Exhibition Brief

Diving Deep: HMS Invincible 1744
The National Museum of the Royal Navy (NMRN) wishes to appoint an exhibition designer for a two site exhibition showcasing objects and findings from the Diving Deep: HMS Invincible project. Diving Deep is a project focusing on the archaeological excavation of the first HMS Invincible. The vision of this project is to;

‘Tell the story of the amazing Invincible, her capture, the contribution she made to the British Royal Navy and ship design and her subsequent sinking and rediscovery by a local fisherman, Arthur Mack, nearly 200 years later. Diving Deep will inspire and enthuse people with her excavation; saving and celebrating a vital part of our maritime heritage with the help of a wide range of audiences.’

Glossary of terms;
➢ NMRN P the National Museum of the Royal Navy, Portsmouth
➢ Chatham HD Chatham Historic Dockyard

1. **SCOPE OF WORK**

The scope of work is for the design, development, prototyping, production, installation and warranty support for Diving Deep: HMS Invincible 1744

The scope of this contract includes:
➢ Manage procurement of key skills if not included in the suppliers’ in-house team, for example (but not restricted to): exhibition build contractors, digital designers, audio-visual designers, graphic designers.
➢ Develop a detailed 3D and 2D exhibition design with the brief issued by NMRN as its basis, but with the freedom to incorporate the supplier’s own creative ideas.
➢ Draw up a detailed programme from concept design through to exhibition opening in both locations
➢ Draw up a detailed programme from concept design through to exhibition opening and project legacy for digital content that is accessible on multiple devices across platforms.
➢ Deliver the programme, including procurement and management of sub-contractors where required.
➢ Liaise with NMRN curatorial and learning teams, MAST, Bournemouth University Archaeology Department, Licensee of Wreck, and Chatham Historic Dockyard Trust to develop the exhibition narrative and help identify key artefacts. Develop interpretation plans for cased objects and large objects which support the overall exhibition design.
➢ Be responsible for object mount making within cases and producing detailed showcase layouts.
➢ Develop an exhibition lighting plan and an audio-visual plan, if required.
➢ Manage procurement of any additional equipment needed, for example (but not restricted to): Digital hardware, AV hardware, exhibition showcases, exhibition lighting.
➢ Manage the reconfiguration of show cases as required in both locations.
- Work with Heritage Insider/NMRN contractors to develop exhibition evaluation which is integral to the design and not a bolt-on element.
- Produce Gallery Movement plan between sites and a Maintenance Manual (if required), general purchasing details, and warranties.
- Use an NMRN approved contractor for the movement of exhibition and artefacts between locations if required.
- Develop and produce freestanding module exhibition ‘pods’ which can travel to smaller venues at low costs to those venues.
- Onsite support during exhibition installation at Chatham and the National Museum of the Royal Navy, Portsmouth site.
- Ongoing technical support during the 12 month warranty period.
- The contractor will be responsible for insurance of exhibition transportation and build.

Not within this scope are:
- Show cases and temporary walls in exhibition spaces at both NMRN P and Chatham.
- Writing text and images for display boards and captions.
- Raw Film and image footage (pre-production) for AV and digital content.
- Company/sponsor logos and any statutory wording.
- The NMRN and Chatham will be responsible for the insurance of any collection belonging to them in the venue, and collection objects in transport, and any damage to the exhibition when the exhibition is in the venue.

### 2. EXHIBITION DESCRIPTION

**Diving Deep: HMS Invincible 1744** will consist of a travelling exhibition, set to open at Chatham in July 2020 and in the NMRN January 2021 that can encompass a range of different interactives in two different sized venues, the core will be a film projection, object display and artwork but can include mechanical or electro-mechanical and computer based interactives, dependent on the narrative of the exhibition. If it includes computer interfaces, it should enable more than one user/onlooker at a time.

As *Invincible* is an underwater archaeological site that is not accessible to the public at large, the exhibition should include interactive digital content that enables empathetic learning, encouraging engagement with the wreck. The digital content should be designed to provide legacy for the exhibition and have an element that is accessible on multiple devices across platforms.

The exhibition will be followed by repurposing as a modular travelling exhibition with small free standing pods that can be easily displayed in smaller satellite sites like NMRN Hartlepool at low additional costs to the venues.

- NMRN quarterly average footfall is 23856 with a peak in February and March
- Number of users / number of on-lookers will be mainly family audiences, small groups of people.
- Expected average duration of dwell time in exhibition is 30-45 minutes.

For example floor plans of the two exhibition spaces please see supporting documents *DD AP Appendix 1. Layout No.1 Smithery CHD*
### Special Exhibition Example Layout NMRN

**Venue details:**
Touring Exhibition Gallery, No. 1 Smithery, Chatham Historic Dock

- **Size:** 258sqm
- The internal walling system is modular and can be moved to suit the layout of the exhibition. They are 800mm sections supported by aluminium frames. Minimum wall length is normally 2400mm, made up of 3 x 800mm modules.
- Lighting system: Concord Beacon Muse LED track mounted spot lighting. Display cases: 6 x freestanding (see appendices 3-5)

For additional information about the available display cases at No.1 Smithery, Chatham please see supporting documentation;
- Appendix 1. Layout No.1 Smithery
- Appendix 2. Images of exhibition space
- Appendix 3. display case type 1 schematic
- Appendix 4. display case type 2 schematic
- Appendix 5. display case type 3 schematic

Special exhibition area, Storehouse 10 galleries, National Museum of the Royal Navy, Portsmouth

- **Size:** 120sqm
- The proposed display area is located within an eighteenth century storehouse which was refurbished in 2014. It includes:
  - 6x Kub2 walls which can be reconfigured to alter display area and direct visitor flow (3 x 3.6 m wide and 3 x 2.4 m wide)
  - Fixed wall panels around edge of space and 6 parallel fixed supporting pillars along the center of the space.
  - 6 fixed glass floor panels (displaying the original floor).
  - 6x Evolution demountable showcases which can be reconfigured in a variety of combinations (2100mm H x 900 W x 900 D)
  - 3 x Vista cases (700mm H x 600 W x 600 D)
- Lighting system: Concord Muse LED track mounted spot lighting

For additional information of the display cases available in the special exhibition area, Storehouse 10 galleries NMRN please see supporting documentation;
- Appendix 6. images of exhibition space
- Appendix 7. display case type 1 schematic
- Appendix 8. display case type 2 schematic
- Appendix 9. Special Exhibition example layout

### 3. CONTENT AIMS

- To tell the story of the rediscovery of the first HMS Invincible and her remains in the Solent and highlight the environmental risks to the wreck and the importance of preserving it.
- To showcase the importance of her revolutionary design and its impact on
the Royal Navy.
- To develop visitor understanding of what she looks like on the sea bed and what maritime archaeologists do to reveal her secrets.
- To outline the incredible technical advances since the first excavations of the shipwreck in the 1980s in the area of photogrammetry (the ability to create accurate 3D photographs of the excavation on the sea bed).
- To showcase some of the key artefacts discovered in the 2017-2019 dive seasons on the wreck and outline recent research findings about the ship and life on board (crew and passengers).
- To outline site specific research findings, the ship’s links to Chatham and to Portsmouth Naval docks when the exhibition is in each location.

<table>
<thead>
<tr>
<th>4. CONTENT BACKGROUND</th>
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<tbody>
<tr>
<td>- To introduce the ship itself, including French and English histories and importance of design to later Royal Navy ships. How she was refitted at Portsmouth to comply with Royal Navy specifications and why the first British ship, based on her ‘lines’, was built at Chatham.</td>
</tr>
<tr>
<td>- Life on board in the 18th century-- what the objects tell us.</td>
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<tr>
<td>- The last voyage- what happened, muster list, notable individuals, early salvage attempts.</td>
</tr>
<tr>
<td>- Wreck discovery and early excavations – collections and oral histories from John Bingeman and Arthur Mack. Modern diving and excavation techniques used in her current excavations. What's changed since the 1980s - new technology, virtual reality, and photogrammetry.</td>
</tr>
<tr>
<td>- Latest finds and discoveries about the ship.</td>
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<tr>
<td>- Environmental concerns – shifting sands, other shipping traffic, the future of the wreck and why we have had to excavate.</td>
</tr>
<tr>
<td>- Conservation – techniques used by Bournemouth University to preserve waterlogged objects from the sea bed and the dive boat to display in and exhibition.</td>
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History of Diving Deep; HMS Invincible project

History

The 74 gun *L'Invincible* was originally built for the French Navy in 1744 and fought during the Austrian War of Succession until captured by the Royal Navy in 1747. She was commissioned into service and her revolutionary design copied, becoming the model for British 74 gunships of the line for much of the 18th century. The Valiant, completed in 1759, was built at Chatham was based on the *Invincible’s* lines. As part of her commissioning, she was completely stripped and re-fitted with rigging and ordinance that complied with Royal Navy establishments. The ship foundered on route to Nova Scotia and was then wrecked on Horse Tail Sands – 4 miles off Portsmouth - on 19 February 1758. As she took 4 days to sink, several attempts were made to re-float her, including jettisoning some of her ordnance over board. Other guns, equipment and supplies were removed as part of a salvage operation and there were no casualties. A significant proportion of her hold was quickly submerged and therefore abandoned. Since 1758 she was gradually covered by the sand bank preserving what remained of her. In 1979, she was re-discovered by a local fisherman, Arthur Mack, when parts of the wreck snagged his nets. In 1980 she was subsequently designated under the Protection of Wrecks Act 1973. Gradually, the sand bank protecting her has been eroding and exposing her
structures and artefacts to damage and so the first excavations, led by Commander John Bingeman, were carried out between 1980 and 1991. By 2012 and again in 2015, Historic England added her to the Heritage at Risk register. Items from the excavation in the 1980s are in various collections at National Museum of the Royal Navy (NMRN) and the largest resource, of over 400 items, are held at Chatham Historic Dockyard: https://collection.thedockyard.co.uk/collections

In spring 2016 MAST (the Maritime Archaeology Sea Trust) was awarded £2.027m in LIBOR funding for a project running across 2 dive seasons to record, and excavate areas of the newly exposed starboard side and to conserve and provide access to finds. Any material raised will be conserved by Bournemouth University and, under a memorandum of understanding, title to all material raised will be granted free of charge to the NMRN.

Diving Deep: the HMS Invincible 1744 Project: Where we are now
This project complements the above original project; it enables a change in use of LIBOR funds to allow 3 seasons of dive – 2017, 2018 and 2019. This project focuses on an HLF activity programme which enables public participation through the dive seasons, a major travelling exhibition at two of the partners’ sites, digital exhibition content that enables empathetic learning that encourages engagement with the wreck. The digital content must have an element that is accessible on multiple devices across platforms and leaves a permanent legacy of public access to the heritage.

During the activity planning process, the opportunity to expand the geographical reach of the project via small exhibition pods visiting satellite sites (e.g. Hartlepool) of NMRN was explored and agreed to be highly desirable. This would strengthen connections with these sites, engage a wider, more geographically spread and diverse audience in the stories of the Invincible.

Project elements include:
- Volunteer involvement throughout dive, conservation, exhibition.
- Creation of experiential digital content, for example a virtual dive trail
- On-line access to union database of all HMS Invincible finds
- Transfer and packaging of finds to NMRN from 2019 onwards
- Design and build of an exhibition at Chatham in 2020 and Portsmouth in 2021
- Creation of smaller exhibition ‘pods’ which can travel to other smaller venues
- Popular publication in support of exhibition (additional funding available £2000)
- Permanent access to conserved finds within NMRN.

Project Partners and Roles:
MAST (Maritime Archaeology Sea Trust)
Archaeological excavation of Invincible shipwreck

Dan Pascoe – Licensee of wreck and archaeologist

Bournemouth University
Excavation logistics and artefact conservation

National Museum of the Royal Navy (NMRN)
Delivery of project activity programme (including exhibitions)

Chatham Historic Dockyard (CHD)
5. **TARGET AUDIENCE**

- Families with children aged 5 years upwards
- Formal learners – pupils Key Stage 2 and 3 (7-14 years) studying STEM subjects and History and their teachers
- Independent non-specialist adults (mostly couples)
- Recent veterans and their families

6. **VISITOR EXPERIENCE**

Adjectives that describe the look and feel of the visitor experience of Diving Deep: HMS *Invincible* 1744

- Emotive
- Visual
- Exciting
- Hidden
- Informative
- Challenging

To provide visitors with multi-sensory, empathetic learning from both the exhibition and the digital content. The exhibition will recreate, as much as is possible, the secret world of the underwater archaeologist.

It will take the visitor through the story of the *Invincible*, from her capture, from the French, and use by the Royal Navy, through her sinking, rediscovery on the sea bed, excavation, raising and conservation of the finds from her hold.

Visitors will be able to see what it is like to dive beneath the waves and look at her as she is now on the sea bed. The public will not only understand the way she was made, sunk and how she technically sits on the seabed but also what it is like to dive and excavate her in the murky cold waters of the Solent.

Interactives and displays should show some of the human and technical stories relating to her importance and her role in the Royal Navy prior to her sinking. The selection of key archaeological finds to display has not been finalised and will include creative input from the exhibition designers. Examples of key archaeological finds that could be used to help to develop this could include:

- The range of early military (not Navy) buttons found on board, who were her passengers? Why were they on board?
- The range of names of the sailors on board, many are clearly not of British origin.
- The replacement English rigging and ordnance that better suited the Royal Navy’s supply chain. For example gun wads all with little wooden labels denoting the correct cannon size (which was very different to the previous French equipment) to ensure that the gunners never got confused about what fitted in the end of which cannon during battle. Extra, unusually shaped coins, in order to make the English cannon fit the French gun ports.
- The mixture of iron and wooden knees found on board decades before iron
knees were used on British ships.

- The smell and feel of *Invincible*, the public will be able to touch and smell some of the finds from the wreck for example coils of tar coated rope.
- Surprising facts about men’s fashion at the time, like the significant number of wig curlers found in her hold.
- The difference between officers and men, rich and poor; the presence of shoes that have been significantly repaired rather than thrown away.
- The exhibition should also leave visitors with a mystery that they could try to solve themselves and share their ideas with other members of the public and the project/project partners (because the experts don’t know the answer yet). For example the secret apotropaic or witches mark on the underside of a box storing gun charges.

The exhibition will also include the basic techniques of underwater archaeology and conservation. Interactives and exhibits may include for example;

- The use of a dredging ‘air lift’ to suck up the sand and excavate the site.
- The use of photogrammetry to take a 3D image of the site as you excavate it.
- Diving equipment, what is it like to try on?
- One of the only guns excavated from the wreck can be used to display active conservation (Electrolysis to remove the salts from the iron) within the exhibition in a specially designed tank of water.

The exhibition will cater for the differing needs of key audiences. From visitors who want to develop their knowledge and understanding through the visuals and written text to those visitors who find the written text difficult to access and learn more through visual and kinaesthetic interactives. Visitors will then have the option of extending their engagement and learning by accessing the online digital exhibition content via devices of their choice, from computers to smartphones.

### 7. LEARNING OUTCOMES

Learning outcomes cover everything we hope visitors will gain from the experience of using the exhibit.

**Knowledge and understanding**

- To know what made the design of the *Invincible* revolutionary and why she was copied over and over, making her the back bone of the Royal Navy.
- To make links between the archaeological finds and the historic narrative of the Royal Navy and life on board in the mid 18th Century.
- To know how to preserve key archaeological finds once they have been raised from the sea bed and exposed to air.

**Skills**

- To be able to explain and experience how to excavate an archaeological site on the sea bed.
- To discuss and share their own ideas and evidenced explanations in response to what the experts don’t know (*Invincible mysteries*)

**Attitudes and Values**

- To challenge the idea that ‘Britain Rules the Waves’ and understand how new naval technological ideas also developed in other counties.
and the mechanism by which those ideas spread at this time (war and espionage).

- To appreciate how ideas of duality, such as rich and poor, masculine and feminine and British and Foreign has changed significantly since the mid-18th Century.

**Enjoyment, inspiration, creativity**

- Visitors will enjoy a multi-sensory experience of the *Invincible*, 261 years after she sank.

**Activity, behaviour, progression**

- Visitors will progress their knowledge and understanding by engaging with the online content after seeing the Exhibition.

### 8. DESIGN GUIDELINES

- The exhibition needs to be adapted to two different sized spaces but does not necessarily need to include exactly the same text panels and objects on display at both locations.
- Configuration and layout of both temporary exhibition spaces at both Chatham and NMRN Portsmouth can be changed with the exception of the outer walls, supporting pillars and glass floor panels at Portsmouth. Please see Special Exhibition Example Layout NMRN.
- Contractor and sub-contractors must be willing to work with the appointed NMRN evaluators, Heritage Insider.
- The exhibition needs to allow multiple viewing of any digital and AV content.
- The interactives must be robust and reliable as there will not be regular staff monitoring of the galleries.
- Any display of original artefacts undergoing conservation in the gallery needs to be simple to maintain/monitor because there will not necessarily be a qualified conservator to carry out this work. For example electrolysis display tank for the Invincible gun.
- To work with the NMRN and Chatham teams to produce any necessary risk assessments and COSHH data on any display elements that require them. For example any artefacts that need to be displayed under special conservation conditions.
- A timetable will be agreed with the NMRN (P) and Chatham HD exhibition teams, including the deadline for signing-off final versions and delivery of completed exhibition material.
- All final artwork, panels, interpretation board content and graphics to be provided in a digital format that will allow use in the future if required.
- All design work and copyright relating to it will become the property of the client and partners upon completion of the contract.
- If needed the contractor will procure digital design subcontract to NMRN procurement guidelines.
- If needed the contractor will procure other subcontracts relating to the design, build and transport of the exhibition.
- NMRN and partners can reject suggested digital design and other subcontracts and suggest alternatives.
- The digital legacy should be accessible and downloadable, hosted by one of the project partners websites.
- All travel will be at the expense of the contractor.
- Any sub-contractors’ costs should be included in the price submitted.
- All prices to include packaging, delivery, unloading and clearly identified in
the budget.

- All design estimates and costings to be produced net of VAT.
- That all exhibition design and interpretation is compliant with NMRN and partner branding. Branding guidelines will be supplied.
- The NMRN and partners retain copyright to all design, interpretation and digital content.
- That appropriate warranties are provided for all design, build and digital content.
- Be health and safety and heritage compliant and provide risk assessment method statement (RAMS) for approval.
- To provide regular face to face meetings at both locations, we expect a minimum of 6 between the two locations.

9. TECHNICAL GUIDELINES

9.1 Technical requirements

- At NMRN P and at Chatham HD, there are power and network connections in floor boxes as well as wifi in the temporary exhibition space.
- At NMRN P all walls and cases in the temporary exhibition space can be moved and reconfigured with the exception of the outer walls, 6 wooden supporting pillars, and 6 glass floor panels (displaying the original floor). At Chatham HD all walls and cases can be reconfigured with the exception of the outer walls.
- At NMRN P and at Chatham HD weight restrictions are unlikely to be an issue but would need to be considered in the design of any display tank containing water if this is needed.
- NMRN P quarterly average footfall is 23856 with a peak in Feb and March.
- Chatham HD average footfall July to Oct is 3450 with a peak during the August and October school holidays.
- At NMRN P and at Chatham HD the temporary exhibition space is intermittently staffed and any maintenance of exhibits will be carried out by non-specialist staff.

9.2 Lighting

- At NMRN P, the Lighting system is: Concord Muse LED track mounted spot lighting.
- At Chatham the lighting system is: Concord Beacon Muse LED track mounted spot.
- Some additional lighting may be needed at both locations that specifically relate to the exhibition design.

9.3 Acoustics

There will be a soundscape that relates to film footage of the underwater exhibition.

9.4 Software

Software requirements will be specified through the digital design element of
the exhibition and to be managed by the digital designer.

9.5 Text & images

- Text format and image layout should comply with NMRN and Chatham HD branding requirements and style guides
- Text will be supplied by NMRN and partners.
- Principle images and film, along with copyright, will be supplied by NMRN and partners but additional elements may be required.

10. VISITOR TESTING

Formative evaluation

- The museum will undertake formative evaluation of any interactive prototypes, digital content and pdf graphics draft which will be tested with a professional review by NMRN P, Chatham HD and partners, and with audience groups at agreed points in the development process so as to assess functionality, appeal to visitors and ease of use.
- Any specialist display cases will need to be tested for safety and accessibility and will be included in the evaluation process at agreed points in the exhibition development.
- The exhibition legacy 'pods' to be sent to satellite sites will also be included in the evaluation process at agreed points in the exhibition development.
- The contractor will be expected to co-operate with this process and implement any recommendations by making any reasonable modifications to the exhibition interactives and graphics as agreed in discussion with NMRN P, Chatham HD and partners.
- The contractor will develop prototypes to a standard that they can be tested on visitors under supervision. The prototypes should be partially finished, partially functional versions exhibition interactives.
- If space and venue configuration has an impact on any interactive prototypes they may need to be tested in both museum venues.
- The prototype should be delivered to and collected from the chosen museum venue on a day to be specified.
- The Contractor will be required to assist and advise museum staff on the installation of any trial software on the museum’s hardware if necessary. This may need to be done at both venues.
- The evaluations will take place at the chosen museum venue and will be conducted by members of the museum’s staff as well as other project partners.
- Prototype interactives will be tested on a cross section of the general public who represent the target audience.
- Each prototype will undergo a professional review and 4-5 days of testing at the museum after which a debrief meeting will be arrange between NMRN P, Chatham and partners and the contractor to provide feedback on the results and to discuss any changes required. This meeting will also provide an opportunity for the design and content teams to provide feedback to the contractor.

Specifically the prototype testing will focus upon:

- Do the graphics and interactives meet exhibition aims and Generic Learning Outcomes.
- They are robust and user-friendly.
- They meet health and safety guidelines and maintenance criteria.
They are accessible and inclusive.
- The digital and online content is accessible and user friendly and meets Web Content Accessibility Guidelines
- Exhibition legacy ‘pods’ meet the exhibition aims, Generic Learning Outcomes and are cost effective and simple to transport and display in smaller satellite sites.

**Budget**

The overall budget is £150,000 with an additional exhibition transport budget of £30,000.

This budget needs to include:
- Design and build
- Digital content
- Modular exhibition ‘pods’ for satellite sites
- Procurement of all items including but not limited to exhibition equipment, lighting, and displays and hardware.
- There may be other elements not yet detailed to be agreed throughout the course of the project.
- The overall budget is excluding VAT

The budget does not need to include:
- Exhibit housing costs with the exception of any specialist display cases and travelling exhibition ‘pods’ needed (for example a tank to contain objects undergoing conservation)

**11. CREATIVE RESPONSE**

We are looking for a creative design response in this Invitation to Tender. We would like the contractor to;

*Explain how you plan to bring alive the underwater excavation of the Invincible wreck for a Grandfather and his 6 year old granddaughter.*

How do you propose;
- To develop the story of the rediscovery and excavation of the invincible for different audiences without it becoming dry and too technical.
- To tell the story of Invincible’s history and importance again without it becoming too technical and over long.
- To outline an empathetic visual and family friendly approach.
- To outline the use of different digital media.