

BRIDGE OWNERS FORUM

MINUTES OF MEETING BOF 63: TUESDAY 28 JANUARY 2020 AT THE BEVES ROOM, KINGS COLLEGE, CAMBRIDGE

PRESENT:

Bill Bryce	SSE
Nick Burgess	TfL/LUL
Henry Dempsey	SCOTS
Kevin Dentith	ADEPT
Andy Featherby	Canal and River Trust
Richard Fish	Technical Secretary
Tomas Garcia	HS2
Philip Gray	TfL
Colin Hall	Network Rail
Keith Harwood	ADEPT
Daniel Healy	Department for Infrastructure: Roads (Northern Ireland)
Jason Hibbert	Welsh Government
Gary Kemp	DfT
Neil Loudon	Highways England
Hazel McDonald	Transport Scotland
Campbell Middleton	Cambridge University Engineering Department (Chairman)
Ian Norriss	Environment Agency
Osian Richards	CSS Wales
Paul Thomas	Railway Paths Ltd.
Paul Fidler	CUED
Guests:	
Fran Torres	Herts CC
Alastair Soane	SCOSS
Luisa Freitas	ORR
Danny Jennings	ORR

1. Welcome

The Chairman welcomed everyone to the meeting, noting the key items on the agenda of presentations and discussions with both SCOSS and ORR.

2. Introductions and Apologies

After brief round the table introductions, Richard Fish noted that apologies had been received from the following:

Malcolm Cattermole	Forestry England
Liam Duffy	Transport Infrastructure Ireland
Nicola Head*	TfL
Trish Johnson	Big Bridge Group
Sue Threader	Rochester Bridge Trust

*Philip Gray was substituting for Nicola Head.

The Chairman invited new members and guests to introduce themselves in the usual way:

Osian Richards is the new representative on BOF from CSS Wales. He has been a member of their Bridges Group for five years and is now the Deputy Chair. A graduate of Exeter University, Osian works for Gwynedd Council where he is responsible for some 650 bridges, including a moving bridge and a tunnel, and about 2000 retaining walls. His main areas of interest and/or concern relate to the impact and detection of scour and the need for a rigorous inspection regime.

Ian Norriss was attending this meeting as an observer before deciding whether the Environment Agency might join BOF on a permanent basis. Ian described his “mongrel” academic background, having been an Environmental Scientist before taking an engineering degree; he is now member of CIWEM and a Chartered Environmentalist. Ian joined the EA in 2006 and, after regional work, now has a national role with bridge management responsibilities. The EA have about 2000 bridges, although some may be better defined as culverts. There are 80 highway bridges and 300 flood risk assets. Some are navigation related and others used only by EA staff. EA Areas look after their own bridges at a local level, including decision making on how work is commissioned and procured. His main concerns are the inconsistency of inspections and the need to update his bridge database. Ian also noted the timeliness of the invitation to attend BOF as he hoped it would benefit his objective of improving the EA’s overall bridge management.

Gary Kemp was attending as a substitute for Steve Berry who is a notional BOF member. Gary is a career civil servant working in the Local Infrastructure team in DfT, mostly associated with local road maintenance through grant funding to local authorities. Exact budgets will remain unknown until the new Government’s first budget in March but it was approximately £1bn per annum before the election. Gary noted that the biggest issue in his in-tray was potholes although he acknowledged that there had been additional emphasis on bridges after the Polcevera collapse in Genoa in 2018 and there was a willingness amongst Ministers to understand the maintenance backlog and current condition of the national bridge stock.

Fran Torres works with Keith Harwood at Hertfordshire County Council and was attending BOF as part of the new arrangement whereby junior members of staff could see how we work and hopefully gain some CPD. Fran is from Spain where he gained a Civil Engineering degree before moving to the UK and taking a Masters degree at Surrey University in Bridge and Asset Management. He previously worked for Opus (transferring to WSP when Opus were taken over) before joining HCC.

3. BOF 62 Minutes

a. Accuracy

Attendees, page 1: Replace “Transport Northern Ireland” with “Department for Infrastructure: Roads (Northern Ireland)”.

Item 2, page 2, paragraph 5: Replace “1861” with “1857” and “the 1940s” with “1914”.

Item 6, page 7: After “Laing O’Rourke” add “Centre in Cambridge” and penultimate paragraph: delete “recent”.

Item 7, page 8: Replace “magasine” with “magazine”.

Item 10d i: Replace “was now” with “will soon be”.

Once the above amendments have been made, the minutes can be uploaded to the BOF website.

ACTION 1: Paul Fidler

b. Matters Arising

Actions were covered using the Action Update sheet that had been issued with the agenda.

Action 6: Eastham Bridge Collapse

Kevin Dentith reported on his attempts to arrange a meeting with Worcestershire County Council and Jacobs. Although agreed in principle, this had yet to happen. Kevin, however, remained confident that it would take place and agreed to continue to work towards this.

ACTION 2: Kevin Dentith

The Chairman questioned the ownership of information relating to the collapse. Kevin replied that this would be with WCC but understood that they had little professional engineering expertise within their client group.

Action 9 & 13: Grand Challenges and BOF in the media

Richard Fish reported that he been in touch with Helena Russell and was hoping to arrange a meeting in February to discuss the options for BOF and Grand Challenges to be promoted through an article in the technical press.

ACTION 3: Richard Fish

Action 10: TRIB Presentations

These had not yet been forthcoming and the TRIB team would be chased.

ACTION 4: Richard Fish/Paul Fidler

Action 11: BOF Website

The Chairman reported that his Department had recently taken on someone to manage communications and they had transformed the CUED website. He was hopeful that they might be able to at least review the BOF website but discussions were needed with regard to finances.

ACTION 5: Chairman/Richard Fish/Paul Fidler

Action 12: BOF LinkedIn Group

Keith Harwood had now set this up and, although through a show of hands it was noted that there were four present who were not LinkedIn members, all were invited by Keith to join.

ACTION 6: All

Action 14: BOF in the Media

Helena Russell's presentation to be located.

ACTION 7: Richard Fish/Paul Fidler

Action 15: TRIB and Grand Challenges

Liaison with Asher Lawrence-Cole and TRIB at DfT re progress on Grand Challenges to continue.

ACTION 8: Richard Fish

Action 16: Grand Challenges "White Paper"

To remain under consideration.

ACTION 9: Chairman/Richard Fish

Action 17: Bridges Conference 2020

Richard Fish explained the second day's workshop which was being held for the first time and which was hoped would be based around the Grand Challenges concept. Keith Harwood updated the meeting on the slightly different approach to this year's Pecha Kucha where it was hoped that Bridge Owners might give some technical updates.

Action 19: Vehicle Impact on Parapets

Kevin Dentith described how setting up CCTV cameras at bridges where there had been frequent impact damage to masonry parapets had seen a reduction in occurrences. Kevin offered to share details on request.

ACTION 10: All

Action 20: Vehicle Overloading

Neil Loudon reported on some preliminary discussions with DfT's Freight team on the possible introduction of heavier goods vehicles on some designated routes. Discussions were to continue, and would include those responsible for enforcement, before considering whether the idea should be taken forward.

Hazel McDonald noted that Transport Scotland were also involved in discussions regarding potential trial routes from a particular haulier's depot to rail heads. Hazel also reported that there six Weigh-in-Motion (WiM) sites in Scotland and it was hoped that information on overloaded vehicles might be shared. Neil Loudon noted that England's WiM sites were operated by VOSA and that obtaining data was problematic. Jason Hibbert noted a similar situation in Wales.

The Chairman stated that vehicle overloading was a significant problem and hoped that as much data as possible could be shared. Neil and Hazel agreed to provide an update at BOF 64.

ACTION 11: Neil Loudon/Hazel McDonald

Action 23: M4 Emergency Closure

Deferred to BOF 64.

ACTION 12: Jason Hibbert

4. Temporary Bridge Database

Gary Kemp gave a brief summary of the background to the need for this database, much as Neil Loudon had aired at recent meetings, with specific reference to the 2009 Cumbria floods and the 2012 London Olympics. More recently, DfT have signed a contract with a digital provider, BJSS, and it is hoped that the system can start in early March. Gary was to be the contract administrator with Highways England providing any technical support. The Chairman confirmed that it had been agreed that the database could be hosted on the BOF website and detailed arrangements were to be discussed, including how to ensure access via the BOF site could be made available to all owners, not just public sector.

ACTION 13: Gary Kemp/Paul Fidler

Neil Loudon noted that another contract was to be established to ensure that all five temporary bridge suppliers could update their technical information at any time. Neil and Gary agreed to provide an update at BOF 64.

ACTION 14: Neil Loudon/Gary Kemp

Kevin Dentith suggested that some larger local authorities might still have their own temporary bridges for use in emergencies, although noted that many had abandoned that practice over the last few decades. Neil Loudon summarised the issues, previously raised, regarding design compliance and the standard of maintenance.

Note: Alastair Soane (SCOSS) and Luisa Freitas and Danny Jennings (ORR) joined the meeting for the following items:

5. BOF Grand Challenges – Progress Report

Keith Harwood summarised recent progress in developing the Grand Challenges ahead of the planned launch of the document at the Bridges Conference. It was agreed that the final output would be delegated to Keith and Richard Fish.

ACTION 15: Keith Harwood/Richard Fish

The Chairman agreed to identify a graphics source from within CUED.

ACTION 16: Chairman

Post meeting note: Grand Challenges graphics were sourced by Keith from Arup.

It was also agreed that the document should carry introductions from the Chairs of both UKBB and BOF.

ACTION 17: Richard Fish

Keith also requested photographs to help illustrate each of the Grand Challenges.

ACTION 18: All

It was noted that Richard Fish would be presenting on the Grand Challenges at the Bridges Conference 2020 and, as noted above, the workshop on the second day was also being centred on some of the Grand Challenges themes.

6. Investigation into UK Highway Bridge Collapses

The Chairman introduced this item referring to the need for an independent body to investigate highway bridge collapses in line with AAIB and RAIB for air and rail sectors respectively. Richard Fish added that the USA had an exemplary body, the NTSB, who undertook forensic investigations and published reports on line, most recently on the FIU collapse. The Chairman emphasised the need to learn lessons and to share that knowledge with bridge owners.

Alastair Soane stressed the need for a no blame culture in reporting of incidents and it was likely that a mandatory reporting scheme would emerge from Grenfell with a new Safety of Buildings Bill coming before parliament. He also noted that the various Grenfell inquiries were now driving government policy around what are known as precursor events which might be seen to be the beginning of a trend. Jason Hibbert reported that he had recently taken this approach in a presentation to management and politicians by presenting a graph of cumulative failures to illustrate the need for investment in bridge maintenance.

Luisa Freitas noted the value of RAIB not only in knowledge sharing but also in leading to potential prosecution. Danny Jennings reported that the issue of a highway bridge investigation body had also been under consideration at ORR but there was view that this might incorporate all highway assets rather than just bridges. Danny also referred to the role of the RAC Foundation which considered statistics and trends. In the case of major incidents, however, such as Polcevera, he noted that it was also essential to consider contractual and financial implications as well as engineering.

The Chairman suggested that RAIB could be extended to be Road and Rail accident investigation. Osian Richards questioned whether incident reporting could be added to the DMRB. Neil Loudon replied that the present system encouraged the use of SCOSS. Colin Hall pointed out that not all rail related incidents are investigated by RAIB and that Network Rail also had an in-house reporting system.

Gary Kemp wondered whether such a body could come under the auspices of the UKRLG; an area of concern affecting both road and rail was vehicle incursions and, although funding had been allocated following the 2001 Great Heck incident, he was aware of sites where mitigation measures were still not in place. He further noted that local authorities had a statutory duty to report on significant flooding events. On this subject, Kevin Dentith noted that some bridge owners had still not undertaken scour risk assessments despite BD 97 being issued in 2012.

The Chairman cited another exemplar from earthquake engineering which saw a panel of experts visit affected regions to learn lessons on how buildings had behaved in order to pass on that knowledge. He then suggested that there was a difference between a role of knowledge sharing, which could be on a voluntary basis, and statutory investigations which could lead to prosecutions with the latter requiring independent reviewers. He proposed that the anticipated meeting noted earlier (see Action 2) between Richard Fish, Kevin Dentith and Worcestershire CC could be an example of voluntary knowledge sharing. This approach was widely supported by the meeting and Neil Loudon suggested that this could be an addition to the UKBB Code of Practice.

The Chairman asked both the DfT and the ORR representatives to raise this issue within their respective organisations. Richard Fish agreed to continue to press for this at UKBB, along with other BOF members who also sat on UKBB.

ACTION 19: Richard Fish and UKBB Members
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The Chairman also suggested that a statement of best practice would be helpful, including a definition of what constitutes a failure in this context.

ACTION 20: Richard Fish

Alastair Soane noted that the ICE were developing policy on the subject of infrastructure safety, following on from Peter Hansford's In Plain Sight report.

Jason Hibbert reported that the outcomes from recent RAC Foundation FoI requests had been very helpful when he came to write briefing papers for Welsh Government members and had led to his maintenance budget being substantially increased. His point was that it was essential to ensure that those in government who were ultimately accountable had full awareness of risk and their responsibilities.

Kevin Dentith noted that he was continuing to work with the RAC Foundation and would ask them to include a question on failures/collapses when their next FoI is issued.

ACTION 21: Kevin Dentith

7. Procurement Issues

As Sue Threader had had to give late apologies for this meeting due to a close family bereavement, and it was the RBT exemplar which was to have been presented, this item was deferred to BOF 64.

ACTION 22: Richard Fish

The Chairman noted the importance of this issue as it was central to the way in which the industry was run. He referred to the recent Procuring for Value report and to a current research programme on which Kings College Cambridge and Kings College London were collaborating and looking for examples of good or bad practice.

8. SCOSS and CROSS

The Chairman welcomed Alastair Soane to the meeting for his annual opportunity to present on the work of SCOSS and CROSS as well as for him to get feedback on current bridge related issues. Alastair agreed that his presentation could be uploaded to the BOF website.

ACTION 23: Paul Fidler

Alastair began by reprising the background to SCOSS since its initiation in 1976 and later (2005) CROSS, explaining the process of CROSS reporting and the de-personalisation process. He also described how SCOSS publicised its work through newsletters and alerts as well as the website (soon to be reviewed and enlarged). Alastair also welcomed opportunities to attend BOF meetings and to support BOF initiatives. He agreed to explore the possibility of a link to BOF within the new SCOSS website.

Some examples of recent alerts were cited: failures of Reinforced Autoclaved Aerated Concrete (RAAC) planks, popular in the 1960s for flat roofs and the use of glass in balustrades. Alastair then gave more details of other recent events:

- The Liverpool Echo Arena multi-story car park fire in December 2017 in which 1150 cars had been destroyed in 15 minutes. The car park had now been demolished although the main structure had performed better than expected as it had been prestressed. More worryingly, a similar fire had occurred in Cork, Ireland, in September 2019.
- The Churchill flyovers, also in Liverpool, which had been closed following serious corrosion of post-tensioned strands and was recently demolished, having been deemed uneconomic to repair. Demolition had used diamond saw techniques to cut through structural elements. The demolition had also revealed a significant area of weakness in that the precast concrete edge panels had been fixed only with a single stud per panel. Kevin Dentith agreed to find out more of the flyover history (construction, inspection regime, assessment and the decision to demolish) using his ADEPT network.

ACTION 24: Kevin Dentith

- High Rise Residential Buildings (HRRB) was a constant interest to SCOSS and included various concerns from Ronan Point in 1968 with the focus on rapid construction to Grenfell Tower in 2017 where the priority had been to improve insulation but without considering fire risk. Following the Hackitt report (available on the SCOSS website), the Queens Speech had introduced a Buildings Safety Bill which was hoped would address many of the issues, including mandatory enhanced safety reporting.
- The near failure of the Whaley Bridge dam spillway in August last year was another subject being reviewed but was probably another site in which risk management needed to be better implemented.
- Alastair showed the NTSB video of their investigation into the FIU footbridge collapse in 2018, demonstrating the series of errors and lack of accountability that had led to the failure. What was somewhat puzzling was the fact that the NTSB report could not be used as evidence in any future litigation.
- Bridge collapses were not only gaining a higher profile through BOF but also via IABSE. A Russian bridge collapse database was being established but covering global failures.
- Alastair referred to the recent problems with the Boeing 737 Max 8 aircraft as an example of systemic failure where the US Federal Aviation Authority (FAA) not been as robust as they should have been in their approval process.

Alastair concluded his presentation by summarizing the need to change the culture of the construction industry in four key areas:

- Better leadership
- Recognising that quality is critical
- Less emphasis on profit
- Stronger relationships with regulators

The Chairman thanked Alastair and, although specific questions had been taken during the presentation, invited any last comments. Neil Loudon, whilst accepting the four key areas for improvement, also raised often conflicting issues within the supply chain as well as wider concerns over procurement policy. Alastair responded by citing the need for reflective thinking in the national response: recognise that risks are both known and unknown, with occasional unexpected consequences, and the need to share knowledge on all things safety related.

9. ORR – Role and Responsibilities

The Chairman welcomed Luis Freitas and Danny Jennings from the Office of Road and Rail noting that the ORR had been mentioned in several recent BOF meetings. He invited them to give a brief personal career history before their presentation.

Luisa Freitas explained that she had worked for consultants before joining Network Rail and then the ORR. Her responsibility in the ORR related to the rail sector. Danny Jennings had responsibility for roads, specifically performance monitoring of Highways England. His career had been in local authorities in bridges and asset management. He had moved from Essex CC to Ringway Jacobs before joining the ORR.

Luisa firstly presented on the ORR's rail regulation role but summarised the ORR as an independent body with no direct reporting route to Government ministers. The ORR sphere of interaction included governments, industry, users (including the Transport Focus watchdog) and safety bodies (RAIB and HSE).

In terms of bridges, Network Rail has approximately 27,700 assets which Luisa recognised are often taken for granted. The ORR is responsible for holding Network Rail to account and this includes policy reviews as well as performance monitoring on all relevant issues including sustainability. Major current challenges included the maintenance backlog, dealing with scour and the management of retaining walls. As one of the ORR roles is stakeholder engagement, Luisa welcomed the opportunity to visit BOF and exchange views.

Danny Jennings expanded on the Road element following the Infrastructure Act 2015 which had established Highways England and broadened the ORR role which included monitoring HE's vision and investment plan as well as KPIs. Although there were formal enforcement powers, these had not been used during RIS1. Danny noted that renewals were also monitored for joints, parapets, bearings, waterproofing etc. as well as the inspection programme. Highways England produce a risk dashboard to facilitate this.

The Chairman thanked Luisa and Danny for their presentation; they confirmed that it could be uploaded to the BOF website.

ACTION 25: Paul Fidler

The questions and discussion began with Hazel McDonald asking about the HE structures risk dashboard. Neil Loudon replied that this related to specific structures rather than generic issues.

Tomas Garcia questioned the ORR interest in HS2. Luisa Freitas replied that, whilst there was no remit at present, discussions were underway and there was a precedent in that ORR look after HS1. Tomas suggested that there should be some influence in the design stage as key decisions were being made. Nick Burgess asked the same question regarding CrossRail and Luisa noted that there had been some input via TfL.

Kevin Dentith referred to disputes between Network Rail and outside parties, particularly local authorities. He noted that ADEPT and Network Rail have an Access Group but at the last meeting no-one from the latter attended. He asked whether ORR could have an influence on this. Neil Loudon pointed out that the Access Group covered all issues, including occasions when Network Rail might want to be able to access Highways England networks. Luisa Freitas suggested that this should be considered by the safety side of the ORR and perhaps should be escalated to try to reach a resolution.

Alastair Soane asked why there had been no enforcement of Highways England during RIS1; was this because the ORR was too lax or was the HE performance faultless? Danny Jennings believed that this was due to a good level of mutual understanding in the early years of HE. Paul Thomas asked about HE KPIs on issues such as air quality, carbon and litter. Danny Jennings replied that these had been set by HE but ORR would have more influence in RIS2. He also noted that there was always a balance between KPIs and customer satisfaction surveys.

The Chairman concluded the discussion by asking how ORR acquired its data. Luisa Freitas replied that, for rail, some came directly from Network Rail, but some information came from raw data within ORR itself. For road, Danny Jennings said that ORR relied on Highways England's Performance Monitoring Statements. The chairman also suggested that in future the ORR might link to the National Infrastructure Commission and other similar bodies. Finally, he thanked Luisa and Danny for their contribution to the meeting.

Note: Alastair Soane (SCOSS) and Luisa Freitas and Danny Jennings (ORR) left the meeting during the following item:

10. Structures Toolkit

Keith Harwood gave a combined presentation and demonstration of the new version of the Structures Toolkit.

He began by recalling discussions at BOF in 2012 when the idea of a toolkit promoting asset management and valuation. Over the years, there had been several versions but the new one was the result of a DfT funded research project which produced the SAVI tool (Structures Asset Valuation and Investment). The new tool is designed for a bridge

stock with individual bridges broken down into elements and the main use is to give an annual valuation of the stock. A new prioritisation module gives a programme of work based on element condition. Another module will show which elements are at the highest risk. Other uses include long term asset management plans (up to 120 years) and the facility for interactive scenario modelling.

Tomas Garcia noted that HS2 had developed a similar tool aimed at optimising whole life costing. HS2, however, had found that the answers were much influenced by the chosen discount rate.

Osian Richards suggested that, with the large amount of data being collected by all bridge owners, there should be opportunities for machine learning to assist in decision making. Keith Harwood replied that he had tried investigating historical data only to find there was not enough for this purpose. The Chairman commented that machine learning, AI and Big Data were seen by some to be the answer to many issues but this was probably not the case.

Going forward, Keith reported that he would be taking SAVI to the UKBB meeting in February and, once agreed, it would be freely available via the UKRLG website. He also noted, however, that DfT and CIPFA approval was needed. Gary Kemp agreed to try to facilitate this.

ACTION 26: Gary Kemp

The discussion extended into possible future development of risk based prioritisation and the Chairman suggested that there should be commonality in terms of what was being measured and systems that used the same methods. Neil Loudon felt that there was a need to address system inputs in the form of inspections; both in terms of their quality and the ability to identify trends in changes to defects between inspections.

Wrapping up this item, the Chairman suggested that a future BOF meeting might focus on a comparison between existing bridge management systems and tools.

ACTION 27: Richard Fish

11.BICS and/or Alternatives

Before discussion on this item, Kevin Dentith reported on a CCTV trial in Devon which had drastically reduced the number of parapet strikes on a masonry arch bridge, mainly by agricultural vehicles. Signing and the camera were in clear view and the word had spread to the local farmers.

Turning to BICS, Kevin summarized the views of his ADEPT group concerning the poor take up of the scheme. Initial discussions had been followed up with a questionnaire which Kevin would be sharing with LANTRA. The overall view was that BICS was too time-consuming (a figure of 300 hours of preparation time was widely quoted), too costly and too complex. Cost was an issue as inspections tended to be

funded from revenue budgets which remained very tight and it was unrealistic for low paid inspectors to be expected to pay their own fees.

In an attempt to address these points, Kevin had developed a bespoke scheme, initially for Devon CC staff. Henry Dempsey confirmed that SCOTS had also developed their alternative along similar lines, as did Osian Richards on behalf of CSS Wales. The Devon scheme used 100 questions based on BD 63 but were specific to the County's bridge stock. It included the need to understand the significance of defects and options for maintenance interventions. Inspectors were also required to submit three inspections which were peer reviewed. All activities were able to take place in works time. The scheme had been presented at an ADEPT meeting and it was likely to be considered by many local authorities. Kevin believed that the scheme fulfilled the requirement in BD 63 for an independent competency assessment.

Neil Loudon pointed out that any developments on other options should wait for the meeting already planned for 12 February with members of the BICS steering group and LANTRA. This was ahead of the next UKBB meeting and Neil also reaffirmed that BICS was owned by UKBB of which ADEPT was a member. It was agreed that the outcome of this meeting should be reported back to BOF 64.

ACTION 28: Neil Loudon/ Hazel McDonald/ Kevin Dentith

The Chairman reprised the background to BICS and the early discussions at BOF meetings from 2000 onwards, citing many examples of poor, variable or mis-leading inspections or those which missed dangerous defects. He stated his view that Inspector competency is vital in maintaining public confidence. He also noted one of the original intentions which was to design a career path for bridge inspectors.

Kevin Dentith introduced the reality check in that, irrespective of any competency framework, some owners were not even aware that Principal Inspections needed to be undertaken by a Chartered Engineer. This prompted a reminder from Henry Dempsey that many considered that the CEng qualification was sufficient in its own right.

Hazel McDonald accepted that there were some shortcomings with BICS and recently introduced changes not been well managed by LANTRA, partly due to an IT upgrade which meant that the system was down for five weeks. Jason Hibbert reported that the Welsh Government were supportive of BICS but, referring back to the 300 hours noted above, questioned whether that was partly attributable to the LANTRA systems. Richard Fish expressed some reservations about the scheme's zero tolerance in marking – one mistake and it was a fail. On the other hand, he recognised the need to improve on competence and consistency as evidenced by some very poor candidates, allegedly specialist bridge inspectors, that he had interviewed as a BICS assessor.

In conclusion, it was agreed to wait for the outcome of the forthcoming meeting with LANTRA before taking any further action

12. Bridge Collapses – Update

Following the practice at recent meetings, Richard Fish reported on two significant collapses since the BOF 62 meeting:

- November 2019: A suspension bridge at Mirepoix-sur-Tarn in France had collapsed when being crossed by a 44 tonne truck which had passed an obvious 19 tonne weight limit sign. The truck driver and a 15 year old girl passenger in a car on the bridge were killed.
- January 2020: a footbridge over a river collapsed in Sumatra, allegedly packed with students on a photography assignment. Nine died. No other details available as yet.

13. Update on Current Bridge issues and/or Research

The Chairman invited BOF members to give an update on any pressing issues or involvement in research projects.

a. **ADEPT**

Increased parapet heights: Kevin Dentith reported that there had been a good outcome from the increased parapet heights on a major bridge in Devon that was a notorious site for suicide attempts.

b. **Network Rail**

- UAV Trial:** Colin Hall reported briefly on a trial on 60 structures which was hoping to resolve issues such as resolution quality, how close to fly etc.
- Retaining Wall prioritisation tool:** This was being developed following the Lime Street failure in Liverpool and Colin hoped to be able to give an update at a future meeting.

ACTION 29: Colin Hall

c. **Highways England**

DMRB: Neil Loudon reported that the review had been completed apart from some final changes to scour and safety reporting standards. This had entailed redrafting of over 150 documents. Neil warned, however, that there may be a requirement to review the MCHW in RIS2.

d. **London Underground**

- Retaining walls:** Nick Burgess reported that parapets above retaining walls had now been classified as separate elements as it had been noted that fill surcharge had been placed against the parapet at some sites.
- LIDAR:** A new provider was being considered. The problem of identifying changes and trends was still an issue.
- Post-tensioned bridges:** Under review, linked to the updated BD 54.

e. **HS2**

- i. **Derailment assessment:** Tomas Garcia reported on an assessment model which was being developed for road over rail bridges and another for derailment on viaducts.
- ii. **Viaduct waterproofing:** Fibre reinforced Ultra High Performance Concrete (UHPC) was being considered as a waterproofing material.
- iii. **Parapet heights:** Also under consideration for road over rail bridges.

f. **Transport Scotland**

- i. **SRRB:** Hazel McDonald reported briefly on the 2021 programme; this was to be mostly roads related but included scour instrumentation on New Cumnock bridge and three other sites.
- ii. **Scour:** There was also a scour detection project at Glasgow University using a “smart” instrumented rock placed in the river.
- iii. **NDT:** Transport Scotland were part of this CIRIA project with Mott MacDonald.
- iv. **PIARC:** Transport Scotland are reviewing submissions regarding overloaded vehicles, on road pavements as well as structures.

g. **TfL**

- i. **CIRIA Masonry Arch Project:** Philip Gray noted that the report had been delayed until the end of March.
- ii. **LoBEG:** The LoBEG Asset Management working group had been working on defect codes for elements such as expansion joints and FRP, and would be presenting at UKBB in February.

h. **Railway Paths**

- i. **GRP:** Paul Thomas reported on the re-decking of a timber boardwalk using GRP.
- ii. **SUSTRANS:** Bennerley Viaduct was soon to be re-opened
- iii. **Linseed Oil:** The wrought iron trial was going to be part of the Pecha Kucha item at the Bridges Conference in March.

i. **CUED**

- i. **Off-site Manufacturing:** The Chairman reported on a study in which Cambridge had been involved with 23 partner organisations which was due to be launched in March.
- ii. **CDBB:** Had been working with the Staffordshire alliance where sensors had been built into new bridges as well as building digital twin models.
- iii. **Satellite Movement Detection:** Ongoing work by Sakthy Selvakumaran.
- iv. **Procurement:** CDBB had also been working on a study showing the value of collaboration.
- v.

14. Any Other Business

- a. **BIM:** Neil Loudon noted that a review was being considered by government.
- b. **Hammersmith Bridge:** Philip Gray extended an invitation to BOF for a possible future site visit.
- c. **SHM:** Hazel McDonald reported that the CIRIA report was due to be published in the near future.
- d. **Galicia:** Tomas Garcia said that, if there was sufficient interest, he could arrange a study visit.
- e. **Local Authority/Network Rail:** The Chairman had been asked for advice on a local authority taking over an existing Network Rail bridge and sought a volunteer. Henry Dempsey agreed, possibly working Stuart Molyneux who was the ADEPT liaison with Network Rail

ACTION 30: Henry Dempsey

15. Next Meetings

Grand Challenges Workshop: To be held on Friday 13 the March, the second day of the Bridges Conference at the Ricoh Arena, Coventry.

BOF 64: 26th May 2020 at Kings College, Cambridge*.

ACTION 31: ALL

**Post meeting note: Due to the Covid-19 Pandemic, a virtual meeting is being considered. Details to follow.*

BOF 65: Date to be determined in late October or early November but may be extended to add a celebration of 20 years of BOF.

ACTION 32: Chairman/Richard Fish

16. Close

The Chairman closed the meeting with special thanks to our guests – SCOSS and the ORR.

Richard Fish,
BOF Technical Secretary,
22nd May 2020