

	Redman Design	American Air Museum, Duxford
	Scope of Works Pricing Document American Air Museum, Duxford Exhibition Fit-out Package Date of issue: July 2015 Scope of works: Museum Fit-out	
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	Please note that any specific products or specifications listed in the scope of works and accompanying schedules and specifications are an indication of product type and quality. The Fit out Contractor and selected Sub-contractors are free to specify alternatives but must demonstrate that the proposed alternative products are equal to those listed in the tender documentation. Please note that any such alternatives must be identified by Contractors in their Tender Return and approved by the client and design team prior to appointment.	
	Definitions -	
	Base Build Contractor - responsible for all works associated with modifications and installations to the building	
	Fit Out Contractor - responsible for all exhibition display works, including the appointment of specialist subcontractors i.e. graphics, interactives and scenics (this is the subject of this contract)	
	AV Hardware Specialist - a client direct appointment responsible for the purchase and installation of all AV equipment and associated cables with display structures. Close liaison will be required between the AV Hardware Specialist and the Fit Out Contractor and the Fit Out Contractor will be responsible for programme management of said works	
	Scenic Subcontractor - appointed by the fit out contractor (please list your nominated subcontractor here)	
	Graphics Subcontractor - appointed by the fit out contractor (please list your nominated subcontractor here)	
	Interactives Subcontractor - appointed by the fit out contractor (please list your nominated subcontractor here)	
	Client - Imperial War Museum, Duxford	
	Design Team - Redman Design & IWM	
	General Description of the exhibition fit-out works	

	This specification is intended to be read in conjunction with all drawings, schedules and other relevant documents associated with this project.	
	The fit-out contractor will be responsible for checking all site dimensions, including, but not limited to any door openings, ceiling heights, floor levels and existing M&E before commencement of any construction works. Any discrepancy between the drawings and site measurements must be reported to Redman Design prior to construction or fabrication.	
	The exhibition fit-out works are located in the AAM only.	
	All power and data cables will be installed by a base build contractor to each identified display location. All data cable terminations and any additional AV related cables, spurring off electrical/data feeds into exhibition structures will be installed by the appointed AV Hardware Specialist supplier/installer. At each location where cables appear below display structures there will be a spare length of cable, approximately 3m in length. This will allow the fit out contractor to pull the cables and sockets through the display structures and locate them in more appropriate positions for installation and future access purposes.	
	Any additional cables for fit out display purposes i.e. spurring off electrical feeds into exhibition structures, installation of lighting units, power to fibre optics and specialist effect lighting required between sockets and electrical items are to be installed by the fit out contractor.	£
	(See Redman Design drawings for further details)	
	It will be the responsibility of the exhibition fit-out contractor to include for, but not be limited to, providing additional wiring and installation drawings to complement the base build installation if and where required. This should be done before commencement of any site works, providing a thorough specification of fixtures and fittings for checking by Redman Design and the client. The fit-out scope includes procurement and delivery of all necessary equipment, installation and commission of both lighting and exhibit related power systems. The contractor must then provide updated as built drawings for each element for the various gallery spaces.	
	All works relating to CCTV and fire are to be carried out as part of the base build package. Any unforeseen subsequent works/modifications required to the CCTV/fire installation as part of fit out works will need to be carried out by the base build security installation team so that warranties are not affected.	
	The fit-out contractor will be responsible for the procurement, supply, management and installation of several specialist subcontractors. The specific scope of these specialist works are as detailed in the tender package. The fit-out contractor will be responsible for coordinating the subcontractors to ensure their works are sequenced and actioned to facilitate the flow of information to other packages. Coordinated drawings are to be provided by the fit-out contractor.	
	Whilst the Narrative Island units have been prototyped there are still elements of the design that need to be developed further by the fit out contractor in conjunction with Redman Design and the client team. In particular the Node Display, large sculpted flags that are to act as a light baffle and backdrop to the display elements. Further minor construction detail enhancements associated with the Narrative Islands. <u>All of these will need the fit out contractor to take responsibility for structural calculations where necessary, specifying steel sizes and details and sizing thickness of glazing if and where applicable.</u>	
	The fit-out contractor must allow for producing survey drawings, coordinated setting-out drawings and fabrication drawings for all of the works for construction scheduled below where required. These are to be sent to Redman Design for approval at least two weeks prior to fabrication. Any queries regarding the design intent should be clarified with the designer before or during the setting out stage. At the end of the works the fit out contractor will be required to produce as built drawings which are to be supplied along with O & M manuals for practical completion.	
	The fit-out contractor is to include here any cost for provision of these drawings	£
	A.1 - Site	
	Site boundary and access is as shown in the information supplied by IWM. Any issues relating to access and loading of materials including security and available delivery times relating to access onto the site and into the buildings are also listed in the information provided. Further consideration will be required when detailing and setting out prefabricated items. Egress routes through site in the event of an emergency will also be covered in the information provided	
	It is recommended that a site visit take place to see the current status of the AAM building and to better understand the relationship between the building and the access in and out of the building & site. A full site survey will need to be carried out before any setting out works are started to ensure there are no issues between Redman Design drawings and potential discrepancies on site. Details of arrangements for site visits will be made available during the tender period.	
	A.2 - Programme - refer to key dates identified in the tender pack	
	A.3 - Drawings	
	Include all and as in drawing list below: -	
Drawing No	Drawing description	
14.382(GA) 01	General Arrangement Plan	
14.382(EL) 01	General Arrangement Electrical Plan	

	Marked up photo - showing areas requiring new graphic treatment - refer to graphics schedule for further details	
14.382(IN-AV) 01	Introductory AV space - refer to drawing (briefly comprising - 3No AV screens, curved display walls, light baffle screens, benches, carpet and re-decoration of space)	£
14.382(ND) 01	World Wars - visuals, details & notes - incorporating 2 tier curved plinths, metal barrier, cases, curved graphic screen with integral AV monitor & large flag shroud/light baffle	£
14.382(ND) 02	World Wars - elevation & visuals - as above	£
14.382(ND) 03	World Wars - elevation & plan - as above	£
14.382(ND) 04	Cold War - visual & notes incorporating 2 tier curved plinths, metal barrier, cases, curved graphic screen with integral AV monitor & large flag shroud/light baffle	£
14.382(ND) 05	Cold War - elevation - as above	£
14.382(ND) 06	Cold War - elevation & plan - as above	£
14.382(ND) 07	Mountaines & Deserts - visuals, details & notes incorporating 2 tier curved plinths, metal barrier, cases, curved graphic screen with integral AV monitor & large flag shroud/light baffle	£
14.382(ND) 08	Mountaines & Deserts - elevation - as above	£
14.382(ND) 09	Mountaines & Deserts - elevation & plan - as above	£
All cases will be supplied and installed by others but it is essential that the fit out contractor and case manufacturer liaise on a regular basis to ensure that both the on and of site works are well co-ordinated and efficiently manufactured & sequenced.		
When quoting for the manufacture and installation of the Narrative Island displays please refer to the following drawings, notes & photographs of the prototype		
Following the production of the Narrative Island Prototype the following list of proposed changes have been identified and need to be implemented into the manufacture of the final versions that are to be installed in the AAM. Please also refer to the prototype images and accompanying notes. If any of the proposed variations are going to incur additional costs from what is shown and listed in the tender drawings and prototype information please include this in your prices for each unit below.		
Prototype Review & anticipated variations		
	A number of key modifications are required before production roll-out:	
	Spacing of cross-beams behind graphic to be adjusted to reduce likelihood of them being used as seating or climbing frame.	
	The space between the showcase shroud and the back of the graphic screen is to be reduced to make it less appealing for children to climb behind.	
	The plinth top should run-through to the back of the acrylic graphic layer to avoid creating a dust-trap between the plinth and the graphic	
	The additional points were noted and need to be addressed:	
	Some of the joints were visible; in general these should either be fully expressed or not visible at all.	
	The plinth height of the touch screen AV unit and the flip-book lectern were too high and need to be reduced. This was due to a manufacturing fault but the final heights need to be agreed with the client before the full manufacturing of all units takes place.	
	An alternative castor type was proposed that incorporates an integral leg/foot that can be screwed down to help level and stabilize the unit. Please indicate if there is an anticipated cost variation to accommodate this alternative to the currently specified castor range.	
	The rectangular directional speaker was considered a good alternative but it has been suggested that the shape of the cut out in the canopy be rounded off at the ends to improve the overall aesthetics of the unit.	
	The monolith graphic brackets are to be set-in further from the edges of the graphic so that they are less prominent.	
	It was agreed that the proposed inclusion of a carpet circle on the floor beneath the directional speaker should be tested as this was not possible at the prototype stage	
	An alternative castor manufacturer has been suggested by the client and this should be included within your costings, ref: Keystone Castor Company - Footmaster Castor KGD-40S or KGD-40F (depending on fixing method).	
Construction notes, manufacturing processes and materials associated with the prototype		
	Curved graphic screen/light baffle constructed from 5mm thick frosted acrylic that is convex formed. To ensure that all of the panels are of equal size and shape the acrylic is to be slump formed over a mould made from shaped MDF.	
	Vinyl to be applied to the Convex Acrylic - Direct print to Arlon 6000 Clear vinyl and laminated with Arlon 3420M Matt Laminate - applied by specialist wrapping company	
	Dalsouple flooring to plinth top - supplied by DRF (France) Ltd (smooth finish - colour tbc)	
	Fire rated 18mm MDF	
	MDF finish - Sprayed with Nitro synthetic Paint RAL 7004 & RAL 7005(Shroud)	

	Powder coated Mild Steel RAL 7004	
	3mm Lambda wrapped Foamex for graphics	
	Anchor Bolts - M10 Sleeve nuts Powder coated Ral 7004	
	Castors - Hafele 663.16.910 (braked) 663.06.910 (without brake)	
	4.8w LED self adhesive flexible LED tape / LED ribbon warm & dimmer unit ref: U-D3-1CH (fixed to underside of curved graphics screen)	
14.382(NI) 01	Narrative Islands - Display 6 (based on case 1000 x 1000 x 2300) inc. parabolic graphic screen & frame, plinth, case shroud, graphic monolith, wrap over graphic, AV unit & all AV kit, flip book lectern (case supplied and installed by others - to ensure manufacturing & installation runs smoothly close liaison will be required between the fit out contractor and the case manufacturer	£
14.382(NI) 02	Narrative Islands - Display 13 (based on case 1000 x 1000 x 2300), inc. as above + speaker canopy	£
14.382(NI) 03	Narrative Islands - Displays 4, 11 & 22 , (based on case 1600 x 1000 x 2300) inc. parabolic graphic screen & frame, plinth, case shroud, graphic monolith, wrap over graphic, AV unit & all AV kit, flip book lectern (cases supplied and installed by others - to ensure manufacturing & installation runs smoothly close liaison will be required between the fit out contractor and the case manufacturer	£
14.382(NI) 04	Narrative Islands - Displays 2, 14, 15, 17 19 & 20 , (based on case 1600 x 1000 x 2300) inc. as above	£
14.382(NI) 05	Narrative Islands - Display 1 , (based on case 1600 x 1000 x 2300) inc. as above	£
14.382(NI) 06	Narrative Islands - Displays 9, 12, & 21 , (based on case 1600 x 1000 x 2300) inc. as above + speaker canopy	£
14.382(NI) 07	Narrative Islands - Display 10 , (based on case 2000 x 1000 x 2300) inc. parabolic graphic screen & frame, plinth, case shroud, graphic monolith, wrap over graphic, AV unit & all AV kit, flip book lectern (case supplied and installed by others - to ensure manufacturing & installation runs smoothly close liaison will be required between the fit out contractor and the case manufacturer	£
14.382(NI) 08	Narrative Islands - Displays 8 & 18 , (based on case 2000 x 1000 x 2300) inc. as above	£
14.382(NI) 09	Narrative Islands - Display 3 , (based on case 2000 x 1000 x 2300) inc. as above + speaker canopy	£
14.382(NI) 10	Narrative Islands - Display 16b , (based on case 3000 x 1000 x 2300) inc. as above + speaker canopy	£
14.382(NI) 11	Narrative Islands - Display 7a , (based on case 4500 x 1500 x 2300) inc. as above + speaker canopy	£
14.382(NI) 15	Narrative Island Prototype	
14.382(NI) 16	Narrative Island Prototype heat shroud	
14.382(NI) 17	Narrative Island Prototype canopy	
14.382(NI) 18	Narrative Island Prototype interactive lecterns	
14.382(NI) 19	Narrative Island Prototype finishes	
14.382(NI) 12	Plinth & flooring beneath objects on open display	£
14.382(NI) 12.1	Bust Plinths associated with Display 4	£
14.382(NI) 13	Plinth & flooring beneath objects on open display	£
14.382(NI) 14	Ops Board Display - plans, elevations, sections & detail inc. display wall with glazed recess for ops boards, case plinths, 2No touch screen units, typical flipbook lectern, combined flipbook and open display object label lectern, 2No graphic monoliths, wall paper graphics, interactive, Absolute A4 label holder & label (cases supplied and installed by others - to ensure manufacturing & installation runs smoothly close liaison will be required between the fit out contractor and the case manufacturer	£
14.382(GF) 01	Georgia Frontiere Gallery - General Arrangement Plan, Flooring Plan, Section inc. 2No display walls with integrated screen recesses and doors, 2No touch screen lecterns, 2No touch tables, 2No 800 x 600 AV racks,	£
14.382(GF) 02	Touch Table - Plan, Elevations & Section (2no required)	£
Interactives - Refer to briefs and drawings for further details		
Within your quote please allow for the manufacture of the display tables/plinths/structure to each interactive as illustrated in the sketch proposals		
It is important that all interactive components are constructed from hard wearing durable materials that can withstand heavy usage. Any moving parts and hinge mechanisms should be seen as bespoke items and standard 'off the shelf' hinges will not be appropriate.		
	INT1: Display 2: PT-17 Stearman, AT-6 Harvard, Link Trainer, wing panels from Bf 109 fundraising tour Mental aptitude questions – lift the flaps interactive	£
	INT2: Display 3: B-24 Liberator, Twin Wasp, Cletrac and bomb trailer Materials handling objects – a few items from the collection to handle	£

	INT3: Display 5a: Ops board, Norden Identify ranks from photos – lift the flaps interactive	£
	INT4: Display 7: B-17 Flying Fortress, Ball Turret Jackets and helmets/hats to try on; flak jacket to lift to feel the weight	£
	INT5: Display 8: P-47, Twin Wasp Magnetic board of Virginia Irwin's scrapbook – order the pieces to tell the story of her war	£
	INT6: Display 9: P-51 Mustang and 108 US gallon 'Drop Tank' Materials handling objects – a few items from the collection to handle	£
	INT7: Display 14: U-2, U-2 camera, SAM Satellite photos identify the missile silo – lightbox with switches	£
	INT8: Display 18: BGM-109G Tomahawk & TEL trailer Make a badge	£
	INT9: Display 19: Iraqi 'super gun' section and Patriot missile True or false facts – lift flaps interactive	£
	INT10: Display 21: A-10 Thunderbolt, pizza truck Jackets and helmets/hats to try on; flak jacket to lift to feel the weight	£
	B.1 –Interface with Building Works	
	It will be the responsibility of the fit-out contractor to provide adequate protection to floors and walls where necessary to a nominal 1500mm f.f.l. to avoid damage to existing decorations, period details and any features. Any damaged walls/structures may result in the requirement to redecorate the whole wall to avoid paint 'flashing' or imperfections in colour matching.	
	Where exhibits or structures within the exhibition fit-out scope require power or lighting these are to be provided as part of fit-out contractor's works	
	B.2 – Flooring	
	The fit out contractor is to lay a new carpet to the Introductory AV space and the Georgia Frontiere Gallery and carpet circles to seven of the Narrative Island units (refer to drawings for further details). All flooring is to be laid using water based adhesives (where possible) to the manufacturers recommendations and where necessary levelling screeds should be applied to ensure the floor is level and in good condition. <u>All adhesives must be water based and have low vapour omissions - proposed adhesives must be approved by the museums conservation department before proceeding with works</u>	incl. in costs above
	Where different floor finishes meet, thresholds suitable to the environment and to the different flooring materials should be used. This applies particularly to doorway thresholds or where carpet butts up to the newly painted concrete. Flooring is to have suitable approved metal or rubber edging to doorways and changes in floor level as required to reduce trip hazards.	incl. in costs above
	The fit-out contractor will be responsible for protecting any finished flooring as part of their works until handover.	
	Refer to Individual gallery drawings and associated notes for detailed specifications and scope of flooring works.	
	B.3 – Display Cases	
	Refer to individual gallery drawings, layout drawings and performance specifications as well as the display case schedule, for details of cases and full specification.	
	Please note that all cases will be supplied and installed by the appointed case manufacturer but it will be necessary for the fit out contractor and the case manufacturer to liaise on a regular basis to agree on design and construction details to ensure that the interface between cases and display structures runs smoothly. On site co-ordination will also be important to ensure that cases and display structures are installed as part of a co-ordinated site installation programme and in a timely manor. The fit out contractor will be expected to manage the co-ordination of said works	£
	Please also allow for attendance	£
	The fit-out contractor will be responsible for managing their subcontractors' work and coordinating those works and information in relation to the other packages. They will also be responsible for making sure apertures are sized correctly in the set works, plinths are correctly sized and ready on site for installation of the cases and works programmed to allow sufficient off gassing time for the object installation period. The specialist case manufacturer is to construct and deliver each case to site and install it into apertures or onto plinths constructed by the fit-out contractor. It will be the responsibility of the fit-out contractor to ensure that this happens according to programme. Drawings for project team sign off will be required prior to manufacture.	

	All AAM display cases are to be constructed as full conservation museum standard specification including carcassing, lighting, conditioning, base plinths and lining display panels. Cases are to be built and installed by a specialist case manufacturer. The Narrative Island display structures are designed in such a way as to allow the cases to push into the pre prepared recesses. Access to the case lighting headers is to be gained through the top of the display structures that are manufactured by the fit out contractor. For this reason it is essential that the fit out contractor and case manufacturer agree what means of access is required through the display structures and any lift up, hinged or removable panels must be carefully considered so that they are well integrated and do not detract from the clean lines of the display. Please also note that structures may be visible from above and so it is important that all access panels are well presented and tidy. The fit-out contractor must liaise with the case manufacturer to ensure that apertures are correctly sized for cases and glazing. Cases are to be securely fixed to plinths as detailed.	
	Where display cases are mentioned both display case and fit-out contractors should read the performance specification and case schedule in conjunction with the relevant gallery drawings to ensure a full understanding of what is being produced. All case sizes are given as external unless stated otherwise and are for volume purposes only. Dimensions must be confirmed with the designer before being signed off and sent to order. All cases will be lit with a combination of LED modules, LED lighting columns and LED Fibre Optic lighting unless stated otherwise.	
	For reference please note that the case manufacturer will provide full setting out /construction drawings for each individual case before manufacture. These will be issued to Redman Design and the museum team for review/signing off. These drawings will also be issued to the fit out contractor for comment.	
	B.4 – Graphics	
	B.4.1 - Graphic Production	
	The exhibition Fit-out contractor and Graphic Production subcontractor are to refer to individual drawings for the graphic locations. Please read these drawings in conjunction with the Graphics Schedule for the graphics package of the project.	
	Graphic Production subcontractor is to allow for production (including on-site measuring, on-site screenprinting, printing and mounting) and delivery of all graphics to site and installation as indicated on the Graphic Schedule. All graphic panels, unless otherwise stated or agreed, are to be installed by the Fit-out contractor as laid out on the drawings noted above and using fixings as specified on the Graphics Schedule.	
	All graphics substrates, fixings and supports must be included. The Fit-out contractor is to identify who is supplying which element.	
	Graphic panels identified as sitting in a recess or that are broken down into substrate governed portions are to be sized by the Fit-out contractor. Dimensions are then to be passed onto the graphic artwork team for the final layout to be completed. The artwork team cannot process these graphics until this information is received from the contractor. The Fit-out contractor is to make provision for this process within the programme.	
	Fit-out contractor is to include for safe storage, handling and fixing of all the graphics as noted in the Graphic Schedule after delivery to site by the Graphic Production subcontractor.	
	The Fit-out contractor is responsible for managing and coordinating the Graphic Production subcontractor's work in relation to other packages. They must make every reasonable effort to ensure that the Graphic Production subcontractor is able to obtain reliable dimensions on site and from other subcontractors for all the graphics in time to allow four weeks production time for each of the graphic types in accordance with the programme.	
	Graphics Production subcontractor is to allow for the following 20 sample graphics: 10 delivered to IWM at Duxford and 10 delivered to Redman Design for approval prior to production:	
	6 x A3 digital prints matt finish	
	4 x A4 digital prints reversed to 2mm low-reflect polycarb	
	2 x A3 screen-print tests onto flood coated MDF	
	4 x 1m x 1m digital print wallpaper	
	4 x sample vinyl lettering	
	Please allow for 2 separate deliveries for graphic tests.	
	<u>For tender evaluation purposes, the fit-out contractor should provide a detailed price breakdown within the graphics schedule and should identify here the total cost of the production, supply to site and installation of all the graphics mentioned in the schedule and on the marked drawings.</u>	£
	<u>The Fit-out contractor is to identify their preferred graphics supplier who can meet the criteria set out in the tender submission and can demonstrate suitable museum experience. Tenderer is to name their proposed graphics supplier. Please note selection of subcontractor to be approved by the client and designer before final appointment.</u>	(name)
	Tenderers must also submit a priced copy of the Graphics Schedule showing supply and installation costs for each.	Included Yes/no
	Freestanding graphic lectern units and A4 label holders for medium sized open display objects (refer to the graphics schedule for further details relating to the size and quantity of graphics	
	To be purchased from Absolute Museum & Gallery Products, ref: Information Stand	



 		
A4 & A3 Information Stands	A4 & A3 Label holder	
A4 Label holders (portrait format) - Stainless Steel finish (TBC) = 4 No required		
A3 Label holders (landscape format) - Stainless Steel finish (TBC) = 1 No required		
A4 Information Stands (portrait format) -To match existing barrier finish. Stainless Steel finish (TBC) = 9 No required		
A3 Information Stands (landscape format) -To match existing barrier finish. Stainless Steel finish (TBC) = 10 No required		
All to be supplied with 2mm low reflective acrylic cover		
NOTE: A sample of existing barrier posts should be obtained from the client so that the metal of the information stands and label holders can be finished to matched		
Total cost for all graphic lecterns as listed above (the same lecterns & label holders are also referenced in the graphics schedule)		£
B.5 – Decorations		
Decorations are as set out in the relevant attached drawings. For details of building decorations please refer to the drawing package and specifications details associated with the architectural package of works. Any damage to base build decorations within the exhibition fit out phase are to be made good by the fit-out contractor to the original standard. The general description below covers the general approach to be taken with finishes to display fit-out structures unless specifically mentioned on either the drawings or in the specification.		
B.5.1 – Building decorations		
All decorations to structural building elements are to be carried out as listed in the drawings. Existing building colour references will be available to the exhibition fit-out as part of the issued finishes schedule at construction phase. The spaces should be suitably protected during the onsite exhibition fit-out works to avoid damage to finished walls and any decorative period features. Any damage will result in the whole wall potentially being redecorated at cost to the fit-out rather than simply touching up to avoid risk of 'paint flashing' or colour discrepancies due to batch changes.		
B.5.2 – Other decorations		
Refer to the drawings for further details of specific finishes to exhibition display structures.		
Prior to the application of paint all surfaces to be fully prepared to BS 6150. Arisses are to be sanded down, with all screw and pin holes to be filled and sanded smooth with glass paper and then thoroughly dusted off prior to application of first coat.		
Where MDF cladding is specified this must be Fire rated to class 0, unless for forming cases which must be ZF grade and fire rated class 0.		
All metalwork is to be thoroughly degreased and prepared prior to powder coating as specified in the drawings. All powder coat finishes are to be 10% gloss unless stated on drawings or specifications.		
Laminates applied according to manufacturers instructions.		
Decorations drawings and a full finishes schedule are to be issued at a later date upon commencement of contract. Contractor to provide details of deadline dates for confirmation of colours/finishes.		
B.6 – Generic Specifications		
Please follow these generic specifications when detailing the items illustrated on the drawings.		
Where stud walls are covered by graphics wall faces to be suitably prepared to take application of graphic panels, generally bonded and pinned ensuring that all pin heads are not visible through the applied graphic. See graphics schedule for details of panels. Where Foam board panels are used, they are to be set into wall face forming a flush finished surface. Generally 6mm rebates required with rebates formed from either p/coated metal edging strips to structures or the application of additional 25mm x 6mm FR MDF borders added to wall face, painted out as exposed wall surfaces. See individual gallery drawings for specific requirements		
Where walls are to be finished with graphic wall paper it is important that the wall surface is smooth and seamless so that no joint lines or fixings are visible. Refer to drawings for further details.		
B.6.2 – Glass Installations if and where applicable		

	Glass fixings and associated supporting framework are to be detailed by the fit-out contractor and approved by the designer before any manufacturing. All glass supports to be a metal frame of sorts with a final p/coat finish. All fixings visible through the face of the glass are to be sleeved with a suitable heavy-duty neoprene gasket. All fixing bolts are to be stainless steel pig nosed fixing bolts suitable for the application and loadings put upon them and <u>not screws with cover caps</u> .	
	B.6.3 – Display case plinths	
	All display case plinths are to be constructed by the fit-out contractor unless stated elsewhere on drawings. The fit-out contractor is to ensure that the final details and construction is co-ordinated with the case manufacturer to ensure the plinth will support the weight of the case and objects and people during installation.	
	All case plinths to have hinged accessible access to conditioning unit and floor box concealed below the plinth. Any door panels needing drop down access are to have suitable detachable stainless steel chain stays.	
	Any fibre optic projectors housed within a plinths are to sit on a fireproof heat resistant board supplied as part of plinth construction. Wherever possible the case light source should be within the case header or in an adjacently vented structure to prevent heat build up inside the case.	
	B.7 – Locks	
	<u>Gallery locks to be suited as the following:-</u>	
	1. <u>General maintenance access doors to storerooms, cupboards – (Across the whole space) and humidification voids to display cases and interactives</u>	£
	2. <u>Suited general case locks (by case manufacturers)</u>	
	3. <u>Suited high security locks to specific cases (by case manufacturers)</u>	
	B.8 – AV Hardware	
	All AV Hardware and Media based exhibits will be supplied and installed by a AV hardware specialist contractor that will be appointed separately to the fit out contractor. It will be important that the AV hardware specialist and the fit out contractor regularly liaise to agree construction details and the integration of AV equipment into display structures. It will be important that the fit out contractor obtains samples of each piece of the kit from the AV hardware specialist so that they can ensure that structures are accurately manufactured to accommodate them. The fit out contractor should allow for the co-ordination of said works.	£
	Please also allow for attendance during AV hardware installation and commissioning	£
	As mentioned previously please note that all power and data cables will be installed by a base build contractor to each identified display location. All data cable terminations and any additional AV related cables, spurring off electrical/data feeds into exhibition structures will be installed by the appointed AV hardware specialist contractor. At each location where cables appear below display structures there will be a spare length of cable, approximately 3m in length. This will allow the fit out contractor to pull the cables and sockets through the display structures and locate them in more appropriate positions for installation and future access purposes. For reference please refer to the AV hardware schedule for further details.	
	The fit-out contractor will be responsible for managing the interface between the fit out contractor and the AV hardware specialist contractor but not responsible for the installation of AV equipment and AV related cabling. The fit out contractor should provide suitable access through exhibitory for the running of cables and mounting of equipment and he should have a thorough knowledge of each exhibit and where equipment is to be integrated. The fit-out contractor will also be responsible for co-ordinating the AV contractors works in relation to the other packages of work where there is an interface with any of the fit out contractor sub contracts.	£
	Refer to drawings and AV hardware schedule for details of AV locations and equipment specifications and schedules alongside the AV performance specification.	
	B.9 – Interactives	
	<u>Please refer to the drawing list above, the briefs & sketch proposals included with the tender documents and also B.13 – Contractor Design items below</u> <u>Please include a price against each interactive itemised in the interactives list above</u>	
	The fit-out contractor must appoint an Interactives Subcontractor as a sub contract to their fit out contract. Please refer to the Interactive briefs and sketch proposals for further details.	
	All items listed as being by an Interactives Subcontractor are to be supplied and installed on site by a Interactives Subcontractor subcontractor who has museum experience as part of the fit-out contractor.	
	The interactive exhibits require design development by a Interactives Subcontractor and will need working up fully with the chosen appointed contractor once the appointment has been made.	
	The fit-out contractor will be responsible for managing the installation of some of the on site works by the Interactives Subcontractor, providing apertures and structures for installation of the exhibits and should have a thorough knowledge of each exhibit.	
	All Interactive elements requiring mains power should arrive on site in the form of a 3-pin plug requiring no electrical work other than plugging in and switching socket.	
	The fit-out contractor will be responsible for managing the Interactives Subcontractor and for co-ordinating their works in relation to the other packages.	

	The fit-out contractor is to select their preferred interactive supplier who can meet the criteria set out in the tender submission and can demonstrate suitable museum experience. Tenderer is to name their proposed supplier here. Please note selection of subcontractor to be approved by the client and designer before appointment.	Name
	For tender evaluation purposes, the fit-out contractor should provide a detailed price breakdown within the scope of works document that identifies their profit and attendance costs. They should identify here the overall cost of supply and installation of the interactive as detailed in the drawings and schedule	£
	<u>B.10 – Electrical Works –</u>	
	All power and data cables will be installed by a base build contractor. All data cable terminations are to be installed by the AV hardware specialist contractor. Any additional cables, spurring off electrical feeds into exhibition structures, installation of lighting units, fibre optics and specialist effect lighting required between sockets and electrical items are to be installed by the fit out contractor. (See Redman Design drawings for further details)	
	At each location where cables appear below display structures there will be a spare length of cable, approximately 3m in length. This will allow the fit out contractor to pull the cables and sockets through the display structures and locate them in more appropriate positions for installation and future access purposes.	
	Exhibits are to be connected into switched socket outlets and/or fused spurs. Socket outlets will be installed by a base build contractor	
	All electrical installations shall be provided with a continuous earth conductor that terminates in a suitable earth terminal for connection to the mains.	
	All electrical installations shall be provided with a suitably sized LSF multicore flex terminated in a BS 1363 13A plug top that will be plugged into a standard BS 1363 13A socket.	
	All electrical terminals shall be suitably enclosed in order to prevent direct contact.	
	All flex lengths shall be kept to a minimum in order to minimise volt drop and risk of damage.	
	All display cabinets/cases and displays containing electrical equipment shall be provided with suitable access to the respective electrical equipment/flexes etc. to enable easy access to connection points/sockets for future maintenance. The fit-out contractor is to bear this in mind when drawing/fabricating the structures.	
	Prior to fabrication, all electrical supply requirements and equipment shall be included and clearly indicated on the 'For Approval' drawings and issued to the Design Team so that any fixed socket outlet and supply requirements can be ascertained and pre-installed.	
	The tenderer must confirm what fittings they have based their price on for each of the fittings noted. Sample fittings will be required for final approval prior to placement of final order.	
	<u>The fit-out contractor must ensure that discreet, lockable access panels are incorporated into the display structures to aid access to power sockets/switching for testing.</u>	
	The fit-out contractor must include for the supply and installation of all electrical and lighting requirements as outlined on the Redman Design drawings previously referenced. These should include but not be limited to, any necessary trunking and conduit, light fittings and lamps track, connectors, switched sockets, switches, cabling, junction boxes contained within their display structures etc	
	All audiovisual and media exhibits to be provided with power outlets extended as part of fit-out contractor works are to be suitable to the equipment they are supplying.	
	All Fibre Optic and LED lighting for display cases will be supplied and installed as part of the display case contract. All case fibre optic and LED lighting will come with a 3-pin plug termination for simple connection on site. All Fibre Optic projectors located outside of the lighting header of the case are to sit on suitable 15mm thick heat resistant FR board.	
	Prior to practical completion the fit-out contractor will be expected to provide a full set of 'as built' drawings and information for the O & M manuals, marked up with the new installations showing accurate setting out of items. Any circuit numbers corresponding to a fully marked up distribution board, specification of fittings used, identified components and parts, a list of lamps, cable types etc for the Museums maintenance manual must be clearly identified. This must be included for in the tender price.	
	<u>The fit-out contractor should identify here the cost of supply and installation of all the electrical and lighting provision within display structures as listed in the drawings and schedules provided</u>	£
	Contractors must also supply a full breakdown of the electrical and lighting costs as a separate list.	Included
	<u>The fit-out contractor should identify here which electrical company they propose to use for the works. Please note selection of subcontractor to be approved by the client and designer before appointment.</u>	Name
	Please see notes within section B.15 – Contractor Design items	
	<u>B.11 – Museum Objects</u>	

	All museum objects displayed in cases will be installed by others as part of a separate contract. There are a number of large/medium sized objects that are on open display that are to be installed by the museum team with the fit out contractor in attendance. In these instances new plinths/mounts are required and these are to be manufactured by the fit out contractor. The installation of these objects will be partly carried out by the museum's in-house team but assistance will be required from the fit out contractor. Please note that it is the responsibility of the fit out contractor to produce the final design of the new plinths/mounts and determine the size and gauge of any steel framing required to support the weight of each individual object. If required the contractor should consult a structural engineer to ensure that the frames are strong enough and stable.	£
	B.12 – Public Seating	
	For further details refer to drawing 14.382(IN-AV) 01	
	B.13 – Contractor Design items & specifications	
	The contractor will be responsible for checking the existing design proposals and for carrying out and completing the final design for each of the elements below. The contractor is to advise as soon as possible if there are any problems with the designs to date and/or any problems in meeting the specifications provided.	
	General display items – the drawings included in this package show the design intent for each of the displays. The contractor is to ensure that the weight loadings of the display structures are sufficiently spread to be able to support the displays. The contractor will be required to supply any engineering and/or structural input required to ensure that the displays are structurally sound. It will be important that all display structures can be carried by the weight loading capacity of the floor and on this basis all display structure weights should be supplied for approval by the project structural engineer before starting works on site.	
	Electrical installation – The contractor will be responsible for the installations and electrical connections and providing test certificates for the work. They should also highlight at an early stage any discrepancies or anomalies that may impact on the ability of the electrical system to operate as intended.	
	Interactives – within the interactives briefing we have outlined the number and nature of the interactives proposed. The selected contractor and interactive subcontractor will be responsible for developing these interactives in collaboration with the client and design team to meet the desired learning outcomes, budget and space. The contractors will be required to supply any engineering and/or structural input required to ensure that the interactives will be engaging, durable and safe for long term use. The interactive subcontractor will be required to supply final detailed drawings for sign off for each interactive prior to fabrication. The contractor will be required to provide samples, materials/finishes and where appropriate sample mechanisms for client sign off and testing. The contractor will be responsible for the final supply and installation on site and for supplying clear instructions for maintenance. Cost associated with the manufacture and installation of the interactives are to be included alongside each of the briefing documents listed above.	
	Display cases – the drawings and specifications indicate the overall dimensions and requirements of the display cases. The contractor will be required to consider the surrounding structures to ensure that these are coordinated with the cases requirements. Access into the case environment and the lighting/conditioning areas must be clear and easily managed by the client. Co-ordination is required to ensure that all fixing points and plinths have sufficient structure to provide the support required. All component parts are to be finally dimensioned. Detailed case drawings will be provided for sign off indicating case sizes, location and means of access to case lighting, case conditioning. In addition to this we will also require co-ordinated drawings illustrating how the cases interface with display structures being fabricated by the fit out contractor.	
	AV hardware system – An AV hardware contractor will be appointed to install, test and commission the AV system to meet the specifications defined in the tender such that we have a fully functioning system. The fit out contractor is to coordinate the setting out, fixings and support of the AV hardware kit to ensure that these can be fully supported and accessed for future maintenance. Whilst full drawings and technical specifications have been provided as part of the tender package it is important that the appointed AV contractor checks and evaluates these proposals to ensure that the proposed scheme delivers the intended scheme. The nominated AV contractor will be required to liaise with the fit out contractor to confirm any fixings and cable routes for interfacing with the system that they will be installing.	
	Design and manufacture of bespoke object mounts/frames/plinths for large/medium sized objects	
	It is the responsibility of the fit out contractor to produce the design of the steel frames and determine the size and gauge of steels required to support and stabilise objects. Working in conjunction with the museum team the contractor will be required to survey each of the objects to determine the most appropriate fixing points and key support locations for each individual object. All support frames/mounts/plinths are to have welds ground smooth, surfaces degreased and a powder coat finish applied. Plastazote or neoprene pads will be required between the mounts and the objects to cushion the exhibit and prevent metal to metal contact. See drawings 14.382(NI)12, 12.1 & 13 for exhibits requiring new steel mounts. Cost associated with the manufacture and installation of the plinths and mounts are to be included above alongside each of the drawings listed	
	Allow for the production and installation of 3 No. flags - These are to be design, manufactured and installed by a Scenics Specialist Subcontractor to the fit out contractor. Proposed method is to sculpt two original flags. One of the flag shapes will be used for the World Wars & Cold War and the other will be a mirror image of the first and used for the Mountains & Deserts. The sculpted flags are to have a naturalistic quality as if flowing in the breeze, with a convincing feeling of movement with folds and creases to achieve the surface quality of fabric. The flags are intended to act as a light baffle to help shade and protect the cases and exhibits from day light through the large glazed elevation. For this reason it is important that the final shape and position of each flag is carefully considered to achieve the best level of protection possible. Certain parts of the flag may need to curve over to form almost a canopy effect over cases/exhibits. A scale model of each Node Display including flags, cases and plinths is required to determine the final arrangement and for client sign off before commencing manufacture of the full size flags. Cost associated with the manufacture and installation of the flags are to be included above alongside each of the Node Display drawings	
	Please confirm here who your nominated Scenic Specialist is	Name

	Object dimensions will be provided to the contractor in advance of any detailing / setting out work to allow them to be incorporated into the drawings.	
	The tenderers are to highlight any other areas that they feel may require contractor design.	
	B.14 General finishes/specifications	
	Below are details of different products/finishes that have been specified using generic terms. Tenderers <u>must</u> identify within their tender returns what specific products they have based their prices on.	
	Fire proof panels – Supalux or similar to be approved this should be a high density calcium silicate 12mm sheet material that can be used to absorb heat from the light sources. The board is to be located under the light source in the case header; sufficient space should be provided to allow for air flow around and under the light source.	
	Floor finish type 1 – Dalsouple rubber tiles or similar to be approved – Used as a feature flooring beneath open display objects and also on plinth tops associated with the Narrative Islands and the Node Displays. It is to be a safe, durable, and easy to clean flooring product suitable for heavy commercial use. Water based adhesives should be used and technical details of the proposed adhesives must be issued to the museum's conservation team for approval prior to installation.	
	Floor finish type 2 – Floor area to be re-carpeted with carpet tiles from the Heuga InterfaceFlor 530 range - (colour tbc) Tiles to be laid to achieve a broad loom appearance. Allow for area to be re-screeded and made good where necessary.	
	Foamex or similar to be approved – this is intended to be a rigid compressed PVC foam board that has a fine cell structure with smooth consistently flat surfaces which makes an ideal substrate for direct to board flatbed printing or for wrapping printed graphics.	
	Heavy Duty Matt Paint finish (Dulux or similar to be approved) – this must be a tough washable, hard-wearing, water-based emulsion finish of contract specification that is more durable than silk emulsion. The finish is to be stain resistant. Please allow 3 coats.	
	Laminates – if and where where applicable the contractor is to allow for three different coloured laminates that may come from different suppliers to achieve suitable colour match and finish appropriate to the situation. These are to be heavy duty laminate finishes.	
	Locks – Abloy or similar to be approved. To be high quality, high security locks from a reputable brand. These should not be budget locks. Must be from a source that is suitable for museum display case security and have a range of locks that are appropriate for the variety of applications specified throughout drawings as we want one suite to cover access panels to both display cases and to display structures as noted in section B.7.	
	The contractor must co-ordinate the final specification of locks with the case manufacturer who will supply locks for the case access panels and case doors and must seek client approval prior to order.	
	Solid surface worktop material, Corian (or similar to be approved) – where specified these worktops and countertops are to be formed from a sheet material that is solid, homogeneous and non-porous. The material is to be the same colour/consistency throughout its thickness and can be moulded or thermoformed into different shapes. This must be a high quality composite product that blends natural materials and pure acrylic polymer to create a highly durable finish to form activity worktops. This material is to be impact resistant and should not stain.	
	Tenderers must allow for <u>all</u> of the items indicated within the drawings, schedules, specifications and scope of works. If the tenderers believe that an item from the drawing or schedules has not been listed in this scope of works they <u>must</u> highlight this and add in a line item and cost below to ensure those items are included.	
	For items such as graphics, interactives (ie items referenced in section B) tenderers are asked to price the items within the associated schedule <u>and</u> include the overall cost in the appropriate section above.	£
	B.15 Samples	
	Paint finishes	
	Sculpted flag samples - Node Displays	
	Metalwork details associated with the Node Displays - barrier and also the steel framed structure that houses the AV screen & graphics	
	Additions	
	Please include a cost for site site management	£
	Please include a cost for manuals, documents, fabrication drawings and as-built drawings etc.	£
	Please include a cost for any training if applicable	£
	Please include here any additional costs that may be applicable and are not included in the schedule above please add as many rows as required and clearly define what each cost is for	£
	Total for all costs associated with the fit out contract	£