a stone groyne.

FCB 51 (39) identified by Wheeler as Concrete Barge 51 which is understood not to have been present during Macgregor's visit of October 1952.

Unknown (40) Marked in 1961 by Wheeler as Hull of wooden 2 masted sailing vessel showing a square sterned vessel bow to shore. Not recorded by MacGregor. Available evidence suggests that this may be the *Excelsior* which was purported to have been beached in the early 1950s (after Farr).

Unknown (41) Marked by Wheeler as 'Timbers of wooden vessel' showing a two bowed vessel lying east west. Upon comparison and alignment of both schematics this may be the same vessel marked No 1 by MacGregor as 'Unknown – covered at high water showing the pointed bows of a vessel and again in original field notes as "½ sunken K" showing bow to shore. Parker (1998) apparently looked for this vessel and indicates it as 'not visible 1997 (approx. position)'.

Unknown (42) Marked by Wheeler as Stern timbers – wooden vessel showing stern and rudder bow to shore.

The location of vessel *Mary* (43), now destroyed by fire and interred, is not marked on either Wheeler's or MacGregor's plans but her location has been corroborated via local knowledge and images following her abandonment c. late 40s early 50s (Figure 6).

It is difficult to correlate these vessels to those shown in the 1909-10 documents. Wheeler's plan clearly shows the vessels visible 55 years after the documents referred to above were produced, and as already mentioned (3.5.3 above) the area was subsequently buried under dredging waste, and its history is therefore hard to disentangle.



Figure 14. Late 1940s? photograph looking south towards the railway bridge

Photograph reproduced courtesy of Pat Greatorex. Note the build up of dredging material to the north of the railway bridge. Vessel 38 (*Selina Jane*) is visible in the middle ground.

4.3 Other current research by The Friends of Purton

Ongoing research is currently being conducted by The Friends of Purton who have recently completed a gradiometer survey to confirm the nature of five known areas of high ferrous response and this will be published elsewhere. Preliminary analysis suggests that this confirms the location of *Salina Jane* (38), *FCB 51* (39), Unknown (40), Unknown (41), and vessel *Mary* (43). Furthermore, all evidence points to the fact that the earlier 1909/10 vessels may be obscured due to their depth of interment (gradiometer maximum penetration to 1.5 - 2m) or that they are in fact located below overlying vessels namely *FCB 51* (39) and Unknown (40), however, further research is required at this stage.

Historical research by The Friends has clarified that dates at which vessels were beached. It has established that the beachings were most prevalent between 1951 and 1956.

Finally it should be noted that several vessels were known to have come to harm and eventually founder in the area after striking the nearby Severn and Wye Railway

Bridge following its completion in 1879. Further the Friends also continue to hunt in this area for the illusive vessel *Sally*, built in 1780, sunk to form a breakwater in the Severn at Purton in 1875.

5 The future of the hulks

by Toby Catchpole and Paul Barnett

5.1 History of the vessels

It is intended that this report provides a baseline statement of current knowledge regarding the archaeological site that is formed by the Purton hulks. Much of the significance of the site however, lies in the maritime, industrial, family and local history that can be told around the vessels and those who operated and sailed them. It is to be hoped that this history can eventually be published. In the meantime much historical information is available at www.friendsofpurton.org.uk.

5.2 Erosion threat

The draft 2nd round Shoreline Management Plan (SMP) for the Severn Estuary was issued for consultation in October 2009. Purton falls within Policy Unit SHAR8. The short, medium and long term preferred policy is for the policy unit is 'No Active Intervention' (Atkins Ltd. 2009). The SMP suggests that although the rate of erosion will accelerate in the future as a result of sea level changes, it is thought that the harder geology and higher ground of this policy unit will limit this, although the area will be monitored and erosion protection measures will be considered if necessary. The document states that the suggested policy will not impact on the historic environment in the short or medium term (0-50 years), but that in the longer term (50-100 years) erosion protection may be required to protect the Purton Hulks and the canal. It therefore appears that the Purton Hulks are relatively safe from potential sea level rise, in comparison with much of the remainder of the estuary shoreline. The hulks are likely to continue to be affected by vandalism as at present.

5.3 The Purton archive

Paul Barnett and The Friends of Purton have amassed a very large collection of documentary and photographic evidence for the site at Purton and for the vessels laid up there. The archive includes Graham Farr's personal archive, c. 28,000 photographs and the original hand drawn plans produced up other researchers, for example Macgregor's 1964 survey, which has not previously been published and locates vessels shown in no other source. The security copying and/or conservation and long

term curation of this archive should be a long term aim to ensure that its research and public interest value is preserved for future generations and made available to future researchers.

5.4 Preservation by record

The vessels identified by The Friends of Purton as being under the greatest threat of being lost without record are No. 2 *Envoy*, No. 13 *Barry* and No. 14 *Petrus*. Also recorded as being at immediate risk from erosion or collapse are No. 1 *Jonadab*, No. 5 *Glenby*, No. 11 *J. & A. R.*, No. 26 *Sally* No. 31 *Dispatch* and No. 33 *Voltaic* (Sarah MacDonald) (Friends of Purton 2010). It is recommended that recording concentrates on these vessels in the first instance.

6 Conclusions

by Amanda Dickson

The aerial photographs used in this study proved useful in recording the hulks at Purton and Sharpness through time, from their initial abandonment to their subsequent burial and/or destruction by natural and human factors. Although there were time gaps in the photographic record, those images that were available often showed the hulked vessels very clearly, particularly those photographs depicting the initial abandonment of the hulks.

The study was therefore successful in meeting its aim to assess the hulks through time from original beaching to subsequent destruction, erosion and burial. It has also provided further details of the vessels already mapped by the Forest of Dean NMP, and identified previously unrecorded vessels. This baseline information will assist future projects to place the collection of wrecks at Purton and Sharpness in their full local and national context, as well as providing supplementary data for more detailed current and future work by The Friends of Purton and other interested parties.

A list has therefore been compiled of the hulks combining information visible on the aerial photographs with that provided by Paul Barnett (Appendix I, Table 1), enabling this study to complement and be integrated with the results of past surveys and future comparative work.

The results of the study will also be available from the Gloucestershire County Council SMR and the National Monuments Records database (AMIE).

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Survey Sketch Plans

Wheeler, D. 1965. Provided by L. P. Barnett

Barnett, L.P. 2004. Provided by L. P. Barnett.

British Waterways documents held at Gloucestershire Archives

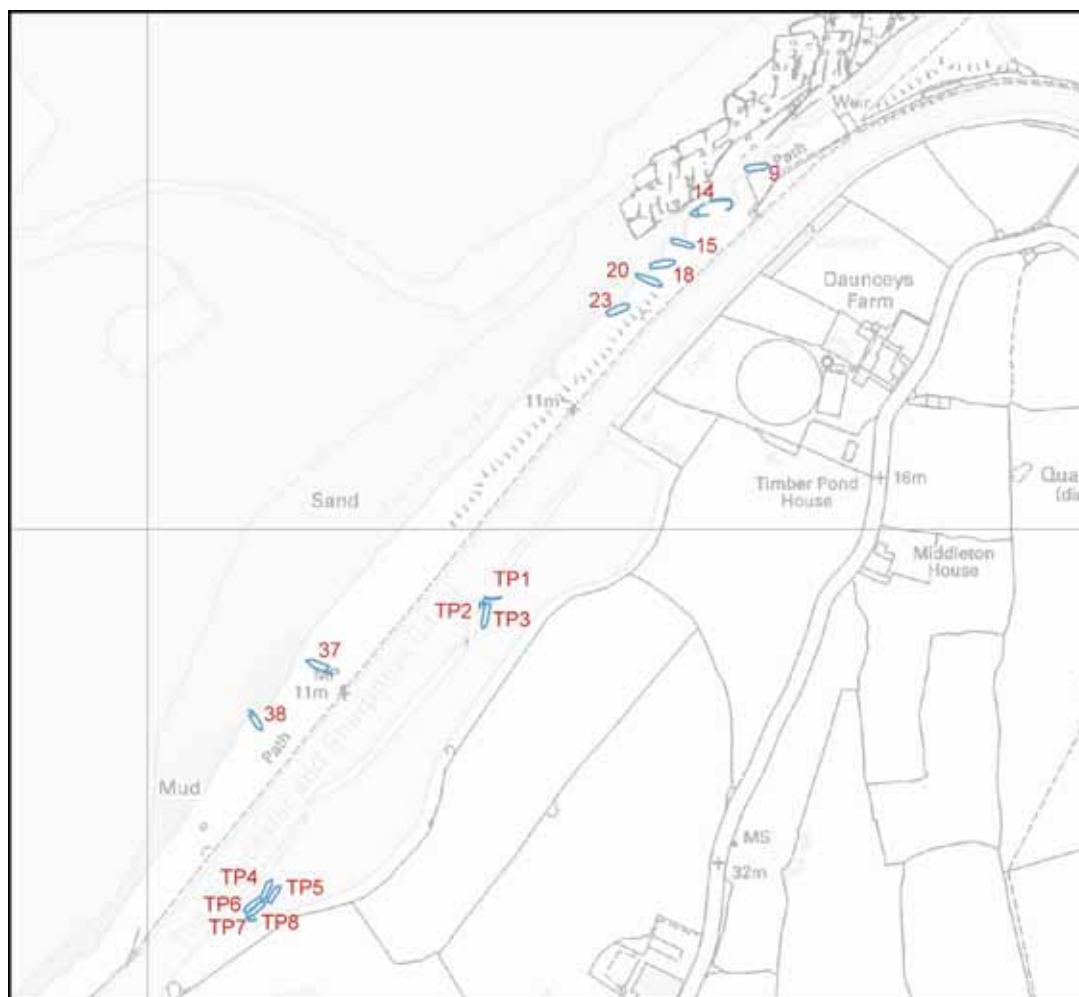
D2460 4/7/1/52 labelled *19-A-24 River Bank between Severn Bridge and Purton Weir November 1909.*

D2460 4/8/2/8 labelled *19-A-35 Sections shewing position of barges sunk on river bank to protect the property of the Sharpness Docks & C Company. See 25 inch Ordnance Sheet (Glos: XLVII.4) accompanying these sections.* Stamped and dated 18th April 1910.

D2460 4/8/2/9 OS sheet referred to in D2460 4/8/2/8. Stamped and dated 18th April 1910.

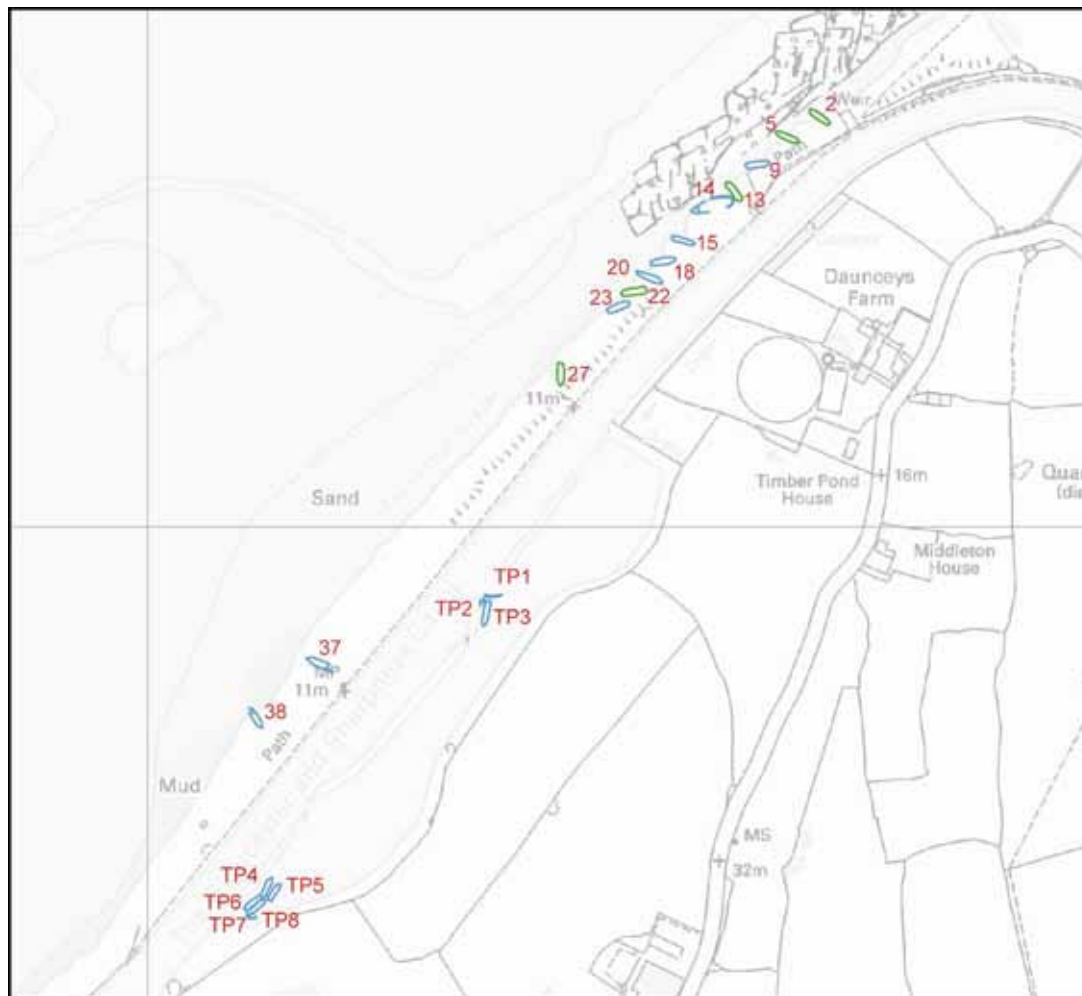
D2460 4/7/1/42. Undated but copy of D2460 4/8/2/8.

D2460 4/4/6 (531) Letter dated April 18th 1910 from A. J. Cullis to the Board of Trade.



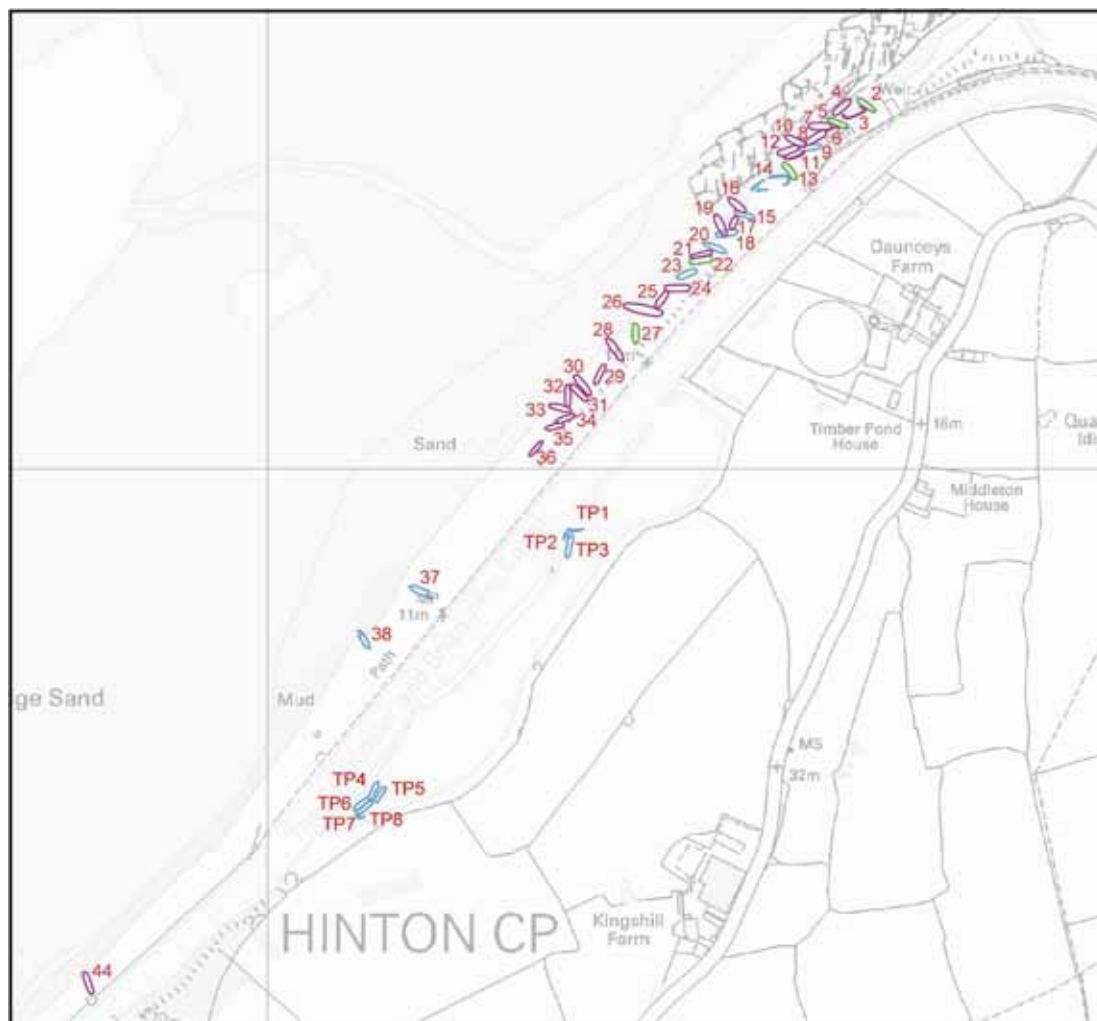
The beached vessels on aerial photographs of 1945. The numbers correspond to those given in Fig. 2 and Table 1. (Base Map © Crown copyright, All rights reserved. Gloucestershire County Council 100019134 2010).

Figure 15. Purton vessels visible in 1945



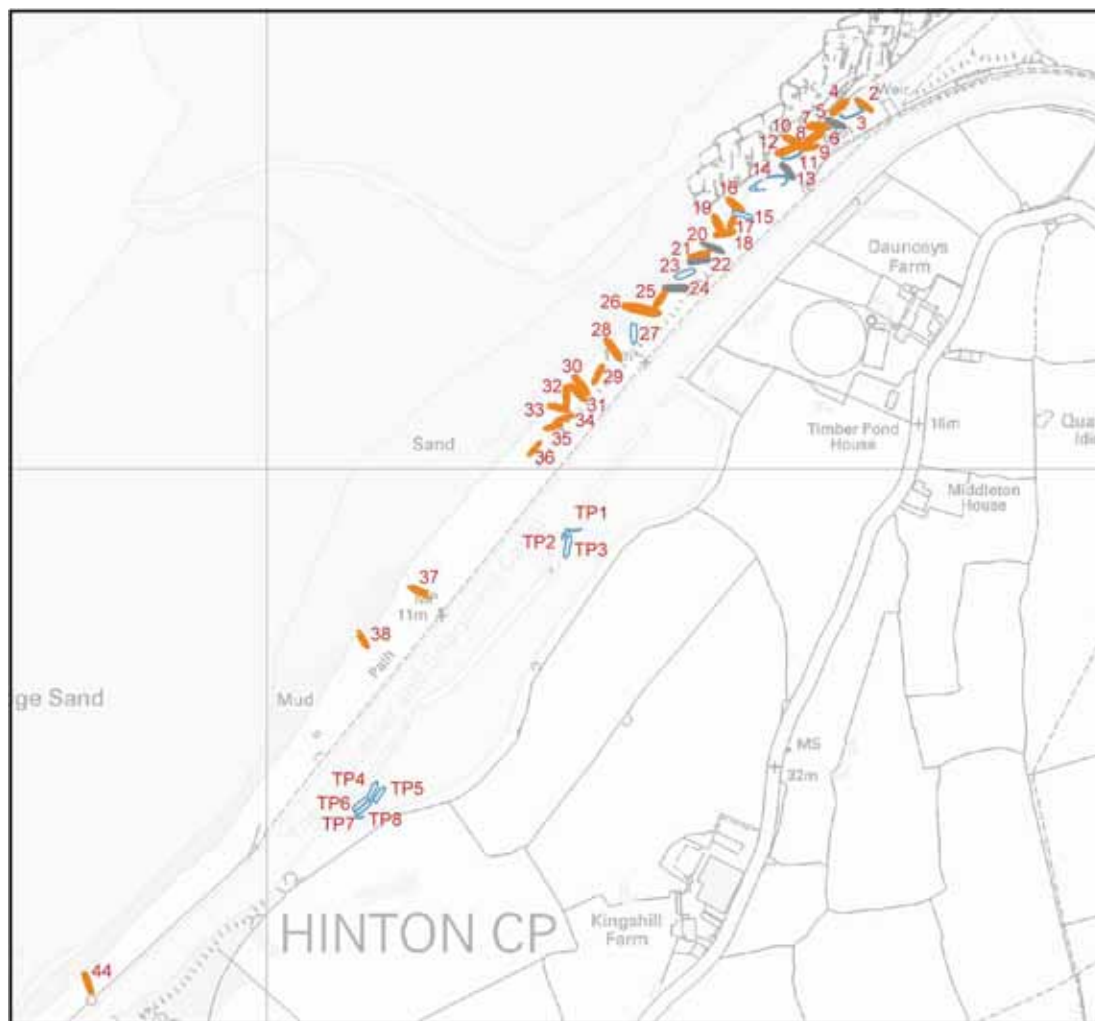
The vessels in blue depict those hulks still visible from the 1945 aerial photographs. Those in green are the hulks first visible on the 1946 aerial photographs. The numbers correspond to those given in Fig. 2 and Table 1. (Base Map © Crown copyright, All rights reserved. Gloucestershire County Council 100019134 2010).

Figure 16. Purton hulks visible in 1946



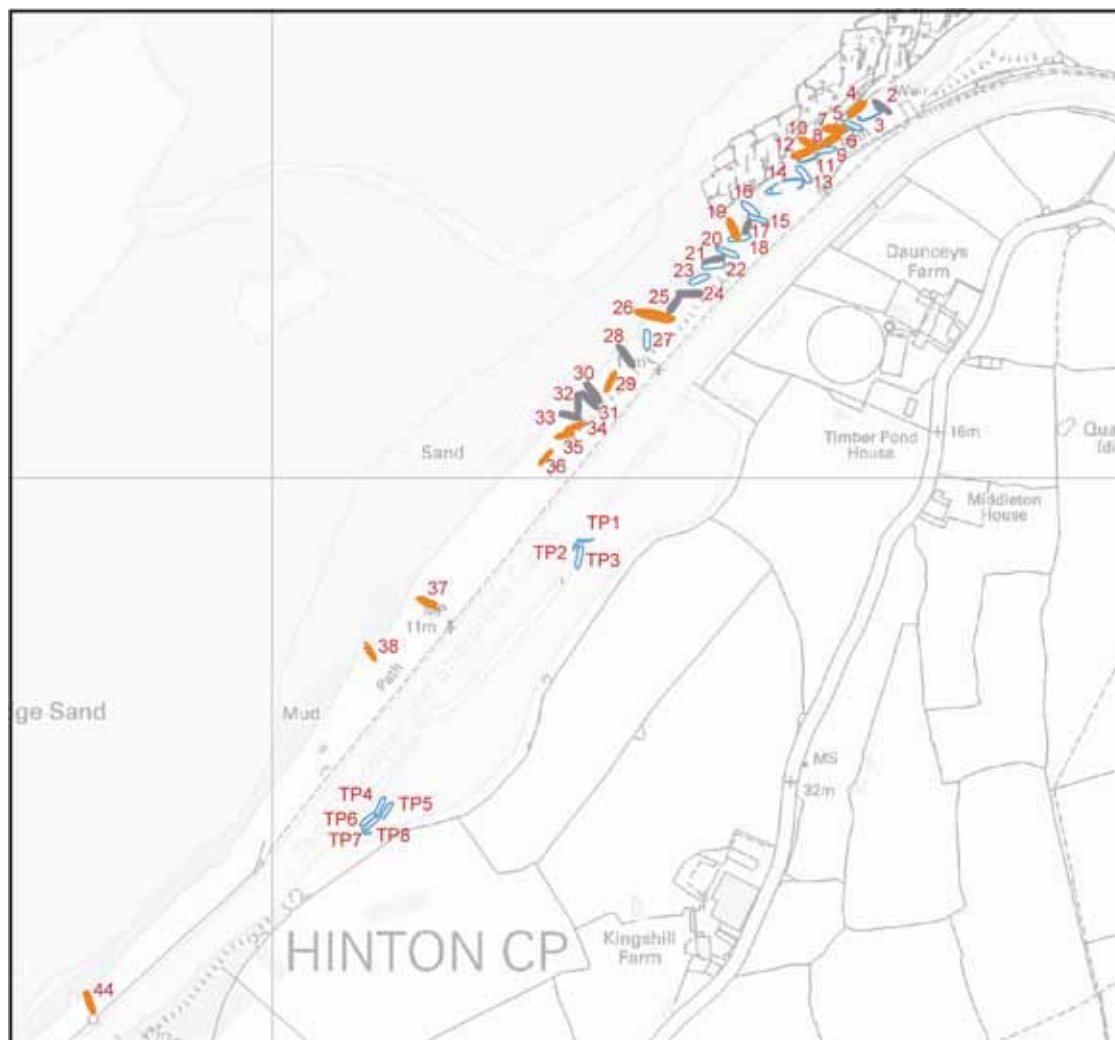
The vessels in blue depict the hulks still visible from the 1945 aerial photographs, whilst those in green are the hulks still visible from the 1946 aerial photographs. Those in pink are the hulks first visible on aerial photographs taken in 1969. The numbers correspond to those given in Fig. 2 and Table 1. (Base Map © Crown copyright, All rights reserved. Gloucestershire County Council 100019134 2010).

Figure 17. Purton hulks visible in 1969



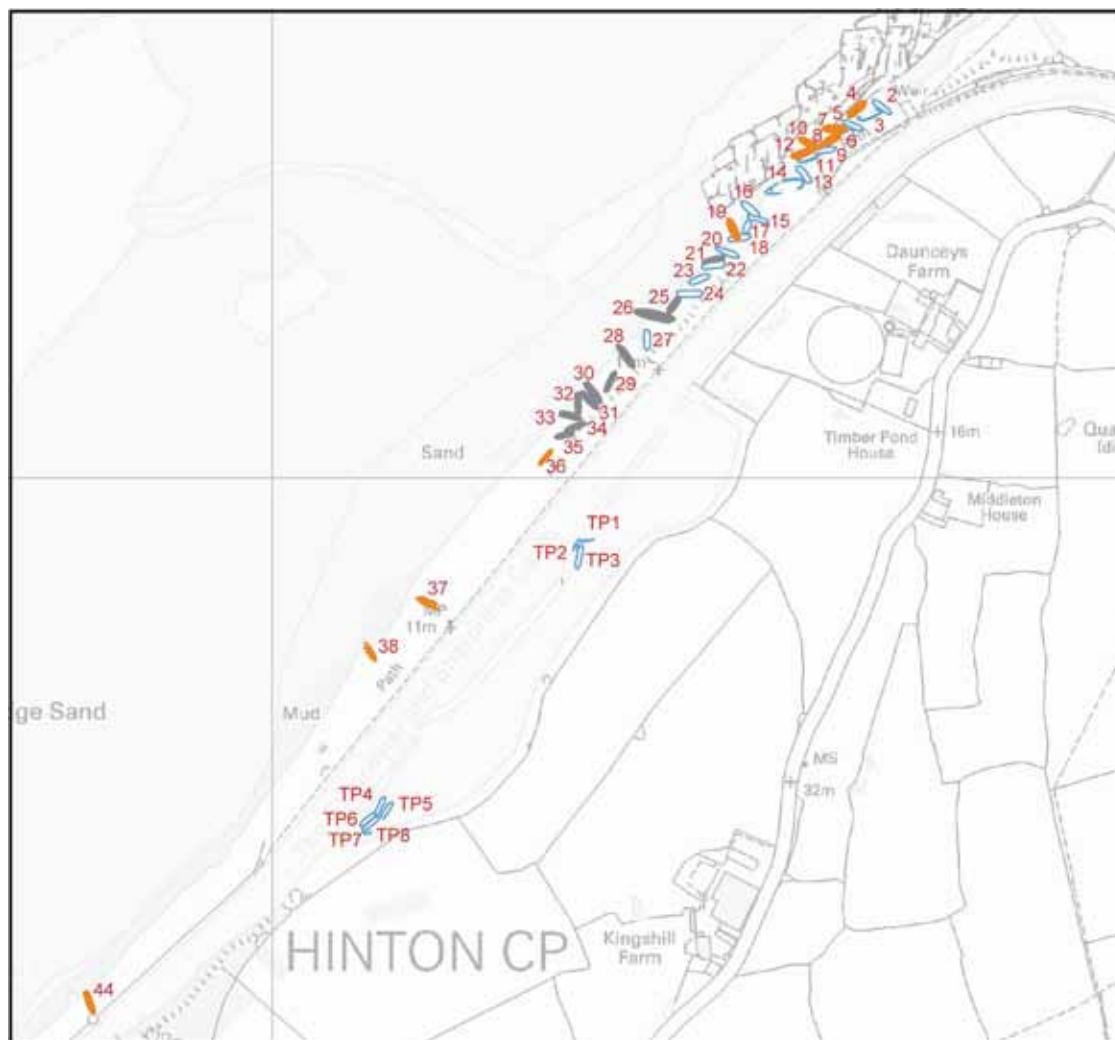
The vessels in orange indicate that they are more than 50% visible on aerial photographs. Vessels in grey indicate that they are partially or less than 50% visible on aerial photographs. Those with a blue outline only are not visible on the aerial photographs taken in 1979. The numbers correspond to those given in Fig. 2 and Table 1. (Base Map © Crown copyright, All rights reserved. Gloucestershire County Council 100019134 2010).

Figure 18. Purton hulks visible in 1979.



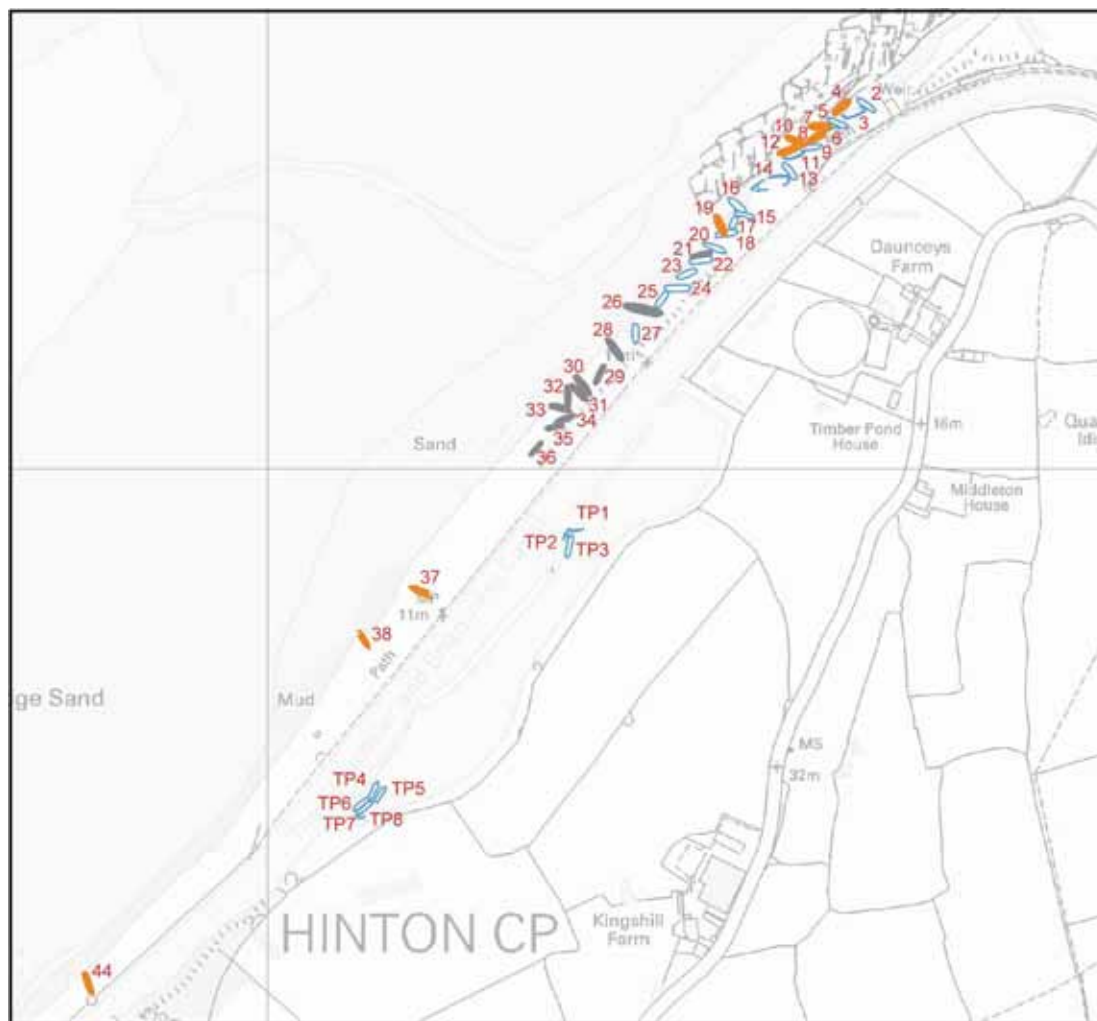
The vessels in orange indicate that they are more than 50% visible on aerial photographs. The vessels in grey indicate that they are partially or less than 50% visible on aerial photographs. Those with a blue outline are no longer visible on the aerial photographs from 2001. The numbers correspond to those given in Fig. 2 and Table 1. (Base Map © Crown copyright, All rights reserved. Gloucestershire County Council 100019134 2010).

Figure 19. The Purton hulks visible in 2001



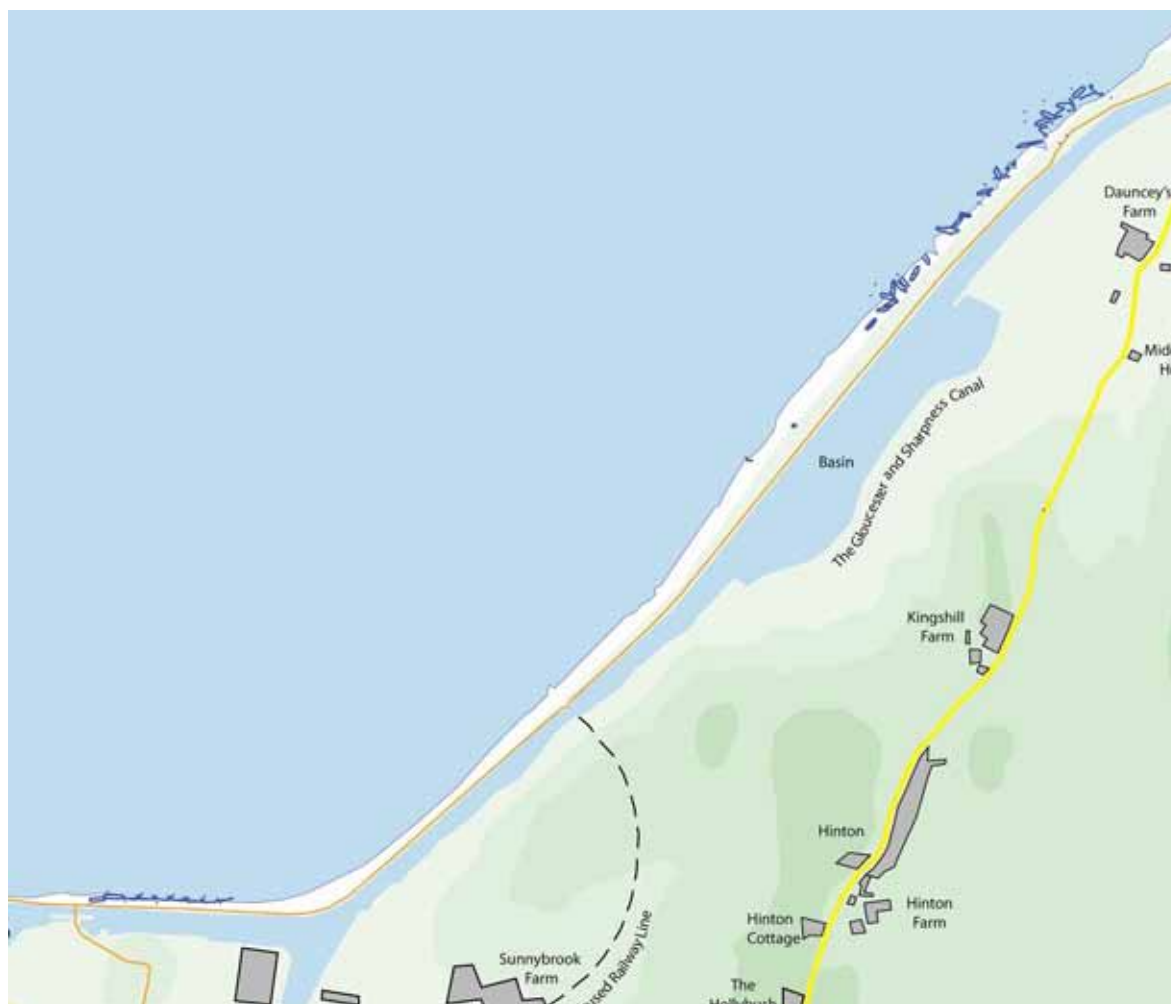
The vessels in orange indicate that they are more than 50% visible on aerial photographs. Vessels in grey indicate that they are partially or less than 50% visible on aerial photographs. Those with a blue outline only are not visible on the aerial photographs from 2005. The numbers correspond to those given in Fig. 2 and Table 1. (Base Map © Crown copyright, All rights reserved. Gloucestershire County Council 100019134 2010).

Figure 20. The Purton hulks visible in 2005.



The vessels in Orange indicate that they are more than 50% visible on aerial photographs. The vessels in Grey indicate that they are partially or less than 50% visible on aerial photographs. Those with a blue outline only are not visible on the aerial photographs from 2007. The numbers correspond to those given in Fig. 2 and Table 1. (Base Map © Crown copyright, All rights reserved. Gloucestershire County Council 100019134 2010).

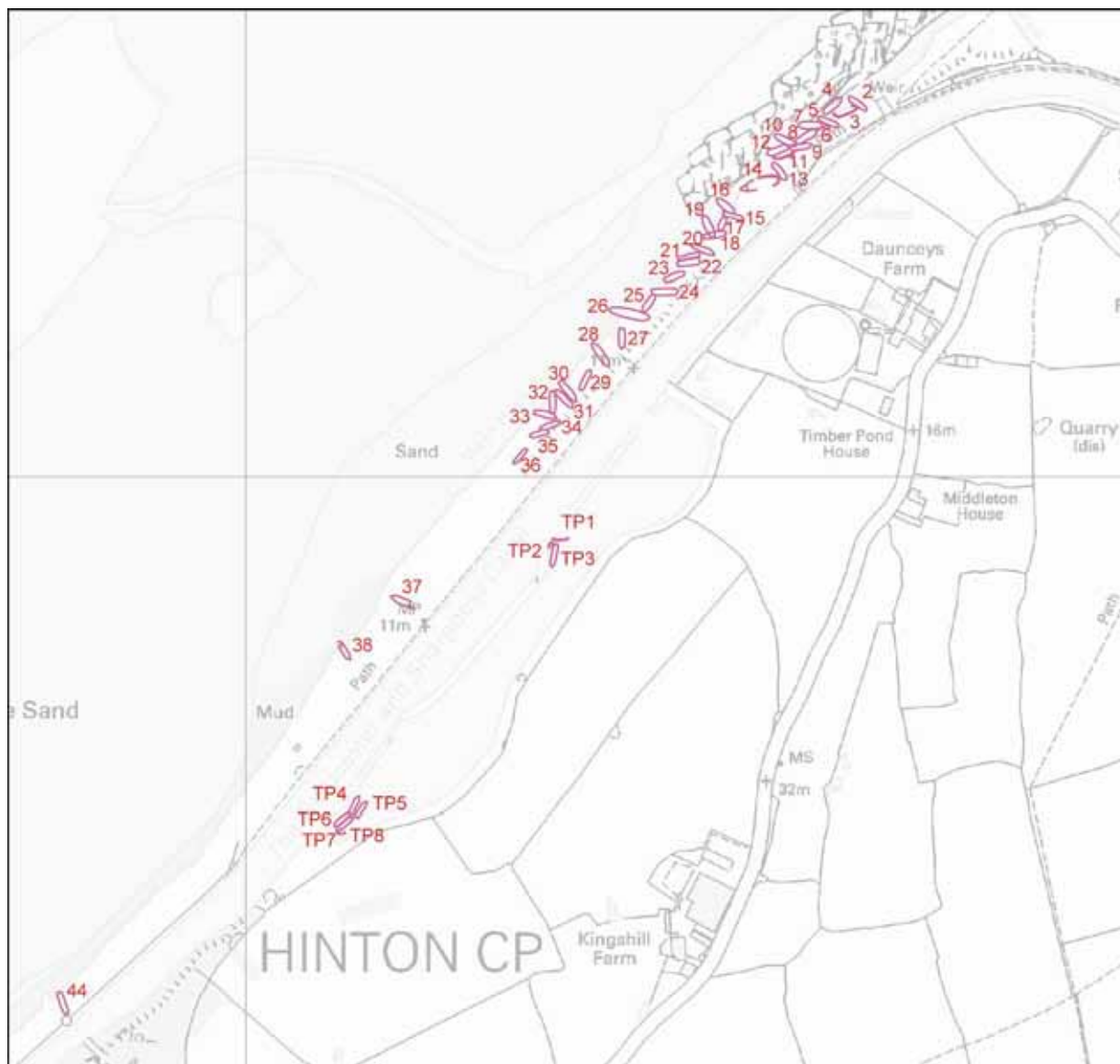
Figure 21. The Purton hulks in 2007.



The GPS survey indicates all vessels visible on the ground in 2009. Results kindly supplied by Laurie Coleman. (Base Map © Crown copyright, All rights reserved. Gloucestershire County Council 100019134 2010).

Figure 22 The GPS survey of 2009

Appendix 1 Catalogue of the Purton Hulks



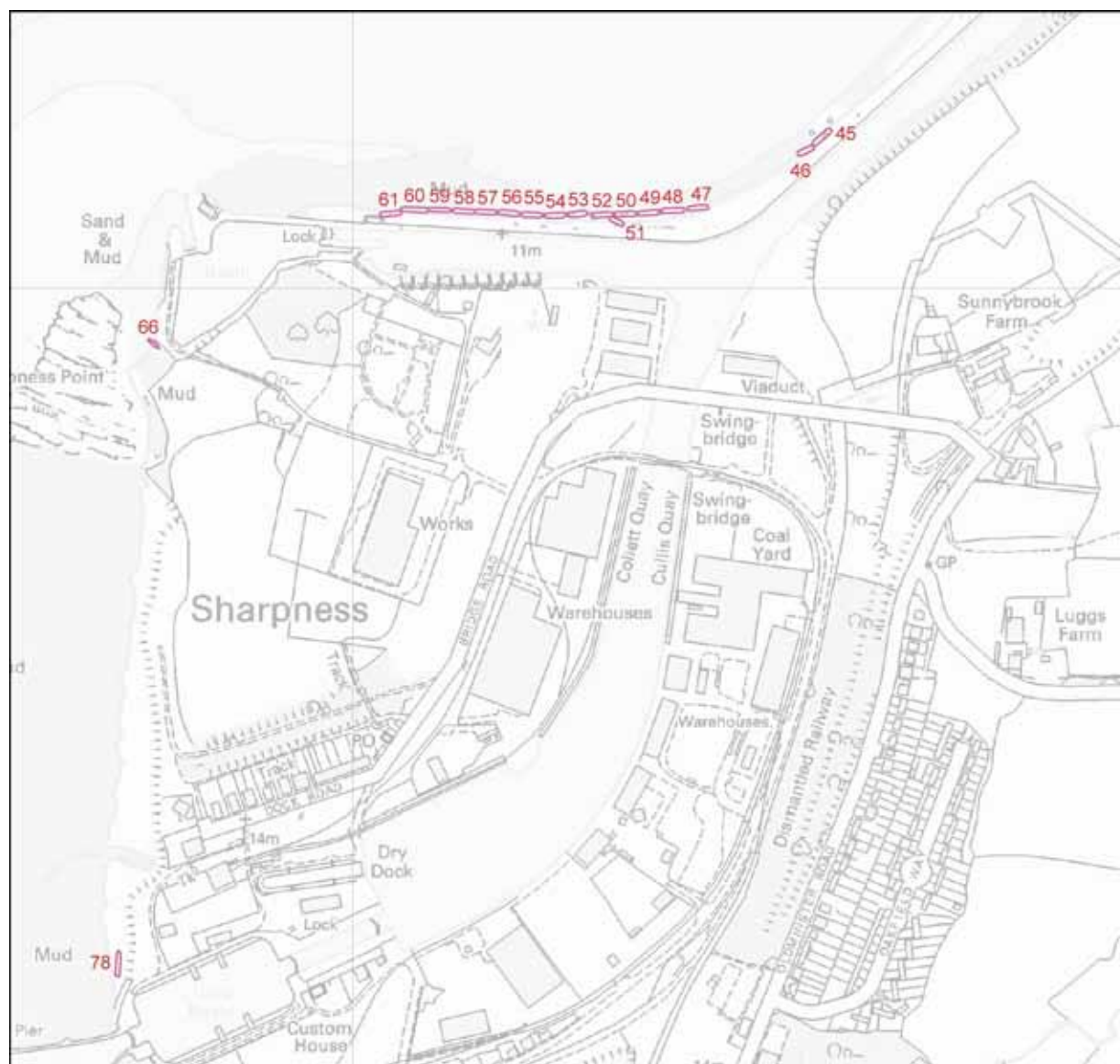


Table 1 List of Hulks compiled by L.P. Barnett in conjunction with Amanda Dickson

This table lists all known hulks as well as those visible on the available aerial photographs and matches them to the names and numbering provided by Barnett (2004) cross referenced with those listed by Parker (1998). MacGregor's numbers are taken from Parker (1998). Wheeler's information is taken from Barnett (2004). It should be noted that the date given for a vessel no longer being visible is based on the aerial photographic evidence alone. Vessels listed as no longer visible may in fact still have some remains protruding above ground that are not detectable on the photographs.

Vessel number (Barnett 2004)	Name	NGR	MacGregor's (1952) Numbering	Parker's (1998) Numbering	Vessel visible on APs	First visible by	Not Visible by	Hulk History/fate
1	JONADAB	ST 6871 0446	N/A	N/A	N	N/A	N/A	Originally at Lydney arrived Purton 2004. Grid reference from Wilson <i>et. al.</i> 2009.
2	ENVOY	ST 6867 0440	21	1	Y	1946	2001	On the whole buried but may be visible under certain conditions. – Buried
3	NEWARK	ST 6865 0439	20	2	Y	1969	1996	Was partially buried on 1969 AP - Broken up
4	FCB 76	ST 6864 0440	22	3	Y	1969	N/A	Still visible (concrete barge)
5	GLENBY	ST 6863 0438	19	4	Y	1946	1996	Partially buried in 1969- Broken up/erosion
6	FORTIE TONNE FLATY	ST 6863 0438	18	6	Y	1969	1996	Only partially visible in 1969 and just visible in 1979. – Buried
7	FCB 68	ST 6861 0438	27	5	Y	1969	N/A	Still visible (concrete barge)
8	FCB 78	ST 6861 0437	24	7	Y	1969	N/A	Still visible (concrete barge)
9	PRIORY	ST 6860 0436	17	8	Y	1945	1996	Was still visible in 1974– Buried
10	FCB 67	ST 6859 0436	25	9	Y	1969	N/A	Still visible (concrete barge)
11	J. & A. R.	ST 6859 0435	16	11	Y	1969	N/A	Partially buried under 10 and 8(?) in 1969 possibly hulked before 1945? Still partially visible
12	FCB 77	ST 6858 0435	26	10	Y	1969	N/A	Still visible (concrete barge)

Vessel number (Barnett 2004)	Name	NGR	MacGregor's (1952) Numbering	Parker's (1998) Numbering	Vessel visible on APs	First visible by	Not Visible by	Hulk History/fate
13	BARRY	ST 6858 0433	15	12	Y	1946	1996	Is on an outflow and mostly submerged by 1969. Just visible in 1979. - Broken up/erosion, Possibly some remains intact.
14	PETRUS	ST 6856 0431	14	13/14	Y	1945	1996	Largely buried in mud in 1945 but front & ends visible until after 1969. - Buried/erosion
15	MARY ANN	ST 6853 0428	13	17	Y	1945	1979	Buried by 1969 but outline still slightly visible in 1974.- Buried/
16	FCB 52	ST 6852 0429	N/A	15	Y	1969	1996	Removed 29 th March 1990 (concrete barge)
17	BRITON FERRY	ST 6852 0427	N/A	18	Y	1969	2007	Clearly visible in 1969 but only very slightly visible in 2006
18	MONARCH	ST 6851 0426	12	20	Y	1945	1996	Clearly visible in 1969 Buried/Broken up
19	FCB 75	ST 6850 0427	N/A	19	Y	1969	N/A	Still visible (concrete barge)
20	ISLAND MAID (ORBY)	ST 6850 0424	11	21	Y	1945	1996	Clearly visible in 1945, partially visible in 1979 - Burnt/destroyed
21	SEVERN COLLIER	ST 6848 0424	N/A	22	Y	1969	N/A	Clear in 1974, then partially visible to 2007 partially burnt
22	ROCKBY	ST 6848 0423	10	23	Y	1946	1996	Clear in 1969, partially visible in 1979 buried & partially burnt
23	BRITANNIA	ST 6847 0421	9	25	Y	1945	1969	Buried by 1969, clear in 1945-47 - buried
24	CATHERINE ELLEN (KATHERINE ELLEN)	ST 6846 0420	8	27	Y	1969	2001	Partially visible 1996, although buried by 2001 a slight outline is possibly visible in 2005 - burnt
25	HIGRE	ST 6844 0419	7	28	Y	1969	2007	Partially visible from 1996, possible outline just visible in 2006. - broken up
26	SALLY (KING)	ST 6842 0417	6	29	Y	1969	N/A	Still partially visible (from 2001 onwards) - burnt
27	TIRLEY	ST 6841 0415	5	30	Y	1946	1979	Partially visible in 1969/1974 - dug up and destroyed
28	GUIDE (SHAMROCK)	ST 6838 0413	4	31	Y	1969	2007	Only outline visible from 1996 onwards until 2007 - burnt

Vessel number (Barnett 2004)	Name	NGR	MacGregor's (1952) Numbering	Parker's (1998) Numbering	Vessel visible on APs	First visible by	Not Visible by	Hulk History/fate
29	ABBEY	ST 6837 0410	REF G (1964)	32	Y	1969	N/A	Partially visible from 2005 onwards - partially burnt
30	ADA	ST 6835 0409	REF F (1964)	33	Y	1969	N/A	Partially visible from 1996 onwards- burnt
31	DISPATCH (NEW DISPATCH)	ST 6834 0408	REF E (1964)	34	Y	1969	N/A	Partially visible from 1996 onwards - partially burnt
32	HUNTLEY	ST 6833 0408	REF D (1964)	35	Y	1969	N/A	Partially visible from 1996 onwards - broken up
33	SARAH MACDONALD (VOLTAIC)	ST6832 0406	REF C (1964)	36	Y	1969	N/A	Partially visible from 1996 onwards- burnt
34	EDITH	ST 6833 0405	N/A	37	Y	1969	N/A	Partially visible from 1996 onwards- burnt
35	DURSLEY	ST 6832 0404	REF B (1964)	38	Y	1969	N/A	Partially visible from 1996 onwards partially burnt
36	HARRIETT	ST 6830 0402	REF A (1964)	39	Y	1969	N/A	Partially visible from 1996 onwards -decay and theft
37	ABBEY	ST 6816 0386	3	40	Y	1945	1999	Wheeler D., 1965. Only partially visible from 1969-1974; Outline only in 1979. - decay
38	SALINA JANE	ST 6810 0380	2	41	Y	1945	1999	Wheeler D., 1965. Partially visible in 1979. - burnt
TP1	UNKNOWN HOPPER BARGE	ST 6834 0393	Observed	N/A	Y	1945	1969	Only partially visible in 1945 (all but disappeared in 1947) Observed but not recorded Barnett 2004 - decay
TP2	UNKNOWN HOPPER BARGE	ST 6833 0392	Observed	N/A	Y	1945	1974	Just partially visible in 1969, Observed but not recorded Barnett 2004- decay
TP3	UNKNOWN HOPPER BARGE	ST 6833 0391	Observed	N/A	Y	1945	1974	Just partially visible in 1969, Observed but not recorded Barnett 2004- decay
TP4	UNKNOWN HOPPER BARGE	ST 6811 0363	Observed	N/A	Y	1945	1974	Partially visible in 1969, Observed but not recorded Barnett 2004- decay
TP5	UNKNOWN HOPPER BARGE	ST 6812 0363	Observed	N/A	Y	1945	1974	Partially visible in 1969, Observed but not recorded Barnett 2004- decay
TP6	UNKNOWN HOPPER BARGE	ST 6810 0362	Observed	N/A	Y	1945	1974	Partially visible in 1969, Observed but not recorded Barnett 2004- decay
TP7	UNKNOWN HOPPER BARGE	ST 6810 0362	Observed	N/A	Y	1945	1974	Partially visible in 1969, Observed but not recorded Barnett 2004- decay

Vessel number (Barnett 2004)	Name	NGR	MacGregor's (1952) Numbering	Parker's (1998) Numbering	Vessel visible on APs	First visible by	Not Visible by	Hulk History/fate
TP8	UNKNOWN HOPPER BARGE	ST 6811 0361	Observed	N/A	Y	1945	1974	Partially visible in 1969, Observed but not recorded Barnett 2004- decay
39	FCB 51	Not available	N/A	N/A	N		N/A	Wheeler D., 1965 - buried
40	UNKNOWN	Not available	N/A	N/A	N		N/A	Wheeler D., 1965- buried
41	UNKNOWN	Not available	N/A	N/A	N		N/A	Wheeler D., 1965- buried
42	UNKNOWN	Not available	N/A	N/A	N		N/A	Wheeler D., 1965- buried
43	MARY	Not available	1	42	N		N/A	Wheeler D., 1965- burnt & buried
44	SEVERN FALCON	ST 6779 0342	N/A	N/A	Y	1969	N/A	Partially visible 2006
45	SEVERN CONVEYOR	ST 6751 0316	N/A	N/A	Y	1979	N/A	Still clearly visible
46	STEEL LIGHTER No 9	ST 6749 0315	N/A	N/A	Y	1979	N/A	Still clearly visible
47	SEVERN HAWK	ST 6737 0308	N/A	N/A	Y	1979	N/A	Still clearly visible - decay
48	SEVERN EAGLE	ST 6735 0308	N/A	N/A	Y	1979	N/A	Still clearly visible- decay
49	CRANHAM	ST 6732 0308	N/A	N/A	Y	1979	N/A	Still clearly visible - partially buried and decay
50	CHEDWORTH	ST 6729 0308	N/A	N/A	Y	1979	N/A	Still clearly visible - partially buried and decay
51	BROCKWORTH	ST 6728 0307	N/A	N/A	Y	1979	N/A	Still clearly visible- partially buried and decay
52	HOPPER NO 2	ST 6727 0307	N/A	N/A	Y	1979	N/A	Still clearly visible- partially buried and decay
53	TUFFLEY	ST 6724 0308	N/A	N/A	Y	1979	N/A	Still clearly visible- partially buried and decay
54	BARNWOOD	ST 6722 0307	N/A	N/A	Y	1979	N/A	Still clearly visible- partially buried and decay
55	CAM	ST 6719 0308	N/A	N/A	Y	1979	N/A	Still clearly visible- partially buried and decay
56	MATSON	ST 6717 0308	N/A	N/A	Y	1979	N/A	Still clearly visible- partially buried and decay
57	BIRDLIP	ST 6714 0308	N/A	N/A	Y	1979	N/A	Still clearly visible- partially buried and decay
58	SANDHURST	ST 6712 0308	N/A	N/A	Y	1979	N/A	Still clearly visible- partially buried and decay

Vessel number (Barnett 2004)	Name	NGR	MacGregor's (1952) Numbering	Parker's (1998) Numbering	Vessel visible on APs	First visible by	Not Visible by	Hulk History/fate
59	LIGHTER NO 20	ST 6709 0308	N/A	N/A	Y	1979	N/A	Still clearly visible- partially buried and decay
60	LIGHTER NO 32	ST 6706 0308	N/A	N/A	Y	1979	N/A	Still clearly visible- partially buried and decay
61	LIGHTER No 23	ST 6704 0308	N/A	N/A	Y	1979	N/A	Still clearly visible- partially buried and decay
62	MARY	Not available	N/A	N/A	N	N/A	N/A	Obscured by overhanging trees - submerged
63	UNKNOWN HOPPER BARGE	Not available	N/A	N/A	N	N/A	N/A	Obscured by overhanging trees- submerged
64	SOCEITY	Not available	N/A	N/A	N	N/A	N/A	Obscured by overhanging trees- submerged
65	UNKNOWN HOPPER BARGE	Not available	N/A	N/A	N	N/A	N/A	Obscured by overhanging trees- submerged
66	ALASKA	ST 6677 0293	N/A	N/A	Y	1945	1946	Broken up and washed away
67-77								Vessels broken up at Sharpness – to be reported on separately by Friends of Purton.
78	TRIBUNE	ST 6674 0225	N/A	N/A	Y	1945	1951	Broken up - keel plates remain in mud

Appendix II Aerial Photographs

Listed below are the main aerial photographs used in this aerial photographic progression study, though many more were actually viewed.

National Monument Records Collection

RAF Vertical Photography

NMR RAF/106G/UK/733 3048-3049; 3130; 4046 26-AUG-1945

NMR RAF/106G/UK/339 7037-7038; 7112-7113; 7190 24-MAY-1945

NMR RAF/CPE/UK/1825 3049; 3051-3052; 4066-4067 04-NOV-1946

NMR RAF106G/UK/1295 3051 26-MAR-1946

NMR RAF/CPE/UK/2098 3277-3278; 4066; 4371-4373 28-MAY-1947

Ordnance Survey Vertical Photography

OS/69117 155-157; 177-178; 233-234 18-APR-1969

OS/74001 005-006 02-MAR-1974

OS/71301 100 24-JUN-1971

OS/79034 024-026; 031-032 19-MAY-1979

Specialist Oblique Photography

NMR SO6804/2 NMR 15531/09 18-JUL-1996

NMR SO6703/2 NMR 15531/11 18-JUL-1996

NMR SO/6804/5 NMR 21101/11 07-FEB-2001

NMR SO/6804/5 NMR 21101/11 07-FEB-2001

NMR SO6804/017 NMR 24763/13 05-OCT-2007

NMR SO6804/018 NMR 24763/14 05-OCT-2007

Google Earth (earth.google.com)

Dates given for vertical photography were:

31-DEC-1999

31-DEC-2006

17-APR-2005

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