Sutton Hoo

Construction of visitor facilities and an exhibition hall
February 2002
Building design guide

Project brief

The National Trust received a grant from the Heritage Lottery Fund to provide appropriate facilities for visitors to Sutton Hoo, including landscaping and access roads, a car park, exhibition space, and on-site interpretation.

The primary objective was to make the story and academic research into Sutton Hoo, a site of exceptional archaeological importance, accessible to the public by creating a major new exhibition. This would complement the display of objects at the British Museum and greatly increase the value of Sutton Hoo as a national heritage asset.

The facilities provided to service the exhibition would have to be suitable for the predicted number of visitors (55,000 per annum), including education visits, and be a model for access for people with a range of disabilities.

It would have to be possible for a small number of staff to manage the buildings. On-going repairs and maintenance costs, including the running of the exhibition, were to be minimised so that future demands on staff could be limited.

The approach and entrance to the exhibition and reception facilities to be well planned so that a sense of theatre and purpose would be conveyed through the control of architectural spaces.

The buildings were to:

- be kept out of view from the grave field site to preserve the special atmosphere
- be appropriate to, and in harmony with, the landscape setting
- provide visual links to the significant parts of the landscape: the gravesite, the River Deben and the town of Woodbridge

Key factors

- Buildings to be sympathetic to surroundings
- Model for provision of disabled access
- Flexible space to accommodate large number of individual and group visits
- Easily maintained buildings and services

Entrance to the exhibition building
Stakeholders

Partners:
- British Museum
- The Sutton Hoo Society
- Society of Antiquaries
- Sutton Hoo Research Trust
- West Stow Anglo-Saxon Village
- Suffolk Coastal District Council
- The University of York
- Woodbridge Town Council
- Woodbridge Museum
- Roskilde Ship Museum (Denmark)

Funders:
- Heritage Lottery Fund
- European Regional Development Fund
- Government Office for the East of England
- East of England Development Agency
- Environmental trusts who gave through Landfill Tax
- Annie Tranmer Charitable Trust
- Suffolk County Council
- Konver
- Tranmer Trustees

84% of this project was funded externally and 16% by the National Trust.

Archaeological context

- Sutton Hoo is a burial ground of the seventh-century kings of East Anglia. The site of the burials is of international importance. Its partial excavation has revealed objects of exceptional interest and richness which have dramatically revised understanding of the ‘Dark Ages’. The site has revealed buried treasure and great works of art that are now on display at the British Museum.

- The site of the burials is part of the Sutton Hoo estate which was given to the National Trust in February 1998.
Designations

- Scheduled Ancient Monument
- Suffolk Coast and Heaths Area of Outstanding Natural Beauty
- Ramsar site
- Site of Special Scientific Interest

Site issues

- The underlying soil type is sandy which has always caused problems of erosion, particularly around access points to the grave field site.

- The Trust did not have the highways access which it required. It therefore had to negotiate an access route which added an unavoidable cost of acquisition, plus development.

- A limited range of services already existed on-site.

Archaeology

- During archaeological investigations of the proposed building site, a second Anglo-Saxon cemetery was found. This did not delay the project, and gave an opportunity to display items found within the exhibition in close proximity to their original location.

Education

- Education in its widest sense, alongside the protection and security of the grave field site, was seen to be the core responsibility of the National Trust at Sutton Hoo.
Design approach

Initial plans to convert existing buildings were rejected due to their size, lack of flexibility and difficulty in creating disabled access. Building new overcame the flexibility and access issues, and also enabled:

- the space between the new and old buildings to provide an area for outdoor exhibitions and educational activities
- better orientation of the buildings to face south
- views of the landscape and river from the café to be improved
- room for future expansion

The scheme was separated into two buildings: a visitor reception and facilities building and an exhibition hall, so that the exhibition space would not be intruded upon by noise or services.

Reception building

This was designed to provide:

- initial interpretation, membership recruitment, ticket sales and general information
- catering for 65 covers inside and 30 covers outside, with a separate area for group bookings
- shop with minimum sales area of 25 sq m and 15 sq m of storage space
- toilets

The service facilities provided for the visitors were designed to be unobtrusive so as not to detract from the exhibition hall.

The areas of activity were clearly defined, with no spill-over from space to space.

Exhibition building

Comprising three separate areas:

- An Audio Visual Theatre to set the scene and create an atmosphere for the rest of the visit. The aim was that the audio visual material should be accessible during appropriate parts of the visit without being intrusive, distracting or disturbing to other visitors. Sufficient acoustic dampening was incorporated to reduce sound reflectivity and noise.
- A Treasury Room for changing exhibitions, including the temporary display of the original artefacts from the site (usually displayed at the British Museum). This room required a high level of security.
- A main Exhibition Hall to house a replica of the burial ship in a sunken central space and to tell the story of the 1939 discovery of the treasure under Mound One.
Environmental approach

- Reclaimed aggregates were used for hardcore in the car park.
- Timber was obtained from sustainable sources certified by the FSC in the UK and the equivalent French authority for some oak.
- Warmcel roof insulation was used in the walls and roof.
- Plywood substitutes such as Stirling board were used.
- An old underground tank for greenhouses has been put to a new use collecting rainwater for flushing WCs.
- The buildings were designed to take maximum advantage of natural conditions, being orientated and designed with large overhangs to reduce over-heating and with a large mass to prevent heat loss.

Project team

The project team comprised people and companies providing internal and external expertise including:

Project Manager
Curator
Regional Archaeologist
Countryside Manager
Regional Building Manager
Property Manager
Enterprise Manager
Policy and Planning Manager
Education Officer
Procurement Consultant
Public Relations Consultant
Operational and Official Opening Teams

Building Services Engineer Max Fordham & Partners
Structural Engineer Price and Myers
Highways Engineer Logan Associates
Architect van Heynigen and Haward
Landscape Architect Livingston Eyre Associates
Planning Supervisor PFB Construction Management Services Ltd
Main Building Contractor Haymills (Contractors) Ltd
Quantity Surveyor Davis Langdon and Everest
Exhibition Designer Chris Hudson Designs
Construction

- The two timber-framed buildings have walls of horizontal timber cladding and a roof of heavy zinc sheets. The large external window frames and the roof lights are aluminium.
- Both buildings are planned on a grid with a central circulation route. The Reception building is the same width as the Exhibition building as viewed from the entrance court, but is considerably lower.

Foundations

- Ground-bearing reinforced concrete slab, cast onto the ground.

Exhibition building

- Sunken areas cast integrally into slab.
- The columns which support the ends of the trusses have higher loads than elsewhere. The foundations for these columns are mass concrete pad footings large enough to avoid the need for reinforcement.

Reception building

- To avoid bringing in a lot of fill, this has a ground-bearing slab at the north end and at the south end, a precast concrete plank suspended slab which sits on brick sleeper walls on concrete strip footings.

Structure

- Frame made up of green Douglas Fir sections.
- Main roof beams and columns are the same size (150mm square), satisfying both the required strength of the member and architectural detailing.
- Main posts have steel baseplates bolted down to the top of the concrete slabs.
- The isolated posts at the side of the colonnades sit on individual concrete pad footings with galvanized steel shoes which raise the timber above the splash zone.

Waste

- All site buildings are served by a new buried sewage treatment plant.
Roof

- Structure of timber purlins, with timber boarding onto and underneath, sitting on timber and steel trusses (galvanised steel tie rods and central struts).
- Both buildings braced by diagonal timber struts within the wall construction.

Exhibition building

- High, column-free space to accommodate the exhibition. The central ridge to the roof is higher (just under 7.5m high and a roof pitch of 30 degrees) than the Reception building (4.25m high and pitch of 10 degrees).
- A pair of timber and steel trusses, spanning four column grids, are set longitudinally down the building. These trusses are tied together by plan bracing to stabilise the top chords of the trusses and transfer wind loads to bracing within the end walls of the building.

Reception building

- The roof purlins span onto main trusses on the column grids. The tops of the posts are tied together along the length of the building, so that they are connected to bracing in the solid sections of wall.
Additional points

Reception building

- Comprises entrance hall, shop, restaurant with sizeable kitchen, staff, toilets and mechanical/electrical plant areas.

- On the sunnier south-east side are located the entrance hall, reception desk, shop and the majority of restaurant seating.

- At the far south-west end of the building, furthest away from the main entrance, the restaurant seating is accommodated across the full width of the building with an external covered terrace beyond with views across the site.

- The terrace area has timber joists on pairs of timber beams supported by green timber posts. The foundations are mass concrete strips.

- Large areas of full-height glazing to the restaurant and entrance hall to enable visitors to orient themselves in relation to the landscape.

Exhibition building

- The space comprises an exhibition hall with recessed floor, a 30-seat Audio-Visual Theatre and a Treasury Room. Anglo-Saxon artefacts are displayed in the Treasury Room and also in other areas.

- The central tableau in the main exhibition hall is a representation of the gravesite scene with a reproduction of the Mound One boat set in the floor in the same position as the original may have been laid.

- There are few external wall openings, other than the entrance door, in order to maximise wall space for the exhibition.

- Two slit windows in the side walls are aligned along the central axis of the boat to allow visitors to see the position of the boats prow and stern and maintain a relationship with the external environment.

- A glazed seating area opposite the entrance allows visitors to rest from exploring the exhibition.
Ventilation

- Natural ventilation where possible.
- The kitchen has a cooling system.

Heating and light

- Heating in the public areas is provided by a forced warm air system with radiators in the ancillary areas.
- Space heating and some kitchen equipment will be fuelled by LPG.
- Solar heat gain and glare are minimised to provide a comfortable environment. A colonnaded verandah limits the amount of direct light entering the buildings and provides protection to visitors walking around them.
- Rooflights along the ridges of both buildings. In the Exhibition Hall, a rooflight illuminates the tableau directly below; in the Reception, two roof lights allow a useful amount of natural light to reach the circulation area in the centre of the building.

Products and services

**Architects**
van Heyningen and Haward
Burghley Yard
106 Burghley Road
London NW5 1AL
info@vhh.co.uk
www.vhh.co.uk
020 7482 4454

**Landscape consultants**
Livingston Eyre Associates
35-42 Charlotte Road
London EC2A 3PD
lea@livingstoneyre.co.uk
www.livingstoneyre.co.uk
020 7739 1445

**Structural engineers**
Price and Myers
33-34 Alfred Place
London WC1E 7DP
mail@pricemyers.com
www.pricemyers.com
020 7631 5128

**Building services engineer**
Max Fordham & Partners
42/43 Gloucester Crescent
London NW1 7PE
post@maxfordham.com
www.maxfordham.com
020 7267 5161

**Exhibition designer**
Chris Hudson Designs
London Fields Studios
Exmouth Place
London E8 3RW
020 7241 5333

**Quantity surveyors**
Davis Langdon
Mid City Place
11 High Holbourne
London, WC1V 6QS
www.davislangdon.com
020 7061 7000

**Acoustic consultants**
Arup Acoustics
St Giles Hall
Pound Hill
Cambridge CB3 0AE
www.arup.com/acoustics
01223 531100

**CDM Planning**
Construction Management Services Ltd
Jonathon Scott Hall
Thorpe Road
Norwich NR1 1VH
01603 631396

**Procurement consultant**
Peter Lawton
Church Street
Plumstead
Norwich NR11 7LG
Procurement

- On receipt of the HLF grant, the National Trust, in line with EEC procurement procedures, advertised the project. Following an interview process, it selected the architects in October 1998 to lead the consultant team. The architects were selected based on their experience in visitor and museum facilities, and past work with the Trust.

- Procurement was by means of a ‘Partnering’ arrangement between the Trust, the consultant team and the main contractor, who were selected based on their ability to deliver the buildings in line with quality and cost. A long list of twelve interested contractors was reduced to a second stage shortlist of six, based on an objective assessment of submissions against pre-selected criteria. The six contractors from the shortlist were then sent further, more project-specific questionnaires, which were again assessed objectively to produce a list of four tenderers.

- The JCT Prime Cost form of Contract was used as the basis for procurement of the project with the intention of using the terms of the project as the basis for the partnering agreement. The agreement was not mutually exclusive to the project but could be used for various projects throughout the Trust’s East of England region in an effort to implement an ‘open book’ policy on both sides where ‘trust’ would be paramount.

- The main contractor was responsible for the sub contract tender process including preparation and collation of the documentation, and preparing pricing documents (eg. Contract Sum Analysis, Schedules of Work for Quantities) that were used in conjunction with the specification and drawings.

Project duration

1998 October
Architects selected

1999 June
Planning application/HLF submission

1999 August
Planning/HLF approval

1999 October
Building Regs submission

1999 December
Building Regs approval

2000 February
Out to tender

2000 April
HLF/Trust approvals

2000 June
Start on site

2001 July
Start exhibition work

2001 October
Completion of building work

2002 February
Completion of exhibition fit-out

2002 March
Official opening
Post project review

Lessons learnt

- On the whole relationships were excellent with all partners (e.g., suppliers, contractors and craftsmen), although a few teething problems were experienced.

- Deadlines for the exhibition were often extended as craftsmen and contractors spent considerable time perfecting their product, knowing we were not actually opening until March.

- Occasionally consultants provided information to the contractor a little later than scheduled, which caused delays. This was balanced, however, by good on-site dialogue to resolve design and programming issues.

- The integration of the IT and communication systems was not addressed until late in the project. This created problems with the co-ordination of sub-contractors, and at the interface of the various systems. Thankfully solutions were found.

- Meeting the requirements of the Disability Discrimination Act 1998, even with the Trust’s track record, was not easy. It was difficult to source suitable products and reach agreement on design solutions. There is still work to be done, such as better interpretation of the landscape and grave field site.

- It should be accepted that planned functions and use of spaces may change once the site becomes operational. This will lead to systems or facilities not being in the right place or the provision not to the correct standard. Good communication and flexibility are essential.

- ‘Soft openings’ were of value and are to be encouraged to rectify teething problems. It is important that visitors are aware that they are trialling the facilities, and expectations of a ‘perfect’ visit must be managed.
Best practice

- Clear briefs were developed for the buildings, the wider site, and for the exhibition. A major influence on the brief was the experience from Scandinavia and the development of a set of guiding principles. These were produced following the advice of partners in Norway, Sweden and Denmark, and after visiting many comparable projects as part of the European Exchange programme. Guidance from local community and interest groups was also helpful especially those who knew the site well and were aware of its special qualities.

- Developing the Statement of Significance at a very early stage proved invaluable. It formed a raison d’être for the project and was a simple and straightforward means of justification to interested parties.

- Specific teams with clear roles and responsibilities were created. Each team signed up to these and were prepared to promote the project as necessary. It was critical that once a decision was made that it was accepted and adhered to, unless there was a very good reason for change.

- Choosing a design team with the correct expertise for the particular project. Being clear about what their contract covered and fixing a fee to a specific contract sum. Good attitude to partnering process and willing to listen to and involve the client closely. The selection process was by formal interview and tested their response to an outline brief.
Integrating the exhibition designer from the very earliest stage was crucial, i.e. in the design of the space. A more consistent appearance of all ‘interpretative’ material resulted.

The contractor was chosen following a formal selection process and interviewed on their understanding of project aims and reality of partnering process. These were established through a workshop that determined what each party wanted out of the project and what was important to them. As a result, the Trust received a product of high quality and excellent co-operation from the contractor. Key to this success was working with hand-picked staff sympathetic to the aims of the project.

Environmentally friendly building materials and methods were used wherever possible but not at any cost. Complicated or pioneering green technologies were avoided, and where they have been used, are generally backed up with conventional systems. Regrettably, the former are still prone to failure or operational difficulty. Environmental gains through good design have also been achieved, e.g. use of natural light, management of solar gain etc.

Having a dedicated project manager as a single point of initial contact has been identified by all involved as particularly valuable. Co-ordination of all the various inputs from the Trust to meet the critical path was essential.

Having the support and service of all the relevant regional staff was indispensable.

The production of a project newsletter twice a year ensured that interested parties were kept up to date with developments and engendered support for the project.

The experience of other Lottery projects was incorporated such as:

- Risk reduction by refurbishing buildings to existing use rather than major adaptation to new use
- Risk reduction by using the cost certainty of new build
- Use of ‘value engineering’ to reduce costs without compromising the integrity of the building
Feedback

- Many complimentary comments have been received – ‘the best day I have had on a Trust property’, ‘the Eden Project of Suffolk, only better’.
- The site received 200,000 visitors in the first year - 55,000 were expected. This put the site in the top division of National Trust attractions.
- Fitness for purpose – user satisfaction and visitor satisfaction is high.
- EDP survey = no mark lower than 9/10.

Further information

Contact the property at:
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