The Institution of Structural Engineers

**Technical Report Route for Chartered Membership**
**Example Technical Report Synopsis**

*The following example is for illustrative purposes only.*

**3 The synopsis for the Technical Report**

Notes to applicants:
Applicants must describe in 400-700 words the proposed synopsis for the proposed Technical Report Route setting out clearly how technical competence and understanding of engineering principles are to be demonstrated. Applicants should refer to the 'Guidance for Candidates' on the preparation of the Technical Report Route. Continue on additional sheet if necessary.

## Evidence for my educational enhancement in engineering principles: Exhibition Building and Evidence Bridge

**Watson A. Reid** *BEng (Civil Engineering)*

Since graduating six years ago with an accredited BEng in Civil Engineering, I have been employed as a structural engineer at two companies. My attached CV provides details of the range of projects in which I have been involved.

Through such projects, which have necessitated stretching of my technical expertise, I have developed my educational base from the level of BEng to the equivalent now of an MEng graduate. My technical report will provide the evidence base for this assertion by making reference to two specific projects in which I have been involved.

### Exhibition Building

Exhibition building is a steel-frame, geometrically-complex building, located in Wokingham and built for a hotel chain. I led all structural design aspects of this building. The technical report will cover the initial concepts (steel versus concrete, and sway-frame versus a braced structure) which I considered, and why the final solution was chosen. This building was constructed in two phases and included a large (25m by 17m) triple-storey atrium space, so that structural stability of each phase was a key driver in the overall design concept. The report will describe the sway-frame analyses (by computer and by hand) which I conducted. It will also provide sketches and calculations associated with the ultimate limit state and serviceability limit state design of the unusually-shaped space truss roof for the atrium. Finally, reasons for the choice of the two separate foundation systems for each phase of this building will be presented, including sketches and calculations.

### Evidence Bridge

Evidence Bridge is a 44m-span cable-stayed steel pedestrian bridge which crosses the River Wye in picturesque countryside. It replaces a structurally-deficient wrought-iron bridge which had decayed over time. Although the river is relatively narrow at the crossing point, navigable clearance and the risk of an extended flood plain necessitated a longer span. I considered three alternative structural concepts, and these will be described, together with reasons for the final choice. The bridge is considered to be susceptible to forced (vandal-induced) excitation, and indeed the bridge has a low natural frequency (2.7Hz), which necessitated controlling peak accelerations of the bridge, fully described in the report. The back stays of the main pylon are founded in an 8m-deep layer of alluvial soil with high compressibility and low strength, so that driven raked steel piles were used to generate sufficient friction and tensile capacity in the presence of a high water table, also fully described.

In summary, the aspects I shall present in the report will highlight the technical deepening I have accumulated in my working career, thereby demonstrating the advancement in my educational base from Bachelors to Masters level.

**4 Candidate's signature**

| Signature: | Date: 01 / 01 / 2010 |
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