

# ROYAL ANNE GALLEY CORNWALL



MARINE ENVIRONMENTAL ASSESSMENT  
PROJECT DESIGN FOR  
PHASE 1 DESK-BASED ASSESSMENT

*Font cover: detail of spoon handle bearing the Belhaven crest from the Royal Anne Galley site*

A Submission to English Heritage

**Royal Anne Galley  
Marine Environmental Assessment**

**Project Design for  
Phase 1 Desk-based Assessment  
Rev 01**

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## **Abbreviations**

BGS	British Geological Society
CCC	Cornwall County Council
CEFAS	The Centre for Environment, Fisheries & Aquaculture Science
CISMAS	Cornwall and Isles of Scilly Maritime Archaeology Society
DBA	Desk-based assessment
DEFRA	Department for Environment, Food and Rural Affairs
EH	English Heritage
GIS	Geographical Information System
HER	Cornwall and the Isles of Scilly Historic Environment Record
HES	Historic Environment Service, CCC, formerly CAU
LAT	Low Astronomical Tide
MEA	Marine Environmental Assessment
NMM	National Maritime Museum, London
NMR	National Monuments Record, Swindon
PRO	Public Record Office
SAC	Sub Aqua Club
UKHO	United Kingdom Hydrographic Office, Taunton

## 1 Introduction

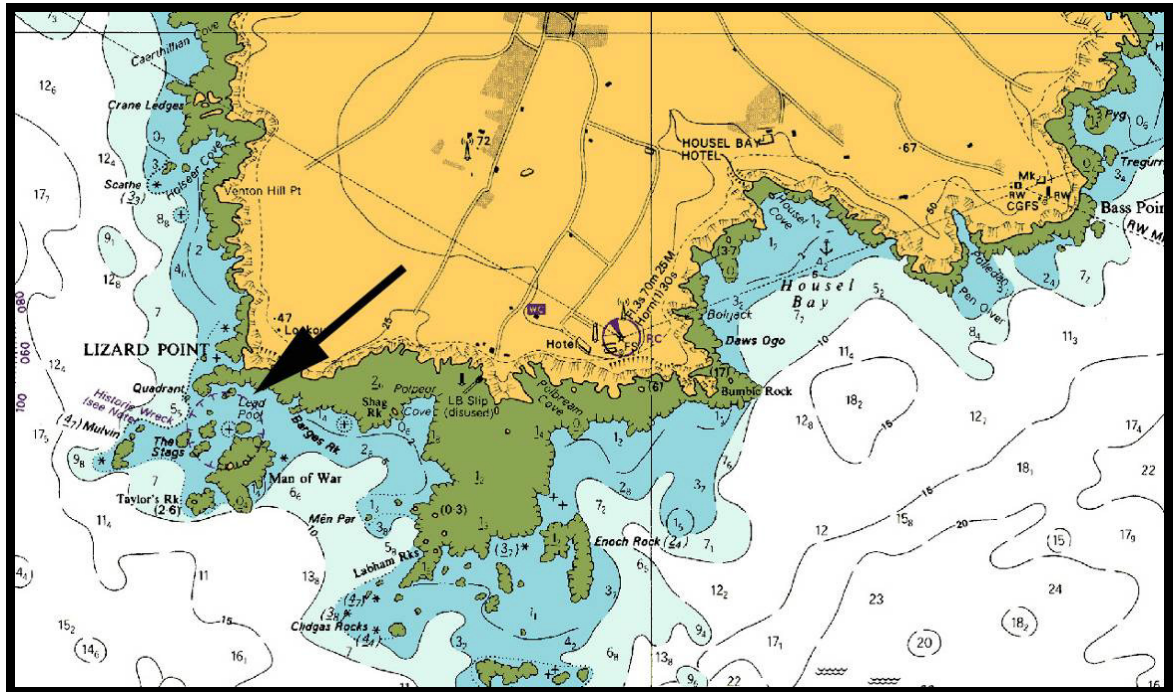
English Heritage (EH) have asked the Historic Environment Service (Projects), Cornwall County Council (HES), and Penzance-based marine archaeologist Kevin Camidge (KC) to produce a restructured project design for a desk-based assessment the *Royal Anne Galley*, a designated site under the Protection of Wrecks Act 1973. The desk-based assessment is the first phase of a proposed Marine Environmental Assessment of the site; the results of the Phase 1 work will allow EH to make an informed judgement as how best to proceed with field assessment (Phase 2) and site monitoring (Phase 3).

## 2 Background

### 2.1 Site description

#### 2.1.1 Location

The designated site of the *Royal Anne Galley* lies south of Lizard Point, on the Lizard Peninsula, Cornwall – position 49° 57.27'N 05° 12.56'W (datum unknown).



Location Plan – The dotted circle (arrowed) shows the extent of the designated area (from Admiralty Chart 2345)

#### 2.1.2 Period & type of site

The *Royal Anne Galley* was a fifth rate oared frigate with an armament of 42 guns and crew of 247, 127 ft in length and 31ft beam weighing 511 tons - (builder's measurement). Built by Richard Stacey at Woolwich Dockyard and launched 30 June 1709, the Royal Anne was wrecked on the Stags off Lizard Point on 10 November 1721 while on voyage to the Barbados. There were only three survivors; the most notable of those who perished being Lord Belhaven who was en voyage to take up the Governorship of Barbados (Fenwick and Gale 1999, 91). Most of the bodies are believed to be buried in a cliff-top grave at Pistol Meadow (Larn and Carter 1969, 109).

There were only six galleys classified as such in the Royal Navy. They were an attempt to combine the advantages of sail and oar propulsion. On her launch the *Royal Anne* was described as ‘a new invention under the direction of the Marquis of Carmarthen...being the finest that was ever built’ (*ibid*, 91).

A few weeks later two ships, the *Jolly Bachelor* and the *Henrietta* were noted as going down to the Lizard with a newly invented diving engine to ‘fish’ upon the wreck of the *Royal Anne*, although the results of this venture are not known (Larn and Carter 1969, 109).

### **2.1.3 Condition of site**

The site lies in a depth of about 5m of seawater at Low Astronomical Tide (LAT). The site is unusual in that there are very few soft sediments; the seabed around the site consists of exposed reefs of serpentinised gabbro, an extremely hard rock. The remains of the *Royal Anne* located to date have been found in small gullies and crevices containing shallow deposits of coarse sand and boulders.

### **2.1.4 Legal status**

The current site is designated under the Protection of Wrecks Act 1973 (order number 2 1993). The designation extends for a distance of 100m from position Latitude 49° 57'.27N, Longitude 005° 12'.56W (datum unknown).

## **2.2 Previous work**

### **2.2.1 Synopsis**

In 1969 members of Bristol University SAC thought that they had found the site; their finds included 8 iron guns and silver coins dating to the period 1710 to 1720 (Fenwick and Gale 1999, 91), although the coins are only reported from the site and their current location is unknown (J Ransley pers comm). This is known as the ‘*Quadrant* site’ (K Camidge pers comm.).

The site was rediscovered on 5 May 1991 by Rob Sherratt during a recreational dive; a large sounding lead was found adjacent to two iron guns. Further investigation located an area of concreted cannon balls.

Subsequently Rob Sherratt and Mike Hall spent about 15 hours (underwater time) investigating the site. In that time numerous objects were recovered from the seabed in the immediate vicinity of the iron guns, including a piece of cutlery bearing the Belhaven crest. After initial approaches to the Royal Navy they decided to apply to have the wreck protected under the Protection of Historic Shipwrecks act.

After a pre-disturbance survey a number of seasons’ excavation were undertaken on the site. This resulted in the recovery of over 400 recorded artefacts.

### **2.2.2 Location of existing archive**

The existing archive of the work to date is held by Mr Sherratt at his home in Mawgan, near Helston, Cornwall. Copies have been lodged with the National Monuments Record of England at Swindon (NMR).

### **2.2.3 Dissemination of previous work**

Previous work has not been published.



## **2.3 Reasons for and circumstances of the project**

The National Heritage Act (2002) extended EH's remit to include ancient monuments in, on or under the seabed to the 12-mile limit around England, including 47 historic wreck sites designated under the Protection of Wrecks Act 1973.

In 2004 EH proposed to engage consultants to carry out a Marine Environmental Assessment (MEA) of the *Royal Anne Galley*, a protected wreck site that lies off the Lizard, Cornwall. It is intended that the MEA will form one of the stages of a series of initiatives that will lead to the development of archaeological management plans for designated wreck sites and inform EH's future research, amenity and education developments for the benefit of the wider community (English Heritage 2004).

## **2.4 The original specification**

In November HES and KC submitted a project design based on EH's tender specification for the MEA of the *Royal Anne* (English Heritage 2004; Camidge and Johns 2004). The original specification comprised the following elements:

### **Phase 1 Desk-based assessment**

#### *Environmental*

- Identify all known sources of environmental data relating to the study area including:
  - Physical oceanographic status- waves, tides, water depth;
  - Sediment transport, mobility;
  - Water quality status- chemistry, pollution;
- Assess the quality of data;
- Identify any areas that need further data collection.

#### *Archaeological*

- Establish the material type and known extent of archaeological site;
- Assess archaeological potential of site.

### **Phase 2 Field assessment**

- Collection of data relating to:
  - Chemical- REDOX, salinity, PH, dissolved oxygen;
  - Physical- min/max depth, fetch, temperature, ground swell, tides, wave height, currents, sediment grain size, seabed strength, depth of sediment, bathymetry, sub-bottom profiling;
  - Biological – flora, fauna.

Establish the effect of the above on the preservation of archaeological material.

Identify the material most at risk.

### **Phase 3 Monitoring**

- Identify features of interest for monitoring:
- Identify attributes to monitor:

- Establish assessment methodology;
- Monitor site for a five year period

## 2.5 The restructured specification

The HES/KC tender was the only one submitted for the project and, because they wish to develop future methodologies for MEAs within the constraints of the Maritime budget, EH decided to commission HES and KC to re-focus the project design and undertake the Phase 1 desk-based assessment (DBA) only, so that the results of the Phase 1 work would allow EH to make an informed judgement as how best to proceed with phases 2 and 3.

Consequently a meeting was held in London on 21 February 2005 to discuss the re-focussing of the project design. The meeting was attended by CJ, KC, Ian Oxley, EH Head of Maritime Archaeology, Jesse Ransley, EH Maritime Archaeology Team and Ian Panter, Regional Science Advisor. The conclusions of the meeting were summarised in a letter from Ian Oxley dated 7 March which was circulated to the attendees:

- Central to the restructuring of the project is the need to incorporate the development of methodologies for the MEAs of Protected Wreck Sites, particularly as the Stirling Castle initiative is not going forward as a unified project at this time;
- Consequently it is appropriate to split the project into two phases:
  - 2005/6 – an extended Phase 1 DBA and a methodological assessment (leading into a more detailed project design for Phase 2);
  - 2006/7 – field assessment work (Phase 2);
- The Phase 1 desk-based assessment should not consist simply of a DBA of the *Royal Anne Galley* site, but should also explore the potential of various marine environmental field assessment methods. Because of the highly dynamic nature of the site the assessment methods will have to be site specific, but the DBA should include an exploration of a variety of potential methods. This will demonstrate how the Phase 2 field assessment project design is derived;
- Questions such as methods for assessing the stability of cannon or other large metal objects, alternative methods for assessing sedimentary chemistry and alternatives to other probes and data loggers that might be lost on this dynamic site will be developed through consultation with Ian Panter and the wider marine environmental industry;
- Phase 1 should include:
  - DBA of the *Royal Anne* – including Quadrant and Wessex material;
  - Assessment of the broad environmental context and collation of available environmental information/sources;
  - Discussion and evaluation of potential environmental assessment methods;
  - Production of an assessment strategy informed by the conclusions drawn from the Phase 1 work and resulting hypotheses about the site. This will form the basis of the project design for the Phase 2 fieldwork.

## **2.6 Layout of project design**

This project design is based on the revised brief and format described in the EH documents ‘*Commissioned Archaeology Programme Guidance for Applicants: Release 1.2, October 2002*’ and ‘*Management of Archaeological Projects*’ 1991’ (MAP 2).

## **3 Aims and objectives**

### **3.1 The overarching aim**

As set out in the original specification, the MEA will form one of the stages of a series of initiatives that will lead to the development of archaeological management plans for designated wreck sites that will inform English Heritage’s future research, amenity and education developments for the benefit of the wider community (English Heritage 2004).

### **3.2 Objectives**

- Assess the broad environmental context and collate available environmental information /sources;
- Discuss and evaluate potential marine environmental assessment methods;
- Collate and assess the existing fieldwork results/archival material from the site;
- Establish the material type and known extent of archaeological site;
- Assess archaeological potential of site;
- Establish assessment strategy.

### **3.3 HES’ service aim**

The Historic Environment Service (Projects) is the contracting arm of the Historic Environment Service of Cornwall County Council. HES is committed to conserving and enhancing the distinctiveness of the historic environment and heritage of Cornwall and the Isles of Scilly by providing a number of services including:-

- Maintaining and enhancing the HER and promoting access to heritage information
- Providing heritage advice for strategic plan making, development control, countryside advice and Objective One projects to national bodies, local authorities, developers and the public
- Providing specialist advice to statutory bodies, landowners, groups and individuals
- Increasing the understanding of the heritage and promoting public access to the historic heritage of Cornwall through publications, education, tourist information and a public information service
- Facilitating and/or carrying out projects to identify, record, protect, conserve, present and interpret the historic environment and heritage.

### **3.4 Development of local maritime expertise**

The project provides a further capacity-building opportunity to develop expertise in maritime archaeology within the local historic environment service, which can be seen as an important development in a maritime county.

## **4 Methods statement for the Phase 1 desk-based assessment**

### **4.1 The study area**

The limits of the study area are not defined in the specification provided by English Heritage. It is proposed that the Phase 1 DBA will include the whole designated area, a circle of radius 100m, and its environs in order to place the wreck site in its wider context.

### **4.2 Environmental**

#### **4.2.1 General**

All known sources of environmental data relating to the study area will be identified. The quality of existing data will be assessed and areas that need further data collection will be identified. The project team will liaise with EH, DEFRA, CEFAS, CCC Natural Environment Service and other specialists. . The following sources will be consulted:

- The Shoreline Management Plan for Cornwall (Halcrow Maritime 1999);
- Relevant English Nature marine survey data: liaise with Roger Covey, English Nature's Maritime Officer for Cornwall;
- Relevant material held by the local District Council (Kerrier);
- Relevant data held by the Ordnance Survey;
- Admiralty Chart 2345 at 1:15,000 scale, it is proposed to liaise with the UKHO to identify the original source material for the chart;
- The British Geological Survey Sheets of Sea Bed Sediments and Quaternary 1:250,000 series which shows the general disposition of sediment types and sample locations;
- The relevant British Geological Society (BGS) offshore regional report (Evans 1990);
- Relevant geophysical and sample/borehole data held by the BGS for sediment transport and mobility: it is proposed to review metocean design parameters by using established empirical formulae to reevaluate the bottom orbital velocities acting on the seabed (eg Leenknecht *et al* 1992);
- The Seven Stones wave data, any other recent sources of wave data will be identified;
- Falmouth standard port tide data;
- Data acquired by the Environmental Agency and South West Water as part of their responsibilities relating to marine discharge of effluent (eg Nicholas Pearson Associates 2003);
- Relevant data held by the Meteorological Office, Exeter
- Relevant data held by the Proudman Oceanographic Institute, Liverpool;
- Cornwall County Council photographic archives

#### 4.2.2 Assessment of methods for data collection

Potential environmental assessment methods, conventional and alternative, will be discussed and evaluated, including collection methods for the following data:

- Chemical – REDOX, salinity, pH, dissolved oxygen;
- Physical – min/max depth, fetch, temperature, ground swell, tides, wave height, currents, sediment grain size, seabed strength, depth of sediment, bathymetry, sub-bottom profiling;
- Biological – flora, fauna;
- Measuring corrosion of large iron objects and possible stabilisation.

#### 4.3 Archaeological

The archaeological assessment will establish the material type and known extent of the site and assess the archaeological potential of the site all relevant published and unpublished sources of historic, archaeological, geographical, topographical, and environmental data relevant to the *Royal Anne Galley* and the study area will be consulted. The assessment will include the *Quadrant* data and results of Wessex Archaeology's 2004 fieldwork. The current location of the silver coins from the *Quadrant* site will be investigated. The method for research and data will vary according to the form of the data and availability of the material on the Internet, the following sources will be consulted:

- The archive material and records held by Mr Sherratt, these will be catalogued and photographs will be taken of selected artefacts for illustrative purposes;
- Divers who have worked ( by personal interview);
- The Royal Institution of Cornwall, Truro;
- The Cornwall Record Office, Truro;
- The National Maritime Museum, Falmouth;
- UKHO, Taunton; records will be searched for information about the site, including the wreck section's 'surveying history' files;
- The Public Record Office, Kew and at the National Maritime Museum, London (NMM Kevin Camidge has transcribed some of the documents and summarised others in the course of private research. These records will be further investigated for information about the history of the ship, the crew, passengers, cargo and early attempts at salvage.

#### 4.4 GIS mapping

Admiralty Chart data, BGS data, tidal stream currents, wind and wave data etc will be digitally mapped on an OSGB grid using GIS Arcview.

Opportunities for seabed / site modelling will be explored. This will be fairly straightforward using ArcView GIS, digital vector Ordnance Survey maps and Admiralty Charts (projected to OSGB36) to provide a seamless coverage of the site showing location, topography, land use and bathymetry. Simple elevation models, based on OS elevation data and UKHO bathymetry, adjusted to match differences between OS and Chart datum, will be modelled to provide a 3D demonstration of the site and to provide a terrestrial/marine profile of the site.

HES will liaise with Dave Parham and Olivia Merritt of Bournemouth University who are currently working on ASLF 'Navigational Hazards' project which deals extensively with the issues of marine GIS.

#### 4.5 Publication and presentation

The DBA will result in a report. The following will be produced for circulation:

- 10 hard copies of the draft report for consultation;
- 10 hard copies of the final version including the Executive Summary;
- 20 hard copies of the Executive Summary only;
- An individual summary for the landowner including the Executive Summary
- 10 CD-ROMS containing the final report
- A version of the report suitable for downloading from EK maritime webpages.

##### 4.5.1 Production of the report

Production of the report is likely to involve:

- Assimilation of results;
- Producing the text;
- Compiling databases;
- Producing maps, drawings,
- 3-D models of the seabed (this will require UKHO and OS elevation charts);
- Selecting and scanning photographs and other images;
- Report design;
- Report editing;
- Dissemination of the finished reports.

##### 4.5.2 Contents of the Phase 1 Desk-based Assessment report

The Phase 1 report will present the results of the desk-based environmental and archaeological assessments. The report will have the following sections: -

- |                             |   |
|-----------------------------|---|
| • Summary                   | - Executive Summary   |
| • Introduction              | - Background, objectives, methods   |
| • Archaeological Assessment | - A detailed account of the results including a discussion of the material type and extent of the site and an assessment of its archaeological potential.   |
| • Environmental Assessment  | - A detailed account of the results with a discussion of the quality of the data and area that need further data.<br>Discussion and evaluation of potential environmental assessment methods.<br>Statement of significance of effect of environmental factors on archaeological material present. |
| • Assessment                | - An assessment strategy for the site to inform the Phase 2 project design, including recommendations fro the   |

strategy	archaeological assessment that are not related to the environmental assessment.
• Archive	- A summary and index to the project archive
• References	- List of primary and secondary sources and metadata relating to the environmental datasets
• Appendices	- List of documents held at the PRO, NMM and UKHO - Index to the existing archive held by Rob Sherratt
• Illustrations	- Site location plan - 3D models of the seabed - Copies of relevant historical cartography & plans - Finds drawings (if appropriate) Illustrative photographs

#### 4.6 Archive deposition

Archive disposition arrangements will be discussed and agreed with the English Heritage at the outset of the project. Prior to its deposition the project archive will be fully indexed according to the standard HES procedures for the preparation and disposition of documentary project archives.

A digital archive will be provided for deposition with the HER (ie an update of HER records) and similarly with the NMR.

## 5 Resources and programming

### 5.1 Staffing

#### 5.1.1 List of project staff and responsibilities

NAME	TITLE	TASK
Peter Rose (PGR)	Heritage Projects Team Leader, HES	Administrative support and guidance. Report editing (Task 5.5)
Charlie Johns (CJ)	Project Manager/Senior Archaeologist, HES	Restructuring project design Administer and guide project through its various stages; liaise with EH monitor Archaeological DBA (Task 1.2) Report (Task 2) Collation of Archive (Task 3.1) OASIS entry (Task 3.3)
Bryn Perry Tapper (BPT)	Senior Archaeologist (GIS), HES	GIS mapping for Environmental and Archaeological DBA (Task 1.3) Illustrative material for Report

NAME	TITLE	TASK
		(Task 2)
Kevin Camidge (KC)	Marine Archaeologist	Restructuring project design Environmental DBA (Task 1.1.1) Archaeological DBA (Task 1.2) Archiving (Task 3)
Robert Sherratt (RS)	Licensee	Archaeological DBA
Phillip Rees (FPR)	Marine Geologist	Restructuring project design Environmental DBA (Task 1.1.1) Report (Task 2)
Jon Rees (JR)	Oceanographer, DEFRA	Environmental DBA - Oceanography (Task 1.3)
Mark Jones (MJ)	Research Director, Mary Rose Archaeological Services	Environmental DBA -
David Gregory (DG)	Iron corrosion specialist	Environmental DBA -
Catherine Hardman (CH)	Collections Development Manager, The Archaeology Data Service (ADS)	Digital archive, preparation and storage (Task 3.2)

### 5.1.2 List of project tasks

TASK NO	TASK	PERFORMED BY (see 4.1.1 for full names)	DAYS
*	<b>Restructuring project design</b>	CJ	4.5
		KC	3.5
		FPR	1.5
<b>1</b>	<b>Phase 1 DBA</b>		
	<b>Project management</b>	CJ	2.5
<b>1.1</b>	<i>Environmental</i>		
<b>1.1.1</b>	Collection and assessment of existing data	FPR	3
<b>1.1.2</b>	Evaluation of potential assessment / data collection methods	KC	10
	“	FPR	3
	“	JR	1
	“	DG	2
<b>1.1.3</b>	Oceanography – o Identify available time series wave data	JR	3



<b>TASK NO</b>	<b>TASK</b>	<b>PERFORMED BY</b> (see 4.1.1 for full names)	<b>DAYS</b>
	<ul style="list-style-type: none"> <li>○ Establish relevant return period criteria including significant wave heights and hundred storm wave</li> <li>○ Identify bottom orbital velocities adjusted for tidal levels</li> <li>○ Review threshold velocities and bed shear stress</li> </ul>		
	“	MJ	2
<b>1.2</b>	<b><i>Archaeological</i></b>		
<b>1.2.1</b>	Background research (incl UKHO)	CJ	3
<b>1.2.2</b>	Study of the existing <i>Royal Anne</i> archive	CJ	3
<b>1.2.3</b>	“	KC	5
<b>1.2.2</b>	“	RS	5
<b>1.2.3</b>	Collation of Quadrant and Wessex material	KC	5
<b>1.2.4</b>	Research at PRO and NMM	CJ	5
<b>1.3</b>	GIS mapping	BPT	4
<b>2</b>	<b>Phase 1 Report</b>	CJ/KC/FPR/BPT/PGR	
	Project management	CJ	2
<b>2.1</b>	Reporting	FPR	2
<b>2.2</b>	Reporting	KC	5
<b>2.2</b>	Reporting	CJ	7
<b>2.3</b>	Maps, illustrative material, models, digital archive	BPT	3
<b>2.4</b>	Formatting and submission of draft report	CJ	2
<b>2.5</b>	Assimilation of comments on draft report	CJ	2
<b>2.6</b>	Editing	PGR	1
<b>2.7</b>	Submission of final report	CJ	1
<b>3</b>	<b>Project archive</b>		
<b>3.1</b>	Collating project archive	CJ	1
<b>3.2</b>	Digital archive	CH	£600.00

<b>TASK NO</b>	<b>TASK</b>	<b>PERFORMED BY</b> (see 4.1.1 for full names)	<b>DAYS</b>
<b>3.3</b>	Oasis entry	CJ	0.25

## **5.2 Project management and structure**

### **5.2.1 Historic Environment Service, Cornwall County Council**

The Historic Environment Service is part of Cornwall County Council's Historic Environment Section within Planning, Transportation and Estates. HES employs some 20 project staff with a broad range of expertise, undertaking around 90 projects each year. Of particular relevance to the present project:-

### **5.2.2 Maritime Projects**

Maritime or maritime-related projects undertaken by HES include the Rapid Coastal Zone Assessment of the Isles of Scilly for English Heritage (Johns, Larn and Tapper 2004), the marine archaeological assessment of the area of seabed in Whitsand Bay where HMS *Scylla* was 'placed' in March 2004 (Johns, Camidge, Holt and Tapper 2004) and assessment of the proposed wave hub of St Ives (Johns, Camidge and Rees forthcoming).

### **5.2.3 Project Staff – expertise**

#### **HES *staff***

#### **Charlie Johns, BA MIFA, Senior Archaeologist**

As a Senior Archaeologist with HES Charlie has special responsibility for projects in the Isles of Scilly and helping to develop the Service's maritime capacity. He lives at The Lizard and has extensive experience of undertaking DBAs, writing reports and managing projects.

#### **Bryn Perry Tapper, BA, Senior Archaeologist (GIS)**

Since joining HES in 1999 Bryn has been developing the Geographical Information System (GIS) in conjunction with the Historic Environment Records Team. Bryn has had an advisory role with The World Heritage Site Bid project for Cornish Mining, the Cornwall & Scilly Urban Survey, and Cornwall Industrial Settlements Initiative and has been involved in Historic Landscape Characterisation and numerous small-scale projects and surveys. He undertook the GIS mapping for the Isles of Scilly Rapid Coastal Zone Assessment and has given numerous presentations of the use of GIS in Cornish Archaeology.

#### **Peter Rose, BA MIFA, HES Projects Team Leader**

Peter is responsible for the overall co-ordination, management and delivery of HES' programmes and projects. His duties include; overseeing the promotion and development of projects, overseeing the management and delivery of projects and the management of staff and work programme, overall financial responsibility for the Service's projects., developing and maintaining systems, standards and procedures and pursuing continual improvement in service delivery, promoting and developing improved access to information from projects, contributing to strategic direction and policy of HES and the CCC Environment and Heritage Section..

#### ***Marine consultants***

#### **Kevin Camidge, Dip Arch MIFA, Marine Archaeologist**

Kevin is an experienced marine archaeologist based in Penzance. In recent years he has carried out work for EH on HMS *Colossus* in the Isles of Scilly as well as leading the HLF supported survey of the *Colossus* Debris Field Survey Project by CISMAS in September 2004. He has dived on the site of the *Royal Anne* and undertaken extensive documentary research on the vessel.

**Phillip Rees MSc C.Sci C.Geol F.G.S, Marine Geologist**

Phillip has recently been appointed as a Chartered Scientist for his work in the marine environment. He has not only had extensive experience in conducting studies of the seabed in all parts of the world but in recent years has been involved in coastal engineering projects around the Cornish coast. He has recently co-ordinated a marine environmental study in Mount's Bay (Hyder Consulting Ltd 2004).

**Robert Sherratt, Licensee *Royal Anne Galley***

Robert located the site of the *Royal Anne* in 1991 and is the current licensee for the site.

**Jon Rees, Physical Oceanographer, CEFAS**

Jon, with degrees from Warwick, Southampton and University of East Anglia, has over twenty years experience of research in physical oceanography specialising in deep sea / coastal dispersion and sediment erosion, transport and deposition. He provides expert advice to the Government, as part of the Government Review process, on coastal processes issues in relation to the FEPA and CPA acts. He also undertakes research into the impacts of wind farms on the marine environment and on changes to sedimentological and biological environments around marine aggregate extraction sites. He is a project manager for research and consultancy contracts for a variety of customers ranging from Oil multi-nationals, industry consortia, other national government and commercial clients.

**Mark Jones, BSc MSc PhD, Research Director, Mary Rose Archaeological Services Ltd**

A leading conservation scientist involved with The Mary Rose Trust since 1983, Mark devised the conservation methodology for the Mary Rose hull and is now responsible for all conservation and collection matters. Principal research interests lie in the structure and degradation of archaeological waterlogged wood; conservation interests include the stabilisation of large waterlogged wooden objects and storage of archaeological material.

**David Gregory, BSc MSc PhD Iron corrosion specialist**

David obtained a Master's degree in Maritime Studies in 1992 and a PhD in 1996 (Formation processes in underwater archaeology: a study of the deterioration of archaeological materials in the marine environment) during which time he qualified as a commercial diver. From 1996 he worked for the National Museum of Denmark's Centre for Maritime Archaeology researching into the development of robust methods of managing archaeological sites on land and underwater.

**5.2.4 Project staff - roles**

**HES *staff***

**Charlie Johns, BA MIFA, Senior Archaeologist**

Charlie will co-ordinate the project to ensure that it is carried out to the agreed standards. His tasks will include, liaison with the EH Project Officer and the project staff, the monitoring of the project budget as well as carrying out the Phase 1 archaeological desk-based assessment (Tasks 1.2.1, 1.2.2, 1.2.4) compiling the Phase 1 report (Task 2.2, 2.4), and collating the project archive (Task 3).

**Bryn Perry Tapper, BA, Senior Archaeologist (GIS)**

Bryn will be particularly responsible for GIS mapping of acquired data (Task 1.3). He will generate illustrative material for the reports, including maps and interpretative models (Task 2.3).

**Peter Rose, BA MIFA, HES Projects Team Leader**

Peter will be responsible for overseeing the administrative side of the project and will edit Phase 1 report (Task 2.6).

*Marine consultants*

**Kevin Camidge, Dip Arch MIFA, Marine Archaeologist**

Kevin will contribute to the Phase 1 archaeological assessment (Tasks 1.2.2, 1.2.3, 1.2.4) and Phase 1 report (Task 2.2).

**Phillip Rees MSc C.Sci C.Geol F.G.S, Marine Geologist**

Phillip will carry out the Phase 1 environmental desk-based assessment (Task 1.1) and contribute to the Phase 1 report (Task 2.1).

**Robert Sherratt, Licensee *Royal Anne Galley***

Robert will facilitate study of the existing archive material during the archaeological DBA (Task 1.2.2).

**Jon Rees, Physical Oceanographer, DEFRA**

Jon will assess and advise on the potential impact of coastal processes to the site.

**Mark Jones, BSc MSc PhD, Research Director, Mary Rose Archaeological Services Ltd**

Mark will advise on potential assessment / data collection methods.

**David Gregory, BSc MSc PhD, Iron corrosion specialist**

David will advise on potential assessment / data collection methods.

**5.2.5 Project accommodation and infrastructure**

The project will be co-ordinated from HES' Truro offices. CAU has a computer network running Windows XP Professional. Report texts are generated in Word 2000. Mapping will derive from the OS Mastermap and historic maps via Arcview GIS. Line drawings will be generated using AutoCAD. HES members of the project team each have a Dell PC of adequate specification. The Service has adequate photocopying, scanning and printing facilities.

**5.2.6 Equipment and materials**

- Reports - Floppy and compact discs to store and transfer documents and drawings.
- Archive - Archive documentation cases for storage of the project's paper archive. Supplied by Conservation Resources UK (tel: 01865 747755). 2 x acid-free document cases for paperwork 12103 (311mm x 260mm x 76mm) Micro Chamber® active quality.

**5.3 Timetable**

The work will commence in October 2005, the draft report will be submitted by the end of January 2006 and the final report by March 2006.

No	Task	2005					2006			
		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	
<b>1</b>	<b>Desk-based Assessment</b>									
1.1	<i>Environmental</i>			◆						
1.1.1	Collect & assess existing data			◆		◆				
1.1.2	Evaluate assessment/ data collection methods			◆		◆				
1.1.3	Oceanography			◆		◆				
1.2	<i>Archaeological</i>			◆		◆				
1.2.1	Research (incl UKHO)			◆		◆				
1.2.2	Royal Anne archive			◆		◆				
1.2.3	Collation of Quadrant and Wessex material			◆		◆				
1.2.4	Research at PRO			◆						
1.3	GIS mapping			◆						
<b>2</b>	<b>Phase 1 report</b>									
2.1	Environmental									
2.2	Archaeological									
2.3	Illustrations									
2.4	Format & submit draft report							◆		
2.5	Assimilate comments									
2.6	Editing									
2.7	Submit final report								◆	
<b>3</b>	<b>Archiving</b>								◆	
3.1	Collate archive								◆	
3.2	Deposit digital archive								◆	
3.3	OASIS entry								◆	

◆ Project monitoring point/milestone

## 5.4 Health and safety

### 5.4.1 Health and safety statement

The Historic Environment Service is a section of the Planning, Transportation and Estates, Cornwall County Council. The Unit follows the County Council's "Statement of Safety Policy" and also the Planning Directorate's "Statement of Safety Policy". For more specific policy and guidelines the Unit uses the manual "Health and Safety in Field

Archaeology” (1997) endorsed by the Standing Conference of Archaeological Unit Managers and also the Council for British Archaeology’s Handbook No. 6 “Safety in Archaeological Field Work” (1989).

## 5.5 Project monitoring / milestones

The project will be undertaken according to the Institute of Field Archaeologists’ *Standards and Guidance for archaeological desk-based assessments and evaluations*. Suggested EH monitoring points/milestones during 2005 are

- During the DBA – late October or early November 2005(Task 1)
- Completion of the DBA - early December 2005 (Task 1 )
- Completion of the draft report – early February 2006 (Task 2.4)
- Completion of the final report – late March – early April 2006 (Task 2.7)

At each stage the project manager will provide the EH Project Officer with a written progress report and time will be allowed for three meetings with the Project Officer during 2005.

## 5.6 Budget (indicative costs)

### 5.6.1 Costs per budget task

<b>* Restructuring project design</b>	CJ 4.5 days @ £159.00	£715.50
	KC 3.5 days @ £250.00	£875.00
	FPR 1.5 days @ £350.00	£525.00
	Travel to London for meeting (x2)	£146.50
<b>1 Phase 1 Desk-based Assessment</b>		
Project management	CJ 2.5 days @ £159.00	£397.5
1.1 Environmental DBA		
1.1.1 Collection and assessment of existing data	FPR 3 days @ £350	£1050

“	FPR expenses	£100
1.1.2 Evaluation of potential assessment/data collection methods	KC 10 days @ £250	£2500
“	FPR 3 days @ £350	£1050
	DG 2 days @ £500	£1000
	JR 1 day @ £512.50	£512.50
1.1.3 Oceanography	JR 3 days @ £512.50	£1537.50
“	MJ 2 days @ £300	£600
1.2 Archaeological DBA		
1.2.1 Background research	CJ 3 days @ £159	£477
“	KC 5 days @ £250	£1250
“	Travel/subsistence (UKHO etc)	£200
1.2.2 <i>Royal Anne</i> archive	CJ 3 days @ £159	£477
“	KC 5 days @ £250	£1250
“	RS 5 days @ £100	£500
1.2.3 Collation of Quadrant and Wessex material	KC 5 days @ £250	£1250
1.2.4 Research at PRO etc	CJ 5 days @ 159	£795
“	Travel & subsistence	£300
“	Ancillary costs (reprographics etc)	£100
1.3 GIS mapping	BPT 4 days @ £159	£636
	Acquire digitised vector version of Admiralty Chart 2345	£100
	UKHO/NMR data	£100
<b>2 Phase 1 report</b>		
Project management	CJ 2.5 days @ £159	£397.5
2.1 Reporting	FPR 2 days @ £350	£700
“	FPR expenses	£100

2.2 Reporting	CJ 7 days @ £159	£1113
“	KC 5 days @ £250	£1250
2.3 Maps, illustrative material, models, digital archive	BPT 3 days @ £159	£477
2.4 Formatting & submission of draft report	CJ 2 days @ £159	£318
2.5 Assimilate comments	CJ 2 days @ £159	£318
2.6 Editing	PGR 1 day @ £206	£206
2.7 Submit final report	CJ 1 day @ £159	£159
Printing Phase 1 report	IKON reprographics	£500
<b>3 Archive</b>		
3.1 Collate archive	CJ 1 day @ £159	£159
3.2 Digital archive	CH	£600
3.3 OASIS entry	CJ 0.25 days @ £159	£39.75
	Archive boxes x 2	£13.16
<b>Total costs per budget task</b>		<b>£ 24,794.91</b>

### 5.6.2 Breakdown of project budget into staff and non-staff costs

Unit costs		SC	SP	Per day	Days	Cost	Total
<b>HES staff</b>							
Project manager	CJ	I	6	£159.00	9.5	£1510.50	
Senior Archaeologist	CJ	I	6	£159.00	24.25	£3855.75	
Senior Archaeologist (GIS)	BPT	I	6	£159	7	£1113.00	
Principal Archaeologist (Editor)	PGR	K	6	£206.00	1	£206.00	
Total salary cost						<i>sub-total A</i>	£6685.25
<b>External consultants</b>							
Marine	KC	-	-	£250.00	33.5	£8375.00	



archaeologist							
Marine geologist	FPR	-	-	£350.00	9.5	£3325.00	
Licensee	RS	-	-	£100.00	5	£500.00	
Oceanographer	JR	-	-	£512.50	4	£2050.00	
Conservation specialist	MJ	-	-	£300.00	2	£600.00	
Iron corrosion expert	DG	-	-	£500.00	2	£1000.00	
Total salary cost						<i>sub-total B</i>	£ 15,850
<b>Specialist fees</b>							
Digital archive	CH	-	-	n/a	n/a	£600.00	£600.00
<b>Non staff costs</b>							
London meeting						£146.50	
Expenses (FPR)						£200.00	
Travel & subsistence (CJ)						£500.00	
Ancillary costs						£100.00	
Purchase of data						£200.00	
Reprographics						£500.00	
Archive documentation boxes (2)						£13.16	
Total non staff costs						<i>sub-total C</i>	£1659.66
							<b>£24,794.91</b>
<b>Overheads</b>							
Unit overheads @ 25%							£2,086.23
External consultants/specialists @ 10%							£1,645
<b>GROSS TOTAL</b>							<b>£28,526.14</b>

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