



## Chelsea Bridge - The assessment of a 1937 self-anchored suspension bridge

**Lucy Loewenthal**

*Atkins (member of the SNC Lavalin group), formerly Arcadis, London, UK*

**David Collings**

*Arcadis, London, UK*

Contacting author: [lucy.loewenthal@atkinglobal.com](mailto:lucy.loewenthal@atkinglobal.com)

### Abstract

Chelsea Bridge is a self-anchored suspension road bridge spanning 212m over the River Thames in London, UK. It is Grade II listed and was opened in 1937. Arcadis carried out an inspection and assessment this demonstrated that Chelsea Bridge was in good condition and that it has a load carrying capacity of full 40t assessment live loading, despite having had no major intervention works since construction. The structural evaluation and assessment techniques were informed by the original calculations and publications. This information, together with the bridge's good condition and lack of alteration, has enabled a direct comparison to be made between the design and the assessment calculations. The similarities and differences are identified between the design and assessment techniques in this paper to: firstly, determine the vehicular live loading; secondly, undertake the structural analysis; and thirdly review the factors of safety.

**Keywords:** Assessment/Repair, Codes and Standards, Bridges

### 1. Introduction

Arcadis (formerly Hyder Consulting) were appointed by the Royal Borough of Kensington and Chelsea to inspect and assess Chelsea Bridge (Figure 1). Chelsea Bridge is a self-anchored suspension bridge constructed in 1937 over the River Thames in London with a length of 212m.

An inspection of Chelsea Bridge demonstrated that the structure was in good condition and that no major intervention or alterations had occurred since construction. The assessment demonstrated that Chelsea Bridge has a load carrying capacity of 40t assessment live loading.



Figure 1. Chelsea Bridge