**Schedule A Tender Ref: HSE/3463**

**STATEMENT OF SERVICE REQUIREMENTS FOR**

**REPRESENTATIVE MAJOR ACCIDENT SCENARIOS**

**FOR HIGH RISE RESIDENTIAL BUILDINGS**

1. **HSE, SCIENCE DIVISION**

HSE Science division is one of the world's leading providers of workplace health and safety research, training and consultancy. We employ over 350 scientific, medical and technical specialists. We are part of the Health and Safety Executive (HSE). Carrying out investigations for HSE gives us unique insight into the causes of workplace accidents and ill-health.

We have been developing health and safety solutions for over 100 years, so we know what goes wrong in the workplace and why. Our particular strength is in bringing together different disciplines and teams to create practical, innovative and useful solutions. These include:

* Expert advice and consultancy;
* Targeted research;
* Testing and modelling;
* Tools for your organisation;
* Specialised training.

We take an evidence-based approach when evaluating workplace problems, drawing on our wealth of scientific research and knowledge. We have an international reputation for high-quality research and we collaborate worldwide through a network of partnerships.

1. **BACKGROUND**

The Ministry of Housing, Communities and Local Government (MHCLG) has established the Building Safety Programme (BSP) to cover High-Rise Residential Buildings (HRRB) over 18 metres, including hotels, to make sure that residents of HRRB are safe and feel safe, now and in the future. The BSP is tasked to deliver and implement the recommendations within “Building a Safer Future – Independent Review of Building Regulations and Fire Safety: Final Report”. The Review looked at the regulatory framework around the construction, maintenance and ongoing use of buildings, with a particular focus on multi-occupied, HRRB. It gave recommendations to establish a new regulatory framework and achieve a culture change to create and maintain safe buildings.

The Government has committed to bring forward legislation that delivers a step change. This commitment includes the introduction of a safety case approach to building safety which requires that those responsible for risks fully understand them, own them and take measures to manage and mitigate them both in design and in occupation. They will need to document and communicate these risks to all those with an interest. Buildings should be considered in a holistic manner and mitigation measures should be layered appropriately based on the use of the building and the risks posed.

The Health and Safety Executive (HSE) as a safety regulator has been working closely with MHCLG to support the development of the safety case approach.

The research will seek to replicate the approach taken to risk management in the major hazard sectors by industry and regulators. Public assurance is provided on the basis that at an implementation/operational policy level the regulators and industry agree the risk management arrangements. At the heart of this, there is an understanding between industry and the regulators of the representative major accident scenarios for different industry sectors which has been developed over a number of years and has been documented in guidance (written by industry, regulators, international organisations, professional bodies), as well as in safety cases.

Using appropriate research methodologies, this project aims to identify:

* A set of representative major accident scenarios for fire, explosion and collapse;
* A set of outlying major accident scenarios for fire, explosion and collapse;
* A set of other representative accident scenarios for fire, explosion and collapse which are unlikely to be major accidents;
* A set of typical control measures for the representative major accident scenarios by engineering, processes and procedures, and people;
* An understanding of where each of the representative major accident scenarios fit in the life cycle of a HRRB and proposed regulatory.
* The research methodology will be draw on industry normal practice and industry best practice, the different regulatory approaches of the key regulators, and will be highly interactive. It will be supported by academic input, drawing upon their expertise within the field of building structural integrity.

This tender is to find a specialist sub contactor to work alongside HSE to support the delivery of the project detailed below. The scope of this support is identified in section 3, where there is an overview of the full project and work packages. Table 1 within the section provides the detail of the specific work required by the contractor for each of these work packages’.

1. **SCOPE OF THE SERVICES REQUIRED**

The project HSE will deliver is divided into a number of work packages. This tender is for the supplier who, having Structural engineering experience and knowledge, can support HSE in the delivering these work packages. The tasking will include carrying out some research alongside supporting several focus groups and workshops.

Tasking against these work packages is as follows:

**WP1 - Landscape mapping**

* 1. **Rapid Evidence Assessment**

The aim is to establish the context of credible major accident scenarios for HRRB. A literature review will be undertaken to identify what is currently known about potential major hazard scenarios applicable to the high-rise residential buildings (HRRB). The objectives of this work package are to:

Review existing research, documents and literature, to determine:

* Current thinking regarding potential major accident scenarios related to HRRB, and their prevention and mitigation;
* The efficacy of existing methods for prevention and mitigation where these are identified;
* Current standards relating specifically to HRRB codes of practice and risk management;
* The applicability of these methods to regulators.
* Guidance words/topics for subsequent Hazard Identification/Scenarios.
* Draw together and synthesise the existing evidence, and clearly identify and summarise the key messages.
* Identify gaps in the existing evidence base and suggest how these gaps might be addressed as part of this project.
	1. **Review of regulatory approaches to risk management**

The purpose of this activity is to ensure that the project learns from existing regulatory approaches across the major hazard spectrum, draws on current industry good / best practice and begins to establish a consensus between the regulators and industry regarding risk management arrangements.

* 1. **Defining a major accident and establishing the Tolerability of Risk (ToR)**

A feature shared by the major hazard sectors is that they can have accidents that have a high impact but are of a low frequency compared to other sectors that have more frequent accidents with a lower impact. It is society’s aversion to these high impact accidents that necessitates a more robust regulatory regime to provide public assurance.

* 1. **Stakeholder mapping exercise**

This will be an iterative process and involve both technical and project stakeholders.

* 1. **Initial Stakeholder Workshop**

An initial stakeholder workshop will be used to present the findings of activities above. Participants will be given a summary of activities to date in the form of a participant briefing, provided in advance of workshop attendance.

**WP2 – Defining major accident scenarios**

**2.1 Technical Focus Groups**

In order to identify the relevant major accident hazards and the representative set of major accident scenarios, a series of technical focus groups will be undertaken with the following groups:

* Industry;
* Regulators;
* Approved Inspectors;
* JRG & Engineering Competence Group;
* A mixed group representing all stakeholders.

It is envisaged that the technical focus groups will be run in a similar fashion to Hazard identification/Hazard and Operability Analysis studies used in other major hazard sectors. Each technical focus group will take place over the course of one day. The supplier will be expected to technically input/support each one of these focus groups as subject matter experts in the field of Structural integrity/Civil Engineering.

**2.2 Visualisation of major accident scenarios**

The information gathered to this point will be summarised using Bow-tie diagrams. The Bow-tie method is a risk evaluation method that can be used to analyse and demonstrate causal relationships in high risk scenarios.

**2.3 Validation/challenge workshop**

A validation/challenge workshop will be held with technical and project stakeholders to verify the content of the proposed major accident scenarios.

The HSE deliverables for the above activities are as follows:

* Deliverable 1 – Concept report
* Deliverable 2 – Hazard identification
* Deliverable 3 – Bow-tie Diagrams
* Deliverable 4 – Project report

All focus groups and workshops will be held in MHCLG offices in London

The expectations and output expected of the supplier including the pricing methods are in the table below:

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Activity** | **Type of Support required from this tender supplier** | **Deliverable** |
| **WP1** | 1.1 Rapid Evidence Assessment | A. Carry out full Literature review as per the proposal text. B. On request review info obtained and support input | A. Literature review report from a structural/civil engineering perspective B. Comment of final output if requested |
| 1.2 Review of regulatory approaches to risk management | On request review information obtained | Comments on HSE outputs |
| 1.3 Defining a major accident and establishing the Tolerability of Risk (ToR) | On request review information obtained | Comments on HSE outputs |
| 1.4 Stakeholder mapping exercise | On request review information obtained | Comments on HSE outputs |
| 1.5 Initial Stakeholder Workshop | Attend workshop (1 day in duration) | Input as required to ensure successful output from workshop |
| **WP2** | 2.1 Technical Focus Groups |   |   |
| 2.1a  Industry | Attend Focus group (1 day duration) | provide Input to the group, support decision and ensure output is successful |
| 2.1b  Regulators;  | Attend Focus group(1 day duration) | provide Input to the group, support decision and ensure output is successful |
| 2.1c  Approved Inspectors | Attend Focus group( 1 day duration ) | provide Input to the group, support decision and ensure output is successful |
| 2.1d  JRG & Engineering Competence Group  | Attend Focus group(1 day duration) | provide Input to the group, support decision and ensure output is successful |
| 2.1e  A mixed group representing all stakeholders | Attend Focus group(1 day duration) | provide Input to the group, support decision and ensure output is successful |
| 2.2 Visualisation of major accident scenarios | On request review information obtained | Comments on HSE outputs |
| 2.3 Validation / challenge workshop | Attend Workshop(1 day duration) | provide Input to the group, support decision and ensure output is successful |
| **Outputs** | Deliverable 1 – Concept report | On request support information inputs and if requested review report outputs | Supply information or comment as requested  |
| Deliverable 2 – Hazard identification | On request support information inputs and if requested review report outputs | Supply information or comment as requested  |
| Deliverable 3 - Bowtie Diagrams | On request support information inputs and if requested review report outputs | Supply information or comment as requested  |
| Deliverable 4 – Project report | On request support information inputs and if requested review report outputs | Supply information or comment as requested  |

**Timeline**

It should be noted the project is underway with a contacted end point of January 2020. The initial timeframe for the activities outlined is shown in the Gantt chart below. The supplier must be able to support the activities and deliverables according to this plan or any iteration of it.



1. **REQUIRED EXPERIENCE / QUALIFICATIONS**

The minimum requirements for those wishing to submit a tender are:

* Project team to be made up of Chartered Engineers and membership of either Institution of Structural Engineers or Institution of Civil Engineers;
* Experience in the design of high rise building structures;
* Experience of integrating with other disciplines associated with building design, such as architects, M&E designers, fire safety specialists etc.;
* Experience of the full lifespan of buildings, from concept design, detailed design, refurbishment/maintenance, (ideally) through to demolition;
* Ability to demonstrate professional competence/experience and credability;
* Declaration of any conflict of interest with ongoing investigations;
* A single point of contact for all communications between HSE and themselves even though they may utilise several individuals to deliver the project.
1. **GOVERNANCE AND PERFORMANCE MANAGEMENT ARRANGEMENTS**

A monthy report of hours/persons booked against the project will be required. Ths will be checked off against the Invoices submitted.

Literature search report deliverable will need to be issued within 3 weeks of contract award

All requests for comments and review on reports or data should be turned around within two working days.

A single point of contact should be given with an appropriate deputy for the duration of the project.

1. **ADDITIONAL INFORMATION AND CONSIDERATIONS**

The contract will begin on the successful completion of this tender.

The project end date is currently 31 January 2020. This may be extended if the project scope increases.

**Budget**

Submissions for the support of this contact are expected to be IRO £50,000

**Costs and fees**

* The tender should indicate cost using schedule A and the assumptions used
* The assumptions used are for comparison purposes.
* The tender should give an estimate of T&S requied (please use government rules on T&S)

**Invoicing is anticipated to be at the following points**

* Upon completion of WP1
* Upon completion of WP2
* Upon delivery of the final report

Submitted Invoices will require timesheets of hours used and breakdown of other costs