# **LONDON GATEWAY**

# POST-FIELDWORK ASSESSMENT

Prepared by:

# **Wessex Archaeology**

Portway House Old Sarum Park Salisbury SP4 6EB

For:

**London Gateway** 

Gate 2
The Manorway
Stanford Le Hope
Essex
SS17 9 PD

Report ref.: 72430.02

January 2010

Title: London Gateway: Post-Fieldwork Assessment

Author(s):

Managed by:

Origination date:

Date of last revision:

Niall Callan

Antony Firth

03 August 2009

08 January 2010

Version: 72430.02 Status: Draft

Summary of changes: Revisions following mtg of 24 Nov and conservation

assessment

Associated reports:

Wessex Archaeology QA:

Client Approval:

# LONDON GATEWAY

# POST-FIELDWORK ASSESSMENT

Report ref.: 72430.02

# **Table of Contents**

1.	INTRODUCTION	1
2.	ARTEFACT ASSESSMENT	.2
2.1.	Site 5010: Dovenby (south)	.2
2.2.	Site 5019: 'The King'	
2.3.	Site 5020: Iron Bar Wreck	3
2.4.	Site 5029: London	. 4
2.5.	Site 5046: Wreck NW of Sea Reach 1	.4
2.6.	Site 5050: Mound	
2.7.	Site 5051: Unknown Wreck, Mid Blyth	
2.8.	Site 5057: HMS Aisha	
	Site 5124: Unknown Wreck	
	Site 5185: Ancient Wreck	
	Site 5195: Submarine Boom	
	Site 5204: Pottery Wreck	
	Site 5230: Brick Barge	
	Site 7345: Disturbed Area (section of planking)	
	Site 7404: 60m Feature	
	Site 7563: Complex Anomaly	
APPE	ENDIX I: LIST OF SITES SUBJECT TO CLEARANCE MITIGATION STATEMENTS	12
APPE	ENDIX II	15
	ENDIX III: SUMMARY OF PROPOSALS FOR FURTHER RECORDING, ANALYS OR CONSERVATION	
Roles	and Responsibilities in Respect of Archaeological Material Recovered in Developmen Led Contexts	
Disca	ırd	16
Sumr	mary	17

# **LONDON GATEWAY**

# POST-FIELDWORK ASSESSMENT

Report ref.: 72430.02

#### 1. INTRODUCTION

- 1.1.1. This document has been prepared by Wessex Archaeology on behalf of London Gateway Port in the course of developing proposals for the publication of the results of investigations associated with the development of the port in the period 2001-2008.
- 1.1.2. This document also forms a basis for discussions about the disposal (to a publicly accessible archive) and discard of material recovered in the course of these investigations, within the context of the overall project archive (including paper and digital evidence).
- 1.1.3. Several phases of investigations were carried out in the period 2001-2008. The majority of this report is concerned with physical interventions (diving and salvage/recovery). Reference is also included to previous interventions that resulted in the recovery of material, where known.
- 1.1.4. Physical interventions in 2001-2008 were initiated both by archaeological and non-archaeological concerns. The PLA was responsible for most of the non-archaeologically directed interventions; the PLA also incorporated assistance from archaeologists at the University of Wales Lampeter in some of their earlier investigations, and carried out joint investigations with WA. The PLA also commissioned stand-alone investigations by WA. There is one instance of an intervention not initiated by the PLA, which was an intervention to recover cannon from the London/King site by a salvage operator. Subsequent to the designation of the London/King site under the Protection of Wrecks Act 1973, WA has also carried out archaeological investigations on behalf of English Heritage under a Contract for the Provision of Archaeological Services in support of the PWA 1973.
- 1.1.5. Other than for salvage or clearance works, material was primarily recovered to assist in identifying, dating or characterising the sites. Most of the material was recovered from the surface of the seabed; limited excavation took place in some instances, with material intercepted either by the diver or via a water dredge to the diving vessel. Given the heavy use of the Thames over the centuries and the complexity of processes involved in wrecking (and historic salvage and/or clearance), there is scope for material which is residual (i.e. not associated with the site in its original context) to be included amongst the recovered assemblages.
- 1.1.6. A detailed account of each of the sites referred to here, including the history of investigations, interpretation based on geophysical, diving and documentary research, background history and identification of importance, is set out in a series of Clearance Mitigation Statements (CMS) previously submitted to English Heritage (see Appendix I). The location of all the sites subject to CMS is shown in Figure 1. Proposals for the treatment of each site in the context of proposed dredging has been agreed with English Heritage on the basis of each CMS and the results of diving investigations set out in Field Reports. Where further monitoring or intervention is proposed, details of the scope of works and methods is set out in Method Statements agreed with English Heritage (London Gateway Port: Channel

- Report ref.: 72430.02
- Clearance and Dredging. Archaeological Exclusion Zones and Monitoring Regimes: Method Statement, 24/11/08).
- 1.1.7. The majority of this document is concerned with an assessment of the artefacts from each site, which should be read in conjunction with the artefact catalogue set out in Appendix II (bound separately). For the purposes of this assessment, artefacts include structural timbers (recorded as contexts) and samples as well as small and large finds. Proposals for further recording, analysis or conservation are where warranted summarised by material type and site in Appendix III.

#### 2. ARTEFACT ASSESSMENT

# 2.1. SITE 5010: *DOVENBY* (SOUTH)

- 2.1.1. **Site 5010** is thought to be the wreck of the *Dovenby*, a steel barque built in Sunderland in 1891. The vessel sank on 6<sup>th</sup> November 1914 following a collision with the SS *Sindoo*. The wreck was subjected to several dispersal operations including explosives and underwater oxy-acetylene cutting on several occasions in 1915, 1924 and 1967.
- 2.1.2. It was thought that this site (**5010**) and **Site 5012** represented two separate sections of the vessel. Recent documentary and geophysical investigations have suggested that this may not be the case. It is currently thought that this site (**5010**) corresponds to the measurements of the *Dovenby* and that **Site 5012** is the wreckage of another vessel.
- 2.1.3. This site was dived by WA in August 2006, along with **Site 5012**. Archaeological features indentified included a ship's bollard, several sections of steel outer hull plating and a feature which may have been the vessel's mast. No objects were recovered from the site during WA diving operations.
- 2.1.4. A section of steel mast is said to have been recovered from this site in 1967. There is no information on the current location or condition of this material and it is not known if it was retained.
- 2.1.5. A further section of riveted tube, presumed to be a mast or spar, was recovered by the PLA in 2008 in the course of filming by Touch Productions for *Thames Shipwrecks*. This material is presumed to have been discarded by the PLA.

# 2.2. SITE 5019: 'THE KING'

- 2.2.1. **Site 5019** is a wreck known as 'the King', though its identity is not certain. The character of the artefacts recovered from the site indicate a possible date as early as the latter half of the 17<sup>th</sup> century and the site lies approximately 400m to the west of the site thought to be the wreck of the *London* (**Site 5029**). It is possible that the two sites may represent two sections of the wreck of the *London*, which was blown apart in a large explosion on 7<sup>th</sup> March 1665.
- 2.2.2. A number of cannons have been recovered from the London/King site in the past. One cannon a bronze demi-culverin on display at the Royal Armouries is reported to have been recovered in 1962 from 5019. Up to five additional cannons recovered in 2007 as part of a commercial salvage operation may have been removed from 5019; these five cannon are currently held by the Royal Armouries. In

- Report ref.: 72430.02
- addition, two cannon are reported to have been recovered from 5029 in 1980 (see below).
- 2.2.3. Site 5019 consists of three main sections of wreckage including several upstanding sections of coherent vessel structure. A number of artefacts were recovered from the site by the PLA with WA in attendance in October of 2007 and continue to be held by the PLA. Of these artefacts, two may warrant active conservation as they have potential for display.
- 2.2.4. The wooden wheel and pin (**5019-002**) may be the wheel from a gun carriage. The wheel has survived in a reasonably good condition and has not appreciably deteriorated since 2007, apart from some staining of the wood most likely due to contact with oxidised iron in the water it was stored in.
- 2.2.5. The wooden deadeye (**5019-008**) has been similarly stained but remains in otherwise good condition. Some of the concretion around the rope cord on the deadeye has broken off, but the form of the object is still intact.
- 2.2.6. The wooden stock of a firearm (**5019-001**) unfortunately broke at some point prior to the filming of *Thames Shipwrecks*. Approximately fifty per cent of the object survives and it is no longer immediately recognisable as the stock of a weapon. This object was already a fragment of an artefact rather than a complete artefact, though it was still recognisable and could have had potential for display. Taking into account the additional damage, this object is considered unlikely to warrant display.
- 2.2.7. The identification and functions of the leather string (5019-003), lead pipe (5019-005), brass ring (5019-006) and lead fragment (5019-007) are uncertain. It seems unlikely that they will contribute greatly to understanding the archaeological character of the site and their potential for display seems to be low. Similarly the concreted rope (5019-004) could benefit from active conservation but it is only a fragment and its archaeological significance may not warrant further investigation or display. These items should, however, be stabilised and retained as part of the site archive.
- 2.2.8. Site 5019 was designated under the Protection of Wrecks Act (1973) in 2008. Both this site and Site 5029 were designated together as the site of HMS London. The site was subsequently subject to further diving investigations by WA in June 2009 as part of the Contract for Archaeological Services in relation to the Protection of Wrecks Act.

#### 2.3. SITE 5020: IRON BAR WRECK

- 2.3.1. Site 5020 is a wreck whose identity is not currently known. The site was discovered in 1978 when it was partially salvaged by the PLA. Some vessel structure is reported to have been recovered from this site at this time. The current location and condition of this material is unknown and it is not known if it was retained.
- 2.3.2. The site was later dived by the PLA in a joint operation with Nigel Nayling of University of Wales Lampeter (UWL) in 2005. Divers observed a minor scour hole and a debris field including iron bars, concretions, some baulks of timber with treenails and other smaller objects. Some timber and concreted rope were recovered from the site during this diving investigation. This material is reported to be held at UWL and has not been seen by WA.

# 2.4. SITE 5029: LONDON

- 2.4.1. As mentioned above, Site 5029 is thought to represent part of the wreckage of the London, a ship of the line built in Chatham in 1654. London participated in the First Dutch War and was part of the English squadron sent to the Netherlands to retrieve Charles II on the restoration of the monarchy in 1660. The vessel was lost after being ripped apart in a massive explosion on 7<sup>th</sup> March 1665.
- 2.4.2. Two cannons were recovered from this site by the PLA in 1980. As noted above, one cannon recovered in 1962 and at least two of five cannons recovered in 2007 may also be associated with the *London*.
- 2.4.3. The site was dived by WA in April 2008. The diver observed three sections of upstanding coherent vessel structure, consistent with what was observed on the geophysical surveys. The vessel structure consisted predominantly of eroded frames and planking. WA recovered three objects from this site during these diving operations. These were a sherd of pottery (5029-001), a fragment of concretion (5029-002) and a number of wooden sticks (5029-003).
- 2.4.4. The sherd of pottery (**5029-001**) is not considered to be suitable for display and it is proposed only that it be stabilised as archive material. The concretion (**5029-002**) may warrant X-ray for identification/recording but may then be discarded. The wooden sticks (**5029-003**) have been reclassed as a sample and it is proposed that they be discarded.

#### 2.5. SITE 5046: WRECK NW OF SEA REACH 1

- 2.5.1. Site 5046 is a wreck whose identity is not currently known. It was discovered by the PLA in 1990. The site was dived by WA in November 2007 and in April of 2008. Diver observations during operations in November 2007 suggested that some vessel structure may exist on the seabed and a piece of wood with a metal fastening (5046-001) was recovered from the site. Subsequent investigations in April 2008 confirmed the presence of coherent vessel structure on the site and a number of other objects were brought to the surface.
- 2.5.2. An iron knee (**5046-011**) was recovered from this site by WA in April 2008. However, the object was not seen at Denton Wharf during the visit carried out in October 2009 and it is not among WA's assemblage of artefacts. Its current location and condition is unknown.
- 2.5.3. A number of smaller objects were recovered from the site during the diving investigation. These were a piece of concreted chain (5046-003), a fragment of timber beam (5046-004), a concreted metal bolt (5046-006), a brown glass bottle (5046-007), a green glass bottle (5046-008), an unidentified concretion (5046-009) and a fragment of yellow brick (5046-010).
- 2.5.4. Of these items, the green glass bottle (**5046-008**) may be of some interest as a display item as it has markings which identify its purpose and manufacturer. The bottle displays the lettering 'Buchanan's Black and White Whisky'. It may date from as early as 1884, but could also be of modern date due to the longevity of this particular brand. The fragment of yellow brick (**5046-010**) could also be retained as part of the site archive.
- 2.5.5. The brown glass bottle (**5046-007**) can be discarded as it is of modern origin; its markings indicate a post-World War II date.

- Report ref.: 72430.02
- 2.5.6. The concretions (**5046-003**; **5046-006**; **5046-009**) appear to have low potential for research or display and it is proposed that they be X-rayed to provide a record and discarded. The fragment of timber beam (**5046-004**) also appears to have low potential for research or display and could be discarded.
- 2.5.7. Five stone cobbles (**5046-002**) were also recovered; these have been reclassed as a sample and may be discarded

#### 2.6. SITE 5050: MOUND

- 2.6.1. Site 5050 was located by the PLA in 1978. Following the retrieval of a piece of metal structure from the site by the PLA in 2005, it was suggested that the site may represent the wreckage of an aircraft under a mound which was noted on multibeam data in 2006. The metal structure is held by the PLA and may warrant further investigation to attempt to identify its origin. WA has previously proven the importance of relatively small pieces of aircraft wreckage in the identification of aircraft type through its implementation of the Marine Aggregate Industry Protocol for Finds of Archaeological Interest.
- 2.6.2. The site was dived by WA in November 2007. The site was found to consist of a low mound of cobbles and boulders, with some coal present. No evidence of aircraft structure was noted, and there is now some question over whether the object recovered by the PLA was actually found in association with the mound. Three pieces of coal (5050-001 to 5050-003) were recovered from this site during WA diving investigations. These were subsequently reclassed as samples and may be discarded.

# 2.7. SITE 5051: UNKNOWN WRECK, MID BLYTH

- 2.7.1. Site 5051 is a wreck whose identity is currently unknown and was formerly referred to as 'old timbers and concrete'. WA diving investigations in November of 2007 and April and June of 2008 confirmed the presence of upstanding coherent vessel structure and some largely buried sections of vessel structure near the Mid Blyth buoy. A number of objects were recovered from the site, which indicate a date somewhere in the latter half of the 19<sup>th</sup> century.
- 2.7.2. Elements of a leather shoe (**5051-066**) and boot (**5051-067**) were recovered from this site by WA during diving investigations in June 2008. These items comprise several fragments of the sole and uppers of the shoe and the uppers of the boot. As these are items of clothing directly related to the crew of this vessel, they have potential for display supported by further limited analysis.
- 2.7.3. In addition to the shoe and boot, several fragments of tools such as shovel or spade handles were also recovered. These include one wooden tool handle with the letters "WG" crudely incised over a more carefully marked letter "D" (5051-045) which may be personal initials. A wooden tool handle with five notched marks (5051-046) was also recovered, along with an unmarked handle (5051-047). These objects, although representing pieces of tools rather than intact objects, have potential for limited research and display because of their form, the evidence of their workmanship and their link with the crew of the vessel.
- 2.7.4. Two further groups of wooden objects were recovered: a number of barrel staves (5051-051) and an intact single sheave block (5051-030). The barrels staves, though not forming part of an intact barrel, provide some reflection of the character of the vessel. They could have been related to an activity the vessel was

undertaking at the time of its loss, such as trading, or they may have formed part of the stores or provisions kept aboard. The sheave block would have formed part of the vessel's rigging, and it is of archaeological interest by virtue of its condition, but is also interesting in terms of its form and function.

- 2.7.5. In addition to the items mentioned above, numerous wooden artefacts or fragments of wooden artefacts were recovered (5051-001; 5051-004; 5051-005; 5051-048; 5051-042), the archaeological interest of which is insufficient to propose further analysis or display and it is therefore proposed that they be discarded. Some wooden items were considered to be so fragmentary as to warrant being reclassed as samples rather than objects, and discarded. It is also proposed that a sample of flint and fragments of brick, animal bone, clinker, concretion, and coal are also discarded.
- 2.7.6. Several objects have been proposed for discard because their archaeological interest appears to be minimal. These include a modern plastic tile (5051-023) and numerous shards of glass vessels that are too fragile or small to warrant retention (5051-023, 5051-024, 5051-061 and 5051-062). Concretions that appear to comprise fastenings (e.g. nails) (5051-054 and 5051-60) warrant X-ray to provide a record prior to discard.
- 2.7.7. Other fragile objects were recovered from the site which would require stabilisation in order to ensure their survival. These include two pieces of cord (5051-042) and some fragments of rope (5051-057) and fabric (5051-037). These objects are not as intact as the fragments of the leather shoe or boot discussed above. Unlike the shoe and boot pieces they do not reflect the form of the original object. They are unlikely to provide much further information on the archaeological character of the site and they are unlikely to be desirable as display objects. Whilst the cord may be conserved, it is proposed that the fragments of rope fabric be discarded.
- 2.7.8. The majority of the remaining objects from this site consist of ceramics, glass and metal items. Two ceramic vessels have intact stoppers or corks and may retain their original contents. These vessels are an upright stoneware bottle (5051-025) and a larger glazed vessel (5051-050). Analysis of the contents of these vessels may provide valuable information on some of the cargo the vessel may have been carrying, or may provide insight into life on board the ship if the vessels represent provisions rather than cargo. It is proposed that these objects be subject to active conservation measures with a view to analysing their contents, if possible.
- 2.7.9. Several of the remaining artefacts are likely to be of interest for educational or display purposes. As the conservation requirements of these objects are minimal, it is proposed that they be retained as archive material. These objects include: a pewter spoon with manufacturer's mark (5051-031); a ceramic upright bottle with manufacturer's and purchaser's marks (5051-012); a ceramic glazed plate with manufacturer's mark (5051-013); two yellow ware squat jars (5051-026 and 5051-027) and an additional lid for a similar jar (5051-028); a whiteware coffee pot lid with treacle glaze (5051-034); and a stoneware 'bung' jar (5051-036). An additional whiteware or pearlware ceramic dish (5051-029) may be of interest for display purposes, although it is incomplete and broken.

# 2.8. SITE 5057: HMS AISHA

2.8.1. Site 5057 is identified as HMS *Aisha*, a motor yacht built in 1934 and adapted for wartime use. HMS *Aisha* was sunk by a mine in 1940. No WA diving operations have taken place. At least three structural elements were recovered by the PLA in

2008 in the course of filming by Touch Productions for *Thames Shipwrecks*. This material is presumed to have been discarded by the PLA.

# 2.9. SITE 5124: UNKNOWN WRECK

- 2.9.1. The current identity of **Site 5124** is unknown and the site has not been positively identified as the wreck of a vessel. The site was dived by WA in November 2007 and April 2008. Divers observed a scatter of objects, including iron bars, ferrous concretions and concrete and iron rebar within a large shallow scour.
- 2.9.2. A fragment of concrete and iron rebar (**5124-001**) was recovered from this site during WA diving investigations in April 2008. It is proposed that it be discarded.

#### 2.10. SITE 5185: ANCIENT WRECK

2.10.1. Site 5185 was first reported in 1968 when an 'Ancient Wreck' is reported to have been grabbed clear to seabed level. Geophysical surveys in 2001 and 2002 revealed scour scars on the seabed in this location, however no features were observed on subsequent geophysical surveys in 2006 and 2007. WA conducted diving operations on the site in November 2007 and no archaeological features or artefacts were observed.

#### 2.11. SITE 5195: SUBMARINE BOOM

2.11.1. **Site 5195** is one of a number of sites where remains of a submarine boom have been located. Sinkers and other debris were recovered by the PLA from submarine boom sites **5025**, **5026** and **5193** in 2005. This debris was not seen by WA during the visit to Denton Wharf in 2009 and it is presumed to have been discarded.

#### 2.12. SITE 5204: POTTERY WRECK

- 2.12.1. Site 5204 is a wreck whose identity is currently unknown. It was discovered by the PLA in 1999. A joint diving investigation was carried out on the site between the PLA and Nigel Nayling of UWL in 2005 when some timbers were recovered (including 5204-1016; 5204-1017; and other timbers that may correspond to Timbers 11, 12 and 15 see Appendix II). These diving operations and subsequent diving carried out by WA in August 2006 and June 2008, identified the remains of a wooden vessel including an elm keel and frames and planks of oak.
- 2.12.2. The timbers recovered from the site suggest that the vessel may have originally been clinker built and later converted to carvel construction. It has been suggested by Damian Goodburn that the wreckage represent that of a Thames Bawley, a local fishing vessel used in the Thames and along the east coast. This possible identification would suggest that the vessel dates to the later 19<sup>th</sup> century which would be in keeping with the general character of the objects recovered from the site.
- 2.12.3. A large number of objects were recovered from this site during WA diving investigations in June 2008, including a number of structural timbers which have been classed as contexts.
- 2.12.4. The structural timbers have been stored in passive conservation at the PLA's premises at Denton Wharf. WA staff visited Denton Wharf in September 2009 to assess the condition of the timbers. Unfortunately, a number of timbers were found

- Report ref.: 72430.02
- to be only halfway submerged in the water tank at Denton Wharf, and many of these had suffered damage and were in the process of becoming dried out.
- 2.12.5. Three timber futtocks recovered by WA were observed to be in a reasonable state of preservation. Futtocks 5204-1006 and 5204-1007 were observed to be slightly eroded and in the case of 5204-1007, had begun to dry, but were considered to be in a good enough condition to warrant further consideration. Futtock 5204-1003 was in a better condition and was observed to include sapwood on two faces of the timber. This timber should be considered for dendrochronological sampling and analysis and active conservation, if possible, afterwards.
- 2.12.6. In addition to the futtocks, a large element of the likely sternpost of the vessel survives in the form of two adjoining timbers (5204-1011a and 5204-1011b). These timbers are in a good state of preservation, although they have been discoloured like most of the timbers stored at Denton Wharf, by oxidised iron in the water they were kept in. These two timbers have several fastenings which are of archaeological interest in relation to the construction methods used in building the vessel. There is also a concretion adhering to both timbers, which appears to be part of the gudgeon running from one timber to the other. The state of preservation of these timbers is further evidenced by the survival of traces of caulking material on the two adjoining faces of the timbers. Viewed together, these two timbers reflect a small but coherent section of the vessel's construction and are therefore of sufficient archaeological interest to warrant active conservation.
- 2.12.7. A large section of the vessel's keel (5204-010) was recovered in June of 2008. This timber was not seen during WA's visit to Denton Wharf in September 2009. Its current location and condition is unknown. A sample of elm keel was found among the objects from this site stored at WA. This has been tentatively related to this site and assigned the number 5204-1015 as a provisional context number. The sample is too small to provide any further information on the vessel construction and its relationship to the site is still uncertain at present.
- 2.12.8. The remaining structural timbers recovered by WA comprise two futtocks (5204-1004 and 5204-1005) and five planks (5204-1008, 5204-1009, 5204-1012, 5204-1013 and 5204-1014). Despite deterioration due to drying, these timbers are of archaeological interest as part of the vessel's structure. These timbers could be stabilised by controlled drying and retained as part of the archive, though they may also be of interest for education/training purposes as a focus for practical workshops on timber recording.
- 2.12.9. An additional eight timbers were found in the water tank at Denton Wharf, three of which appear to match other sites whilst two can be positively correlated (numbered retrospectively 5204-1016 and 5204-1017) with timbers recovered from 5204 by the PLA in 2005. However, there are three timbers that are not numbered but which may be timbers recovered from this site by the PLA in 2005. Both 5204-1016 and 5204-1017 include preserved sapwood and may be suitable for dendrochronological analysis. Both have remained fully wet and are suitable for conservation. Three other timbers (Timbers 11, 12 and 15) may also be from 5204, have remained fully wet and are suitable for conservation, if their provenance can be confirmed.
- 2.12.10. A large number of objects were recovered from the site, including wooden items, fragments of textile, sherds of pottery, shards of glass vessels, a bone handle from a knife or similar (5204-012), a button (5204-020), a fragment of stamped brick (5204-007) and some lead items.

- Report ref.: 72430.02
- 2.12.11. The wooden items (**5204-022** and **5204-041**) should be reviewed to see if any specific items can be identified; otherwise they are unlikely to be of research or display interest and could be discarded. The fragments of textile are not thought to warrant retention. It is proposed that the bone handle, button, stamped brick, lead and so on can be conserved to form part of the site archive.
- 2.12.12. No intact pottery or glass vessels were recovered. Whilst the pottery can contribute to the site archive the majority of glass objects are considered to be too fragmentary and fragile to justify retention. It is proposed that glass fragments (5204-002, 5204-021 and 5204-029) be discarded. One glass object can be considered of interest, a dark green bottle top with a squared neck (5204-003), which has been dated to the 19<sup>th</sup> century. This item is most likely to be too fragmentary to be desirable as a display item, but it is worth retaining based on its positive dating.
- 2.12.13. Three objects from this site are considered to be of note. The sole of a leather shoe (5204-040) was recovered from the site, along with a possible palm thimble (5204-044) and an unidentified concretion (5204-042). The leather shoe is considered to be of interest due to its relative fragility, state of preservation and status as a personal item of clothing. The palm thimble is a similarly evocative personal item of equipment. It has been suggested that the concretion may contain part of a leather shoe in addition to its ferrous content. The leather shoe and palm thimble have potential for display and limited analysis, and it is proposed that the concretion be X-rayed in order to assess its composition.
- 2.12.14. During post-excavation two objects a collection of small fragments of concretion (5204-30) and a collection of lumps of coal (5204-039) were reclassed as samples alongside other samples of animal bone and coal. It is proposed that these samples be discarded.

#### 2.13. SITE 5230: BRICK BARGE

- 2.13.1. Site 5230 has been charted by the UKHO as the remains of a possible brick barge lost in 1922, based on a letter received from the PLA in April of that year.
- 2.13.2. A number of objects and samples were raised from this site prior to WA's diving investigations. An unquantified number of finds were recovered by the PLA in 2002, and further items including brick, metal and concreted rope were recovered by the PLA and Nigel Nayling of UWL n 2005. These objects were not seen by WA during the visit to Denton Wharf in September 2009. Their current condition and location is not known.
- 2.13.3. The bricks recovered by the PLA were reported to have rudimentary frogging stamped with markings appearing to read "D" and "8" or "DKB". These stamps suggest that the bricks are post-1850 in date.
- 2.13.4. Diving investigations carried out by WA in November 2007 confirmed the presence of a large mound on the seabed. Divers observed an isolated timber plank, a number of concretions and a large upstanding linear concretion, thought to represent a bulkhead. This would seem to indicate the presence of a vessel with major metal construction parts and minor wooden features, which would be in keeping with the late 19<sup>th</sup> or early 20<sup>th</sup> century date suggested by the evidence from the bricks and PLA letters of 1922.
- 2.13.5. A number of objects were recovered during the WA diving investigation including bricks (5230-001 and 5230-002), worked wood (5230-003), heavily eroded and

water-worn wood (**5230-004** to **5230-007**), a fragment of concretion (**5230-008**) and a piece of clinker/slag (**5230-009**). Aside from the b, which will be retained, none of the recovered objects seems likely to be of any interest for further research or display, and it is proposed that they be discarded.

# 2.14. SITE 7345: DISTURBED AREA (SECTION OF PLANKING)

- 2.14.1. The character of Site 7345 is ambiguous. A section of coherent vessel structure was recovered from the site by the PLA in 2006. This section of structure was observed to be in a good state of preservation when inspected by WA during the visit to Denton Wharf in September 2009. The structure appears to be a section of hull or deck planking, fastened with copper nails and comprising four incomplete planks and four supporting timbers, possibly ledges.
- 2.14.2. This section of structure provides information on the construction of the vessel. Due to its condition, it may also be of interest as a display object. It is suitable for conservation as part of the archive for this site.
- 2.14.3. A number of objects were recovered from the site during WA's diving investigations in November 2007. These objects included a piece of heavily degraded timber (7345-001), three pieces of clinker/slag (7345-002 to 7345-004) and a fragment of concretion (7345-007). Two pieces of coal were also recovered (7345-005 and 7345-006) and subsequently reclassed as samples.
- 2.14.4. The timber recovered in 2007 is in a very poor state of preservation and as it is only a small fragment of a larger timber it is of no particular interest and may be discarded. It is proposed that the samples of coal and the clinker also be discarded. The concretion should be X-rayed as a record and discarded.

#### 2.15. SITE 7404: 60M FEATURE

- 2.15.1. The identity of Site 7404 is currently unknown, and there is at present insufficient evidence to prove that this site represents the wreck of a vessel. The site was identified as a large rectangular feature from a sidescan survey carried out in 2002. A subsequent multibeam bathymetry survey carried out in 2006 identified an area of large sandwaves. The sandwaves are thought to be natural in origin, though one in particular was considered to be large enough to obscure the remains of a wreck if one was present.
- 2.15.2. Objects including animal bone, wood and coal were recovered from the site by the PLA in 2006. Of these objects, only the wooden item was seen by WA during the visit to Denton Wharf in September 2009. This wooden item warrants recording and identification, followed by review as to whether conservation and archiving is warranted.
- 2.15.3. No archaeological features were observed by WA during diving operations carried out in November 2007.

#### 2.16. SITE 7543: GERMAN AIRCRAFT

2.16.1. Site 7543 was discovered following a sidescan survey in 2001. Elements of aircraft wreckage were recovered from this site by the PLA in 2006. These included an engine, a strut that had broken off from the engine, a possible gearbox or tachometer and a gearwheel.

- Report ref.: 72430.02
- 2.16.2. The engine was marked with the letters and numbers "MZM H 544" which were described as being clearly painted on one side of the crankcase. The engine was subsequently identified as a German Jumo 211 type engine, which was used in HE 111, Ju87 and Ju88 bombers in World War II.
- 2.16.3. The site was dived by WA in August 2006. Several metal objects, most likely aluminium, were observed but none were positively identified and no material was recovered.
- 2.16.4. The air crash site was reported to the MOD and following correspondence the engine is thought to have been disposed of by the PLA to the Imperial War Museum, Duxford. However, the gearbox/tachometer is still held by PLA and it is proposed that this also be disposed of to the Imperial War Museum to re-join the rest of the material from this site.

#### 2.17. SITE 7563: COMPLEX ANOMALY

- 2.17.1. The character of **Site 7563** is ambiguous and there is at present insufficient evidence to prove that this site represents the wreck of a vessel.
- 2.17.2. WA conducted diving investigations on this site in November 2007. A number of possible concretions were encountered, but no definitive evidence of vessel structure was observed. Two objects were recovered from during these diving operations; a glass bottle (7563-001) and a piece of clinker/slag (7563-002). Neither item is of particular archaeological interest, though the glass bottle may have potential as a display item. It is proposed that the bottle be retained but that the clinker be discarded.

#### 2.18. UNKNOWN SITE

2.18.1. A timber is currently held by the PLA that WA is presently unable to link to a specific site. The same timber was photographed by WA in March 2006 and is labelled 23-02-2006, which may be the date of recovery. This timber should be retained pending clarification of its provenance.

London Gateway: Post-Fieldwork Assessment Report ref.: 72430.02

# APPENDIX I: LIST OF SITES SUBJECT TO CLEARANCE MITIGATION STATEMENTS

Site no.	Site name	WA Diving investigation	Most recent CMS	Artefacts Recovered	Easting (UTM 31N)	Northing (UTM 31N)
5005	Letchworth	August 2006	WA, 2007, London Gateway Wreck Clearance: Archaeology. Clearance Mitigation Statement. Second Draft. Ref: 61209.5005.02	No	357549.74	5705589.94
5008	Argus	N/A	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigation Statement. Second Draft. Ref: 61209.5008.02	No	359503.32	5706073.12
5010	Dovenby (south)	August 2006	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigation Statement. Third Draft. Ref: 61209.5010.02	Yes	350532.05	5706553.85
5011	Atherton	N/A	WA, 2007, London Gateway Wreck Clearance: Archaeology. Clearance Mitigation Statement. Second Draft. Ref: 61209.5011.02	No	359719.62	5706188.75
5012	Dovenby (north)	August 2006 and November 2007	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigation Statement. Third Draft. Ref: 61209.5010.02	No	350448.19	5706685.40
5013	Ash	N/A	WA, 2007, London Gateway Wreck Clearance: Archaeology. Clearance Mitigation Statement. Second Draft. Ref: 61209.5013.02	No	360909.00	5706501.00
5019	'King'	November 2007 and June 2009 (PWA Project)	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Second Draft. Ref: 61209.5019.02	Yes	342686.90	5707379.72
5020	Iron Bar wreck	N/A	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Second Draft. Ref: 61209.5020.02	Yes	341911.69	5707550.25
5029	HMS London	April 2008	WA, 2007, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Second Draft. Ref: 61209.5029.02 (This is marked as final draft but does not include details of 2008 diving)	Yes	343112.19	5707357.71
5041	Aircraft?	N/A	WA, 2007, London Gateway Wreck Clearance: Archaeology. Clearance Mitigation Statement. Second Draft. Ref: 61209.5041.02	No	354161.40	5705881.59
5046	Wreck NW of Sea Reach 1	November 2007 and April 2008	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Fourth Draft. Ref: 61209.5046.04	Yes	351901.74	5706798.07

Site no.	Site name	WA Diving investigation	Most recent CMS	Artefacts Recovered	Easting (UTM 31N)	Northing (UTM 31N)
5050	Mound (formerly 'Aircraft under Mound')	November 2007	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Third Draft. Ref: 61209.5050.03	Yes	333436.00	5708585.00
5051	Unknown Wreck, Mid Blyth (formerly 'Old Timbers and Concrete')	November 2007 and April 2008 and June 2008	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Fourth Draft. Ref: 61209.5051.04	Yes	329437.32	5708632.65
5056	East Oaze Light Vessel	N/A	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Third Draft. Ref: 61209.5056.03	No	362781.54	5707383.70
5057	HMS Aisha	N/A	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. First Draft. Ref: 66895.5057.01	Yes	364010.00	5707645.00
5063	Amethyst	N/A	WA, 2007, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Second Draft. Ref: 61209.5063.02	No	364473.54	5708635.04
5100	Dynamo	N/A	WA, 2007, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Third Draft. Ref: 61209.5100.03	No	401476.90	5743770.00
5124	Unknown Wreck	November 2007 and April 2008	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Third Draft. Ref: 61209.5124.02	Yes	375524.17	5714061.12
5185/7609	Ancient Wreck	November 2007	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigation Statement. Third Draft. Ref: 61209.5185.03	Yes	325432.85	5708208.27
5195	Submarine Boom	N/A	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigation Statement. Second Draft. Ref: 61209.5195.02	Yes	348987.94	5706372.98
5204	Pottery Wreck	August 2006 and June 2008	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Second Draft. Ref: 61209.5204.02	Yes	346620.60	5706275.26

London Gateway: Post-Fieldwork Assessment

Site no.	Site name	WA Diving investigation	Most recent CMS	Artefacts Recovered	Easting (UTM 31N)	Northing (UTM 31N)
5230	Brick Barge	November 2007	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Third Draft. Ref: 61209.5230.03	Yes	344361.35	5706633.52
5960	SS Storm	N/A	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Second Draft. Ref: 66891.5960.02	No	405980.80	5747065.00
5961	Unknown (SS <i>Erna Boldt</i> ?)	N/A	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Second Draft. Ref: 66891.5961.02	No	403592.50	5747031.00
6595	Halcrow A5	N/A	WA, 2007, London Gateway Wreck Clearance: Archaeology. Clearance Mitigation Statement. Second Draft. Ref: 61209.6595.02	No	355512.45	5705621.83
7345	Disturbed Area (section of planking)	November 2007	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Third Draft. Ref: 61209.7345.03	Yes	337162.64	5708191.99
7404	60m Feature	November 2007	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Third Draft. Ref: 61209.7404.03	Yes	336497.33	5708300.03
7543	Anomaly Cluster (German aircraft)	August 2006	WA, 2007, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Second Draft. Ref: 61209.7543.02	Yes	345634.88	5706372.74
7563	Complex Anomaly	November 2007	WA, 2008, London Gateway Wreck Clearance: Archaeology. Clearance Mitigations Statement. Third Draft. Ref: 61209.7563.03	Yes	352509.00	5706657.13
5070/7209	Ryal	N/A	WA, 2007, London Gateway Wreck Clearance: Archaeology. Clearance Mitigation Statement. Second Draft. Ref: 61209.5070.02	No	366454.59	5709795.57

# **APPENDIX II**

Appendix III is bound separately.

# APPENDIX III: SUMMARY OF PROPOSALS FOR FURTHER RECORDING, ANALYSIS AND/OR CONSERVATION

# ROLES AND RESPONSIBILITIES IN RESPECT OF ARCHAEOLOGICAL MATERIAL RECOVERED IN DEVELOPMENT-LED CONTEXTS

All of the material referred to below is 'wreck' and continues to be owned by its original owner or their successors, at least until it is determined that the original owners have not laid claim and the material can be disposed of to a new owner by the Receiver of Wreck. The 'salvor' who recovered the wreck has a legal interest in the recovered material and is entitled to a salvage award from the owner. Where wreck remains unclaimed it becomes Crown property, which provides the Receiver with a basis for transferring ownership to a new owner; it has been common practice for ownership of unclaimed wreck to be granted to the salvor in place of a salvage award.

Pending resolution of ownership, there is ambiguity in the respective roles in making decisions and the responsibilities for meeting costs and obligations associated with the treatment and archiving of archaeological material. This ambiguity also encompasses the particular context of development-led archaeology and the statutory protection afforded to some sites. Consequently, the proposals set out below are not addressed to any specific party; rather, the proposals provide a focus for discussion about roles and responsibilities between original owners, prospective owners (museums/archives), salvors, developer, English Heritage as the Government's statutory adviser on protected sites, and the Receiver of Wreck.

#### **DISCARD**

It should be borne in mind that, due to extremely poor underwater visibility, some material was recovered primarily to establish its character visually on returning to the surface. Such material would not ordinarily have been sampled or otherwise recovered on a terrestrial archaeological site and can be discarded.

Other material can be discarded because it is obviously modern and/or likely to belong to the general undiagnostic and unremarkable debris that has rained down along the entire bed of the Thames in the course of its use.

Finally, some material lacks distinguishing features and characteristics and will not add to the interpretation of the site, even where the site as a whole is significant. In such cases the assemblage of material that has been recovered will effectively be split between material that warrants archiving and material that it is proposed to discard.

Where items are discarded, record sheets/database entries will be reviewed to confirm that a complete and accurate record has been obtained.

Material that it is proposed to discard generally comprises the following categories:

- roundwood;
- fragments of timber with little or no shaping;
- samples of stone, coal, clinker etc.;
- fragmentary or featureless concretions:
- concreted fastenings (nails etc.) following X-ray;
- obviously modern items (e.g. 33cl beer bottles; plastic items);
- featureless fragments of glass;
- animal bone;
- featureless fragments of fabric.

#### **SUMMARY**

# **Larger Waterlogged Items**

# Site 5204: Pottery Wreck

**5204-1003.** Timber: futtock. **5204-1006.** Timber: futtock.

**5204-1011a.** Timber: possible base of stern post.

**5204-1011b.** Large structural timber, possibly part of a stern post.

**5204-1016.** Timber: plank. **5204-1017.** Timber: futtock.

Timber 11. Timber: eroded futtock.

**Timber 12.** Timber. **Timber 15.** Timber.

# Site 7345: Disturbed Area (section of planking)

**7345.** Coherent vessel structure. Timber with copper fastenings.

Conservation is likely to include:

- Desalination.
- Removal of iron salts to allow PEG treatment to be successful.
- PEG pre-treatment.
- Freeze drying (for timbers up to 4m long).

# **Smaller Waterlogged Items**

# Site 5019: The King

5019-001. Wooden gun stock (part).

5019-002. Wooden wheel.

**5019-008.** Wooden deadeye with elements of concretion (following X-ray, below).

# Site 5051: Unknown Wreck, Mid Blyth (formerly 'Old Timbers and Concrete')

5051-030. Small single sheave block.

**5051-045.** Shovel or spade shield-shaped handle.

**5051-046.** Shovel or spade T-bar handle and shaft.

5051-047. Part of shovel or spade.

**5051-051.** Several barrel stave and lid fragments.

# 7404: 60m Feature

Timber 16. Subject to recording/identification.

Conservation of small waterlogged items is likely to be a two-part process, as follows:

#### Part 1

- Initial cleaning, removal of loose accumulated iron salts.
- Desalination.

#### Part 2

- Removal of iron salts to allow PEG treatment to be successful.
- PEG pre-treatment.
- Freeze drying.

# **Partially Dried Material**

# Site 5204: Pottery Wreck

**5204-1004.** Timber: futtock, mostly dried out and very fragile.

5204-1005. Timber: futtock, 40% dried out and fragile.

**5204-1007.** Timber: futtock, 40% dried out and fragile.

5204-1008. Timber: plank, 50% dried out and fragile.

**5204-1009.** Timber: plank, 75% dried out and fragile.

5204-1012. Timber: plank, very degraded.

**5204-1013.** Timber: plank, 80% dried out with several large cracks. **5204-1014.** Timber: plank, 50% dried out with large crack at one end.

**5204-1015.** Piece of elm keel.

# Proposal for all items:

- Finish drying out under controlled conditions.
- Once dry, some of the more fragile items may need consolidation if they are considered important enough.

If not retained with the timbers from 5204 conserved as larger waterlogged items (above), there may be some interest in disposing of this material to teaching collections (for timber recording practicals).

# Leather

# Site 5019: The King

5019-003. Perforated leather string

# Site 5051: Unknown Wreck, Mid Blyth (formerly 'Old Timbers and Concrete')

5051-066. Leather shoe, upper (quarters).

**5051-067.** Pieces of leather boot (probably part of 066).

#### Site 5204: Pottery Wreck

**5204-011.** Triangular leather fragment.

**5204-040.** Left sole of leather shoe.

**5204-044.** Possible palm thimble.

Conservation is likely to be a two-part process, as follows:

# Part 1

- Initial cleaning, removal of loose accumulated iron salts.
- Desalination.

#### Part 2

- Glycerol pre-treatment.
- Freeze drying.

# **Other Organics**

#### Site 5051: Unknown Wreck, Mid Blyth (formerly 'Old Timbers and Concrete')

5051-042. Fragments of cord.

Site 5204: Pottery Wreck

5204-012. Bone handle.

Conservation is likely to include:

- Initial cleaning.
- Desalination.
- Possible glycerol pre-treatment (depending on material type).
- Freeze drying.

# **Non-ferrous Metal**

#### Site 5019: The King

**5019-005**. Lead pipe.

5019-006. Brass ring.

**5019-007**. Lead fragment.

# Site 5051: Unknown Wreck, Mid Blyth (formerly 'Old Timbers and Concrete')

5051-031. Non-ferrous spoon.

**5051-032**. Brass fittings.

5051-043. Small cuprous ring.

5051-044. Small cuprous ring.

# Site 5204: Pottery Wreck

**5204-005**. Lead sheet fragments.

**5204-008**. Lead tube.

**5205-018**. Lead strip.

# Conservation is likely to comprise:

- X-ray (depending on density and material type).
- Possible removal of some accretions and some corrosion.
- Desalination.
- Controlled drying and dry storage.

Copper alloy items that appear vulnerable to active corrosion may warrant treatment with benzotriazole, followed by lacquering.

# **Ceramics**

NB: The majority of ceramics proposed for archiving have been cleaned and dried and no further conservation is proposed.

# Site 5051: Unknown Wreck, Mid Blyth (formerly 'Old Timbers and Concrete')

**5051-025.** Stoneware jar (cork intact), stable but has strong sulphurous smell.

**5051-050.** Stoneware jar (cork intact), stable but with liquid contents.

#### There are two options:

#### Option 1

- Remove corks and dispose of contents.

#### Option 2

- Remove corks and have contents analysed.

The success of analysis cannot be known at this stage. Whilst the results, if successful, will add another detail to our knowledge of this wreck and its contents, they are unlikely to significantly alter the overarching interpretation.

# **Aluminium (Aircraft Fragments)**

# 5050: Mound (formerly 'Aircraft under Mound')

**5050-N/A**. Possible element of aircraft structure.

It is proposed that aluminium fragments be X-rayed with a view to revealing manufacturer's marks and identification numbers. Cleaning will be accompanied by recording and research to identify aircraft type and history.

Conservation is likely to include:

- Initial cleaning.
- Desalination.
- Dry storage.

#### Concretion

# Site 5019: The King

5019-004. Concreted rope.

**5019-008.** Wooden deadeye with elements of concretion (then conserve as small waterlogged item, above).

#### 5029: London

**5029-002.** Concretion (then ?discard).

# 5046: Wreck NW of Sea Reach 1

**5046-001.** Wood with metal fastening (then discard).

5046-003. Concreted chain (then discard).

**5046-006.** Concreted metal bolt (then discard).

**5046-009.** Concretion (then discard).

# Site 5051: Unknown Wreck, Mid Blyth (formerly 'Old Timbers and Concrete')

5051-054. 3 small concretions (then discard).

5051-060. Concretion (possibly nail) (then discard).

#### Site 5204: Pottery Wreck

**5204-042.** Lump of concretion.

**5204-044.** Possible palm thimble.

# Site 7345: Disturbed Area (section of planking)

7345-007. Concretion (then ?discard).

It is proposed that these concretions are X-rayed to establish their character and content as a basis for decisions about further actions. The X-ray can also provide a record of the item where a decision is made to discard. Where X-raying reveals material that warrants conservation and retention, then treatments will be as per the material types above.

