**Structural Engineer’s Brief and specification for**

**Trowbridge Museum’s Expansion Project**

**Trowbridge Museum**

Trowbridge Museum is an Accredited museum. Its collections tell the lengthy, rich and varied story of this Magna Carta Baron town and its deeply rooted historic association with West of England woollen cloth production.

Displays incorporate rare textile machinery including a Spinning Jenny, one of only five left worldwide. Other displays encompass a variety of different mediums, objects and artefacts to reflect and interpret the social impact the industry had upon the town’s development and its people.

Trowbridge Museum has been celebrating this rich heritage from within the last working

woollen cloth mill, a Grade II listed building since 1990.

For the elimination of doubt, the client is Trowbridge Town Council. Trowbridge Town Council has a 25 year lease on the Museum from Zurich Assurance. Zurich Assurance own The Shires shopping centre within which the Trowbridge Museum is located.

**Project Summary**

Trowbridge Museum has secured an HLF stage 2 pass and has obtained planning and listed building consent and is now ready to commence the Delivery Phase to conserve, expand and develop Trowbridge Museum by:

* Repairing and reinsulating and recovering the roofs. Brickwork repairs and extensive repairing or replacement of windows and rooflight.
* Enhancing the original Home Mill building and therefore the Museum entrance within the Shires Shopping Centre
* Improving accessibility to all floors of the Museum by installing a new lift, lift shaft and access bridges that are DDA compatible
* Enhancing interpretation, displays, navigation and showcasing unique textile machinery on the existing floor of the Museum
* Creating a Library and Research facility on the existing floor
* Creating an archaeological store on the existing floor
* Enhancing retail space and creating an area for refreshments
* Expanding into the floor above the existing Museum to exploit the original factory settings of the Mill
* Exploiting the upper floor’s natural light and the views of the historic townscape and referencing the textile related architecture through the original factory windows
* Creating purpose built Learning and Outreach space on the upper floor
* Developing meeting and room hire facilities on the upper floor
* Developing enhanced temporary exhibition space on the upper floor
* Conservation/ repairs to the existing brick/ concrete and steel structure
* Fire protection of the existing structure

The total Delivery budget is in the region of £2,433,400, of this £260,140 encompasses repairs, £861,520 covers the conversion costs and the remainder incorporates interpretation and exhibition costs, the movement and conservation of machinery, the relocation, storage and conservation of the collection, digital outputs, activity costs, retail set costs, marketing etc. The construction budget is therefore approximately £1,122,000 excluding fees, inflation, contingency or VAT.

**Summary of responsibilities**

To work effectively with the Museum Curator, Town Clerk, Project Manager, Project Architect, Mechanical & Electrical Engineer, Quantity Surveyor and the Design and Interpretation Consultant to deliver structural engineering services during the Delivery Phase to ensure that Trowbridge Museum’s expansion is delivered to the appropriate quality standards on time and on budget.

**Scope of work**

|  |  |  |
| --- | --- | --- |
|  | Principal Role | 1 Design and document all structural and external engineering elements including advising on quality control during contract2 Attend meetings and workshops called by client / design team/ PM to progress any aspect of the commission – on generally a monthly basis.3 Provide information as requested by the client to the client and/or any other participant4 Initiate and maintain liaison in order that the client is kept fully informed on the progress of the commission5 Progress the design and provide sufficient detail to obtain the appropriate approvals in accordance with the client’s approvals processes6 Provide information for benchmarking purposes in the form required7 Provide monthly progress reports to the client and PM |
|  | Participants | 8 Advise on the need for and scope of services of other consultants that may be required9 Be aware of the work which other participants are carrying out and advise on any apparent errors and omissions10 Co-ordinate with other participants in order to produce a fully integrated design |
|  | Processes | 11 Provide management plan indicating structure of Structural Engineer’s project team and resources to be committed at each stage12 Undertake and document value engineering exercises as the design develops in order to optimise the balance of capital/life cycle/costs in use13 Implement and adhere to the requirements of any change control procedure developed for the project14 Adhere to the requirements of the project execution plan15 Execute services in accordance with agreed project programmes16 Assist in preparation of a register of risks formulating and reviewing strategies for minimising the same17 Assist in preparation and updating of overall project programmes showing all significant activities and events18 Obtain information on and become familiar with any client procedures and standards applicable to this commission and adhere to these in carrying out any services19 Seek out relevant client departments/ individuals and liaise/obtain instructions prior to any contact with external bodies20 Participate in the carrying out of independent audits including in relation to CDM Regulations21 Participate in the implementation of client performance testing initiatives and procedures22 Provide relevant information for incorporation in the pre construction information plan and health and safety file |
|  | Design Services | 23 Provide design services in respect of but not limited to the following items of work;1. all forms of structure above and below ground
2. earthworks and excavation
3. ground and surface treatment
4. local and main, public health and land drainage; inspection chambers, sewers, interceptors, tanks, treatments works and ground dewatering including public health and drainage to ground slab level
5. design and manage the interface between the Museum Gallery Design fit out package and the main works
6. put forward an initial scaffolding design in agreement with other consultants, client and shopping centre. Coordinate with qualified scaffolding designer to check and agree their design. The intention is for this service to take place prior to issuing tender documents.
 |
|  | Clarifications | 24 The project stages described below are intended for general guidance only. The actual sequence and timing of activities will be as required to meet the needs of the project and as directed by the client. The general requirements of ACE schedule of duties C&S Design 2009 have been included within this scope of service.25 For the purposes of this document, the term client refers to Trowbridge Town Council. |

|  |
| --- |
| STAGE 2 - PLANNING |
| D | DETAILED PROPOSALS | Complete development of the project brief. Preparation of detailed proposals. Application for full development control approval |
|  | **Detailed Proposals Stage** | 1. Liaise as may be necessary with the Lead Designer and any other consultants to agree a programme for the whole of the design and construction of the Works.
2. Develop the design of the outline proposals for the Works in collaboration with the Lead Designer and any other consultants.
3. Prepare such representative sketches, drawings, specifications, and/or calculations in respect of the works as are necessary to enable the Lead Designer or any other consultant to prepare the cost plan.
4. Collaborate with the Lead Designer and any other consultants to prepare the detailed proposals for presentation to the Client, drawing attention to any significant differences from the previously agreed requirements for the Works.
5. Seek through the Lead Designer the Client’s approval of the detailed proposals and the Client’s consent to proceed to the Final Proposals Stage.
6. Provide all information as reasonably requested to facilitate the development with third parties adjacent to the site.
7. Prepare and participate in a Stage D design proposal presentation to the Client coordinated with other designers. Presentation to be provided in hard and electronic format presented to the Client drawing attention to any significant differences from the previously agreed requirements for the works.
 |
|  | **Cost Planning and Control** | 1. Provide information required for the development of estimates of construction cost
 |
|  | **Procurement** | 1. Assist in finalising procurement strategy
 |
|  | **External Bodies** | 1. Consult with the following authorities; planning, building control, fire, environmental, licensing and statutory undertakers.
2. Consult with Heritage Lottery Fund.
3. Make revisions to the scheme design to deal with requirements of planning authorities and any other external body.
4. Assist in negotiations with landlords or tenants or other identified by the client
 |

|  |
| --- |
| STAGE 3 – FINAL PROPOSALS |
| E | FINAL PROPOSALS | Preparation of final proposals for the project sufficient for co-ordination of all components and elements of the project. Preparation of design information in sufficient detail to enable a tender or tenders to be obtained. |
|  | **Final Proposals Stage** | 1. Develop a foundation scheme, including finite element analysis to model the effects of the foundation construction. Including the new lift and bridge structures.
2. Preparation of structural plans, details and specifications for the lift substructure, including, general arrangement plans, with immediate drawing issues at appropriate progress milestones.
3. Develop the design of the works in collaboration with the Lead Designer and any other consultants and prepare sufficient calculations, schematic drawings, schedules and specifications to enable the Consultant, Lead Designer or any other consultant to prepare the final proposals. And sufficient to achieve building regulations.
4. Integrate into the design of the Works any requirements of specialist sub-consultants, contractors or sub-contractors.
5. Collaborate with the Lead Designer and any other consultants to prepare the final proposals for presentation to the client, drawing attention to any significant differences from the previously agreed requirements for the Works.
6. Assist the Lead Designer in co-ordinating the design of the Works into the overall design.
7. Seek through the Lead Designer the Client’s approval of the final proposals and the Client’s consent to proceed to the Production Information Stage.
8. Prepare foundation risk assessment
9. Prepare site waste management plan (if not prepared by main contractor)
10. Wind modelling assistance
11. Submit documentation in support of the Architect’s Building Regulations application and liaise with an Approved Inspector.
12. Developed GA drainage drawings
13. Detailed drainage specification including associated pump station details as necessary.
14. Provide all information as reasonably requested to facilitate the development with third parties adjacent to the site.
15. Check the specialist scaffolding design
16. Advise on the construction options/ buildability and techniques and construction sequencing for the new lift and bridge structures to overcome the difficult access issues.
 |
|  | **Cost Planning and Control** | Provide information required for the development of detailed cost plan by QS. |

|  |
| --- |
| STAGE 4 - PRODUCTION |
| F | PRODUCTION INFORMATION | F1 Preparation of production information in sufficient detail to enable trade tenders to be obtained.F2 Preparation of further production information required under the building contract. |
|  | Production Information Stage | 1. Develop the design of the Works in collaboration with the Lead Designer and any other consultants and prepare sufficient calculations, drawings, schedules and specifications to enable the consultant, Lead Designer or any other consultant to prepare tender documentation in respect of the Works.
2. Lateral load analysis of the building for the load imposed on the foundation and for general structural stability.
3. Prepare such calculations and details relating to the works as may be required for submission to any appropriate statutory authority including the co-ordination of such information for the Works submitted by specialist suppliers and/or Contractors as is available which may need to be included in such submissions excluding any submissions or applications for planning consent or approval.
4. Prepare any further drawings and schedules necessary to enable contractors to carry out the Works, but excluding coordination drawings and drawings and designs for temporary works, formwork and shop fabrication details. In the case of reinforced concrete work, general arrangement drawings and drawings of non-standard details should be prepared with sufficient information to enable a contractor to prepare standard details and bar bending schedules for the Works.
5. For reinforced concrete work, prepare calculations, sketches and non-standard details for a contractor to prepare reinforcement drawings and bar bending schedules.
6. Prepare technical specifications based on National Building Specification.
7. Provide information for a contractor to prepare detailed calculations and fabrication drawings for the following elements:
	1. Pre-cast and insitu concrete: floors, stairs.
	2. Steelwork: plant supports, stairs and ramps, balustrades and handrails, all the lift and bridge structures.
	3. Brickwork, masonry and cladding: lintels, cladding support angles, façade retention systems, planar glazing, shading systems, wind posts.
8. Preparation of pile location plans
9. Preparation of foundation plans and pile cap/raft details including foundation sections and details.
10. Preparation of framing plans for all levels.
11. Preparation of column schedules.
12. Advise the Lead Designer on the need for any special conditions of contract relevant to the Works and on appropriate forms of contract and invitations to tender for the Works.
13. Provide design information for incorporation into the pre-construction (CDM) information plan and the health and safety file, including production of as-built drawings.
14. Provide all information as reasonably requested to facilitate the development with third parties adjacent to the site. Seek through the Lead Designer the Client’s approval of the Tender Documentation and Tender Action Stage.
 |

|  |
| --- |
| STAGE 5 - PROCUREMENT |
| G | TENDER DOCUMENTATION | Preparation and collation of tender documentation in sufficient detail to enable a tender or tenders to be obtained for the construction of the project. |
| H | TENDER ACTION | Identification and evaluation of potential contractors and/or specialists for the construction of the project. Obtaining and appraising tenders and submission of recommendations to the client |
|  | **Tender Documentation and Tender Action Stage** | 1. Assist the Lead Designer in advising the Client as to the suitability for carrying out the Works of persons or firms to be invited to tender for any contract involving the construction, supply and/or installation of all or part of the Works.
2. Assist the Lead Designer to assemble the tender documentation and to issue it to firms selected to tender.
3. Assist the Lead Designer and any other consultants in advising the Client as to the relative merits of tenders, prices and estimates received for execution of all or part of the works.
4. Seek through the Lead Designer the Client’s approval of the Mobilisation, Construction and Completion Stage.
 |
|  | **Procurement** | 1. Assist in preparing a list of tenderers and participate in prequalification/1st and 2nd stage tender interviews
2. Participate in mid bid interviews
3. Assist in preparing the conditions of contract and preliminaries
4. Assist in reviewing and reporting on tenderer’s design proposals, programmes and method statements and advise on acceptability
5. Assist in negotiating with a tenderer
6. Revise production information to adjust tender sum or to obtain new tenders within the project budget
 |
|  | **External Bodies** | 1. Negotiate waivers or relaxations under building regulations and other statutory requirements
2. Submit drawings for approval of; landlords, tenants or others as requested by the client
 |

|  |
| --- |
| STAGE 6 – CONSTRUCTION & OCCUPATION |
| J | MOBILISATION | Letting the building contract, appointing the contractor. Issuing of production information to the contractor. Arranging site handover to the contractor. |
| K | CONSTRUCTION TO PRACTICAL COMPLETION | Provision to the contractor of further information as and when reasonably required. |
| L | AFTER PRACTICAL COMPLETION  | Making final inspections and settling the final account. |
|  | **Mobilisation, Construction and Completion Stage** | 1. Advise the Lead Designer on the finalisation of formal contract documents relating to accepted tenders for carrying out the Works or any part thereof. The Consultant shall not accept any tender in respect of the Works.
2. Examine detailed designs, shop fabrication drawings, standard details, bar bending schedules and specifications submitted by Contractors or Sub-Contractors for the Works or parts thereof, in respect of conformity with the consultant’s design and in particular in respect of general dimensions, structural adequacy of members and connections and compliance with performance criteria. The Consultant shall not be required to examine the design of any proprietary products manufactured or supplied by Contractors or Sub-Contractors.
3. Advise the Lead Designer on any draft instructions required to achieve satisfactory completion of the work
4. Examine and comment on relevant calculations and fabrication drawings prepared by the precast concrete supplier, the steelwork fabricator and the cladding contractor.
5. Examine and comment on the proposed method and calculations prepared by the piling contractor.
6. Advise the Client through the Lead Designer on the need for special inspections or tests arising during the construction of the Works.
7. Advise on the appointment and duties of Site Staff
8. Assist the Lead Designer in examining Contractors’ proposals as may be required by contracts for the Works.
9. Attend relevant site meetings and make other periodic visits to the site as appropriate to the stage of construction or as otherwise agreed to assist the Lead Designer to monitor that the Works are being executed generally in accordance with the contract documents and with good engineering practice and advise the Lead Designer on the need for instructions to Contractors.
10. Advice to the Lead Designer on certificates for payment to Contractors in respect of the Works.
11. Perform any services which the Consultant may be so required to do under any contract for the execution of the Works including where appropriate the witnessing of any specified tests, provided that the Consultant may decline to perform any services specified in a contract, the terms of which have not been approved by the Consultant.
12. Inspect the Works on completion and, in conjunction with any Site Staff, record any defects
13. On completion of the Works deliver upon request to the Client one copy of each of the final drawings supplied by the consultant to contractors for the purpose of constructing the Works.
14. Perform work or advise the Client in connection with any claim or matter where such claim or matter arises out of any contract for the execution of the Works and is referred for the first time to the Consultant provided that this service shall not extend to the detailed examination of any financial claim nor to advising the Client following the taking of any step in or towards any resolution of any dispute or difference or towards any adjudication, arbitration or litigation in connection with the Works.
 |
|  | **After practical completion** | 1. Assist in post completion review of project to enable future improvements to design, procurement and administration
2. Visit site to monitor satisfactory completion of outstanding items and/or investigate defects notified by the client.
 |

|  |
| --- |
| ADDITIONAL SERVICES |
|  | Additional Services Provided (yes / no) | Additional services required by the Employer including surveys and the like. |
|  | Yes | **Surface Water Drainage** |
|  | Yes | **Foul Water Drainage** |
|  | Yes | **External Works** |
|  | No | **Flood Risk Consultations and FRA preparation** |
|  | No | **Fire Engineering** |
|  | No | **Transportation Consultancy including preparation of transport Statement and Travel Plan** |
|  |  | **Investigations** |
|  | Yes | 1. Advise the Client on the need for arrangements to be made for investigations on the site. Arrange as agent for the Client when authorised by him for such investigations to be undertaken, certifying the amount of any payments to be made by the Client to the persons or firm carrying out such investigations and advise the Client on the results of such investigations.
 |
|  | Yes | * 1. Contamination investigations on site.
 |
|  | No | * 1. Topographical, dimensional, condition or analytical survey of sites or existing works.
 |
|  | Yes | * 1. Investigation of the nature and strength of existing structures. Including fabric opening up surveys.
 |
|  | Yes | * 1. Independent checking of structural or other designs.
 |
|  | Yes | * 1. Special inspections or tests advised by the consultant under C8.3.
 |
|  | No | * 1. Preparation or assistance in the preparation, of an environmental impact assessment in respect of the Works.
 |
|  | No | * 1. Special studies on durability and longevity issues and the minimisation of environmental impact.
 |
|  | Yes | * 1. Procure CCTV existing drainage survey
 |
|  | No | * 1. Asbestos Surveys
 |
|  | No | * 1. Marine related surveys/ studies and designs
 |
|  | Yes | * 1. Site/ ground investigation surveys
 |
|  |  |  |
|  | No | Acoustics |
|  |  | **Additional Services** |
|  | Yes | 1. Provide information to enable bills of quantities to be prepared for the Works.
 |
|  | No | 1. Prepare bills of quantities based on Works/Project drawings for the Works.
 |
|  | No | 1. Price bills of quantities prepared for the Works to provide an estimate comparable with tenders.
 |
|  | No | 1. Perform work or advise the Client in connection with any claim or matter where such claim or matter arises out of any contract for the execution of the Works and is referred to the Consultant and such claim or matter is based on similar or the same facts or issues which have previously been referred to the Consultant.
 |
|  | No | 1. Assist the Lead Designer in advising the Client or perform work in respect of the detailed examination of any financial claim or following the taking of any step in or towards the resolution of any dispute or difference or towards any adjudication, arbitration or litigation in connection with the Works.
 |
|  | Yes | 1. Prepare detailed drawings and bar bending schedules for reinforced concrete work.
 |
|  |  |  |
|  | General Issues |  |
|  |  | Professional Indemnity Insurance of £5m will be required on an each and every claim basis. |
|  |  | All appointments will be executed as a deed. |
|  |  | Collateral warranties will be required in a form to be agreed including two assignments. |
|  |  | Above ground drainage will be designed by the services engineer and below ground drainage will be designed by the structural / civil engineer. |

**Project constraints:**

* The Mill where the Museum is housed is Grade II listed

**Ownership**

* The building is owned by Zurich Assurance (Threadneedle) but the Town Council has the surety of a 25 year lease with no break clauses
* The building is managed by Workman. The Centre Manager is Sarah-Louise Moore.

**Access**

* The Museum is within the Shires Shopping Centre. Physical access to the Building is via an internal staircase at the rear of the building. There is on-site parking for large vehicles at the rear of the Shires Shopping Centre with Goods Lift access to the ground floor of the Museum.

**Experience**

* A proven track record of successfully designing HLF capital projects essential
* An appreciation and understanding of the issues that relate to works on Listed Buildings
* Evidence of working on Listed Buildings with Conservation Plans
* Up to date knowledge of the latest Health and Safety and Environmental standards
* A familiarity with Local Authorities

**Application Process**

Applicants will be asked to submit a lump sum fixed price proposal. The proposal is to include all expenses for the work as outlined in the brief and it is to be completed over the lifetime of the Project.

The proposal should demonstrate the Consultant’s appreciation and understanding of the Structural Engineer’s role and give an outline of how they intend to approach the tasks in methodology and timescale.

Their proposal should include:

* Details of relevant experience of similar projects – no more than 4 pages of A4 paper
* Details of methodology and approach to the Project brief – no more than 3 pages of A4 paper
* Details of the breakdown of their fee, inclusive of all expenses
* Details of two Referees and two reference websites that showcase experience of involvement with relevant projects

**Method of Scoring Tender Returns**

In order to identify the offer that provides the Most Economically Advantageous Tender, tenders will be marked on a price/ quality basis. 40% of the score will be allocated to Price and 60% allocated to Quality.

Each response to the quality questions will be scored between 0 to 5, where:-

* 5 Meets and exceeds the standards specified, Excellent
* 4 Meets the standard specified, Good
* 3 Meets the standard in most aspects, fails in some, Satisfactory
* 2 Fails standard in most aspects, meets it in some, Unsatisfactory
* 1 Significantly fails to meet the standard, Poor
* 0 Completely fails to meet the standard. Not to be considered

For the quality, the following weightings will be applied:

1. Details of relevant experience of similar projects – (25% weighting)
2. Details of methodology and approach to the Project brief – (25% weighting)
* Details of two Referees and two reference websites that showcase experience of involvement with relevant projects – (10% weighting)

The weighting multiplied by the score (0 to 5) will provide the weighted score. The Employer reserves the right to not consider further a tender where a quality score of less than 3 is given for an answer.

For the priced element, the weighting will be 40%

1. Details of the breakdown of their fee, inclusive of all expenses

Scores for the priced element will be based on the average fee returned. For each percentage (or part percentage) point that a tender offer is below the average fee, the score will increase accordingly. For each percentage (or part percentage) point that a tender offer is above the average fee, the score will reduce accordingly. For example, an offer 2.5% below the average fee offer will score 42.5%.

**Closing date for applications:** 1pm Friday 29th June 2018

**Submission of applications:** Electronically to clare.lyall@trowbridge.gov.uk

**Contract commences:** TBC