



(ACN 004 230 013)

**22 CLEELAND ROAD
SOUTH OAKLEIGH VIC 3167
AUSTRALIA**

Ref: 92-19-DE-LET-04

30 June 2020

Beca
PO Box 6345
Victoria Street West
Auckland 1142
NEW ZEALAND
Attn: s 9(2)(a)

Dear s 9(2)(a),

**Auckland Harbour Bridge – Cycleway
Tune Mass Damper – Span 2
Early Estimates of Damper Sizing**

The potential for providing the necessary additional damping (5% of critical) to the vertical mode of the Cycleway has been investigated. Preliminary analysis for a frequency of 0.24 Hz and a deflection of 300mm at the centre of the span have found a tuned mass damper of approximately 25,000 kg would be required. Due to the low modal frequency the supporting spring system would need to be approximately 5m long plus the unstretched length, approximately 5m (10m in total), to account for the initial static deflection and the dynamic movement of the mass. The spring would have to be designed for fatigue life.

Yours sincerely,

s 9(2)(a)

A large black rectangular redaction box covers the signature area, obscuring the name and any handwritten notes.