

CEC Bridges Partnership

Powderhall Footbridge No. 2
 HY623/211

Project:	100103506 CEC Bridges Partnership		
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Subject:	Failure of nodes in main span top chord		

For attention of Laurence Liu & Stephen Knox (City of Edinburgh Council)

Powderhall Footbridge No. 2 (HY623/211) is a three-span timber truss footbridge carrying St Marks Path over the Water of Leith. City of Edinburgh Council instructed Mott MacDonald Ltd to review splitting in the main span top chord. Following review of the information provided by Laurence Liu by email on 5th June 2026, and an informal site visit by a Mott MacDonald engineer on 21st June 2026, we observe that:

1. The nodes in the top chord (mortise and tenon joints with steel dowels) which are readily inspectable from the footpath exhibit signs of splitting along the grain of the timber in the top chord.
2. The main span is approximately twice the length of the two side spans. The nodes towards the end of this span, which must transmit the highest forces between diagonal members, are detailed with the same dowel arrangement as the other nodes and exhibit the most serious splitting.
3. The severity of the splitting at the most highly stressed locations indicates that the connection has failed to perform as the designer intended.
4. Failure of the node may be possible at any time, either due to an incidence of high live loading, environmental actions such as unusually hot weather, or under dead load after further deterioration. None of these risks are currently controlled.
5. The lack of redundancy in this type of truss structure means that a single failed node is likely to lead to total loss of the span.
6. Given the height of the bridge over the Water of Leith, the consequence of collapse for any persons on the bridge are likely to be serious or fatal.
7. Where the probability of an event is uncertain, but where the possible consequences of the event are severe and well understood, HSE guidance (*Reducing Risks, Protecting People, 2002*) places emphasis on addressing the consequences as a priority, before then better understanding the probability of the event occurring.

To ensure public safety, we recommend a closure of the footbridge to the public is implemented urgently.

Final failure of the timber is unlikely to be ductile and monitoring of the connection is unlikely to be sufficient to protect the public. Previous timber footbridges with similar connections have collapsed, including Ashford Lane Footbridge, Buckinghamshire, in June 2025. The reopening of the footbridge should only be undertaken once suitable repairs or replacement have been implemented and checked by a suitably qualified bridge engineer, or the bridge has otherwise been demonstrated to be suitably safe.

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Figure 1: Top chord node – severe splitting in all members. Note right-hand diagonal displacing up and left-hand diagonal pulling down



Source: Mott MacDonald Ltd

Figure 2: Top chord node – internal view.



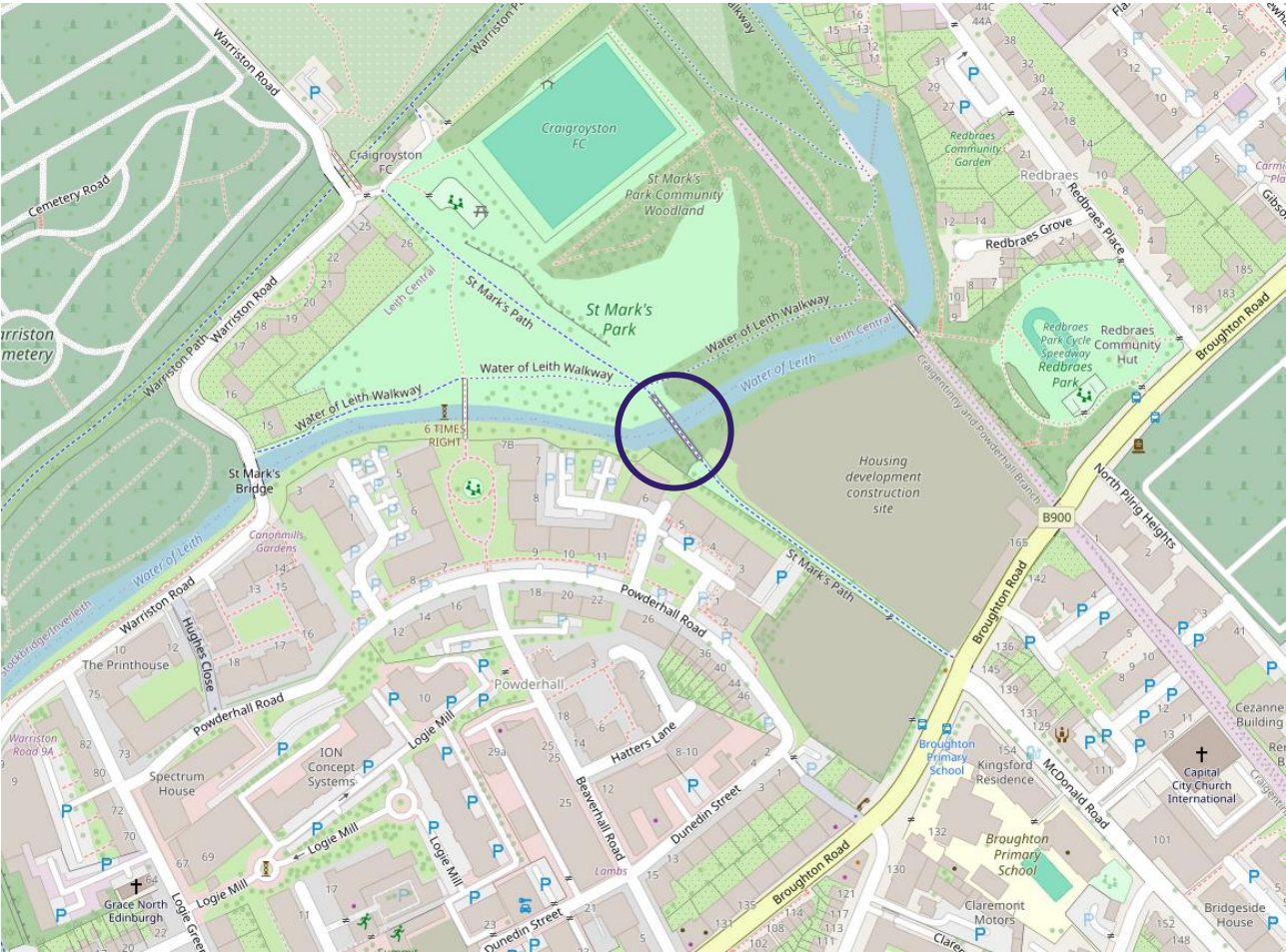
Source: Mott MacDonald Ltd

Figure 3: Top chord node – external view



Source: Mott MacDonald Ltd

Figure 4: Location map



Source: © OpenStreetMap contributors