

**ADEPT ENGINEERING BOARD
NATIONAL BRIDGES GROUP**

MEETING NOTES

Venue: Online Video Conference

Date and Time: 10:30hrs on Thursday 2nd March 2023

Present:

Keith Harwood (Chair) [KH] Kevin Dentith (Vice Chair) [KD] James Salmon (Secretary) [JS] Jim Hall (Chair Wales) [JH] Donald MacPherson (Chair SCOTS) [DMc] Colin Ferris [CF] Alastair Swan (Chair North) [AS] Stuart Molyneux (Chair North West) [SM] Colin Jenkins (Secretary North West) [CJ] Mark Watson (Chair Yorks/Humber) [MW] Claire Richardson (Secretary Yorks/Humber) [CR] Chris Wright (Chair West Midlands) [CWr] – part Chris Plant (Secretary West Midlands) [CP] Chris Waterfield (Secretary East Midlands) [CWa] Abul Tarafder (Chair East Midlands) [AT] Rob Causton (Chair South West) [RC] Alan Mclean (Chair South East) [AMc] Scott Gregory (Secretary South East) [SG] Paul Livesey – part Simon Hollyer – part Hannah Bartram – part	Hertfordshire County Council Devon County Council Bedford Borough Council Denbighshire County Council Aberdeenshire Council Department for Infrastructure Northern Ireland Newcastle City Council Salford City Council Warrington Borough Council Doncaster Borough Council Kirklees Council Herefordshire County Council (Balfour Beatty) Staffordshire County Council (Amey) Lincolnshire County Council Leicester City Council Cornwall Council Surrey County Council Hampshire County Council CROSS Safety Devon County Council ADEPT CEO
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ITEM		ACTION
1.	INTRODUCTIONS AND APOLOGIES	
1.1	Apologies for Absence Philip Gray (Transport for London) John Burriddle (Secretary South West) Clive Woodruff (Chair East) No Isle of Man representative present. Nigel Burn (Secretary North) and Stuart Heald (Secretary East) also absent.	
1.2	New Members Chris Waterfield (Secretary East Midlands)	

2.	PRESENTATIONS	
2.1	Collaborative Reporting for Safer Structures Paul Livesey (CROSS Safety)	
2.1.1	CROSS is a voluntary reporting system that allows reporting of incidents. It developed in 2005, following on from SCOSS (which was formed in 1976 as a response to some structural failures i.e. Ronan Point). Based on safety reporting in aviation, it was expanded into fire safety in 2021 following the Grenfell Tower fire. It is an independent body and has expanded to the United States and Australasia, with discussions ongoing to expand into Germany too. There is a technical board, expert panels (structural safety and fire in the UK) and a delivery team. Experts come from a wide variety of groups, selected by their personal skills.	
2.1.2	Reports initially need a contact, but are then anonymised. The panel collates expert comments into a report, sends it back to the reporter and then issues on the website. There is a no blame culture, with no personal information published. Fire and structural safety reports are issued for near misses, concerns and incidents during design, construction, operation/occupation and demolition. The safety reports give a quick overview, then the key learning outcomes (as split into clients and users), the main body (with a summary given/link to full text), then the experts' comments.	
2.1.3	<u>Examples:</u> Unconservative design of a flat slab due to modelling issues. Masonry walls above the slab were modelled as concrete walls, leading to deflections of the slab being under-estimated due to incorrect stiffness above. The walls cracked and steel beams were then needed under the slab to stiffen it. Learning points – hand calculations should have been used to complete this, software specialists should have been consulted and a proper check should have been completed.	
2.1.4	Dangerous alterations to steel beam supports. The timber roof sat on steel beams, with the steel columns being relocated to revised steel frames. Columns had been cut out without any thought of internal propping, but fortunately the roof was robust enough to carry the increased load effects from the larger spans resulting. It was unclear if the supervisor notified the contractor of the need for temporary works, but the contractor should have known this. Learning points – competent supervision, effective communication and the appointment of temporary works co-ordinator should have taken place.	
2.1.5	Dangerous design of a retaining wall. A 1.8m high brickwork wall was required, which seemed odd as the choice of materials would be structurally inefficient in their required thickness. Design process assumed that the wall was fully fixed on all three sides and that 800kPa of allowable bearing pressure would be present from the ground. As drawn, the wall was 215mm thick with joints at 4.5m centres with no consideration given to the parapet guardrail or fixings. Learning points – a suitable QA system and checks should have been used, with suitable supervision and third party checking.	

2.1.6	Boundary retaining wall collapse. A 1 to 1.5m high wall with a timber fence on top that was 225mm thick collapsed shortly after construction. There are many examples of failing brickwork walls, as they are built without competent design and trees push them. Learning point – all retaining walls should be designed by a competent engineer.	
2.1.7	Cyclists/pedestrians rode/travelled over the top beam of a tied arch, causing great concern for their safety. Learning point – measures need to be taken to prevent this.	
2.1.8	Balcony collapse at block of flats. The second floor walkway slab collapsed without warning after 45 years, with no significant reinforcement present in the tension zone. There was another example in France where there was poor construction quality and reinforcement placement. Learning point – suitable quality control and supervision is required.	
2.1.9	Unsafe design of a retrofit cantilever balcony. The designer had designed bolts based on shear loads only, ignoring any tensile loads. This balcony would then have been fixed to a cavity wall, with little tensile capacity. Learning point – guidance, oversight and validation is needed.	
2.1.10	<u>Questions:</u> JH – We had a bridge collapse and struggled to get permission for it to be shared. How do we ensure that these are allowed to get out there so that we can learn from them? PL – It is quite difficult to make a large bridge collapse confidential, but CROSS would want to get the message out and share the information. KH – there is a UKBB research topic to develop best practice in collapse reporting, is and to learn from these. Richard Fish is promoting this. We had to go through FOIs to get information in one case.	
2.1.11	JH – How would you resource a load of reports in one go? PL – We would try to capture these.	
2.1.12	JS – How do we ensure that building/developer walls get adequate checks? PL – These are sometimes left over bits and are given to somebody junior, then they get built without QA purposes. Retaining walls aren't part of building regulations. RC – Cornwall Council request all walls that affect the highway have their calculations submitted for review. This has identified errors and allowed discussions around CG300. They ensure a CEng sign off even if Category 0.	
2.1.13	CR – We can't always find sketches/photos on the website. PL – Our practices don't always allow us to show everything as it removes confidentiality. So unfortunately more text is sometimes forced. KD – We produced a report (reference 522) in the past about failure in stainless steel tie bars in a marine environment. If there is something that could lead to a failure then it is a case to share it. We should not be afraid to report it.	
2.1.14	CF – The M20 footbridge was found to have low headroom in the hard shoulder, so a Chief Highway Engineer's memorandum was issued to	

	check these. One was identified in Northern Ireland, so road markings and warning signs were installed. Could these be shared more? KH – Neil Loudon was asked, but he will be asked again, as it's unclear if these are widely available. Everybody should sign up for CROSS and get the newsletters and the National Highways safety alerts.	KH
2.2	Defective precast beams Keith Harwood (Hertfordshire County Council)	
2.2.1	A roughly 20m long integral bridge on bankseat foundations with precast U beams and a reinforced concrete deck slab was being constructed. The company involved was appropriately certified. Cold joints were spotted on the beams between concrete pours, leading to cracks in the worst cases. Other beams had serious honeycombing, with one beam so bad that water within the U shape was leaking out. A thin layer of concrete underneath a beam could be peeled off the bottom of it by hand in one case, with cores later proving this to be a full cold joint. Ultrasonic testing proved voids, honeycombing and low tensile strengths in the regions of the cold joints. Creep and shrinkage were monitored, plus local break outs and cores proved that cracks ran right through beams in some cases.	
2.2.2	On another bridge it was spotted that half of the shear links were missing from a beam.	
2.2.3	Issues thought to be poor workmanship, with the concrete curing too quickly, and the resulting remedial work not recorded in the contractor's QA documentation. There were also incompatible additives in the concrete mix. The bridge deck had to be taken out, exposing all of the bars at the abutment tops for laps. Discussion was invited on how to ensure quality, spread the word and on the consideration of losing accreditation.	
2.2.4	<u>Questions:</u> RC – What contract was the procured under? KH – NEC4, procured under a regional framework with a competent contractor. More and improved site supervision is needed.	
2.2.5	CP – We currently have a similar discussion going on with a developer's scheme at present. We have heard of U beams filling up with water and it's unclear how to inspect inside them. KH – They should have drain holes, but these need to be away from the prestressing strands.	
2.2.6	CF – There is less supervision due to staff shortages/less resource. Everybody is at fault (designer, supervisor etc.) as these things should be carried through. The response of "this is normal" probably results from lacking supervision. Mentors are retiring and there is nobody to support engineers in training. KH – Trust is placed in the certification, as is the case with toasters or cars. This is a different situation. The process is set up to trust each other, with checks just in case.	
2.2.7	JS – We should consider whether box beams should be used and be aware that there are hazards when drilling into these beams to release water because it could be very alkaline after sitting in the concrete.	

2.2.8	CWr – we encourage precast site visits, particularly as the signatories/ companies involved may no longer be in place. We are looking to prevent issues in future maintenance, particularly resulting from low cover on precast concrete. We should make companies aware that these things are being monitored more. Budget provision needs to be made available for this. KH – the fabricator of the replacement beams has been made aware that they are being watched carefully, so they are completing things more carefully now themselves.	
2.3	Future presentations The following were discussed previously: Philip Gray – Westway expansion joints Keith Harwood – achieving social value through active travel and subway maintenance	
3.	MINUTES OF MEETING HELD ON 22 September 2022	
	Accuracy – agreed. Actions/Matters Arising	
3.1	2.4 – group members should advise any thoughts on future presentations. Project examples would be particularly welcomed.	ALL
3.2	3.3 – advise how to sign up for CROSS and National Highways alerts.	KH
3.3	3.5 – share future agendas with CRT in case they wish to attend presentations/sections of the meetings.	JS
3.4	3.6 – summarise case where COSS hadn't put siding possession into place for two weeks running, with very high advertised costs for SM to pass on to Colin Hall	CWo
3.5	3.7 – summarise case where it took 10 possession booking attempts to obtain access (due to Network Rail cancellations) and preclusion of underbridge units for SM to pass on to Colin Hall.	MW
3.6	3.8 – KD provided a link in relation to the formal process for bridge strikes – refer to section 9 of Bridge strike Protocol here: Prevention of strikes on bridges over highways (publishing.service.gov.uk)	
3.7	3.9 – no progress on obtaining a chair for the ALLG, but this has been raised at UKBB.	KH
3.8	3.10 – CP and CR are the only secretaries that have provided best work-related bridge contact details for Councils (name/telephone number/email addresses) for HRE use to date. JS to email individually.	JS
3.9	5.2 – Network Rail surety – CWr to feed back any further details in relation to Shropshire being asked for a bond of about 200%.	CWr
3.10	6.4 – KH has passed on summary comments and contact names for BridgeCAT to Matt Eglinton. He is looking to develop something lighter, more transportable and more usable.	

3.11	6.7 – All to advise on any research projects they are aware of for the Bridge Owners Forum.	ALL
3.12	7.1 – All to advise any Network Rail queries to SM (Other actions superseded/closed out)	ALL
Standing Items		
4.	UK RLG/ADEPT FEEDBACK – ADEPT ENGINEERING BOARD/ASSET MANAGEMENT BOARD	
4.1	The consultation on the use of heavier tankers during the period of fuel disruption will be released on 7 th March. The increase would be from 44 tonnes up to 48 or 50 tonnes. Tankers would only be able to participate at times of fuel disruption and if it is safe. There may be potential implementation problems due to costs/challenges in pre-approving routes. <i>Post meeting note – publication is delayed</i>	
4.2	JS raised concerns over the potential lack of assessment information and national abnormal load routes not being maintained. CWr advised pointing out the financial implications due to assessments/bridge strengthening etc. It would also take ages to complete the assessments. Rural communities are most affected, but these are more difficult to get to. CP advised that hauliers could use blanket orders on routes. JH expressed concerns as to how to check/enforce vehicle weights during an emergency situation.	
5.	UK BRIDGES BOARD/BRIDGE OWNERS FORUM	
5.1	The Department for Transport has offered to fund research projects through LAs, with a steering group from ADEPT. UKBB priorities include: • Bridge collapse reporting (i.e. do it through well managed highways, railways accident and investigations board or any other ideas? Richard Fish will lead) • SAVI updates (user manual, extending into carbon calculator, extending usefulness, with Hertfordshire County Council) • Updating bridge performance guidance (through Surrey, led by ADEPT, AMc has volunteered to lead)	ALL
5.2	All to advise if they would be prepared to act on a BCI steering group. TfL have updated their BCI guidance and asked for review by this steering group. CWa queried an update to the ADEPT commuted sums guidance (2017 version) and KH advised that an update was imminent. <i>Post meeting note: AMc volunteered to be on the BCI steering group and the SAVI updates group</i>	
5.3	SM advised that BICS Steering group are hoping for some form of accreditation through ICE/IStructE. Draft notes from a recent meeting advised 28 inspectors and 30 senior inspectors passed (but this has jumped as assessors are included in these figures) and 80 candidates awaiting. There is a possibility of bursaries for future candidates from the Rochester Bridges Trust. There was a discussion about trying to get BICS alternatives working with BICS.	

5.4	The Heavy and High Load Grid is being investigated by the Department for Transport, but there is no project in place to fix the issues yet. Longer/heavier vehicles and the consultation on the tankers are being considered.	
6.	NETWORK RAIL LIAISON	
6.1	David Castello is the best contact for Network Rail access issues. NwR also want an up to date list of contact details – all to action.	ALL
6.2	CP now chairs the Access Planning Group. The spreadsheet will continue to be circulated, with the access group meeting about 3 times annually. There were 163 possession requests, 81 cancelled for inspections, 13 cancelled for works. One theme identified was late COSS appointment. David Castello will now take the information from the spreadsheet to ASPRO heads to ask what has caused the issues. In one case a week long possession for emergency propping was cancelled due to rail strikes, with weekend possessions offered instead (which is unsuitable). CP to share current spreadsheet for updating.	CP
6.3	The group is trying to track down Network Rail bridge inspections for local authorities' use.	
6.4	CJ is trying to collaborate with Network Rail's local 5-year bridge tracker plan of works. KD advised that there were also customer liaison meetings (led by Tony Gomez in south-west). These would probably be worth co-ordinating with the access planning group. KD circulated a link to the customer liaison meetings during this National Bridges Group meeting.	
6.5	All to raise any other possession related queries to CP.	ALL
7.	LIAISON WITH OTHER GROUPS – BSPG, ALLG, HRESAF, C&RT	
7.1	KH advised of a meeting between Richard Parry (CE C&RT) and Mark Kemp/Hannah Bartram (President/CEO ADEPT) on 1 st March. A 5.5% cost increase for C&RT fees was agreed, but there is an outstanding legal problem in that C&RT advise that the agreement only covers minor maintenance. KH is proposing to debate major maintenance through this agreement with the C&RT. However, there will need to be a further agreement to resolve costs for a new bridge or a project that involves purchase of land and air rights are being raised. Agreements are currently only being considered where LAs are working under the Highways Act or completing their highway responsibilities.	
7.2	HRE have established the HRE Stakeholder Advisory Forum to provide comment and review on demolition or infill proposals prior to ministerial approval. KH currently representing ADEPT, but is seeking a replacement rep. All to advise if they, or a local group member, would be prepared to join the HRESAF.	ALL
8.	CODES, STANDARDS AND PUBLICATIONS	
8.1	The Parapet Height Protocol for Asset Owners and Managers has been agreed and this is available on the UKRLG website. KD will read this and	KD

	provide some feedback. https://www.ciht.org.uk/media/16954/parapet-height-protocol-document-v15-jan-2023-web.pdf	
8.2	The Definition of Asset Management Responsibilities: Bridges and Structures. RC will feed back on this. https://ukrlg.ciht.org.uk/media/16712/guidance-definition-of-asset-management-responsibilities-bridges-and-structures-version-18-february-2022.pdf	RC
8.3	The Bridge Owners Forum website and Guidance update – KH will update at the next meeting.	KH
8.4	Inspection Manual for Highway Structures – Neil Loudon thanked everybody for responding to survey of defects. This is now being reviewed by WSP and should be issued by the end of the year.	
8.5	The CIRIA 543 Bridge Detailing Guide – CIRIA are hoping to update it and KH offered ADEPT NBG support (but not for any payment towards it).	
Discussion Items		
9.	RIGHTS OF WAY STRUCTURES	
9.1	A group of 10, which is a mixture of bridge engineers and Rights of Way staff, has been formed and met three times since the last National Bridges Group meeting. The group discussed ownership, inspections, parapets, maintenance plans, standard solutions/designs, developers, procurement and sources of reference. About half of the discussions have been on inspections – who (competence), what level and how frequently. Text for typical Departures from Standard is being looked at instead of signed off designs as local authorities can't share design liabilities. There are some areas of definite agreement, but also some areas of direction only because there are differences in approach/organisational structure between the different local authorities.	
9.2	JS to capture progress on inspection plans and to establish a new person to progress the group.	JS
10.	RAC FOUNDATION FOI FINDINGS	
10.1	A 97-98% return has been achieved, but the changed questions have caused issues. The requirement for percentages instead of numbers has not helped. A press release is expected next week to cover a State of the Nation type report. There is a desire to continue with this FOI. Concerns were expressed that comments can't be given on questions asking for opinions.	
11.	USE OF CAPITAL FUNDING FOR INSPECTIONS	
11.1	KD advised that principal inspections can be completed through capital funding because section 4.6.8 of the previous "Management of Highway Structures 2005" justifies it through the mention of SORP and RAM. A "major inspection" could be pushed to mean a general inspection, principal inspection or a special inspection. However, it would be worth keeping inspections in revenue to maintain that funding whilst it is available. KH	

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14.1	Another indexed version of SAVI will be uploaded to the UKBB website within the CIHT by the end of March.	
14.2	MW - Bridge height data been asked for the AA Truckers' guide. It was advised to use what is signed and advise no changes unless known differently.	
14.3	MW advised that BD31/01 has been withdrawn, so asked what could be used now. Group members advised that CD 350 was listed as replacing this, plus CD358, CD539, CIRIA C786 and PD 6694 were also referenced.	
14.4	MW asked what to do in PTSIs (post-tensioned special investigations). The group advised to refer to Donald Pearson-Kirk or CS 465. Concern was expressed that PTSIs are no longer being completed, nor are any tests/checks on anchored retaining walls and half-joints.	
14.5	Hannah Bartram joined the meeting to thank Kevin Dentith for his involvement in the ADEPT bridges group and UKBB over the years.	
14.6	HRE has been advised that it should consider evaluating carbon for their projects. Edinburgh City do this, and Devon CC are getting data from their contractors. All agreed that tools are needed. The ADEPT Future Highways Research Group has developed Carbon Calculation and Accounting Standards (CCAS). Link to IStruct E carbon tool, with Victoria Walsh of Devon CC currently testing it: The Structural Carbon Tool Version 2 - The Institution of Structural Engineers (istructe.org)	
15.	FORTHCOMING CONFERENCES / EVENTS	
15.1	Bridges 2023 , 8 th /9 th March 2023, CBS Arena, Coventry Concrete Bridge Development Group 26th Annual Conference , 28 th June 2023, Institution of Structural Engineers, London NCE Bridge Design and Management 2023 , 28 th June 2023, America Square Conference Centre, London Highways UK , 18 th /19 th October 2023, NEC, Birmingham	
16.	DATE OF NEXT MEETING	
16.1	Wednesday 28 th June 2023, MS Teams, theme to be around carbon Wednesday 20 th September 2023, MS Teams Future potential themes include the major bridge risks of Scour, PTSIs, hidden defects, half-joints etc.	