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<p>1 Monday, 28 January 2019</p> <p>2 (9.43 am)</p> <p>3 CHAIRMAN: On behalf of the Commission, apologies to all of</p> <p>4 you for keeping you waiting, especially, Mr Khaw --</p> <p>5 I appreciate that you were going to commence this</p> <p>6 morning. We haven't eaten into your time. You will</p> <p>7 have the benefit of being able to extend it insofar as</p> <p>8 you wish; okay?</p> <p>9 But there were a number of issues which we had to</p> <p>10 deal with this morning. Thank you.</p> <p>11 MR PENNICOTT: Sir, can I, albeit very briefly, deal with</p> <p>12 one of those matters?</p> <p>13 During the course of the adjournment of the hearing,</p> <p>14 while we've all been busy preparing our closing</p> <p>15 submissions and addresses, the Hong Kong Institute of</p> <p>16 Engineers issued a press release. That is in the public</p> <p>17 domain and is also now included in the hearing bundle.</p> <p>18 One of the experts who has given evidence to the</p> <p>19 Commission, that is Associate Professor Albert Yeung,</p> <p>20 felt it appropriate to issue his own press release in</p> <p>21 answer to the HKIE press release. In Prof Yeung's press</p> <p>22 release, he saw fit to make certain observations about</p> <p>23 Prof Don McQuillan, the Commission's appointed expert,</p> <p>24 and insofar as I need to deal with those I will do that</p> <p>25 tomorrow, during the course of my closing address to</p>	<p>1 we have to live with it and simply get on and complete</p> <p>2 this Commission of Inquiry.</p> <p>3 CHAIRMAN: Thank you. Does anybody else wish to say</p> <p>4 anything? Good.</p> <p>5 I will just say that as far as the Commission is</p> <p>6 concerned, the evidence that it will take into account</p> <p>7 is the evidence that has been put before the Commission</p> <p>8 during the course of these proceedings. It is not the</p> <p>9 Commission's function to take evidence by way of matters</p> <p>10 that appear in the media or that are in all respects</p> <p>11 independent of these proceedings. We just wish that to</p> <p>12 be clearly stated.</p> <p>13 Good. Thank you.</p> <p>14 Closing submissions by MR KHAW</p> <p>15 MR KHAW: Good morning, Mr Chairman. Mr Chairman and</p> <p>16 Prof Hansford, at the end of the last hearing,</p> <p>17 Mr Chairman mentioned what you saw at the Federal Court</p> <p>18 of Appeal in Miami many years ago. Today I'm not sure</p> <p>19 who is now in control of the red light button and the</p> <p>20 green light button but --</p> <p>21 CHAIRMAN: We are.</p> <p>22 MR KHAW: I'm sure. I take this reference to the Miami</p> <p>23 experience as a kind reminder that I have to adhere to</p> <p>24 the time limit imposed. Hopefully the red light button</p> <p>25 will not need to be pressed, at least for my part.</p>
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<p>1 you.</p> <p>2 Also, in Prof Yeung's press release, he made certain</p> <p>3 criticisms of Dr Glover, who as you will recall was the</p> <p>4 MTR's expert. Dr Glover himself has written to the</p> <p>5 Commission, refuting and denying certain observations</p> <p>6 and criticisms that were made about him by Prof Yeung,</p> <p>7 and Dr Glover's email is available for anybody who</p> <p>8 wishes to read it, and that's gone into the bundles,</p> <p>9 Dr Glover's email. As I say, he refutes in fairly</p> <p>10 stringent terms the assertions that were made about him</p> <p>11 by Prof Yeung.</p> <p>12 Sir, I'm not proposing to say any more about this</p> <p>13 episode. It's a little unfortunate but there it is.</p> <p>14 Sir, obviously if Mr Boulding for the MTRC wishes to</p> <p>15 say anything else, I'm not going to stop him.</p> <p>16 CHAIRMAN: Mr Boulding?</p> <p>17 MR BOULDING: Sir, yes, good morning. I don't propose to</p> <p>18 say anything more at this moment. It's obviously very</p> <p>19 unfortunate that Associate Professor Yeung felt it</p> <p>20 appropriate to go to the press. Particularly, as</p> <p>21 Dr Glover points out, he made various allegations which</p> <p>22 indeed, if there is anything in them, ought to have been</p> <p>23 put to Dr Glover during the course of the hearing.</p> <p>24 But there we have the correspondence. As I said,</p> <p>25 it's most unfortunate that this event has occurred, but</p>	<p>1 One year ago, I never expected that I would be given</p> <p>2 this three-month extensive training of steel</p> <p>3 reinforcement, coupler connections, and matters</p> <p>4 regarding structural safety. Notwithstanding the free</p> <p>5 tutorials on engineering issues which have been provided</p> <p>6 by my teammate, Mr Chow, from time to time, I still</p> <p>7 don't claim to, although I keep pretending to,</p> <p>8 understand terms such as "moment", "stress",</p> <p>9 "redundancy", perhaps "butt-to-butt", "honeycombing",</p> <p>10 although I think I know what these terms mean in other</p> <p>11 contexts.</p> <p>12 I have to highlight the knowledge of Mr Chow in this</p> <p>13 area so I can conveniently excuse myself from dealing</p> <p>14 with section D of our closing submissions today and</p> <p>15 I hope this will pass the Commission a hint, that is in</p> <p>16 relation to section D, please direct the questions to</p> <p>17 Mr Chow.</p> <p>18 Our written closing consists altogether of five</p> <p>19 sections. Section A is an overview. Section B is</p> <p>20 a summary of the government's control and monitoring</p> <p>21 mechanisms. Chairman and Prof Hansford would recall</p> <p>22 that in fact most of the details regarding our</p> <p>23 mechanisms have been covered in our opening submissions,</p> <p>24 but I will just highlight a few key points in today's</p> <p>25 address.</p>

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<p>1 Section C provides an analysis of the problems and 2 deficiencies, mainly on the part of MTR and Leighton. 3 Again, I will not repeat all the evidential details that 4 we hope have been set out in our written closing 5 submissions. 6 After section C, I will deal with section E, which 7 I hope should also be brief, as the government has 8 already put in place some of the improvement measures as 9 acknowledged by Mr Rowsell. We have also stated that we 10 will consider all his recommendations in our written 11 closing. 12 Finally, Mr Chow will deal with section D, ie the 13 engineering issues. Of course, in our oral closing, we 14 will refer to the closing submissions by other parties. 15 In particular, we are glad to know that on a number of 16 issues, the Commission's legal team are in agreement 17 with us. Of course we will also identify some of the 18 matters on which we may take a slightly different view. 19 By the way, we have also prepared a bundle of key 20 documents for the Commission's reference. Of course 21 this is also to demonstrate that we have quickly 22 acknowledged Mr Rowsell's recommendation that sometimes 23 extensive cross-referencing may not be desirable, so we 24 have tried to put it in one composite bundle. 25 As a starting point, if I may, I will just very</p>	<p>1 contractual or criminal liability. We fully appreciate 2 that. However, given these particular terms of 3 reference, it is important to examine the contractual 4 requirements as and where necessary, particularly when 5 we are dealing with the problems and deficiencies 6 regarding the implementation of this particular project. 7 Then if we can take a look at (b)(i): 8 "the adequacy of the relevant aspects of the MTRCL's 9 project management", et cetera. 10 Then it also touches upon "system on reporting to 11 government, systems and processes for communication 12 internally and with various stakeholders", et cetera. 13 Again, here, we understand that the Commission is 14 not inclined to rule on the legal submissions regarding 15 the design change. I probably won't spend much time on 16 the design change. In fact, as rightly pointed out in 17 Mr Pennicott's written submissions, it is perhaps not 18 the forum to determine whether the change would require 19 acceptance from the BD. But I believe in Mr Pennicott's 20 closing submissions and in our closing submissions, we 21 have tried to point out that at least the two 22 submissions relied on by Leighton regarding the 23 temporary works in relation to strutting, et cetera, 24 would not constitute consultation submissions. 25 I believe that point has been made clear in both of our</p>
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<p>1 quickly refer the Commission to the terms of reference 2 again, which will help define the scope of the matters 3 which may need to be canvassed in parties' closing 4 submissions. If I may ask the Commission to have a look 5 at (a)(i). 6 The terms of reference, paragraph (a)(i): 7 "to inquire into the facts and circumstances 8 surrounding the steel reinforcement fixing works, 9 including but not limited to those works at locations 10 that have given rise to extensive public concern about 11 their safety since May 2018". 12 We believe that this has been dealt with in our 13 section C, when we tried to analysis parties' evidence 14 regarding the bar cutting incidents, et cetera. 15 (a)(ii): 16 "to inquire into the facts and circumstances 17 surrounding any other works which raise concerns about 18 public safety; and 19 (iii) to ascertain whether the works in (i) and (ii) 20 above were executed in accordance with the Contract. If 21 not, the reasons therefor and whether steps for 22 rectification have been taken". 23 In relation to this particular paragraph, we fully 24 appreciate the point made by Mr Pennicott and his team 25 that it is not for this Commission to determine any</p>	<p>1 written closing submissions. 2 Then (b)(ii): 3 "the extent and adequacy of the monitoring and 4 control mechanisms of the Government, and the 5 implementation thereof". 6 That has been fully addressed in our section B 7 hopefully. 8 And finally (c), regarding recommendations on 9 suitable measures for the purpose of improvement and 10 promoting public safety and assurance on quality of 11 works; that has been covered in our section E. 12 Before we leave the terms of reference, I only wish 13 to point out that although the terms of reference do not 14 specifically single out the issue of structural safety, 15 the government agrees, and I'm sure it is agreed also by 16 other parties, that this is an important issue which 17 must be addressed in order to deal with the public 18 concerns. 19 We note the point made by Mr Pennicott and his team 20 in paragraph 284 of their closing submissions that the 21 Commission, I quote, "must decide the matter and make 22 its determinations on the available evidence before it." 23 On behalf of the government, we only wish to 24 emphasise that when it comes to public safety, we are 25 not prepared to take any risk and we would rather err on</p>

<p style="text-align: right;">Page 9</p> <p>1 the side of caution. The reason why we say so is that 2 we note that Prof Au, as a matter of prudence, suggests 3 that internal stresses at construction joints inside the 4 connections between the EWL slab and the east diaphragm 5 wall would need to be checked and verified numerically. 6 Further, there is no dispute, so far at least, that 7 stage 3 of the holistic plan, as devised by MTR and 8 accepted by the government, would need to continue, ie 9 stage 3, namely the overall structural assessment to 10 determine the structural capacity and stability for the 11 EWL and NSL slabs and station extension box. 12 In the circumstances, we suggest that any 13 determination on structural safety by the Commission for 14 the purpose of this Inquiry should be made subject to 15 the results of further tests and calculations, if the 16 Commission feels that such results are necessary. This 17 will, we believe, allow the public to have more 18 confidence and more concrete evidence informing a view 19 on structural integrity. 20 If I may then refer to our written closing, 21 section A, which is an overview. 22 CHAIRMAN: Sorry, I just want to make sure I understand what 23 you are saying -- that whatever our findings, more 24 especially in respect of safety, which of course is the 25 core issue, I think, as far as the general public are</p>	<p style="text-align: right;">Page 11</p> <p>1 Of course, the point we have made in our closing is 2 that, in the normal course of events, it is incumbent 3 upon those who try to prove that the design is safe to 4 come up with sufficient proof, with all the necessary 5 calculations. But we don't seek to argue or enter into 6 any tedious debate as to who should carry out the 7 calculations. Prof Au has already compiled a list of 8 the issues for the purpose of his intended calculations. 9 But I think the remaining question is when will all the 10 necessary data be available for him to make the 11 calculations? He has also set out the scope of the data 12 he requires for the purpose of the calculations. 13 I believe once the raw data are available, then 14 calculations can be made. 15 CHAIRMAN: Shall I explain my concern? 16 MR KHAW: Yes. 17 CHAIRMAN: My understanding of this Commission of Inquiry is 18 that we are obliged, subject to any extension to which 19 the Chief Executive may agree, to make a report, and to 20 make a definitive report. If we make a report which is 21 conditional upon more tests, it's not a definitive 22 report. 23 Moreover, if those further tests create ambiguity as 24 to the issues upon which we have been obliged to report, 25 we then have to come back again and hear some more</p>
<p style="text-align: right;">Page 10</p> <p>1 concerned, and it was public disquiet that really was 2 the underlying cause for this Commission, their central 3 and abiding concern is safety. 4 So what you are saying here is whatever findings we 5 come to, you would suggest should in prudence be made 6 subject to any extra tests that still fall to be 7 concluded? 8 MR KHAW: Yes. Of course, if the Commission, after taking 9 into account all the expert evidence, finds that such 10 further calculations and tests would be able to give the 11 public more evidence or more confidence in forming 12 a view regarding structural integrity, we would say the 13 Commission's final determination on the issue of safety 14 should be made subject to the availability of such 15 calculations and tests. 16 COMMISSIONER HANSFORD: Isn't it the case, Mr Khaw, that it 17 would be possible for such calculations to be done 18 before the Commission reaches its conclusion and 19 publishes its report? 20 MR KHAW: Yes. 21 COMMISSIONER HANSFORD: And that would be even more 22 satisfactory? 23 MR KHAW: Well, two points here. We have seen submissions 24 to the effect that we suggested calculations but we have 25 not yet come up with a full set of calculations.</p>	<p style="text-align: right;">Page 12</p> <p>1 evidence, do we not? 2 So what we would be giving to government, pursuant 3 to our mandate, is not a definitive report, but is 4 a report which says, "This is what we have so far", and 5 depending on what comes up, we may ask you to continue, 6 so that in effect what we are giving the government is 7 an interim report. 8 I'm not saying that would be wrong, but I think we 9 have to understand what pathway we are treading here, 10 and it seems to me that at the end of the day, while 11 obviously the great mass of material and findings will 12 be in the report that is to be submitted, what you are 13 suggesting is, if there is other evidence still to be 14 gleaned by way of tests -- calculations, mathematical; 15 or tests, practical -- then really what we should do is 16 submit an interim report in the sense that we are saying 17 it cannot be conclusive until the results of those tests 18 have (a) been established and (b), if necessary, made 19 the subject of further submissions. 20 MR KHAW: Mr Chairman and Professor, in fact that could be 21 one way of going about it, but as pointed out by 22 Prof Au, the calculations from his point of view could 23 be -- well, at least rough calculations could be 24 achieved fairly quickly, probably within a few days. 25 But I think his limitation is due to the availability of</p>

Page 13	1 all the raw data that he requires. I believe it is his 2 evidence that if the raw data are available, he can do 3 it fairly quickly, most probably within the time that 4 the Commission is required to submit the final report. 5 COMMISSIONER HANSFORD: Mr Khaw, is it clear from what's 6 been submitted what raw data is required by Prof Au and 7 who should supply it? 8 MR KHAW: It is clear from Prof Au's list as to what raw 9 data would be required, I believe, because I believe he 10 has compiled a list setting out what he needs for the 11 purpose of doing the calculations. 12 CHAIRMAN: We -- I don't think -- 13 COMMISSIONER HANSFORD: I'm sorry, there was a second part 14 to my question -- we do have that, actually. 15 CHAIRMAN: Ah, here we are. 16 COMMISSIONER HANSFORD: But the second part of my question 17 who is to be supplied by, the raw data? I asked -- we 18 can go back in the transcript -- but for me it's two 19 things, one is what's required and two is who is 20 expected to provide it? 21 MR KHAW: Our position is that the raw data would need to be 22 provided by MTR or Leighton, and Atkins is also MTR's 23 designer, so those parties would be responsible for 24 supplying the raw data specified by Prof Au. 25 COMMISSIONER HANSFORD: I'm just very keen that this matter	Page 15	1 COMMISSIONER HANSFORD: Yes. 2 CHAIRMAN: Mr Boulding, just to remind us again -- because 3 it's an important issue, actually -- as far as the 4 further tests on the rebars into couplers is concerned, 5 I know you spoke about this before, but when, as at this 6 moment, do you imagine these tests can be concluded? 7 MR BOULDING: My recollection is that we talked about this 8 on Thursday or Friday of last week, and the date of 9 4 February comes to mind, but if I'm wrong about that 10 I will be given -- I see -- 11 CHAIRMAN: No, you're not. That's quite right. I remember 12 that. 13 COMMISSIONER HANSFORD: Mr Boulding, what I think you told 14 us was: the tests would be done on the 1st and the 15 report would be provided on the 4th. 16 MR BOULDING: That accords with my recollection, Professor. 17 So it's 4 February. 18 COMMISSIONER HANSFORD: Thank you. 19 CHAIRMAN: Good. Thank you. 20 MR KHAW: If I may continue -- 21 CHAIRMAN: Sorry, I'm interrupting you again, but I think we 22 need to just clear this. 23 On that basis, it seems to me that we are likely to 24 have the results of the new tests to be conducted on the 25 rebars into couplers by about 4 February.
Page 14	1 is concluded rather quickly. It seems to me -- and this 2 is obviously not a matter of law; I shall leave matters 3 of law to those of you in this room who are qualified to 4 speak on such matters -- but from a matter of common 5 sense it seems to me that if a party has a concern, the 6 party should take steps to satisfy that concern. 7 MR KHAW: Yes. 8 COMMISSIONER HANSFORD: That's the view I take. 9 MR KHAW: We certainly take -- 10 COMMISSIONER HANSFORD: Prof Au has a concern and it would 11 seem to me sensible that he takes steps or the 12 government takes steps to satisfy Prof Au's concerns. 13 MR KHAW: Yes. 14 What we will at least try to do is we will take 15 steps to see whether the raw data required will be 16 available within a short period of time. Of course that 17 would need cooperation from the other parties. If that 18 can be done, perhaps we can report to the Commission, 19 either today or tomorrow, as to when that can be 20 achieved. 21 COMMISSIONER HANSFORD: All right. 22 CHAIRMAN: Good. Thank you. 23 I have been reminded, of course, it's in the bundle, 24 that thing. I had overlooked that. Thank you. 25 MR PENNICOTT: H27, page 45878.	Page 16	1 MR KHAW: Yes. 2 CHAIRMAN: And, all being well, we should have the 3 mathematical calculations based on raw data to be 4 supplied sometime prior to, say, 20 February. Then, in 5 addition, you add to it the ongoing holistic openings 6 and tests, and by mid-February, shall we say, we would 7 have not necessarily all of it done but a very solid 8 weight of it will have been done. 9 On that basis, we may be able to actually bring in 10 what we are meant to do, which is a final report, but 11 obviously make note of the fact that other results may 12 be outstanding. 13 MR KHAW: Yes. 14 CHAIRMAN: So we are looking at a final report there as 15 opposed to an interim report. Thank you. 16 MR KHAW: Yes. We will bear that time line in mind. 17 Just to give Prof Hansford more assurance on your 18 second question: our position is always that if the raw 19 data are available, we will be happy to conduct the 20 tests. There's no question about that. 21 COMMISSIONER HANSFORD: Thank you. 22 MR KHAW: If I may continue with the overview of our written 23 closing submissions, under section A. We only wish to 24 add that no doubt the government is the ultimate owner 25 of this SCL project, and members of the public are the

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<p>1 end users. With the vast amount of public money spent  2 on this important railway project, the government and  3 the public at large are fully entitled to expect MTR to  4 manage the project professionally and competently in  5 accordance with all the obligations, contractual or  6 otherwise, it accepted and agreed to undertake.</p> <p>7 In paragraph 1 of our written closing, we have  8 stated that in view of MTR's proven track record -- this  9 is the last five lines -- and the government's payment  10 of project management fees in the sum of around  11 HK\$8 billion to MTRCL for the SCL project, MTRCL ought  12 to have provided the required skills and care reasonably  13 expected of a professional and competent project  14 manager. Disappointingly, we say, MTR failed to  15 deliver.</p> <p>16 Paragraph 2 sets out a summary of the problems and  17 deficiencies exposed during the course of the Inquiry,  18 and they include the following: failure to follow the  19 required supervision and inspection requirements;  20 absence of contemporaneous records of the required  21 supervision and inspection and compilation of  22 retrospective records; lack of proper investigation and  23 implementation of preventive measures despite knowledge  24 of occurrence of bar-cutting incidents and defective  25 works; unauthorised alteration works at the top of the</p>	<p>1 applicability of QSP have been rejected by the  2 Commission's legal team. That can be found in their  3 submissions, paragraphs 183 to 185.</p> <p>4 In the circumstances, if Leighton genuinely believes  5 it has done nothing wrong and believes it can be  6 conveniently shift the burden to other parties, it  7 starkly demonstrates not only their complete lack of  8 sense of responsibility but also a considerable degree  9 of corporate arrogance. But if they are now  10 strategically trying to take a position, in view of  11 potential claims, et cetera, then they are not truly  12 assisting this present investigation.</p> <p>13 In relation to paragraph 6 of the government's  14 written closing submissions, we have highlighted the  15 purposes that the holistic plan serves, ie to verify  16 the as-constructed conditions of the connections between  17 the platform slabs and the D-walls at locations with  18 gaps in the documentation -- that's purpose 1 -- and  19 that was necessitated by the lack of as-built drawings  20 and records as confirmed by the MTR witnesses; and (2)  21 to verify the work quality of the coupler connections in  22 view of the allegations on the bar cutting incidents.</p> <p>23 I wish to just say a few more words regarding  24 paragraph 7. At 7(1) we say: when various parties  25 entered into agreements and assumed their obligations,</p>
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<p>1 east diaphragm wall; and also failure to maintain proper  2 as-built records.</p> <p>3 In relation to this paragraph, we wish to add it is  4 somewhat startling to note that Leighton, when faced  5 with clear and concrete evidence regarding its failure  6 in different aspects, including supervision, inspection  7 and record-keeping, still maintains that the system  8 worked and is still reluctant to acknowledge or admit  9 any of the deficiencies which have been clearly revealed  10 by evidence.</p> <p>11 Their primary position is that, "If the structure is  12 safe, it shows that our system works." I believe that  13 is the main theme of their submissions, because they say  14 at the outset of their submissions that the remit of  15 this Inquiry is safety.</p> <p>16 But this blatantly ignores the importance of  17 compliance with all the contractual and statutory  18 requirements. When it comes to the requirements under  19 the QSP, Leighton now comes up with an argument that  20 either the QSP does not apply to the EWL slab and NSL  21 slab or the QSP only applies to coupler assemblies with  22 a ductility requirement. The letter, as rightly pointed  23 out by Mr Pennicott and his team, is self-evidently  24 an ex post facto argument conceived by Leighton's legal  25 team. In fact all such arguments regarding</p>	<p>1 whether contractual, statutory or otherwise, including  2 those in relation to steel reinforcement fixing and  3 coupler installation works in this project, they must  4 have accepted that the relevant requirements and  5 procedures were imposed for the purpose of ensuring  6 safety standards and must therefore be strictly  7 followed.</p> <p>8 In this regard, when the parties entered into the  9 contract and accepted those obligations, presumably they  10 must have accepted that those obligations were imposed  11 for the purpose of ensuring safety, and in this regard  12 we say compliance and safety go hand in hand in that  13 particular context.</p> <p>14 But at the same time we have no dispute that for the  15 purpose of this Inquiry, the safety issue can be  16 considered as a separate and distinct issue from  17 compliance. Perhaps some doubts arise from the sentence  18 structure we use in subparagraph (2), when we say "as if  19 it were an issue distinct from compliance of contractual  20 or statutory requirement". That is the first sentence  21 of subparagraph (2). I believe Mr Pennicott picked that  22 up and also commented on this part of our submission.</p> <p>23 But I just want to make it clear that in fact we  24 have no dispute that for the purpose of this particular  25 Inquiry, safety can be treated as a distinct issue from</p>

<p style="text-align: right;">Page 21</p> <p>1 the issue of compliance.</p> <p>2 But 7(2) we continue to say in line 3: MTR and</p> <p>3 Leighton rely on one single test result done by BOSA to</p> <p>4 argue that "we actually don't need to do that much to</p> <p>5 keep the structure safe", or to say, "Your standards</p> <p>6 were too stringent."</p> <p>7 The reason why we put 7(2) is one should not be too</p> <p>8 quick to try to jump on the bandwagon by relying on only</p> <p>9 one single test to say whether the standards imposed</p> <p>10 were too stringent or not.</p> <p>11 We continue to say insofar as they now contend that</p> <p>12 the standards could be lowered purely from the</p> <p>13 perspective of assessing structural safety, ie in</p> <p>14 terms of strength, it is submitted that (a) such</p> <p>15 arguments cannot exonerate them from or lessen their</p> <p>16 responsibilities and they can at best be regarded as</p> <p>17 "mitigating factors"; and (b) more examples need to be</p> <p>18 tested to ascertain structural safety and this has been</p> <p>19 agreed by the MTR. I believe that relates to the</p> <p>20 Commission's previous discussion with Mr Boulding</p> <p>21 regarding further tests on rebars. However, if they are</p> <p>22 now attempting to alter the contractual or statutory</p> <p>23 requirements which they have undertaken by arguing that</p> <p>24 the requirement of a fully engaged coupler was not</p> <p>25 required in the first place, this would be a blatant and</p>	<p style="text-align: right;">Page 23</p> <p>1 that it's a substantial difference between our team and</p> <p>2 Mr Pennicott's team. It's really a matter of judgment</p> <p>3 as to how one sees, after analysing all the expert</p> <p>4 evidence. But as I have already said, we would be happy</p> <p>5 to conduct the tests and calculations suggested by</p> <p>6 Prof Au.</p> <p>7 COMMISSIONER HANSFORD: Which, Mr Khaw, is therefore</p> <p>8 a change in stance from your final sentence of 7(3); is</p> <p>9 that correct? In 7(3), final sentence, you assert:</p> <p>10 "As a matter of principle, it should be incumbent</p> <p>11 upon the parties who assert that the design for the</p> <p>12 unauthorised alteration is safe and better than the</p> <p>13 accepted design to come up with proof supported by</p> <p>14 calculations."</p> <p>15 I think what we are now saying is, provided it has</p> <p>16 all the data, the government will take on that task.</p> <p>17 MR KHAW: Professor, we say, as a matter of principle, this</p> <p>18 statement, if I say so, remains correct, in the sense</p> <p>19 that in the normal course of events, if a party seeks to</p> <p>20 have approval from the authority regarding a particular</p> <p>21 change in design, et cetera, then it is incumbent upon</p> <p>22 that party to come up with sufficient proof, with</p> <p>23 sufficient evidence.</p> <p>24 But here, after we have heard all the evidence from</p> <p>25 the experts, Prof Au comes up with the idea that further</p>
<p style="text-align: right;">Page 22</p> <p>1 unacceptable attempt to move the goalposts and rewrite</p> <p>2 the contracts.</p> <p>3 7(3) is, we believe, important. We say: on the</p> <p>4 relevant engineering issues, the government submits that</p> <p>5 it is not necessary to determine which expert's</p> <p>6 professional judgment is more reliable and should</p> <p>7 therefore be adopted. Matters of opinion on structural</p> <p>8 safety differ for many reasons including the hypothesis</p> <p>9 that each expert has adopted and whether the experts</p> <p>10 form their opinion from the research and development</p> <p>11 perspective or from a more conservative engineering</p> <p>12 perspective.</p> <p>13 We have just discussed the point raised by Prof Au</p> <p>14 and I do not wish to repeat that. He has suggested</p> <p>15 further numerical calculations for the purpose of</p> <p>16 obtaining more confidence in forming a conclusive view</p> <p>17 on the structural integrity.</p> <p>18 I understand that Mr Pennicott and his team take</p> <p>19 a different view on this point. We believe that this is</p> <p>20 really a matter of a judgment call after analysing all</p> <p>21 the expert evidence. One may say, from a particular</p> <p>22 perspective, evidence is already sufficient for one to</p> <p>23 come to a particular view. Maybe from a more</p> <p>24 conservative engineering perspective, more tests and</p> <p>25 calculations would need to be done. I don't believe</p>	<p style="text-align: right;">Page 24</p> <p>1 calculations would be required, and on that basis he is</p> <p>2 happy to take on this particular task of providing us</p> <p>3 with further details.</p> <p>4 COMMISSIONER HANSFORD: I understand. Thank you.</p> <p>5 MR KHAW: Subparagraph (4) deals with the continuation of</p> <p>6 the holistic plan. I believe I don't wish to labour</p> <p>7 this point further, but we have pointed out that in fact</p> <p>8 Dr Glover also agrees that stage 3 of the holistic plan</p> <p>9 would be of value.</p> <p>10 And 8, last but not least, the government is fully</p> <p>11 aware of the importance of reviewing and evaluating its</p> <p>12 monitoring and control mechanisms in order to further</p> <p>13 strengthen and improve the same. The government is</p> <p>14 grateful for the very helpful and constructive</p> <p>15 recommendations made by Mr Rowsell, and Mr Rowsell has</p> <p>16 also expressed that he is glad to see that the</p> <p>17 government has already put in place some of the</p> <p>18 improvement initiatives. In fact I believe all the</p> <p>19 improvement initiatives that we have already put in</p> <p>20 place have been summarised in section E of our written</p> <p>21 closing submissions. I will come to that later on.</p> <p>22 Given the time, I don't wish to repeat all the</p> <p>23 details regarding our monitoring and control mechanisms.</p> <p>24 Perhaps I will just very briefly go through the broad</p> <p>25 points set out in our written closing. Page 8, B2, is</p>

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<p>1 in relation to entrustment to MTR. We have highlighted  2 in paragraph 14(2) both Mr Rowsell and Mr Huyghe agree  3 that "MTRCL is a very experienced organisation with  4 extensive experience and capability", and that it has  5 a "proven track record in delivering many major railway  6 projects". It is upon this basis that we believe we had  7 sufficient confidence initially to place our trust on  8 the MTR, given their previous track record, for the  9 purpose of the entrustment agreement.</p> <p>10 B3 sets out the "check the checker" approach, and  11 paragraph 17 deals with the communications between the  12 government and MTR and also other entities through  13 certain channels. At paragraph 19, we have also set out  14 the responsibilities of the MVC, ie Pypun in this  15 case. Mainly they have two roles. One is to carry out  16 monitoring and verification, ie by conducting the  17 audits to the activities and processes undertaken by the  18 MTR. They were also responsible for dealing with the  19 building regulations aspect. That has been set out in  20 paragraphs 19 and 20.</p> <p>21 There is one footnote under paragraph -- footnote 8  22 at page 13. We have made a comment on paragraph 124 of  23 Mr Rowsell's report: "MVC undertakes audits of project  24 procedures at the instruction of government". We only  25 wish to point out that the MVC carry out the audits at</p>	<p>1 than once a week, et cetera. The minimum qualifications  2 and experience of the quality control supervisor is to  3 be the same as the grade T3 TCP, as stipulated in the  4 Code of Practice.</p> <p>5 Then we also have the requirement regarding the  6 assignment of RGBC and RSC for quality control, to  7 provide full-time quality control of the site  8 supervision of the works and devise inspection  9 checklists, et cetera.</p> <p>10 Then a QSP, at subparagraph (3), is required to be  11 submitted to the BD prior to commencement of the  12 mechanical coupler works and should include the  13 following details.</p> <p>14 These are the three main standards that we have been  15 looking at for the purpose of analysing the problems and  16 deficiencies in the implementation of the system:</p> <p>17 (a) assignments of quality control supervisor of the  18 CP and quality control coordinator of the RGBC/RSC to  19 supervise the manufacturing process of the connecting  20 ends of the steel reinforcement bars, and the  21 installation of steel reinforcing bars to the couplers.</p> <p>22 (b) Frequency of quality supervision, which should  23 be at least 20 per cent of the splicing assemblies by  24 the quality control supervisor of the CP and full-time  25 continuous supervision by the quality control</p>
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<p>1 regular intervals and base their focus on elements that  2 are indicating the higher risk indicators from their  3 systematic risk assessment. Once the verification plan  4 was agreed, the MVC will directly liaise with MTR on the  5 audit arrangements and conduct the audits without the  6 need to seek the government's instructions on each of  7 those audits.</p> <p>8 The building safety regime has been set out in  9 paragraphs 21 all the way to 32.</p> <p>10 In fact, at paragraph 29, we can see that the  11 building safety control mechanism is implemented by the  12 government's BO team and also the MVC's BSRC team at  13 every stage of the construction of the station, Hung Hom  14 Station, at the design stage, construction stage and  15 also at the completion stage.</p> <p>16 B4.4 at page 19 perhaps is important, because it  17 deals with the specific requirements on steel  18 reinforcement and coupler installations. We have set  19 out the gist of the contents contained in the acceptance  20 letters issued by the BD.</p> <p>21 If we can just see a summary of the requirements at  22 paragraph 34: the CP should assign a quality control  23 supervisor to supervise mechanical coupler works,  24 determine the necessary frequency of inspection by the  25 quality control supervisor, which should not be less</p>	<p>1 coordinator of the RGBC/RSC of the mechanical coupler  2 works.</p> <p>3 (c) For couplers to be used at the top of pile cap  4 and transfer plate, the frequency of quality supervision  5 should be at least 50 per cent of the splicing  6 assemblies by the quality control supervisor and  7 full-time continuous supervision by the quality control  8 coordinator, et cetera.</p> <p>9 Then we also set out the actual requirements as  10 stated in the QSP, apart from the acceptance letters.  11 So 35 actually deals with how the requirements in the  12 acceptance letters found their way into the QSP. So  13 basically and essentially they are in relation to the  14 same standards.</p> <p>15 Perhaps before I move on to another issue, in  16 section B we have dealt with one argument which was  17 initially raised by MTR. It is at page 16,  18 paragraph 27. Mr Chairman and Professor would probably  19 recall that at the opening submissions of MTR and also  20 during the course of the proceedings, they raised  21 a point regarding the applicability of the BO in  22 relation to the works under the project. I note that  23 this point is not further analysed in MTR's closing  24 submissions, but in any event we set out our  25 observations in this regard from paragraphs 23 to 28 of</p>

<p style="text-align: right;">Page 29</p> <p>1 our written closing, just for the sake of completeness. 2 But in any event our stance is that it is not 3 necessary to actually come to any conclusive view 4 regarding the applicability of the BO in this context, 5 because the acceptance letters and the IoE actually 6 speak for themselves, if one talks about the standards 7 required. 8 If I may then turn to page 22, that is the last bit 9 of section B -- we have set out certain arguments on the 10 supervision and inspection requirements advanced by both 11 MTR and Leighton during the course of this Inquiry, and 12 I believe most of them have been dealt with in our 13 written closing and also in the Commission's legal 14 team's closing. I understand that most of these 15 arguments have been rejected by Mr Pennicott and also 16 his team. 17 If I may just very quickly go through them, since we 18 are on this topic, regarding the requirements under the 19 QSP. Paragraph 38: it was suggested that the QSP 20 referred to above does not apply to the EWL slab. We 21 have set out the joint statement of Mr Rowsell and 22 Mr Huyghe, to the effect that they agreed that "MTR and 23 Leighton should have followed the QSP requirements 24 regarding the logging, execution and filing of the 25 record sheets for coupler inspection", and we have also</p>	<p style="text-align: right;">Page 31</p> <p>1 times when mechanical coupler works are underway. 2 I believe such analysis also immediately dismisses 3 another point that MTR sought to introduce by way of 4 re-examination of Mr James Ho. That has been stated in 5 paragraph 40 of our written closing. That is the point 6 as to whether the term "splicing assemblies" as stated 7 in the QSP actually means the finished product of 8 coupler plus the two rebars which are engaged and not 9 the process. I believe Mr Rowsell's opinion also puts 10 this point beyond any doubt. 11 The concluding remarks for our section B can be 12 found in paragraphs 41 and 42 at page 26: it is clear 13 from the above that the government's mechanisms for 14 monitoring and control of the SCL project are robust and 15 comprehensive. Although not directly involved in 16 supervision of the steel reinforcing and coupler 17 installation works, it has laid down a set of detailed 18 requirements, which are familiar to MTR and the 19 registered building professionals and contractors, 20 et cetera. 21 As Mr Rowsell said in his report: 22 "The organisational structure and governance 23 arrangements they [MTR] have established for the project 24 appear to me to be robust and appropriate for the 25 delivery of the entrustment activities. They are in</p>
<p style="text-align: right;">Page 30</p> <p>1 referred to Mr Paulino Lim's evidence, Paulino Lim of 2 BOSA, who actually gave the evidence that he had no 3 doubt that the QSP requirements applied to both the 4 D-walls and the platform slabs. 5 Just for the Commission's reference, the same 6 argument has been rejected by the Commission's legal 7 team in paragraph 183 of their closing submissions. 8 Paragraph 39 raises a point -- in fact it is our old 9 friend, this term "full-time and continuous 10 supervision". I believe Mr Rowsell's report has put 11 this point beyond doubt, and in fact in the government's 12 closing and also in Mr Pennicott's closing we are in 13 agreement that Mr Rowsell's point is also consistent 14 with Mr Humphrey Ho's evidence, when he talked about the 15 meaning of this requirement, "full-time and continuous 16 supervision". 17 Notwithstanding various arguments in this respect, 18 it is after all a very simple concept which should not 19 be twisted by convoluted legal arguments. 20 Mr Commissioner and Mr Chairman can see our quotation of 21 Mr Rowsell's report at page 23. We have also quoted 22 Mr Humphrey Ho's evidence in subparagraph (2). 23 In essence, the Commission's legal team is in full 24 agreement with us on this point, namely a quality 25 control coordinator is required to be present at all</p>	<p style="text-align: right;">Page 32</p> <p>1 line with what I would expect for this type of major 2 project." 3 Then if I may move on to briefly discuss section C. 4 Perhaps I will just highlight a few points which we may 5 have taken a different view from the Commission's legal 6 team. If I may start from paragraph 50 at page 31 of 7 our written closing. We have set out the inherent and 8 also somewhat glaring inconsistencies found in the 9 evidence of Mr Pun and Mr Cheung of Fang Sheung. I note 10 that in the Commission's legal team's closing 11 submissions, they have taken the view that our analysis 12 of Mr Pun's evidence may be, if I quote their words, 13 "unnecessarily harsh and largely unwarranted". Again, 14 this may be a difference in terms of the ultimate 15 assessment of one's credibility. Sometimes, how one 16 actually felt about one's evidence at the time when 17 someone was giving evidence may be different from how 18 one feels afterwards, when one is reading the 19 transcript. That may give rise to differences in 20 assessment of one's credibility as well. 21 But our analysis is purely based on what we saw and 22 heard from Mr Pun. In fact, we note that when he was 23 under cross-examination, Mr Chairman also raised some 24 queries as to why he tried to go around in circles and 25 why he tried not to tell us the truth.</p>



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1 If I may just give the Commission the reference in  
 2 the transcript. It's T13, page 32, line 17; page 35,  
 3 line 7; page 50, line 18; and page 53, line 8.  
 4 In the interests of time, I will not turn up the  
 5 transcript, but those are the areas in which the  
 6 Commission, during the course of Mr Pun's evidence,  
 7 raised certain queries regarding the truthfulness of his  
 8 evidence.  
 9 At C3 we dealt with MTR's and Leighton's failure to  
 10 comply with supervision and inspection requirements.  
 11 Again, I don't wish to repeat the details here,  
 12 particularly in view of the fact that the Commission's  
 13 legal team has also come to the view that both the MTR  
 14 and Leighton failed to comply with the QSP regarding the  
 15 requirements for inspection and supervision. If I may  
 16 just give the Commission the reference in relation to  
 17 the Commission's legal team's written closing: that is  
 18 in their paragraphs 180 to 185 of Mr Pennicott's and his  
 19 team's closing submissions.  
 20 In relation to Leighton's new point that the QSP  
 21 only applies to coupler assemblies with a ductility  
 22 requirement, that has been dealt with also by the  
 23 Commission's legal team. Perhaps it may be appropriate  
 24 to just have a look at their analysis, which can be  
 25 found in paragraph 185 of their written closing.

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1 COMMISSIONER HANSFORD: Sorry, whose written closing?  
 2 MR KHAW: The Commission's legal team.  
 3 COMMISSIONER HANSFORD: Yes, I have it.  
 4 MR KHAW: Perhaps I should start from 184, where  
 5 Mr Pennicott and his team said -- when they were  
 6 referring to Leighton's submissions regarding this new  
 7 point:  
 8 "... advance an entirely new point with regard to  
 9 the non-applicability of the QSP. It is self-evidently  
 10 an ex post facto argument conceived by Leighton's legal  
 11 team. It is submitted that the contention is likely to  
 12 be incorrect. In a nutshell, Leighton seeks to argue  
 13 that, aside from the D-walls, the QSP only applies to  
 14 coupler assemblies with a 'ductility requirement' and,  
 15 in that regard, point to (a) appendix VIII of BD's  
 16 conditional acceptance letter which refers to 'ductility  
 17 requirement' and (b) certain drawings which contain the  
 18 annotation 'ductility zone'. Such drawings only apply  
 19 to the intersection of the D-wall and the NSL slab at  
 20 area A. So, it is reasoned, the QSP only applies to  
 21 that particular area. Whilst the government's and MTR's  
 22 response to this new contention is awaited, it is  
 23 pointed out that the QSP itself provides, inter alia,  
 24 'For the purpose of this document ... Seisplisce type II  
 25 (ductility coupler -- Use in any location).' In other

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1 words, the QSP applies to all ductile couplers and not  
 2 just ductile couplers within a ductility zone.  
 3 Further with regard to Leighton's contentions  
 4 considered in paragraphs 183 and 184 above, and as  
 5 referenced in a different context below, when, on  
 6 13 June 2018 Leighton submitted a 'certification of  
 7 completion of works' for, inter alia, the EWL slab  
 8 areas A, B and C, it was accompanied by a series of  
 9 'compliance statements' in respect of 'quality  
 10 supervision report'. Leighton's authorised signatory  
 11 clearly thought that the QSP applied to the EWL slab."  
 12 So that is Mr Pennicott's and his team's analysis.  
 13 I would only wish to add a few points in this  
 14 regard. If I may refer the Commission first to H9/4265.  
 15 This is the cover page of the QSP, and it says "Enhanced  
 16 site supervision and independent audit checking by MTRC  
 17 and RC for installation of couplers", and it says  
 18 specifically "type II -- Seisplisce standard ductility  
 19 coupler".  
 20 If we can then move to 4267, that is Mr Pennicott's  
 21 point, under 1, "Introduction to quality supervision  
 22 plan", it says expressly and specifically:  
 23 "For the purpose of this document", and then  
 24 type II, the second item, "Type II (ductility coupler --  
 25 use in any location)". So that has been picked up by

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1 Mr Pennicott.  
 2 If I can then turn to 4271, that's appendix A to  
 3 this particular QSP, at the end of this page you will  
 4 see the words:  
 5 "Use of type II coupler [ie ductile coupler] in any  
 6 location of the structure is allowed in ACI 318."  
 7 Then if we can go to some drawings just to complete  
 8 the picture. H2/440. If I may draw the Commission's  
 9 attention to the part with the heading, "Notes on  
 10 diaphragm wall couplers". It's at the right-bottom of  
 11 this particular page. Yes.  
 12 First of all, the relevant part of ductility zones  
 13 and ductility coupler is stated here under this note,  
 14 and note 1 provides:  
 15 "Couplers positioned within the zone shown below  
 16 shall be classified as ductility couplers."  
 17 Then if we move to note (c), note 2(c), we can see  
 18 the representation to type 2 mechanical splices. Then  
 19 note 4 says:  
 20 "As-built position of couplers to slabs shall  
 21 maintain minimum cover and shall be a maximum of 15mm  
 22 deeper into the slab than the theoretical level of the  
 23 connecting reinforcement."  
 24 So it is plain that the required ductility zones  
 25 cover the connection with EWL and NSL slabs.

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<p>1 In fact a similar diagram is reproduced in H3/701. 2 There is a particular section, "Typical ductility 3 coupler zones for the D-wall". Blow this up a bit, yes. 4 Under this diagram with the two shaded areas, we can see 5 the words, under this diagram, "Typical ductility 6 coupler zones for D-wall", which means that such 7 ductility requirement applies to the D-walls at all 8 locations. 9 It is to be noted that in fact the boundaries of the 10 ductility zone in this diagram is shown to be H/4. We 11 can see three references to "H/4" here, as the hand now 12 points at. 13 So "H/4" presumably means the height divided by 14 four. So that actually shows the rough dimension, but 15 no exact dimension was provided. 16 But in the subsequent reinforcement drawings, if we 17 can turn to page 702 -- if we can blow up the third 18 diagram; yes. If we can scroll it down a little bit; 19 yes -- we can see that the author of this particular 20 diagram seeks to indicate the exact boundaries from the 21 services and the soffit of the slabs at the limits of 22 the ductility zone. 23 We can see there is reference to "ductility zone" as 24 stated here, and there is also a figure showing the 25 exact boundaries. It does not say in these drawings</p>	<p>1 (11.01 am) 2 (A short adjournment) 3 (11.16 am) 4 MR KHAW: I will move on to C4, which appears at page 43 of 5 our written closing. That's in relation to absence of 6 contemporaneous records. 7 Again, the Commission's legal team is in full 8 agreement with us on this point, and I believe this 9 point now gives rise to no dispute, in relation to the 10 absence of contemporaneous records regarding coupler 11 installation works at the EWL slab. 12 We have also quoted from MTR's own project 13 management expert, who also confirms this point. It has 14 been set out at paragraph 76. 15 Paragraph 77 is a point in addition to the points 16 made by the Commission's legal team. That is to address 17 the suggestion on behalf of Leighton/MTR regarding 18 whether the RISC forms and the pre-pour checklists in 19 fact constitute sufficient evidence for proper 20 supervision and inspection. We have set out our 21 observations at paragraph 77. Perhaps I will not repeat 22 those points. We have also given the relevant bundle 23 references and also the transcript references in 24 response to their points. 25 C5, retrospective records, at page 46 of our written</p>
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<p>1 that zones within the thickness of EWL slab and NSL slab 2 are not ductility zone, as now suggested by Leighton. 3 So we say that the general notes, as we have seen, 4 and also the typical details actually speak for 5 themselves, and the drawings actually do not support 6 Leighton's present interpretation that the QSP only 7 applies to the areas with the ductility requirement. 8 We also wish to point out that this point has never 9 been raised in Leighton's opening, it has never been 10 raised in any of their witness statements, it has never 11 been put to any of our witnesses, either for discussion 12 or clarification, in relation to this interpretation of 13 the QSP. 14 So we agree with Mr Pennicott and his team that it 15 is clearly an afterthought. 16 I note the time, but I will only perhaps go through 17 C4 very quickly, regarding absence of contemporaneous 18 records. 19 CHAIRMAN: I'm wondering if we might just have the morning 20 adjournment a little bit earlier. 21 MR KHAW: Yes. 22 CHAIRMAN: Would that be satisfactory? 23 MR PENNICOTT: Yes, sir. Mr Khaw has 23 minutes. 24 CHAIRMAN: But nobody is keeping time! Thank you. Quarter 25 of an hour.</p>	<p>1 closing -- again, no dispute that such records were 2 prepared. The Commission's legal team has come to the 3 same conclusion as the government, that such records 4 served no useful purpose and actually confused others, 5 including the BD, and according to Mr Pennicott and his 6 team, "Such practice should not be encouraged and should 7 be deplored". We share the same view. That can be 8 found at paragraph 230 of the closing submissions of the 9 Commission's legal team. 10 Our conclusion in this respect can be found at 11 page 53 of our written closing, paragraphs 86 and 87. 12 We say: what MTR and Leighton ought to have done was to 13 come clean at the earliest opportunity about the lack of 14 contemporaneous records, rather than engaging in the 15 creation of misleading and confusing retrospective 16 checklists. Such practice is not acceptable and 17 represents extremely poor project management. 18 We go on to say: the lack of proper contemporaneous 19 inspection records and the unreliability of MTR and 20 Leighton's documents have put the government in 21 an impossible position when it comes to verifying the 22 as-constructed conditions and quality of the works. 23 This, coupled with the lack of proper as-built records, 24 has made the opening up of the structure, as recommended 25 in the holistic plan formulated and submitted by the</p>

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1 MTR, inevitable. So that is purpose 1 of the holistic  
 2 plan.  
 3 C6 deals with failure to carry out proper  
 4 investigation and implement preventive measures. Again,  
 5 the Commission's legal team and the government share the  
 6 same view, that both MTR and Leighton failed to conduct  
 7 a proper and satisfactory investigation in relation to  
 8 the allegations of bar cutting incidents.  
 9 The Commission's legal team takes the view that both  
 10 the Lumb report and MTR's internal review are  
 11 superficial and unsatisfactory. This is the conclusion  
 12 made by the Commission's legal team in relation to the  
 13 two investigations.  
 14 We have set out further shortcomings in our  
 15 paragraphs 89 to 90. That is the failure to actually  
 16 investigate the cause of the incident despite the NCR  
 17 and despite knowledge of various bar cutting incidents,  
 18 and also we have set out the deficiencies in relation to  
 19 the lack of additional measures despite the knowledge of  
 20 such incidents on the part of Leighton and MTR. So that  
 21 can be found in paragraphs 90 all the way to 92.  
 22 C7, which starts at page 61, paragraph 100, deals  
 23 with unauthorised alteration works. As mentioned above,  
 24 we appreciate the Commission's indication that the legal  
 25 submissions on whether the second change required prior

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1 acceptance of BD should not be determined here. But on  
 2 this issue we note the Commission's legal team has made  
 3 their observations on whether the BD has legitimate  
 4 reasons to believe that the two submissions regarding  
 5 temporary works should not constitute consultation  
 6 submissions for the permanent works.  
 7 In this respect, I will refer the Commission to  
 8 paragraphs 207 to 210 of the Commission's legal team's  
 9 submissions.  
 10 Finally regarding section C, it's the absence of  
 11 as-built records. This can be found at page 73 of our  
 12 written closing. Again, we are happy to note that the  
 13 Commission's legal team also takes the same view  
 14 regarding the absence of the as-built records.  
 15 In fact, at paragraph 139 of our written closing, we  
 16 have tried to deal with certain propositions put forward  
 17 by MTR and Leighton regarding the absence of as-built  
 18 records, for example whether the use of photographs  
 19 would be sufficient, et cetera, et cetera, and we have  
 20 set out our observations by referring to Mr Rowsell's  
 21 opinion and also to other documents to rebut those  
 22 points, in relation to their reliance on other documents  
 23 as equivalent to as-built drawings.  
 24 COMMISSIONER HANSFORD: Mr Khaw, just as a matter of record  
 25 on page 78, where your 139(d), the second line in the

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1 quote from Mr Rowsell, the first word should be "Not".  
 2 At the moment it says "No maintaining". Mr Rowsell  
 3 actually said "Not".  
 4 MR KHAW: Thank you.  
 5 COMMISSIONER HANSFORD: It's right in the middle of page 78,  
 6 "Not".  
 7 MR KHAW: "Not maintaining and updating the drawings ..."  
 8 COMMISSIONER HANSFORD: That's what he says.  
 9 MR KHAW: Finally, I should very briefly talk about our  
 10 section E, before I pass the stage to Mr Chow.  
 11 In section E, we have set out the recommended  
 12 enhancement measures for the government, in  
 13 paragraph 171, and in paragraph 173, as indicated at the  
 14 outset of my submissions earlier this morning, 173  
 15 actually sets out the implementation of the improvement  
 16 measures which have already been taken by the  
 17 government, and most of them are in line with the  
 18 suggestions of Mr Rowsell.  
 19 Then at paragraph 175 we have addressed each and  
 20 every recommendation made by Mr Rowsell. The long and  
 21 the short of it is that we have pointed out certain  
 22 possible practical difficulties in fully implementing  
 23 those suggested measures, but we have stated clearly  
 24 that we will take all of them on board in reviewing our  
 25 system. That is our position.

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1 COMMISSIONER HANSFORD: I'm glad you said that, Mr Khaw,  
 2 because when I read paragraph 175, it seemed to say to  
 3 me that "what we've said we would do in paragraph 171  
 4 may not be possible, for the following reasons". I'm  
 5 paraphrasing. It was a little bit of a caveat on what  
 6 you appeared to have previously committed to.  
 7 MR KHAW: In fact, we tried to set out the potential  
 8 practical difficulties that we foresee in the process,  
 9 but we have also stated, by qualifying what we have  
 10 stated in relation to the limitations and practical  
 11 difficulties -- we say we will try to overcome those  
 12 problems in the review of our system, by taking on board  
 13 Mr Rowsell's recommendations.  
 14 COMMISSIONER HANSFORD: All right.  
 15 MR KHAW: I believe one limitation that we have addressed is  
 16 the partnering approach as suggested by Mr Rowsell. We  
 17 are certainly happy to consult all involved parties in  
 18 the process, but of course, when it comes to a full  
 19 partnering approach by taking into account all the  
 20 sub-contractors, for example, there might be practical  
 21 difficulties given the large number of sub-contractors  
 22 involved. This is what we are trying to point out. But  
 23 of course we also say that we fully appreciate the  
 24 utility and desirability of adopting a partnership  
 25 approach and we would endeavour to incorporate such

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<p>1 approach in future projects.</p> <p>2 COMMISSIONER HANSFORD: There was one other point, Mr Khaw</p> <p>3 actually. In 171(4), you refer to reviewing the</p> <p>4 efficacy of the PSC, ensuring that it is operating as</p> <p>5 a high-level committee, et cetera.</p> <p>6 MR KHAW: Yes.</p> <p>7 COMMISSIONER HANSFORD: And you relate that to</p> <p>8 recommendation 4 of Mr Rowsell.</p> <p>9 I think I'm right in saying Mr Rowsell refers to</p> <p>10 a project board of a small number of people to make that</p> <p>11 work.</p> <p>12 MR KHAW: Yes.</p> <p>13 COMMISSIONER HANSFORD: Then in your paragraph 173(3), you</p> <p>14 refer to requiring the regular attendance of the project</p> <p>15 team, et cetera, at PSC meetings, which seems to</p> <p>16 contradict because it implies to me increasing the</p> <p>17 number of people at the PSC, whereas Mr Rowsell's</p> <p>18 recommendation, I think, was to make it smaller and more</p> <p>19 strategic and operating akin to a board.</p> <p>20 I just wonder if there's an inherent contradiction</p> <p>21 between 171(4) and 173(3).</p> <p>22 MR KHAW: Yes. In fact, 173(3) is what we had put in place</p> <p>23 before we actually received Mr Rowsell's</p> <p>24 recommendations. In view of Mr Rowsell's</p> <p>25 recommendations, in 175(5): in respect of</p>	<p>1 It should not be "from the MVC", it should be of</p> <p>2 course "of the MVC" from the defaulting parties in the</p> <p>3 management of the project. We have not yet had</p> <p>4 an intention to consider recovering money from the MVC.</p> <p>5 At page 99, perhaps the same typo, subparagraph (8):</p> <p>6 "extra audit costs of the MVC".</p> <p>7 That's perhaps all I wish to deal with before I pass</p> <p>8 the stage to Mr Chow in relation to section D concerning</p> <p>9 engineering issues.</p> <p>10 CHAIRMAN: Thank you.</p> <p>11 Closing submissions by MR CHOW</p> <p>12 MR CHOW: Good morning, Mr Chairman and Prof Hansford. I'm</p> <p>13 not sure whether there is time left for me to make an --</p> <p>14 MR PENNICOTT: Four minutes.</p> <p>15 MR CHOW: Four minutes, right.</p> <p>16 Mr Chairman, perhaps I will just go straight to what</p> <p>17 I contend to be the more important points.</p> <p>18 CHAIRMAN: Sorry, how many minutes do you have left?</p> <p>19 MR CHOW: According to Mr Pennicott, I only have four</p> <p>20 minutes.</p> <p>21 CHAIRMAN: All right. We are prepared to bend the rules</p> <p>22 a little.</p> <p>23 MR CHOW: Thank you very much. Mr Chairman --</p> <p>24 CHAIRMAN: But if you see a sense of humour failure, you</p> <p>25 will know that you have run out of time!</p>
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<p>1 recommendation 4, the government has always strived to</p> <p>2 maximise the efficacy of the PSC meetings and to ensure</p> <p>3 that it achieves its intended purpose by inviting the</p> <p>4 attendance of all parties which may be in a position to</p> <p>5 offer valuable inputs.</p> <p>6 At the end of this subparagraph, we say: following</p> <p>7 Mr Rowsell's recommendations, we will further consider</p> <p>8 how to make the work at the PSC level more efficacious.</p> <p>9 I certainly consider the size of the group for the</p> <p>10 purpose of discussion and consultation with other</p> <p>11 parties.</p> <p>12 COMMISSIONER HANSFORD: Okay. I'm not sure I want to spend</p> <p>13 more time on that point here. I think the Commission</p> <p>14 may reflect on this in its report and recommendations.</p> <p>15 Save to say I think Mr Rowsell was suggesting that</p> <p>16 a strategic project board might be created in addition</p> <p>17 to the PSC, not instead of the PSC.</p> <p>18 MR KHAW: Yes. I certainly take note of that.</p> <p>19 COMMISSIONER HANSFORD: Thank you.</p> <p>20 MR KHAW: There are two typos here that I wish to draw to</p> <p>21 the Commission's attention. Page 92, subparagraph (b),</p> <p>22 "The form of remuneration of the MVC may be reviewed to</p> <p>23 incentivise it to be more proactive in the execution of</p> <p>24 its duties. In this connection, the option of</p> <p>25 recovering extra audit costs ..."</p>	<p>1 MR CHOW: I will try to speed up in any event.</p> <p>2 In paragraph 146 of our closing submission, we set</p> <p>3 out the three main issues between the experts. They are</p> <p>4 whether there is a necessity to carry out structural</p> <p>5 calculations to ensure that the connection is adequate,</p> <p>6 and the second issue is whether the station box</p> <p>7 structure is safe. The third issue between the parties</p> <p>8 is whether there is a need to continue with the present</p> <p>9 opening-up exercise.</p> <p>10 In light of the submission from MTRC and Leighton,</p> <p>11 this morning I will only deal with the first two issues.</p> <p>12 Regarding the first one, the question in relation to</p> <p>13 the necessity to carry out numerical checks on the</p> <p>14 internal stress generated inside the connections --</p> <p>15 Prof Au's concern is that because of the alteration</p> <p>16 carried out by Leighton, the internal stress generated</p> <p>17 inside the connection has to be checked numerically. At</p> <p>18 the moment, according to the evidence, no one ever</p> <p>19 carried out any checks.</p> <p>20 There are some, if I may say so, criticisms against</p> <p>21 Prof Au as to his failure to carry out the calculation</p> <p>22 which he said would only take him a few days, half a day</p> <p>23 to a few days. In my respectful submission, this is not</p> <p>24 a fair criticism, because Prof Au has made it clear that</p> <p>25 at the moment he only has incomplete base data.</p>

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1 Notwithstanding the lack of complete base data, he  
 2 has, with the help of Mannings, done some rough  
 3 checking, and he observes that on the basis of this  
 4 rough checking there may be problems in some location.  
 5 So, as a responsible professional, he points this out  
 6 and he said that further checking has to be carried out.  
 7 Now, in response to the request from the Commission,  
 8 he has prepared a list of base data that he says would  
 9 be required for that exercise. Now, that list has been  
 10 served to the Commission's solicitors and I'm sure both  
 11 MTR and Leighton will have received it and had sight of  
 12 it. Up to now, we are almost ten days and we have  
 13 received no offer from any of them to provide those  
 14 data.  
 15 My learned leader explained to the Commission  
 16 earlier that our primary position is that as a matter of  
 17 principle, for the contractor who alters the work  
 18 without prior permission from the BD and who asserts  
 19 that the work that they built is adequate, it is  
 20 incumbent upon the contractor and in this case perhaps  
 21 also MTRC to carry out the necessary calculation and  
 22 demonstrate technically that what they have done is  
 23 correct.  
 24 Now, they were in possession or they are at least in  
 25 possession of all this base data.

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1 CHAIRMAN: I'm sorry to interrupt you, but have you  
 2 approached either the MTRCL or Leighton or Atkins in  
 3 order to say, "Look, this is the way we would like to  
 4 proceed. Are you in a position to help us, and if so  
 5 how can you help us?"  
 6 MR CHOW: My instructions are that up to now we are only  
 7 served -- prepared the table and disclosed it and served  
 8 it to the Commission. Our primary position and as far  
 9 as I understand the government's position so far is that  
 10 it is for the contractor to prove it. But having said  
 11 that, my latest instruction is in order to assist the  
 12 Commission, if those data are available, then the  
 13 government will commission Prof Au to carry out the  
 14 necessary design check.  
 15 CHAIRMAN: All right. So, on the basis of what you have  
 16 just said then, would it be correct to say that you are  
 17 now making an invitation, or not an invitation, but you  
 18 are now essentially seeking the assistance of Leighton  
 19 and the MTRCL and Atkins to, by way of a joint exercise  
 20 or single exercises, bring together that data?  
 21 MR CHOW: Yes, sir. Now, to save time, perhaps MTRC and  
 22 Leighton can treat --  
 23 CHAIRMAN: But they need to see what the data is, which they  
 24 haven't yet seen. That's my understanding.  
 25 MR CHOW: The list that Prof Au prepared has been --

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1 CHAIRMAN: I thought you said it had only been served on the  
 2 Commission.  
 3 MR CHOW: It was put in the hearing bundle.  
 4 CHAIRMAN: Fine. Good. Yes, of course it's in the bundle,  
 5 as said earlier.  
 6 MR CHOW: And Leighton and MTRC can treat that list -- treat  
 7 that as an invitation or a request, for present  
 8 purposes.  
 9 CHAIRMAN: All right.  
 10 MR CHOW: So without those base data, there is no way  
 11 Prof Au can do any further work that is more meaningful  
 12 than what has been done so far.  
 13 If I may then move on to the second question, which  
 14 is a more important question, as to whether the station  
 15 box structure is safe. I would only focus on two  
 16 aspects, two related aspects, which go to this very  
 17 question. The first aspect is about the acceptance  
 18 criteria for the splicing assemblies that has been put  
 19 in the slab.  
 20 The present opening exercise is part of the stage 2  
 21 holistic plan that was proposed by MTRC and accepted by  
 22 the government. We have to point out that stage 2 of  
 23 the holistic plan is to check for compliance, not  
 24 safety -- not just safety, if there is really any  
 25 distinction between the two.

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1 For the purpose of compliance, at this moment, one  
 2 has to refer to what is actually specified by BOSA, the  
 3 supplier of the proprietary coupler assembly. BOSA at  
 4 the moment make it very clear that for their system to  
 5 work as they designed, it has to be a full engagement.  
 6 That's the reason why, in stage 2 of the holistic  
 7 proposal, the government adopt BOSA's request with  
 8 a starting point of a 40mm engaged thread length.  
 9 Now, whether the splicing assembly of this kind,  
 10 with a shorter engagement can still fulfil the  
 11 requirements of the Buildings Ordinance, the Buildings  
 12 Department, and the American code AC133, further tests  
 13 in compliance with those requirements have to be  
 14 performed, and the test results will be taken into  
 15 consideration in stage 3 of the holistic assessment,  
 16 because stage 3 is about structural assessment.  
 17 By that time, if there is convincing proof to show  
 18 that we don't need to do an engagement for fulfilling  
 19 all the requirements under the code, then that is  
 20 something that whoever carries out the stage 3  
 21 structural assessment would take into consideration.  
 22 However, at present, for the purpose of stage 2,  
 23 whether it should be 37mm which is being adopted by the  
 24 government or it's the 32mm as suggested by MTRC, or  
 25 an even lower --

<p style="text-align: right;">Page 53</p> <p>1 CHAIRMAN: Sorry, Mr Boulding, you are saying? 2 MR BOULDING: 32 is McQuillan's figure. 3 MR PENNICOTT: Correct. 4 CHAIRMAN: And the MTRCL's figure? 5 MR BOULDING: The MTRCL's figure is the six threads, for 6 safety. 7 CHAIRMAN: Thank you. 8 MR CHOW: Thank you for the clarification -- or the 26mm now 9 advocated by both MTR and Leighton. 10 It depends entirely on what is the requirement of 11 BOSA for present purpose. For this, I will need to take 12 the Commission to a few documents. This is important. 13 I originally planned to take the Commission to the 14 materials submission, but in the interests of time 15 perhaps I will just point out that in the original 16 materials submission made by MTRC and Leighton, there 17 are a great number of tests having been carried out. 18 The test reports were attached to the materials 19 submission. And those test reports indicate that tests 20 in compliance with the American code AC133 have been 21 performed for the purpose of getting the government's 22 approval for the use of this kind of coupler. 23 For the purpose of the record, if I may just simply 24 quote the bundle page reference. The materials 25 submission can be found at bundle H9, pages 4056 to</p>	<p style="text-align: right;">Page 55</p> <p>1 misrepresenting our submissions. If you read our 2 submissions, we deal with this matter on two bases. One 3 is safety, for which we contend for six threads. The 4 other basis is on the clear indication in BOSA's manual 5 which shows that you can have two threads exposed and 6 that is acceptable. 7 If you remember Andy Wong's evidence, a witness who 8 the Chairman said it was a pleasure to hear from, he 9 said that was the basis which he conducted his 10 inspections on. 11 I hope that makes it clear. 12 MR CHOW: Mr Chairman, then -- we don't agree that the 13 evidence before the Commission is that the total thread 14 length is between 10 to 11 threads. There are clear 15 evidence from BOSA that I'm going to take the Commission 16 to, to show that the actual number of threads is between 17 11 and 12. 18 MR PENNICOTT: Do you want to see the sample? The sample 19 we've got. The Commissioners have added it up. They've 20 counted; it's ten. 21 MR CHOW: I'm conscious of that. That is what I am going to 22 make submissions on as well as part of the matter that 23 we have to look into. 24 Perhaps, as Mr Pennicott has mentioned about the 25 sample, one should not forget that there is no evidence</p>
<p style="text-align: right;">Page 54</p> <p>1 4142, and the relevant parts for the ductility coupler 2 start from page 4142. Pages 4917 to 4287 contain all 3 the test reports, including the cyclic load testing 4 performed to this kind of coupler in accordance with the 5 American code, which shows that as a matter of general 6 practice, to get the approval from the government, one 7 has to carry out all the necessary tests required in 8 accordance with the existing code. These are the usual 9 information that one needs to substantiate the 10 effectiveness of a particular proprietary product. 11 On the basis of that information, BOSA's couplers 12 were accepted. 13 Just to make sure, if I can refer to a paragraph of 14 MTRC's closing submission, paragraph 91(iii) at page 36. 15 Under (iii), starting from line 3, where MTRC submitted: 16 "... it is clear from the evidence that a type A 17 threaded rebar has 10 or 11 threads. Accordingly, if 18 a maximum of 2 threads showing is acceptable and there 19 are 10 or 11 threads on the rebar, only 8 (ie 32mm) or 20 9 threads (36mm) are required be engaged." 21 I believe it is this paragraph that gave me the 22 impression MTRC's position is 32mm, but now my learned 23 friend Mr Boulding said what they are going for is even 24 lower engagement length. 25 MR BOULDING: Sir, that really is not correct. He is</p>	<p style="text-align: right;">Page 56</p> <p>1 to suggest that the threaded bar that we see is exactly 2 the same as the kind of bar that was used on site. 3 We have other evidence to show that it is not, 4 certainly it's not ten threads. Please bear with me, 5 Mr Chairman and Prof Hansford. 6 CHAIRMAN: Look, there's a lot of information, and perhaps 7 I just take a little longer than average to collate 8 it -- 9 MR PENNICOTT: Sir, the point is there is a lot of 10 information, but on the basis of what Mr Chow is now 11 seeking to contend, actually this somehow explains many 12 of the results that we are getting from the opening-up 13 tests. If the position is that you can have between ten 14 threads, 40 millimetres, and 12 threads, 48 millimetres, 15 and it's variable on a bar-by-bar basis, this is one of 16 the reasons why the results are as they are, showing 17 a lot of inconsistencies. But as Mr Boulding has 18 said -- and we take the same view -- it's a pretty 19 simplistic calculation, that you have ten threads, 20 because that's the minimum and there's no reason why you 21 shouldn't work with the minimum if that's what BOSA are 22 telling us. 23 CHAIRMAN: That's right. 24 MR PENNICOTT: You are allowed to have two threads showing, 25 as the MTRC say, that's 8 millimetres, 32 is the right</p>

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1 figure. That's what we will be saying. And the  
 2 government's use of the 37 millimetres is what's causing  
 3 all the problems.  
 4 MR CHOW: That is precisely the point I am trying to make.  
 5 The mistake, in my respectful submission, made by some  
 6 people here is they believe the standard length for the  
 7 threaded part of the bar is ten threads, but there is  
 8 clear evidence from BOSA indicating that the standard  
 9 length is 44, and on top of the 44 there is extra  
 10 tolerance which varies from zero to 4mm. So the actual  
 11 length of the total number of threads should be between  
 12 44 and 48.  
 13 That also explains why, when BOSA said so long as  
 14 you fully engage the threads into the couplers, you may  
 15 still expect perhaps one to two exposed threads. I'm  
 16 going to take -- please be patient -- the Commission to  
 17 the relevant documents to show that. That is  
 18 an important point.  
 19 MR PENNICOTT: Sorry, the other problem of course is the  
 20 government's starting point is 40 millimetres, minus 3  
 21 for the tolerance for the machine. So the government's  
 22 own starting point, in its explanation of its  
 23 37 millimetres, is 40 millimetres. That's their own  
 24 starting point.  
 25 COMMISSIONER HANSFORD: I'm getting slightly lost, Mr Chow

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1 in trying to follow this with regards to the written  
 2 closing submission. Which paragraphs are you referring  
 3 us to?  
 4 MR CHOW: I'm not referring to any particular paragraph --  
 5 COMMISSIONER HANSFORD: That explains it.  
 6 MR CHOW: -- but I am in response to paragraph 91(iii) of  
 7 MTR's closing submission.  
 8 COMMISSIONER HANSFORD: Yes. Okay. Now I understand.  
 9 MR CHOW: Sir, I would need to refer you to bundle H9,  
 10 page 4275. This is part of the QSP.  
 11 We will see at the top of the page, this is a device  
 12 to control -- as a matter of quality control -- the  
 13 length of the thread. We can see from the table in the  
 14 middle of the page, for a rebar with a diameter of 40mm,  
 15 the checking -- it's a checking gauge, with a value for  
 16 H of 45.75, with a difference of 1.75, gives 40mm. So  
 17 when the threads were produced in a factory, or in the  
 18 on-site factory, this is really the minimum that they  
 19 have to make sure that all the threads prepared would  
 20 have at least 40mm.  
 21 Then in page 4280 -- turn over the page -- this is  
 22 again part of the quality supervision plan. It provides  
 23 details of the tolerance.  
 24 If we start from the table first -- again, a similar  
 25 table -- on top of the page, for bars of 40mm diameter,

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1 we see that the coupler dimensions -- there are two  
 2 columns under the heading of "Coupler dimensions". The  
 3 right-hand column provides the overall length of the  
 4 coupler, which is 88 millimetres, and half of 88 is 44.  
 5 If we then move down to the bottom, the rectangular  
 6 box, the third line, starting from the third line, under  
 7 "Note":  
 8 "BOSA CNC threading machines are always programmed  
 9 by default to allow a positive tolerance on the thread  
 10 length.  
 11 This is to ensure butt-to-butt connections can  
 12 always be achieved when the rebar are spliced inside the  
 13 coupler."  
 14 Then we can go to Mr Paulino Lim's evidence:  
 15 transcript Day 36, page 98. This is the part of his  
 16 evidence where he discussed with Prof Hansford, and  
 17 Prof Hansford explored this very point with him.  
 18 Perhaps starting from page 98, line 21, when  
 19 Prof Hansford said:  
 20 "Okay. I understand now. My final question --  
 21 probably my final question -- I'm still a bit confused  
 22 by your answer to a previous question where you referred  
 23 to butt-to-butt. Now, I know that butt-to-butt means,  
 24 but I thought you were allowed to have one or two  
 25 threads exposed after the coupler is connected.

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1 If the threads are exposed, how can it be  
 2 butt-to-butt?  
 3 Answer: That's a very good question", Mr Lim said.  
 4 "If you refer back to page 44854" -- and I will come  
 5 back to that page later on -- "in our design, when we  
 6 are manufacturing threads, we always programme our  
 7 machine to produce an extra 1 to 2mm on the actual  
 8 length of our thread. We just wanted to make sure that  
 9 when the two ends abut inside, connected inside of a  
 10 coupler and tighten, that they are actually  
 11 butt-to-butt.  
 12 So if in a worst-case scenario we were to have both  
 13 ends with a maximum tolerance -- for example the  
 14 diameter 40 rebar which says tolerance of 4mm, the 4mm  
 15 basically is one thread, equal to one thread, so if both  
 16 ends has a maximum tolerance of one thread, after you  
 17 have connected the two ends together, you will have  
 18 a chance of seeing two threads exposed."  
 19 Then Prof Hansford asked:  
 20 "I understand that, but in that bottom of those  
 21 three diagrams, you show the coupler being of length 2T,  
 22 and the threads being T?  
 23 Answer: Yes.  
 24 Prof Hansford: Are you saying the threads are  
 25 actually T plus one thread?

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1 Answer: Yes, tolerance. T plus tolerance.  
 2 Commissioner Hansford: T plus tolerance, and the  
 3 tolerance is one thread?  
 4 Answer: One thread.  
 5 Commissioner Hansford: So, therefore, if they are  
 6 butt-to-butt, then you would have at least one thread on  
 7 one side -- well, you could have one thread on both  
 8 sides or you could have two threads on one side?  
 9 Answer: Yes. Essentially you could have  
 10 [this] ..."  
 11 So it's clear when Prof Hansford explored with  
 12 Mr Lim on this very question, as to the number of  
 13 threads exposed, and dimension, his clear answer is you  
 14 have the T plus one thread -- now we have to go back to  
 15 look at what "T" is.  
 16 Let's go to page 44854. It should be H25/44854,  
 17 which is part of Mr Lim's witness statement. It's one  
 18 of his attachments.  
 19 Sir, in the middle of the page, we see three  
 20 diagrams showing the reinforcement. The one at the  
 21 bottom shows the dimension, dimension of the couplers,  
 22 which is "L"; do you see that? Yes. "L" represents 2t,  
 23 and if we go back to the table on the top, "L" is the  
 24 overall dimension, the length of the couplers, which is  
 25 88. So T is 44, and it is Mr Lim's clear evidence to

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1 this Commission that the total length of the thread is  
 2 44 plus one thread. So it is 44 plus a maximum of  
 3 4 millimetres, 48. That also explains why, under this  
 4 opening-up exercise, we see that a lot of the figures  
 5 exceed 40mm, well above 40mm. It's just because as  
 6 a matter of fact the reinforcing bars used on site,  
 7 according to the evidence, it will have at least 44 plus  
 8 tolerance.  
 9 Now, this tolerance varies -- well, should not be  
 10 more than one thread. So the actual lengths were  
 11 between 44 and 48, and that also explains why, when  
 12 Mr Lim said if you have properly tightened, fully  
 13 engaged the couplers, imagine if the first bar is 48mm  
 14 with one through-tolerance as extra thread, and given  
 15 the overall length of the couplers, 88, if the first bar  
 16 is fully engaged into the couplers, then there only  
 17 remains 40mm inside the coupler to accommodate the  
 18 connecting bar, and when the connecting bar is fully  
 19 engaged into it, it is quite possible there would still  
 20 remain one to two threads exposed, because all the bars  
 21 have at least 11 threads, plus perhaps one more thread.  
 22 That also explains why we say and also Mr Paulino  
 23 says that we don't need to specifically talk about  
 24 butt-to-butt, because if you comply with their  
 25 requirement as to full engagement, automatically it just

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1 follows naturally it will be butt-to-butt, and if you  
 2 only see one to two threads exposed, given the  
 3 dimensions of the couplers of 88 and given the  
 4 dimensions of the threaded length of 44 to 48, if one  
 5 only sees one to two threads exposed, that would be  
 6 automatically butt-to-butt splicing inside the couplers.  
 7 Sir, this part of my submission is important because  
 8 it goes to the fundamental point, it's a matter of fact  
 9 as to the number of threads for bars used on site, and  
 10 if we give it a proper construction then all the jigsaw  
 11 puzzle pieces fall into their proper places, about the  
 12 butt-to-butt requirement, about the maximum exposure of  
 13 one to two couplers, and all in compliance with what is  
 14 stated in the QSP, because -- the QSP actually comprises  
 15 two parts. The first part governs the fabrication of  
 16 the thread, and there is a clear requirement. We have  
 17 seen the checking gauge to control that when the  
 18 threading process is completed, the length of the thread  
 19 cannot be shorter than 44. This is part of what they  
 20 have to control.  
 21 So if today MTRC and Leighton come back to tell us,  
 22 "What actually happened on site is just ten threads",  
 23 then we have another problem. First of all, there is  
 24 a further non-compliance at the stage of the  
 25 manufacturing of the thread, and an even more serious

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1 problem is that given it is not in dispute that the  
 2 total length of the couplers is 88mm, if MTRC and  
 3 Leighton now tells us there are only ten threads on each  
 4 side of the bar, then what follows is it must be a gap  
 5 inside all the couplers now in the slab, because the  
 6 couplers has 88mm.  
 7 CHAIRMAN: Sorry, I just want to ask here -- this document  
 8 shows various dimensions for the couplers. The couplers  
 9 that were used, the Seisplince II ductility couplers,  
 10 they were all to that measurement of a diameter of  
 11 60 millimetres and a length of 88, were they?  
 12 MR CHOW: That is what I understand, yes.  
 13 CHAIRMAN: All right. Good. Thank you.  
 14 MR CHOW: I am not sure it is to any party's benefit to  
 15 insist there are only ten threads, because if that is  
 16 really what happened then we have perhaps an even more  
 17 serious problem today, that all the couplers, all the  
 18 splicing assemblies installed on site, may be put in  
 19 doubt, because what the suppliers tell us is that their  
 20 proprietary product is designed to be butt-to-butt. If  
 21 there are gaps in all the couplers, then it is something  
 22 we need to look at, I am duty-bound to put it to the  
 23 attention of the Commission.  
 24 But as far as --  
 25 COMMISSIONER HANSFORD: Sorry, Mr Chow, I understand exactly



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<p>1 what you have been telling us, but that doesn't tell us 2 that if they are not butt-to-butt there is a structural 3 problem. 4 MR CHOW: No. What we have here today is the proprietary -- 5 the owner or the supplier of this proprietary product 6 tells the government in writing, the Buildings 7 Department in writing, that their product is designed to 8 be a butt-to-butt splicing arrangement. 9 COMMISSIONER HANSFORD: Yes. 10 MR CHOW: This is what they sell, and they also say that if 11 it is a partial -- perhaps it's easier for me to refer 12 the Commission to the relevant letters from BOSA. 13 Bundle H26, page 45640. 14 COMMISSIONER HANSFORD: Yes, this is the letter this 15 January. 16 MR CHOW: Yes, this is the letter we have looked at. 17 COMMISSIONER HANSFORD: Yes. 18 MR CHOW: The government's phrase now is -- the supplier of 19 the proprietary owners tell the government that their 20 product is designed for butt-to-butt, and if it is not 21 butt-to-butt the splicing assembly will become loose. 22 As to the effect of becoming loose, they simply say 23 that -- then it cannot -- in all likelihood, it would 24 not survive the test, the various different tests, 25 specified by AC133.</p>	<p>1 stage 2 holistic plan, adopt the 37mm. In other words, 2 so long as the reading gives 37mm or not, we assume that 3 there is enough engagement inside the coupler. 4 Now, the rationale behind is not something that the 5 government has kept secret. It is actually clearly set 6 out in the Highways website. 7 In the interests of time, I'm not going to take the 8 Commission to the website, but just to quote the bundle 9 reference. It is in bundle G20, page 15039. This is 10 the hard copy or the print-out of the Highways website 11 in which Highways explained how the 40mm was lowered to 12 37mm for the present purpose. 13 CHAIRMAN: Sorry, again, just to assist me, what we are 14 talking about here is fundamentally safety, and 15 compliance, but this, you are saying, means that you 16 have to look at 37 on the basis of a safety issue? 17 MR CHOW: No. We have to look at 37 for the purpose of 18 compliance at this stage, stage 2. 19 CHAIRMAN: All right. Yes. 20 MR CHOW: When it goes on to stage 3, where upon obtaining 21 the result from the opening-up, then MTRC would proceed 22 to structural analysis. At that stage, they are going 23 to seek to lower the acceptance criteria on the basis 24 that perhaps we don't need a full engagement; a partial 25 engagement may be able to fulfil all the requirements</p>
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<p>1 But of course, as far as the government is 2 concerned, we may not have this problem because from the 3 evidence, it is quite clear that the length of the 4 thread is between 44 and 48. So we may not have a gap. 5 But the point I am trying to make is if MTRC and 6 Leighton now insist that the number of threads of the 7 bars used on site is only ten, then we may have 8 a further area that we would need to look into. That is 9 all I am trying to say. 10 Our position is those used on site were having 11 to 11 12 threads, and because of that, when you see one to two 12 threads exposed, there may still be a butt-to-butt 13 connection inside. But for the present purposes, even 14 if we see one to two threads exposed, the acceptance 15 criteria remains as 40, because, as I have explained 16 earlier, you would have at least 40mm engagement, and 17 that's the reason why the government adopts 40mm as the 18 starting point. 19 As to how or why the 40mm acceptance requirements 20 all of a sudden reduced to 37, I have explained perhaps 21 during my cross-examination of one of the experts that 22 because of the inaccuracy or the tolerances in the 23 measurement process, which can be plus or minus 3mm, so 24 in view of giving the benefit of the doubt to the 25 contractor, the government at the moment, for the</p>	<p>1 set out in the code. Not just from a strength point of 2 view but also from other properties in relation to 3 perhaps elongation. Then -- 4 CHAIRMAN: Sorry, bear with me a second. What's stage 1? 5 MR CHOW: That's a good question. Stage 1 is gather 6 information, perhaps. Stage 2 is the opening-up 7 exercise. 8 CHAIRMAN: All right. 9 MR CHOW: And stage 3 is the structural assessment. 10 CHAIRMAN: What you are saying is -- let's forget stage 1 11 for the moment, that's preparatory. 12 COMMISSIONER HANSFORD: That's happened. 13 CHAIRMAN: That's happened, yes. Stage 2 is the actual 14 opening-up. 15 MR CHOW: That's correct. 16 CHAIRMAN: And we are looking here at 37, for the reasons 17 you have explained to us. Then there will be 18 a structural analysis conducted in whatever way it's 19 conducted, and that will determine not merely compliance 20 but safety. 21 MR CHOW: That is correct, yes. 22 CHAIRMAN: What you are saying then is that that test will 23 be determinative of safety, as to the connection. 24 MR CHOW: Yes, there would be -- well, to justify a lower 25 acceptance criteria for the purpose of safety, we have</p>

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1 to -- of course, I cannot at the moment speak for the  
 2 government or the Buildings Department, but I would  
 3 imagine that further tests have to be carried out, and  
 4 at the very least it would be all the tests required  
 5 under the American code, for example, AC133.  
 6 I understand this is what MTRC is planning to do.  
 7 CHAIRMAN: All right. But what I'm interested in is this,  
 8 because what you seem to be saying is -- and I may have  
 9 misunderstood Mr Khaw earlier, in which case I give him  
 10 my apologies -- but what you are really saying here is  
 11 that this test is fundamental, because this test is  
 12 going to take into account structural physics of the box  
 13 structure and what's contained in it, the two slabs.  
 14 It's then going to look at the connections, which are  
 15 the couplers, which connect the slabs to the diaphragm  
 16 walls and also connect the slabs to each other in the  
 17 pour bays, and that will determine whether this thing is  
 18 safe or not, or whether there's a real chance that  
 19 cracks will appear because of stress, and if you don't  
 20 act to take note of the stress there could be some sort  
 21 of failure.  
 22 So, in other words, this test is going to be  
 23 determinative of exactly what we are asked to determine,  
 24 which is safety.  
 25 COMMISSIONER HANSFORD: We are not talking about a test

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1 here. We are talking about the holistic assessment  
 2 at -- the stage 3 assessment at the end of the holistic  
 3 exercise for opening-up. That's what we are talking  
 4 about, aren't we?  
 5 MR CHOW: Yes, Prof Hansford. My understanding is in  
 6 stage 3, depending on the result of stage 2, to  
 7 ascertain the actual condition of the couplers and also  
 8 the actual condition inside the connection between the  
 9 EWL slab and the diaphragm wall, and whoever is going to  
 10 carry out stage 3 structural assessment has to do the  
 11 usual structural analysis on the basis of what has  
 12 actually been built, to satisfy from -- as a matter of  
 13 principles of mechanics and also complies with the codes  
 14 to satisfy that the structure as-built is safe.  
 15 While we are here, perhaps it is important to note  
 16 that we -- so far, when we talk about structural  
 17 calculation, the exchange my learned leader had with the  
 18 Commission earlier -- it only talks about one aspect of  
 19 the problem, which is the connection on top of the east  
 20 diaphragm wall. But what is more important is the  
 21 workmanship, is the effectiveness of the couplers inside  
 22 the slab.  
 23 At the moment, what the experts have been telling  
 24 the Commission regarding the low percentage of strength  
 25 utilisation -- sir, I'm sure you will remember --

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1 COMMISSIONER HANSFORD: Yes.  
 2 MR CHOW: -- this is a very important factor that the  
 3 experts took into consideration in coming to their view  
 4 as to the safety of the structure.  
 5 But when we sought to clarify with, for example, one  
 6 of the parties who carried out that exercise, COWI, the  
 7 answer from COWI is that their fundamental assumption is  
 8 that all the couplers inside the slab were installed as  
 9 per the requirement of the materials supplier.  
 10 If I may quickly read out COWI's answer. COWI's  
 11 answer can be found in bundle ER1.  
 12 CHAIRMAN: Sorry, bear with me a second. We will come to  
 13 that now. Right at this moment in time, I'm not  
 14 interested in scientific terminology, and I appreciate  
 15 that if I embark into it, I may make mistakes; all  
 16 right? What I'm concerned about is this, that the first  
 17 issue that was raised and that gave birth to public  
 18 disquiet was a coupler issue -- cutting, failure to put  
 19 it properly, whatever; it was a coupler issue. The  
 20 reason why that caused such disquiet was because the  
 21 couplers connect large, indeed massive, structures and  
 22 ensure that they remain in place.  
 23 What you are saying now is that that fundamental  
 24 issue that gave rise to public disquiet is still not  
 25 certain, not because one engineer has a different view

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1 to another, but because these tests, whether they are  
 2 holistic or not holistic, could well determine a lack of  
 3 safety on the basis that you are arguing.  
 4 MR CHOW: Correct, Mr Chairman.  
 5 CHAIRMAN: Correct. So that, therefore, until stage 3 tests  
 6 are given, we are not in a position to actually submit  
 7 any sort of firm report to the Chief Executive.  
 8 MR CHOW: I'm afraid this is my understanding. This is the  
 9 position.  
 10 CHAIRMAN: Please don't get me wrong. The fact I may speak  
 11 aggressively is not intended as a tone of voice where  
 12 I am looking at what I'm confronted with, and perhaps  
 13 I don't like what I'm confronted with, but that's beside  
 14 the point. One has to deal with reality, and you are  
 15 saying that's the reality?  
 16 MR CHOW: Yes. Perhaps I can take it --  
 17 MR PENNICOTT: Sorry to intervene but the government so far  
 18 has had two hours and ten minutes.  
 19 CHAIRMAN: It's quite an important point and I'm prepared to  
 20 give him four, if necessary.  
 21 MR PENNICOTT: It's very important, and I fully understand  
 22 that, but I guess all the other parties are going to be  
 23 saying, including myself, if they are going to have the  
 24 time, we will increase the time for everyone else as  
 25 well. I am very concerned -- I know the government is

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1 going, I fully understand it's a very important point,  
 2 I have no doubt about that, but I point out that I don't  
 3 want any complaints from everybody else that they are  
 4 not getting a fair crack of the whip because the  
 5 government has had so much time.  
 6 CHAIRMAN: I accept that, but we may be a little more strict  
 7 if there are points which we have a full understanding  
 8 of and which have been properly explained and which  
 9 perhaps are not so fundamental. Do you see the point  
 10 I make?  
 11 MR PENNICOTT: Of course, sir.  
 12 CHAIRMAN: But I think here we have stumbled across  
 13 something ...  
 14 (Commissioners conferring)  
 15 When I say it's a new point, you are putting it now  
 16 on the basis that we are not in a position to actually  
 17 make firm findings to go to the Chief Executive until  
 18 these tests are completed.  
 19 (Commissioners conferring)  
 20 That's what you are saying?  
 21 MR CHOW: Yes.  
 22 CHAIRMAN: Whether we agree with it is another matter.  
 23 MR CHOW: Of course. Can I just finish my point --  
 24 CHAIRMAN: Yes.  
 25 MR CHOW: -- because the point I am going to make is very

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1 important. Just now I stopped at the point that at the  
 2 moment all the experts relied on the calculation for the  
 3 percentage strength utilisation, and the fundamental  
 4 assumption made in those calculations is all the  
 5 couplers inside the slab were properly installed.  
 6 Now, COWI, if I may just read out COWI's answers to  
 7 the question raised by the government, what it says is:  
 8 "If a significant percentage of couplers in  
 9 a particular area were not adequately connected to the  
 10 reinforcement, it would change the assessed capacity and  
 11 the assessed utilisations would differ in the affected  
 12 areas. Due to the very limited time frame ... we cannot  
 13 comment on how many connections would need to be  
 14 defective in a particular area in order to significantly  
 15 change the assessed capacity and the assessed  
 16 utilisations."  
 17 If I may spend one or two more minutes on this  
 18 point, because it is very important. At the moment, all  
 19 the experts assume on the basis -- assume that all the  
 20 couplers installed were properly installed, and on that  
 21 basis they relied on the utilisation percentage  
 22 determined by COWI. It is a matter of common sense, if  
 23 a substantial part of the couplers are not effective,  
 24 then it will affect the capacity of the structure. The  
 25 more defective couplers, the capacity of the structure

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1 will be reduced and the percentage of utilisation will  
 2 increase.  
 3 CHAIRMAN: I appreciate that, but that's been dealt with.  
 4 Experts have spoken about that. My understanding is the  
 5 experts have recognised there has not been absolute  
 6 proper installation, because they were here; they had  
 7 all these results in front of them.  
 8 MR CHOW: The point I'm trying to make is -- notwithstanding  
 9 that they were relying on the percentage strength  
 10 utilisation in coming up with their view. The point I'm  
 11 trying to make: if the percentage of defective couplers  
 12 is high, then the existing percentage utilisation may no  
 13 longer be the same, and the experts were not possibly in  
 14 the position to foresee what the position would be.  
 15 CHAIRMAN: Well, they are. I think what they've said is --  
 16 certainly I remember Dr Glover saying something to the  
 17 effect of he would be -- he does not believe that the  
 18 essential averages as they are turning out at the moment  
 19 will change.  
 20 COMMISSIONER HANSFORD: Yes.  
 21 MR CHOW: That is his view, yes. Whether it is correct is  
 22 another matter.  
 23 We are going to continue -- the answer will be known  
 24 to everyone, because the opening-up exercise is going to  
 25 continue and we will see the change in percentage pretty

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1 soon.  
 2 COMMISSIONER HANSFORD: Yes.  
 3 MR CHOW: We don't need to debate on this.  
 4 But the other factor we need to take into  
 5 consideration is what acceptance criteria we are going  
 6 to adopt. If we adopt a lower acceptance criteria, then  
 7 there will be less couplers to be considered as  
 8 defective; right?  
 9 As to whether we can adopt a lower engagement  
 10 length, again it depends on the results of the further  
 11 tests to be carried out. At the moment, without further  
 12 test results, as far as the government is concerned, we  
 13 can only adopt 37. To make -- if MTRC in February,  
 14 after all these tests, come up with the result which  
 15 satisfies the requirements of the code and which shows  
 16 that even a partial engagement will work, then perhaps  
 17 new acceptance criteria can be adopted for the stage 3  
 18 assessment.  
 19 With lower acceptance criteria, certainly the  
 20 number -- the percentage of defective couplers will  
 21 reduce, and it may be helpful in terms of assessment for  
 22 safety of the structure.  
 23 So what I'm trying to say is all these factors are  
 24 so interrelated and they are interacting with each  
 25 other. At this stage, first of all, we have not had the

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1 opportunity to see the test results that are going to be  
 2 carried out in February, which would certainly affect  
 3 the percentage utilisation that the experts are relying  
 4 on. In my respectful submission, it would not be  
 5 prudent for anyone to come to a conclusion as to whether  
 6 the structure is safe at this stage. That is really the  
 7 main point, the main message I would like to get across  
 8 to the Commission.  
 9 CHAIRMAN: Okay. Good. Is there anything further?  
 10 MR CHOW: Perhaps just one last quick point in response to  
 11 Atkins, in response to paragraph 85.4 of Atkins'  
 12 submission. Atkins says:  
 13 "Whilst the compliance with the codes is not  
 14 mandatory, the pressure to get designs approved by  
 15 'people who have authority but no real responsibility'  
 16 results in a strict adherence to codes meaning that, by  
 17 necessity, designs in Hong Kong are conservative in  
 18 order to be code compliant."  
 19 We would like to point out that the Code of Practice  
 20 for Structural Use of Concrete 2004, was actually  
 21 drafted by an external consulting engineer, under the  
 22 direction of a steering committee set up by the Building  
 23 Authority.  
 24 If I may refer the Commission to bundle H8,  
 25 page 2820. This is the second page of the Concrete

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1 Code, in which it indicates, at the top of the page --  
 2 2819 is the first page and this is the internal page --  
 3 we see that the consultant responsible for drafting is  
 4 Babbie Asia Ltd and we see the members in the steering  
 5 committee: they comprise members from the construction  
 6 profession, construction industry, not just government  
 7 officials, we have people from the Hong Kong Institution  
 8 of Engineers, we have people from the Association of  
 9 Consulting Engineers of Hong Kong, the Hong Kong  
 10 Construction Association, and from the universities.  
 11 So, basically, the final product of the code  
 12 actually reflects the level of safety that society  
 13 expects, after thorough discussion between different  
 14 sectors of the construction industry. So it's not  
 15 something unilaterally imposed by the government and the  
 16 safety standard we impose under this code would have to  
 17 be applied to all building works in Hong Kong and it  
 18 would have to apply to the station box structure in  
 19 question.  
 20 CHAIRMAN: No, I think we appreciate that.  
 21 MR CHOW: I hope it is not really Atkins' point to suggest  
 22 that because they need to comply with the code, then  
 23 inevitably their design would be overdesigned. Insofar  
 24 as the quantity of the bottom steel reinforcement  
 25 required in the connecting --

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1 CHAIRMAN: No, I don't think they have ever suggested that.  
 2 MR CHOW: If that's the case --  
 3 CHAIRMAN: I notice Mr Cohen is shaking his head.  
 4 COMMISSIONER HANSFORD: I don't think -- well, Atkins can  
 5 speak for themselves when they come before us tomorrow,  
 6 or their counsel, but I think the point is they are  
 7 explaining why the structure has been designed in the  
 8 way it's been designed. I don't think they are going  
 9 beyond that. But we will perhaps hear from Atkins'  
 10 counsel on that point tomorrow.  
 11 MR CHOW: Yes, certainly.  
 12 In that case, unless I can be of any further  
 13 assistance.  
 14 CHAIRMAN: No. Thank you very much.  
 15 Closing submissions by MR BOULDING  
 16 MR BOULDING: May it please you, sir. May it please you,  
 17 Professor. Good afternoon.  
 18 I trust that you've had an opportunity to read MTR's  
 19 written closing submission. They are tightly reasoned,  
 20 with many, many references, and it's not going to be my  
 21 intention this afternoon to simply regurgitate them.  
 22 But what I'd like to do is to emphasise certain points,  
 23 not only for your assistance but also for anyone who's  
 24 listening in the public gallery. Some of the things  
 25 I say will have been said by me before, but I repeat

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1 them because they are important matters.  
 2 I would like to start with the MTR's approach and  
 3 emphasise that MTR has successfully managed and  
 4 delivered many, many railway projects for well over  
 5 20 years. Indeed, this fact was recognised by both  
 6 project management experts, Steve Rowsell and Steve  
 7 Huyghe, and you may well agree with me that both of  
 8 those project management experts were absolutely first  
 9 class, with a wealth of worldly experience.  
 10 As Mr Khaw has told you already, but it's important  
 11 so I reiterate it, they agreed that MTR is a very  
 12 experienced organisation with extensive experience and  
 13 capability in the planning, delivery and operation of  
 14 railway networks and systems in Hong Kong. They also  
 15 acknowledged that MTR has a proven track record in  
 16 delivering many major railway projects.  
 17 That said, and as I said in opening, MTR is  
 18 a learning organisation. It makes continuous efforts to  
 19 develop and enhance its project management systems. And  
 20 it also learns not only from its many successes but also  
 21 the various challenges it has met and indeed overcome in  
 22 its projects over the years.  
 23 I stand here and publicly declare that MTR will  
 24 continue to do so in the light of the findings and  
 25 recommendations of the Commission.

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<p>1 Various other points to emphasise, some of which                  2 I've made before, but as we have heard MTR uses its own                  3 PIMS to manage and deliver successfully railway                  4 projects, and it's done that for over 20 years, and                  5 of course we have heard that PIMS is certified to be                  6 ISO 9001 compliant. PIMS is constantly reviewed to                  7 improve it and, as we've heard, one of the                  8 recommendations of the project management experts                  9 related to further review and of course we are going to                  10 implement that recommendation together with the various                  11 other recommendations they made.                  12 You will have heard that over the course of the last                  13 four or five years, MTR has embarked upon a process of                  14 constant review -- constant, I emphasise -- and                  15 improvements. For example, it set up the IBC. That was                  16 comprised of independent non-executive directors who,                  17 together with two independent project management                  18 experts, reviewed all of MTR's internal systems,                  19 controls and management relating to XRL. There was also                  20 of course the IEP which reported to government in                  21 December 2014. Both the IBC and the IEP made                  22 recommendations which MTR implemented by strengthening                  23 its corporate governance and the systems and processes                  24 which apply to all of its large-scale projects.                  25 Of course you heard about the CWC already. MTR</p>	<p>1 of the Turner &amp; Townsend recommendations have been                  2 assigned to a particular member of the task force who is                  3 individually -- I emphasise individually -- responsible                  4 for ensuring that the relevant, appropriate measures are                  5 being put in place at a working level so that the                  6 recommendation is properly addressed and indeed                  7 implemented.                  8 You will recall, I'm sure, that Steve Rowsell agreed                  9 that the Turner &amp; Townsend recommendations could be                  10 broken down into six broad categories, six very                  11 wide-ranging categories, and I'm sure you will agree.                  12 They were as follows: processes and procedures,                  13 organisation, commercial and contractual strategy,                  14 people and capability, project control, and last but not                  15 least tools and technology.                  16 Steve Rowsell accepted, when I asked him, that by                  17 taking the steps the MTR had taken to implement the                  18 Turner &amp; Townsend recommendations, MTR had acted both                  19 proactively and responsibly. It is submitted that MTR                  20 should be commended for the way in which it has                  21 addressed the Turner &amp; Townsend recommendations in such                  22 an expeditious and structured manner.                  23 Coincidentally, of course, the Turner &amp; Townsend                  24 recommendations are replicated in large measure by Steve                  25 Rowsell's and Steve Huyghe's recommendations, of which</p>
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<p>1 established that together with a new engineering                  2 division to strengthen its checks and balance framework,                  3 and also to provide the requisite controls and oversight                  4 of its capital projects.                  5 Coming closer to current times, you will have heard                  6 that in June 2018, MTR's board appointed the CWC to                  7 conduct a review of MTR's project management processes                  8 and procedures for this project, the SCL project, and                  9 of course they did that with the assistance of                  10 an independent third-party consultant.                  11 Once, of course, in August 2018, when MTR realised                  12 the inaccuracies in the June 2018 report, CWC moved                  13 immediately and appointed Turner &amp; Townsend to, in                  14 effect, assist it with its review. You will have heard                  15 that Turner &amp; Townsend produced an interim report which                  16 included many, many recommendations for enhancing                  17 quality control management and supervision across MTR's                  18 projects.                  19 Importantly, Steve Rowsell, the Commission of                  20 Inquiry's project management expert, generally agreed                  21 with them. He told me that in cross-examination.                  22 Importantly, CWC took action immediately to                  23 implement Turner &amp; Townsend's interim report                  24 recommendations, and for that purpose set up a special                  25 task force to oversee the implementation process. Each</p>	<p>1 more a little bit later in my address to you.                  2 You of course have been updated in terms of the                  3 steps taken to implement the Turner &amp; Townsend                  4 recommendations, and I am going to bring you right up to                  5 date at a slightly later stage in my address.                  6 With that introduction in terms of approach, I move                  7 on to deal with the important matter of safety, which                  8 the learned Chairman has already stated is the paramount                  9 consideration so far as the Commission is concerned. As                  10 you will have heard, MTR's paramount concern on all of                  11 its projects, and of course not least the Hung Hom                  12 Station Extension construction works, is safety. You                  13 will recall that a number of the MTR witnesses,                  14 including TM Lee, Aidan Rooney and Kit Chan, all                  15 emphasised orally that MTR's paramount consideration was                  16 safety.                  17 MTR takes this opportunity to emphasise this point                  18 to the Hong Kong public, particularly in the light of                  19 recent media reports. Of course we say crucially, and                  20 notwithstanding what Mr Chow says, the weight of the                  21 independent structural engineering evidence that was put                  22 before you, sir, over the course of the last week or so                  23 was clearly and irrefutably to the effect that the                  24 Hung Hom Station structure is safe, and moreover that it                  25 will perform as intended and has a large degree of</p>

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1 redundancy and robustness.  
 2 Now various points that I'd like to emphasise to  
 3 you -- the structural experts' signed joint memo. You  
 4 will recall that we had some evidence about this and the  
 5 circumstances in which it was discussed and signed, but  
 6 we say this memo strongly supports the conclusion that  
 7 there is no safety issue arising from any defective  
 8 coupler assembly works. That was signed off by all five  
 9 engineering experts.  
 10 Of course, Au and Yeung subsequently sought to  
 11 resile from at least parts of it, but we would submit  
 12 that there was no valid ground or indeed explanation for  
 13 their attempts to do so. You will recall that various  
 14 matters were relied upon: no agenda, they couldn't do  
 15 any preparatory works, it was a very lengthy meeting,  
 16 poor old Au was starving and nor did he want to prolong  
 17 the meeting by raising any further objections -- all, we  
 18 would say, poor, non-existent excuses. And we would  
 19 strongly submit that there is no basis whatsoever to  
 20 doubt the validity of the signed joint memorandum. And  
 21 notwithstanding the fact that the Chairman gave both  
 22 Yeung and Au an opportunity to explain why, in the space  
 23 of something like 10 to 14 days, they changed their mind  
 24 on various issues, it's my submission that no valid  
 25 reasons were given.

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1 I have already referred to the fact, but  
 2 I emphasise, that the weight of the evidence, the strong  
 3 weight of the evidence, is that the structure has a very  
 4 large degree of redundancy and robustness. In this  
 5 context, I say, in fact emphasise, that all experts  
 6 agreed that less than 50 per cent of the bottom steel  
 7 was required for code compliance purposes, and that  
 8 irrespective of the code requirement, the EWL slab does  
 9 not in theory rely on steel at the interface. That's at  
 10 the bottom, for flexure and shear capacity.  
 11 There are various points to note in this context.  
 12 Firstly, for the reasons explained by McQuillan,  
 13 a world-class expert, I suggest, the bottom mat of the  
 14 rebar at the EWL slab and D-wall interface will never --  
 15 I emphasise "never" -- be in tension and is always in  
 16 compression, whereas the top mat of the EWL slab is  
 17 always in tension. That was his firm view.  
 18 Of course the reason why the bottom mat couplers,  
 19 which are always in compression, why they are required  
 20 for the EWL slab is only -- only -- to comply with the  
 21 Hong Kong Code of Practice 2004.  
 22 In this context, McQuillan concluded, not by himself  
 23 but of course with the agreement of Glover and  
 24 Southward, who I trust you will also agree were very  
 25 impressive, knowledgeable, experienced experts, that

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1 code compliance aside, in terms of structural and safety  
 2 requirements, the bottom mat rebars are redundant. The  
 3 bottom mat rebars are redundant.  
 4 Now, what is the consequence of that? It's --  
 5 CHAIRMAN: The bottom mat of the EWL?  
 6 MR BOULDING: Yes.  
 7 What's the consequence of that? It's a very  
 8 important consequence. That is, any minimal engagement  
 9 length of coupled rebars at the bottom mat of the EWL  
 10 slab, if any -- if any -- is irrelevant in terms of  
 11 structural safety. Irrelevant.  
 12 What about the NSL slab? We heard evidence from the  
 13 experts on that. It acts like the EWL slab, but in  
 14 reverse, in that it tries to bend upwards. The top of  
 15 the NSL slab is in compression, so the top mat couplers  
 16 at the D-walls are not required structurally. But the  
 17 bottom mat coupler connections are critical in terms of  
 18 the flexure and shear capacity of the NSL slab. But  
 19 of course the matter doesn't end there, does it?  
 20 Because we heard that the barrettes -- I think  
 21 Mr Southward pointed this out -- improve the structural  
 22 performance of the NSL slab, and of course it was also  
 23 pointed out that notwithstanding the fact that the works  
 24 have been completed for something like two/three years  
 25 and have taken 90 per cent of their live load -- I think

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1 that was the evidence -- there is no evidence whatsoever  
 2 of any distress in the NSL slab and no reported  
 3 problems.  
 4 Just pausing and going back to the Hong Kong Code of  
 5 Practice 2004 for a moment, it bears emphasis that the  
 6 foreword thereto -- I think this was a matter I took to  
 7 Prof Au -- makes it clear that the guidance given  
 8 therein is not mandatory. It actually uses the word  
 9 "guidance". That means that the design parameters set  
 10 out therein are sufficient but not imperative conditions  
 11 to achieve a safe and robust structure. It follows from  
 12 that, in our submission, that any deviation -- if any --  
 13 from the Code of Practice 2004 does not lead to the  
 14 conclusion that the structure is not safe.  
 15 And of course --  
 16 CHAIRMAN: Sorry, just to help me a second -- thank you,  
 17 Mr Boulding -- in respect of the NSL slab, the top is in  
 18 compression; okay?  
 19 MR BOULDING: Yes.  
 20 CHAIRMAN: Obviously you then say the rebars in the bottom  
 21 of that are critical.  
 22 MR BOULDING: Correct.  
 23 CHAIRMAN: Sorry, the rebars and the couplers.  
 24 MR BOULDING: The bottom mat coupled connections are  
 25 critical in terms of the flexure and shear capacity of

Page 89	1 the NSL slab. 2 CHAIRMAN: Right. 3 MR BOULDING: That's accepted. 4 CHAIRMAN: Flexure and shear. 5 MR BOULDING: That's correct. 6 CHAIRMAN: And when you say "shear capacity" you mean 7 S-H-E-A-R? 8 MR BOULDING: Yes. 9 CHAIRMAN: So what you are saying is the fact that there is 10 no sign of stress is evidence that they were properly 11 installed and are working? 12 MR BOULDING: Absolutely. Thank you for that intervention. 13 CHAIRMAN: Not at all. I'm just wanting to keep up. 14 MR BOULDING: Thank you. 15 So I was talking about the 2004 Code, and I have to 16 say that Prof Au's suggestion that the contents thereof 17 are mandatory minimum requirements is contrary to the 18 express status of the Code of Practice itself and indeed 19 incorrect. 20 But of course it needs to be said in this context 21 that in any event -- in any event -- McQuillan, Glover 22 and Southward are satisfied that code compliance has 23 been achieved, and in fact you will probably recall Mike 24 Glover saying that in his view the quantity of rebar 25 provided in the soffit of the EWL slab is substantially
Page 90	1 over-provided. 2 Now, the experts, all experts, were also unanimous 3 that currently the Buildings Department has no specific 4 design and construction requirements in respect of 5 seismicity, but notwithstanding, BD requires compliance 6 with the ductility requirements of the 2004 Code of 7 Practice, including couplers. 8 There are various points that need to be made in 9 this context. First of all, and as you have heard, 10 a ductility coupler is designed for extreme loading 11 conditions where the connection is subjected to cycles 12 of stress reversal; that's tension to compression, and 13 Mike Glover demonstrated that in the box in terms of 14 what he meant. 15 Glover also emphasised that given the low to 16 moderate seismicity of Hong Kong, the specification of 17 ductility couplers is an unnecessary requirement for the 18 Hung Hom Station box. And by way of support to that, 19 you will probably recall that he pointed out that 20 various buried box structures around the world -- 21 I think he referred to California and Japan -- have 22 survived very heavy ground movements and yet remained 23 effectively in their elastic zone. 24 It also needs to be pointed out that McQuillan, Au 25 and Glover all -- all -- agreed that the geometry of the
Page 91	1 connection between the EWL slab and the east D-wall 2 precludes any ductility. 3 Now, why is that? Firstly, the structural plastic 4 deformation which might occur during seismic activity 5 will develop lower down the D-wall, and that means, 6 secondly, so the ductility couplers are therefore not 7 required where used in the EWL slab to D-wall joint. In 8 any event, I reiterate the point that code compliance is 9 deemed to provide some inherent structural resilience 10 against a seismic event. 11 You will recall that MTR and Leighton produced 12 a joint statement back I think in early November/late 13 October, and this importantly confirmed that for areas B 14 and C, the reinforcement details of the EWL slab 15 connection at the top of the east side D-wall had 16 changed in the majority -- the majority -- of the 17 panels. That means, of course, that through-bars were 18 used instead of couplers connecting rebars on both sides 19 of the D-wall. And so far the opening-up results 20 confirm that the top of the east D-wall panel was in 21 general constructed in accordance with the proposed 22 design amendment drawings. 23 CHAIRMAN: Mr Boulding, just one other matter, if I can go 24 back a couple of paragraphs. 25 MR BOULDING: Of course.
Page 92	1 CHAIRMAN: The ductility question. 2 MR BOULDING: Yes. 3 CHAIRMAN: My understanding is that all the couplers were 4 ductility couplers. I think so, almost all, in any 5 event, whether they were needed or not. 6 MR BOULDING: That's correct. That evidence was given by 7 one witness, and the rationale for that, as I recall, 8 was that was to ensure that they weren't mixed up, just 9 in case you really needed ductility. 10 CHAIRMAN: Exactly. And price was not too different. 11 MR BOULDING: And price was not too different. But then we 12 did hear from one of the witnesses that he thought it 13 was a 60/40 split, in terms of what was provided. 14 CHAIRMAN: Yes, you're right; it comes back to memory. 15 The reason I ask that is because if ductility is not 16 really an issue, how does that tie into the safety 17 question? Are you simply saying ductility is not 18 necessary but we provided it? 19 Prof Hansford says it ties in to the QSP. 20 MR BOULDING: That's absolutely right, but we would say 21 ductility has been provided. It wasn't required, but in 22 any event it probably makes things better and safer 23 because it's there. I see Prof Hansford nodding and I'm 24 pleased to see that. 25 CHAIRMAN: Structurally it makes -- thank you. That's what

Page 93	1 I wanted to get, just those few lines. Thank you very 2 much. 3 MR BOULDING: I was in the joint statement and I was 4 pointing out that the majority of the panels have in 5 fact got through-bars instead of couplers, and the 6 opening-up results -- and I've got to go to those in 7 a little bit more detail later -- confirm that the top 8 of the east D-wall panels were in general constructed in 9 accordance with the proposed design amendment drawings. 10 Now, what's the consequence of that? I would say, 11 firstly, any potential problem with the coupler 12 connections at the top mat of the EWL slab is in a very 13 limited area, and of course localised. 14 Secondly, the top of wall coupler installations are 15 only safety critical in the very few east D-wall panels 16 which retained couplers and had no through-bars. 17 In this context, importantly, McQuillan, Glover and 18 Southward all gave evidence that the through-bar 19 reinforcement detail is superior to the original 20 arrangement accepted by the Buildings Department. And 21 of course all of the engineering experts agreed -- this 22 is paragraph 3 of the joint memorandum -- unequivocally 23 that "the change from couplers to through-bars in the 24 top of the east D-wall was a better detail and provide 25 more steel across the interface (subject to a review of
Page 95	1 effectively most of it is now through-bars? 2 MR BOULDING: Of course. 3 CHAIRMAN: And through-bars, on the expert evidence, is 4 stronger. Again just to understand the concept. Thank 5 you. 6 MR BOULDING: I think it's very important that everyone 7 hears this. 8 CHAIRMAN: Yes. 9 MR BOULDING: Mr Jat reminds me -- and this is a point 10 I will come to of course -- that when you get to the 11 west side which sits on the D-wall, the couplers are 12 even less important. 13 CHAIRMAN: Yes. 14 MR BOULDING: Where was I? Yes. I had referred to -- 15 CHAIRMAN: Whenever you reach an opportune moment, 16 Mr Boulding. I'll leave that to you. 17 MR BOULDING: I think now is as good as any, sir, because -- 18 CHAIRMAN: I noticed you were receiving gratuitous advice. 19 MR BOULDING: I get lots of that. 20 CHAIRMAN: All right. Thank you very much. I think what we 21 can do is -- 2 o'clock, would that be all right? 22 I think 2 o'clock. We may have to sit a little bit 23 later than normal this evening. 24 Good. Thank you very much. 25 (1.02 pm)
Page 94	1 the internal stresses at the top-of-wall construction 2 joint relating to the 'first change' and its rebar 3 detailing). Notwithstanding, all agreed the outcome 4 would not show the construction joint to be 5 problematic". 6 Now, the wording in brackets, a slight 7 qualification, my recollection is that it came from 8 Prof Au, and my submission would be that in 9 circumstances where the note clearly shows him 10 inserting, and having it inserted, a reservation, it 11 makes it all the more unlikely that he did not fully 12 agree with everything else that was put in the 13 memorandum and indeed signed off. 14 CHAIRMAN: Sorry, bear with me a second. 15 (Commissioners conferring) 16 With the EWL slab, what you are saying, in simple 17 terms for me, is the top part is in tension of the EWL 18 slab, so it's pulling apart. 19 MR BOULDING: Yes. 20 CHAIRMAN: That's an important factor. 21 MR BOULDING: Yes. 22 CHAIRMAN: But what you have to take into account, insofar 23 as that's an important factor, and insofar as there may 24 be problematic issues with the couplers, those 25 problematic issues are greatly reduced because
Page 96	1 (The luncheon adjournment) 2 (2.02 pm) 3 MR BOULDING: Good afternoon, sir. Good afternoon, 4 Professor. 5 We were talking about the change to through-bars and 6 I had just referred to the joint memorandum where all 7 experts agreed that it was a better detail. 8 Staying with this, because it's an important section 9 of our submissions, relating as it does to safety, it's 10 important to note that the through-bars have various 11 good effects. Firstly, they eliminate the vertical 12 construction joints at the top of the D-wall with the 13 top of the EWL slab and the OTE slab, which you will 14 probably recall Mr Southward explained are points of 15 high stress. 16 Indeed, the Code of Practice 2004 recommends that 17 a construction point of high stress is something which 18 must be avoided. This fact of course means that there 19 is less stress on the horizontal construction joint than 20 with the original vertical construction joints, or 21 course another benefit, because it also increases the 22 amount of longitudinal amount of reinforcement that 23 connects the EWL slab to the D-wall, meaning that the 24 structure is stronger, with more robustness and 25 redundancy.



<p style="text-align: right;">Page 97</p> <p>1 You will recall that the Commission's expert, Don 2 McQuillan, explained that consistent with the views of 3 both Mr Southward and Dr Glover, that the original 4 design was analogous to what he referred to as a butt 5 joint, but that the through-bars reinforcement detail is 6 analogous to a shelf joint.</p> <p>7 What does this mean? The through-bar detail means 8 in practice that firstly the trimmed-down D-wall is 9 encapsulated and clamped by the EWL slab bending away in 10 one direction. Of course, the OTE bends away in the 11 opposite direction and the self-weight of the integral 12 block of reinforced concrete which bears down on the 13 construction joint. That's the result.</p> <p>14 So the consequence of this seems to me to be a bit 15 like a pincer movement -- the consequence of this is 16 that the block is prevented from splitting above the 17 D-wall by the embedded tension rebar.</p> <p>18 What about the internal stresses at the top-of-wall 19 construction joint? All of these are of a compressive 20 nature; I emphasise compressive nature. So any tendency 21 for a shear force to develop across the interface would 22 be resisted by McQuillan's clamping action of the EWL 23 and the OTE slab which bears against the D-wall.</p> <p>24 But of course Dr Glover chipped in here, and his 25 evidence was important. He emphasised that because of</p>	<p style="text-align: right;">Page 99</p> <p>1 is talking here about elements in "a" structure? 2 MR BOULDING: Yes, "a" structure. 3 COMMISSIONER HANSFORD: Not specifically this specific 4 structure; it's "a" structure? 5 MR BOULDING: That's absolutely right. 6 COMMISSIONER HANSFORD: Understood. 7 MR BOULDING: Now, Atkins, Arup and COWI, all reputable 8 consulting engineering companies, assessed and reviewed 9 the strength of the station box structure, which 10 structure does not generally perform above a utilisation 11 of 50 per cent and indeed sometimes less. The 12 consequence of this is that there is adequate reserve 13 capacity in the EWL slab and in the east D-wall 14 connections.</p> <p>15 In addition, it also bears emphasis that Arup did in 16 fact carry out an analysis of the east D-wall percentage 17 moment utilisation at the EWL/NSL slab track and soffit 18 levels, and that was set out in what is referred to as 19 their "Assessment report, design spot-checks for 20 diaphragm walls -- Plaxis analysis". That's B20/26011 21 to 26012.</p> <p>22 Of course, as I have said already, extra supports 23 from also been constructed in the form of columns and 24 walls from the NSL, which reduce the span of the 25 structures and, as a result, the effects of subsequent</p>
<p style="text-align: right;">Page 98</p> <p>1 the geometry of the EWL slab and the OTE slab forming 2 effectively a continuous slab locking in the top of the 3 wall into a "rebate", as he described it, in the slab 4 soffit, that meant that the quality of the construction 5 joint had a minimal effect -- minimal effect -- on the 6 performance of the slab-to-wall connection.</p> <p>7 So all good, in our submission.</p> <p>8 What about the low percentage strength utilisation? 9 This was something that was touched upon by Mr Chow this 10 morning. The low percentage strength utilisation is 11 generally throughout the structure, and it's 12 an important consideration. What it means is that this 13 low percentage strength utilisation, which arises in 14 great part from the phased nature of the construction -- 15 what it means is that the impact of any defective 16 coupler connections on structural safety is low.</p> <p>17 There are various points, important points, to note 18 in this regard. Dr Glover pointed out that most 19 elements in a structure are not operating at 20 100 per cent of their capacity under full operational 21 loadings. This can be a result of various factors: 22 prudent design, what he referred to as standardisation, 23 or the fact that the critical loading conditions had 24 passed.</p> <p>25 COMMISSIONER HANSFORD: Sorry, Mr Boulding -- and Dr Glover</p>	<p style="text-align: right;">Page 100</p> <p>1 operational loadings. 2 Another point that I've made, but it's important so 3 I make it again: the track lies virtually over, and 4 loads directly onto, the D-walls. So the cyclic loading 5 on the EWL slab arising from train operations is 6 consequently less than would be expected from other 7 sources such as an earthquake.</p> <p>8 Again, to refer to Dr Glover's evidence, these low 9 levels of utilisation have two very important 10 consequences. Firstly, the structure has a comfortable 11 level of robustness and redundancy, and as a result the 12 demands on the coupler connections are very much less 13 than expected.</p> <p>14 Now, staying with the couplers for a moment, the 15 identified individual incidents of defective coupler 16 connections do not raise any structural safety concerns, 17 for the following reasons. Firstly, the evidence 18 reveals a very limited number of rebars which might have 19 been cut short. Secondly, Dr Glover expressed the view, 20 which was unchallenged, that the cutting of the rebars, 21 and then to quote him, "would have to have been on such 22 an unimaginable industrial scale and, in addition, 23 focused in specific areas, to have any effect whatsoever 24 on the structural integrity of this construction, 25 particularly in terms of making it unsafe".</p>

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<p>1 So, proceeding on that unchallenged basis, even 2 assuming that all of the incidents of cutting that have 3 been discovered were not type B rebars being cut short 4 for use as type A rebars, the confident conclusion can 5 be reached that the as-constructed platform slabs are 6 structurally safe.</p> <p>7 Very importantly, as Mr Southward correctly 8 highlighted, again with Don McQuillan's and Mike 9 Glover's agreement: firstly, the structure has already 10 been built and the load on the couplers is already there 11 and there is no sign of distress. He also pointed out 12 that if it was going to fail, it would have failed 13 already, as its critical load condition has already 14 passed during the construction phase.</p> <p>15 In terms of future loading on the coupler assembly, 16 it would be the weight of the trains as they move over 17 the slab. But the stress in those bars is quite small, 18 and the reason for that, he told us, is that whilst the 19 trains are heavy, they are absolutely nothing compared 20 to the weight of the 3 metre slab. So there's no safety 21 issue.</p> <p>22 CHAIRMAN: May I ask one question -- it's probably there and 23 I've missed it -- but had there been checks carried out, 24 which I assume there must have been, to see if there's 25 any sign of stress, cracking and the like?</p>	<p>1 platform. Thirdly, nothing out of the normal has been 2 detected.</p> <p>3 We would invite you to make a finding that the 4 structure is in fact safe for its intended lifespan.</p> <p>5 We come on to the relevance of the opening-up. 6 We've had a lot of evidence about that. These commenced 7 fairly recently, on 10 December 2018, with two principal 8 objectives. Firstly, to verify the as-constructed 9 conditions of the EWL slab to the D-wall connection; 10 and, secondly, to investigate the workmanship quality of 11 the D-walls, the EWL and NSL slabs to D-wall connection, 12 and the concrete and steel reinforcement.</p> <p>13 We know, indeed we have heard today, that the 14 so-called pass criterion specified by Highways in its 15 online results bulletin is a 37 millimetre thread 16 engagement length for a T40 type A coupled assembly. 17 Over the course of the next few minutes, I'm going to 18 make various points, and I trust that they deal 19 adequately with the points made by my learned friends in 20 paragraphs 162 to 165 of the government's written 21 closing; in short, the safety criterion.</p> <p>22 Now, again, McQuillan, Glover and Southward all 23 conclude -- all conclude -- that for the purpose of 24 assessing structural safety, six threads or 24 to 25 26 millimetres of engagement should be the criterion</p>
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<p>1 MR BOULDING: Checks in the sense that people have walked 2 around. Yes, that's obviously been carried out as part 3 of the MTR monitoring operation.</p> <p>4 CHAIRMAN: Good. Thank you.</p> <p>5 MR BOULDING: I'm also reminded -- and this is not 6 gratuitous advice -- that the train testing has been 7 ongoing for several months now. A very important point.</p> <p>8 CHAIRMAN: Of course. Thank you.</p> <p>9 MR BOULDING: And just drawing the threads together, because 10 safety is such an important matter -- firstly, the 11 station box structure has a large degree of redundancy 12 and robustness. Secondly, as a consequence, it's got 13 a comfortable margin of safety. That means that Glover, 14 McQuillan and Southward are all correct -- I emphasise 15 "correct" -- to express the firm opinion that the 16 structure is safe for its intended lifespan.</p> <p>17 In this respect, MTR agrees with Commission 18 counsel's written closing at paragraphs 284 and 285 19 which accepts that the explanations given by 20 Mr Southward, Dr Glover and Prof McQuillan are entirely 21 realistic. They point out, and we respectfully agree, 22 that a good reality check is provided by the following 23 facts. Firstly, the EWL slab and NSL slab have been 24 completed for a considerable time. Secondly, MTR in the 25 meantime has carried out the train tests at the</p>	<p>1 employed. Now, there are various important points to be 2 made here. Firstly, there is a clear but vitally 3 important distinction between compliance, code 4 compliance, contractual compliance, and safety. This 5 was the point that Mike Glover made during the course of 6 his re-examination.</p> <p>7 As the learned Chairman has said already, the 8 Commission of Inquiry is concerned primarily, we would 9 say, with safety and fitness for purpose. So, on that 10 basis, it should be approaching the opening-up results 11 by reference to the test criterion for safety, not 12 technical compliance.</p> <p>13 Now, in this regard, you will have noted that the 14 BOSA Seissplice system thread strength calculation table 15 gives a verified pass criterion of 22 millimetres, or 16 5.5 threads at 4 millimetre pitch, as an absolute 17 minimum to achieve full rebar tension. But 18 24 millimetres, that's six threads at 4 millimetres 19 pitch, to give a safety factor of 1.14.</p> <p>20 So we would submit, based on the calculation for 21 complete threads with full integrity, the number of 22 threads that are required to achieve the specified 23 tensile strength is six or 24 millimetres. Of course, 24 this was confirmed in the tests we have seen to date 25 from BOSA, which of course were witnessed by BD</p>

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1 representatives, Buildings Department representatives.  
 2 As Don McQuillan highlighted, the actual stress levels  
 3 in the EWL slab and the rebar at the D-wall connections,  
 4 based of course on low utilisation rates -- relatively  
 5 low.  
 6 That means that six threads of engagement is already  
 7 conservative, a conservative criterion, in terms of  
 8 structural safety.  
 9 Of course you will recall that Prof Au attempted to  
 10 challenge BOSA's calculations and tests, but it does  
 11 need to be pointed out that, firstly, he has still not  
 12 carried out any calculation or test to support such  
 13 a challenge. The Buildings Department witnessed the  
 14 tests without objection, but obviously would have  
 15 objected had they considered there was any invalidity  
 16 with the testing procedure. And I think finally in this  
 17 context, Prof Au, always doubting things, also queried  
 18 whether the tests were on grade 460 steel, which  
 19 of course Leightons have told us was used up and around  
 20 to May 2016, or grade 500 rebar. But importantly, he  
 21 agreed to my proposition that if grade 500 was used on  
 22 the job instead of grade 460, one would get an even  
 23 better result in terms of strength.  
 24 Whilst we are talking about tests, we had a deal of  
 25 debate about the elongation test. Dr Glover explained

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1 that such a test was irrelevant to structural integrity,  
 2 for the following reasons.  
 3 The test involved pulling the coupler at a high  
 4 level of stress, to measure the elongation, to test  
 5 a particular component as to whether it does what it  
 6 should do. You will probably remember his words. He  
 7 said, "It's an error to then extrapolate that into what  
 8 happens in the structure." Don McQuillan also agreed  
 9 with this statement and noted that because of the  
 10 utilisation values of the structure, they were never  
 11 going to stray to 0.1 of a millimetre, which I'm told is  
 12 about the breadth of a human hair.  
 13 On the basis of the latest opening-up results which  
 14 the Commission understandably wanted the parties to deal  
 15 with in their submissions, on the basis of six threads,  
 16 ie 24 to 26 millimetre engagement as representing  
 17 safety, as at 28 January, there are only three results  
 18 which could be regarded as failures. They are as  
 19 follows. Item 5 in the table of results which we have  
 20 looked at on more than one occasion -- that's EH44.  
 21 Now, the situation here is that one defective top  
 22 coupler was found with an engagement length of  
 23 6.22 millimetres. That means it had nine to ten exposed  
 24 threads. But it's not as simple as that, we would say.  
 25 We say that for the following reasons. Firstly, the

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1 coupler is located in the top mat. Secondly, in the  
 2 light of the engagement length and the number of exposed  
 3 threads, it could be a type B rebar. Third point: Don  
 4 McQuillan expressed the view that if this is an isolated  
 5 incident, which of course it is, based on current  
 6 evidence, and there are no adjacent rebars similarly  
 7 compromised, the coupled joint can be left as is or  
 8 welded.  
 9 He also said, and it bears emphasis, that given that  
 10 there are only a limited number of D-wall panels where  
 11 couplers were retained on the top rebar of the EWL slab,  
 12 the potential for finding similar defects is small.  
 13 That's the point the Chairman made to me before the  
 14 lunch break.  
 15 That's the first failure. The other two failures  
 16 are EH107 and WH113. They are respectively items 22 and  
 17 98 in the table of results, and we've also looked at  
 18 those.  
 19 So there were two defective connections found in the  
 20 EWL slab soffit at these locations, but again it's not  
 21 as simple as that. It bears emphasis that, firstly,  
 22 EH107 was located in the bottom mat. WH113 was located  
 23 on the west side of the slab where, I've already pointed  
 24 out, couplers were not required as the west slab sits on  
 25 top of the D-wall. In addition, it was in the bottom

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1 mat. EH107 had an engagement length of 9.40  
 2 millimetres, that's something like six to seven exposed  
 3 threads. WH113 had an engagement length of  
 4 20.86 millimetres, something like seven to eight exposed  
 5 threads. But so far as WH113 is concerned, it means  
 6 that the threaded length was 48.8 millimetres or even as  
 7 much as 52.86 millimetres and that indicates that it was  
 8 almost certainly a type B rebar.  
 9 Further important points, though, is that the  
 10 coupled rebar at the bottom mat of the EWL slab is  
 11 always in compression, and as I've told you slightly  
 12 before lunch the coupler and the bar is redundant so the  
 13 structure is safe.  
 14 What about if I talk you through Don McQuillan's  
 15 relevant criterion of 32 millimetres. That's referred  
 16 to in Mr Pennicott's closing submissions --  
 17 CHAIRMAN: Can I ask just one question?  
 18 MR BOULDING: Yes.  
 19 CHAIRMAN: If you are always in compression, then -- I know  
 20 the experts have said it but I just want to -- then you  
 21 don't have to worry about shear force?  
 22 MR BOULDING: Yes, that's one of the factors.  
 23 CHAIRMAN: Thank you.  
 24 MR BOULDING: Thank you.  
 25 Yes, Mr McQuillan's relevant criterion of

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1 32 millimetres -- this is Mr Pennicott's submission at  
 2 paragraph 277 -- if that's taken, there are only seven  
 3 so-called failures out of the 116 results to date; "to  
 4 date" meaning 28 January. That's only 6 per cent, and  
 5 four of these failures are on the west slab which sits  
 6 on the D-wall, so again I emphasise that in terms of  
 7 safety, the coupler connections are not required in any  
 8 event.  
 9 And all of the engineering experts agree that given  
 10 the redundancy of the couplers in the bottom of the EWL  
 11 slab, further opening up of the soffit is unnecessary,  
 12 and indeed the focus should be directed to the top of  
 13 the east D-wall to verify the as-built drawings and the  
 14 details which are of structural significance.  
 15 I emphasise both to the Commission and indeed to  
 16 anyone else who's listening that to date the results are  
 17 not suggestive of any systematic or large-scale threaded  
 18 rebar cutting, and the available evidence and opening-up  
 19 results mean that the likelihood of a large number of  
 20 failed couplers concentrated in one location is  
 21 extremely remote.  
 22 Finally, I just remind you, in any event, that Don  
 23 McQuillan, the Commission's expert, has cast doubts on  
 24 the reliability of the PAUT results.  
 25 No submission on the couplers would be complete

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1 without a reference to butt-to-butt. In his oral  
 2 synopsis and in the very last week of evidence, Prof Au  
 3 referred to BOSA's letter to the Buildings Department  
 4 dated 7 January 2019, and for the very first time,  
 5 certainly so far as MTR are concerned, it was contended  
 6 that ten full threads had to be engaged and the rebar  
 7 had to be tightened so that the bars are butt-to-butt;  
 8 otherwise, the assembly may be considered loose.  
 9 As I've made clear by I think one intervention  
 10 during the course of the hearing, MTR has raised  
 11 concerns about the shifting focus of the Commission of  
 12 Inquiry. I do reiterate the marker that I put down  
 13 before: the opening-up was directed initially at  
 14 establishing only the extent of the cut rebars, and  
 15 of course whether the connection detail in the EWL slab  
 16 was in accordance with Leighton's and MTR's  
 17 as-constructed drawings.  
 18 However, it would appear that the current situation  
 19 is that the safety of the structure is now being  
 20 determined, at least so far as government and China  
 21 Technology are concerned, by reference to the opening-up  
 22 exercise, and in particular whether the rebars have  
 23 satisfied the purported butt-to-butt requirement.  
 24 Now, there are problems with that, and I don't know  
 25 how you are going to grapple with them. The problems

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1 arise out of various factors, but in particular,  
 2 of course, none of these matters were investigated  
 3 during the course of the factual evidence; for example,  
 4 whether BOSA gave any instructions during the courses  
 5 that the workers attended wherein they were told, "These  
 6 rebars have got to be butt-to-butt." It doesn't end  
 7 there, of course, because it also impacts upon the  
 8 evidence of surveillance and inspection. One can  
 9 imagine, for example, how perhaps Leightons might have  
 10 an obligation to make it butt-to-butt, but how, in  
 11 circumstances where MTR has 20 per cent/50 per cent  
 12 inspection, is it to be suggested that we had to ensure  
 13 or could have ensured it was butt-to-butt, absent having  
 14 little x-ray machines in our back pocket to see what was  
 15 happening behind the steel cover of the coupler?  
 16 You will have seen -- I have taken you there before;  
 17 I might even have to take you there today -- that the  
 18 BOSA diagram shows at one end what is acceptable, all  
 19 the threads engaged; at the other end what's acceptable  
 20 is the two threads, and we have heard evidence from Andy  
 21 Wong, and I referred to it this morning, in terms of  
 22 what they were looking at.  
 23 CHAIRMAN: Sorry, I'm interrupting you again.  
 24 MR BOULDING: Please.  
 25 CHAIRMAN: We will have to reconsider the evidence very

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1 carefully, and whatever I now say is subject to that,  
 2 but I do not recall any material coming before us  
 3 earlier in this Inquiry, certainly not from BOSA itself,  
 4 saying that butt-to-butt was an essential element.  
 5 I think it follows that, ideally, if you are doing it,  
 6 you keep screwing until, clunk, it butts, but nobody  
 7 seems to suggest that was imperative and if you had any  
 8 problem -- if you didn't hear the clunk of metal on  
 9 metal, then you should call Leightons in to do some  
 10 remedial work. I didn't hear that.  
 11 MR BOULDING: Well, you're absolutely correct, sir.  
 12 CHAIRMAN: I appreciate that's only one way of looking at it  
 13 and we must look at the evidence broadly as well.  
 14 MR BOULDING: It may well be, having regard to an answer I  
 15 think it was that Prof Au gave me, that the clunk you  
 16 hear is not the clunk of metal to metal but metal to  
 17 a small lump of concrete or some other piece of  
 18 extraneous material which has managed to locate itself  
 19 within the coupler. And therein lies the problem.  
 20 But I should say that had we been able to call our  
 21 relevant evidence, our evidence would be that all of our  
 22 workers who attended the BOSA course were never given  
 23 a direction that rebars had been butt-to-butt, and  
 24 indeed they were all instructed to the effect that the  
 25 two threads would be what you were doing for.

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1 MR CHOW: If I can just assist on this point -- there is  
2 a date from BOSA dated 18 January. Can I just give you  
3 the page reference?  
4 CHAIRMAN: This is the 2019 one.  
5 MR CHOW: I know that, but in this letter, which is a new  
6 letter which came in recently, in which he says the  
7 butt-to-butt requirement was basically taught at the  
8 training session, because he was the one who personally  
9 gave that training session.  
10 But of course it's up to the Commission to  
11 consider -- this is a piece of information that came in  
12 late.  
13 CHAIRMAN: Yes.  
14 MR BOULDING: Very, very late. That is very, very hotly  
15 disputed indeed. You can imagine that had that evidence  
16 been before the Commission of Inquiry several weeks ago,  
17 it would have been tested by way of cross-examination.  
18 Indeed, I venture to suggest that in circumstances where  
19 the butt-to-butt requirement is allegedly so important,  
20 and we would certainly say BOSA never made that clear --  
21 it appears to us that there would have been good grounds  
22 for even making them a party to the Inquiry, with  
23 a Salmon letter, because if they are now saying it has  
24 to be butt-to-butt, absent butt-to-butt there are  
25 serious concerns, we would certainly be saying that was

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1 never made clear, and to the extent there is a problem  
2 I'm afraid you are at least partially, if not wholly, to  
3 blame.  
4 And of course we would also like to see their  
5 various documentation, there must have been presumably  
6 something internally circulated about this. We would  
7 need to see their training -- any further training  
8 manuals they've got and the like. These are enormous  
9 difficulties, and of necessity we have to reserve our  
10 position.  
11 Notwithstanding that, we have summarised our  
12 position insofar as the requirement for butt-to-butt is  
13 concerned, and it is noted with gratitude that counsel  
14 for the Commission of Inquiry agrees with that and has  
15 adopted our position, and we say the only reference we  
16 have seen, apart from these letters which were brought  
17 into existence over the course of the last week or so --  
18 the only reference we have seen is in the QSP and that's  
19 butt-to-butt and it states:  
20 "BOSA CNC threading machines are always programmed  
21 by default to allow a positive tolerance on the thread  
22 length.  
23 This is to ensure butt-to-butt connections can" --  
24 and I emphasise the word "can" -- "always be achieved  
25 when the rebars are spliced inside the coupler."

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1 But we say at best these sentences are  
2 a manufacturing specification to ensure butt-to-butt  
3 connections can be achieved but not a mandatory  
4 requirement that such connections must be achieved in  
5 coupler installations.  
6 But it doesn't stop there. BOSA's manual contains  
7 no requirement for a butt-to-butt connection in the  
8 instructions for proper coupler installations for type A  
9 rebars, and on the contrary states:  
10 "After connection has been fully tightened, one  
11 should see a maximum tolerance of two full threads" --  
12 those words are underlined -- "to ensure a proper  
13 installation."  
14 Again, I repeat, this is precisely the basis on  
15 which the MTR inspectors base their visual inspection.  
16 We also have various other points to make. Contrary  
17 to Prof Yeung's contention that the tolerance stated in  
18 the BOSA manual refers to the threading process, ie  
19 namely BOSA may produce threaded rebars with up to 12  
20 threads, we say that it's clear from the evidence that  
21 we've seen before the tribunal, and I saw Prof Hansford  
22 counting the threads, that the time A rebar had 10 or  
23 a maximum of 11 threads. The best evidence is in the  
24 rebar which was before you.  
25 So if you have a maximum of two threads showing --

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1 and that's acceptable -- it is; see the BOSA manual --  
2 and there are 10 or 11 threads on the rebar, only eight,  
3 that's 32 millimetres, or nine, that's 36 millimetres,  
4 are required to be engaged.  
5 But we do not shirk from the submission that if  
6 butt-to-butt connection was vital or indeed necessary to  
7 ensure integrity, it would and should have been stated  
8 as an instruction so that the workers on site would know  
9 exactly what had to be achieved.  
10 So that's enough on butt-to-butt, but --  
11 CHAIRMAN: I think what concerns me is if butt-to-butt is  
12 essential -- I mean, obviously any manual is going to  
13 say, "You should do this, you should do that", because  
14 they want everything to operate well within tolerance.  
15 But if it was essential, it leads to all sorts of other  
16 questions, such as continuous supervision. If you've  
17 got to actually hear a clunk of metal on metal, then  
18 you've got to have somebody making sure that each and  
19 every time it's put in and there would be some sort of  
20 underlining, "We will not be responsible for what may  
21 happen if there's no butt-to-butt connection",  
22 et cetera. Plus you'd expect it to be underlined with  
23 a big red "danger" sign if you don't do it.  
24 MR BOULDING: I agree entirely, sir.  
25 CHAIRMAN: I'm not saying those questions are to be answered

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<p>1 within, on the basis of of course that must be the case, 2 but I think it's worthwhile at least putting those 3 questions and saying, looking at the overall 4 circumstances, while it was no doubt ideal and while no 5 doubt the manufacturers would like it that way and while 6 no doubt it's quite simple to do, in certain 7 circumstances, it's not always easy to do, for example 8 if you're dealing with diaphragm walls and things of 9 that kind. 10 COMMISSIONER HANSFORD: It seems to me as well this perhaps 11 goes to two points. One is what's required for safety, 12 and the other is what indeed is even required for code 13 compliance, because it's not clear to me that 14 butt-to-butt is needed for code compliance. 15 MR BOULDING: These are all things no doubt that had they 16 been raised at the time, we would have investigated to 17 assist you, sir. But I would end this part of my 18 submissions by making the submission that it's 19 absolutely astonishing that the contents of the letters 20 we have seen for the first time over the course of the 21 last few days do not find any expression whatsoever in 22 the BOSA manual. 23 COMMISSIONER HANSFORD: Right. 24 MR BOULDING: Now, other alleged defects; I can be very 25 quick on this. Various other minor defects or alleged</p>	<p>1 attention to this particular matter and I was going to 2 make the point that we deal in there with the detail of 3 events, but on the basis of the correspondence and 4 design reports which were exchanged at the time, we 5 would submit that MTR's CM team made the professional 6 engineering judgment that monolithic casting of the EWL 7 and OTE slabs necessitated the trimming down of the east 8 D-walls. We do submit that this was a reasonable 9 interpretation of the way the word "monolithic" was 10 being used at the time in the context of what was being 11 required insofar as the concreting of the OTE slab and 12 the EWL slab was required. It's also drawn to my 13 attention that this matter is also dealt with in 14 paragraphs 64 to 68 on pages 24 to 26 of our submission. 15 That reasonable interpretation, I point out, was 16 also shared by Leightons at the time. 17 Whilst we would say that the rational basis of the 18 construction management team, MTR's construction 19 management team, is clear as a matter of fact, we do 20 acknowledge that the evidence discloses a lack of 21 meaningful communication between MTR, Leighton and 22 Atkins. Indeed, you will probably recall that MTR's 23 witness, Kit Chan, very fairly accepted during the 24 course of his evidence that there was always room for 25 improvement, including on communication. But having</p>
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<p>1 defects have been raised and addressed during the course 2 of the Commission of Inquiry, namely water leakage 3 through the D-walls, misaligned shear links, the alleged 4 use of lightweight concrete as backfill in area A, and 5 last but not least, I think, honeycomb. 6 None -- I emphasise none -- of these ancillary 7 matters, to the extent they exist, pose any -- 8 CHAIRMAN: I think you can move on from this. We are happy 9 with that. We are not trying to be arbitrary. 10 MR BOULDING: No, that's very helpful. 11 MR PENNICOTT: Can everyone else take a note of that. 12 CHAIRMAN: Yes. 13 MR BOULDING: Having talked about the change in the 14 connection detail, the "second change" as it's called, 15 we have seen a lot of factual evidence about that. That 16 is dealt with in section VI(iv) of MTR's closing. 17 COMMISSIONER HANSFORD: Which page is that, Mr Boulding? 18 MR BOULDING: VI(iv). 19 COMMISSIONER HANSFORD: Page 76; is that it? The bottom of 20 page 76? 21 MR BOULDING: Yes. 22 COMMISSIONER HANSFORD: Is that where you're taking me? 23 MR BOULDING: Yes. 24 COMMISSIONER HANSFORD: Thank you. 25 MR BOULDING: That's where essentially I am drawing your</p>	<p>1 said that, he did point out -- realistically, I would 2 submit -- that some minor miscommunication is 3 unavoidable given the pressures on a large project. He 4 also said that the use of simple English, face-to-face 5 discussions, rather than emails, may well avoid similar 6 problems of miscommunication. 7 As you now know, this miscommunication unfortunately 8 resulted in the absence of revised working drawings or 9 a formal design submission to the Buildings Department. 10 We do emphasise -- it's a point we make in 11 paragraph 169 of our written closings -- that there was 12 never, ever any intention on the part of MTR to mislead 13 or conceal, and in fact, as MTR's Jason Ho pointed out 14 during the course of his evidence, given that the 15 trimming down of the east D-wall was openly carried out 16 over a few months, so far as he's concerned someone 17 would have raised objections to the works if they were 18 thought to be wrong. But of course no one did so. 19 Notwithstanding, I have to point out to you that 20 both project management experts agreed that there was 21 a lack of meaningful communications between MTR's DM and 22 CM teams, Leighton and Atkins; that the second change 23 should not have proceeded without approved working 24 drawings; and it was Leighton's contractual obligation 25 to progressively produce as-built drawings and records</p>

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<p>1 and submit them to MTR.</p> <p>2 Overall, I record, I remind you, that the PM</p> <p>3 experts, project management experts, jointly recommended</p> <p>4 that firstly liaison arrangements between the</p> <p>5 contractor's design team, the Buildings Department and</p> <p>6 MTR's DM and CM teams should be reviewed to ensure that</p> <p>7 there was a common understanding of the submission</p> <p>8 requirements and that all parties are aware of design</p> <p>9 issues.</p> <p>10 The next point will no doubt please Prof Hansford:</p> <p>11 BIM should be developed and implemented as</p> <p>12 a collaboration tool and the documentation setting out</p> <p>13 as-built record requirements should be reviewed and</p> <p>14 arrangement should be made to ensure that the records</p> <p>15 are submitted progressively and promptly.</p> <p>16 COMMISSIONER HANSFORD: Sorry, what's the presumption, that</p> <p>17 that would please ...?</p> <p>18 MR BOULDING: Yes. I recall from your discussions with the</p> <p>19 project management experts that you were rather</p> <p>20 enthused, as I recall it, by the prospect of BIM being</p> <p>21 implemented.</p> <p>22 COMMISSIONER HANSFORD: It's true, I'm a great advocate for</p> <p>23 BIM. Okay. As long as it's not just there to satisfy</p> <p>24 me.</p> <p>25 MR BOULDING: No. And the Commission of Inquiry has</p>	<p>1 preparation of the report, but it bears emphasis that</p> <p>2 this was the inadvertent product of five extenuating</p> <p>3 factors. Firstly, the June report was prepared under</p> <p>4 immense time pressure at the same time the CM team was</p> <p>5 attending to its daily tasks and challenges in respect</p> <p>6 of the ongoing works on contract 1112. Secondly, the</p> <p>7 report dealt with events that occurred some three years</p> <p>8 previously -- 2015 -- which required the search for and</p> <p>9 the collation of a large volume of information and</p> <p>10 records from that earlier time.</p> <p>11 Thirdly, at the time, the change in connection</p> <p>12 detail was considered to be a minor change, particularly</p> <p>13 in the light of the many more pressing issues such as</p> <p>14 underpinning works and the like, which the CM team had</p> <p>15 to deal with on a daily basis.</p> <p>16 Fourthly, at the time the biggest focus, not</p> <p>17 surprisingly, you might think, was cut bars and the</p> <p>18 background thereto.</p> <p>19 Finally, MTR did not have enough of the team that</p> <p>20 was originally involved in the construction involved in</p> <p>21 that period from end of May through to 15 June, so as to</p> <p>22 be able to recall clearly and to point out that second</p> <p>23 change had occurred. So whilst it is not excusable, in</p> <p>24 the circumstances, it's submitted that it is</p> <p>25 understandable that something was missed during the</p>
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<p>1 of course been updated as to the measures that have been</p> <p>2 adopted, and BIM as a collaboration tool is of</p> <p>3 particular relevance, and the common data environment</p> <p>4 for BIM went live in December 2018 and will be trialed</p> <p>5 on the SCL contract C 11081.</p> <p>6 COMMISSIONER HANSFORD: I'm very pleased to hear that.</p> <p>7 MR BOULDING: Splendid.</p> <p>8 Moving on to another topic that I think I can take</p> <p>9 fairly shortly, and that is was there any credible</p> <p>10 evidence to support the large-scale malpractice which</p> <p>11 Mr Jason Poon of China Technology Corporation Ltd has</p> <p>12 alleged? In effect, this picks up --</p> <p>13 CHAIRMAN: That's okay. Thank you very much. We've looked</p> <p>14 at the evidence there and I don't think we need</p> <p>15 assistance.</p> <p>16 MR BOULDING: Thank you.</p> <p>17 I will move on very quickly to the June 2018 report.</p> <p>18 This is a matter I dealt with in opening, and it's</p> <p>19 regrettable that the report contained inaccuracies, in</p> <p>20 particular as to the number of couplers present in the</p> <p>21 diaphragm walls and the platform slabs, but MTR</p> <p>22 emphasises once again that there really was no intention</p> <p>23 to mislead.</p> <p>24 It is indeed regrettable that MTRC and team did not</p> <p>25 take into account the second change during the</p>	<p>1 process of preparing the June report. But I hope that</p> <p>2 you will agree that, to its credit, MTR put its hand up</p> <p>3 to the issue once it was known, as demonstrated by its</p> <p>4 letter dated 13 July 2018 to the RDO, based on the</p> <p>5 information available at that time.</p> <p>6 Now, what contributed to the inaccuracies in the</p> <p>7 June report? Well, MTR accepts that there were project</p> <p>8 management issues which contributed to those</p> <p>9 inaccuracies and, like government, welcomes the</p> <p>10 recommendations of the project management experts which</p> <p>11 are already being implemented. In particular, the</p> <p>12 project management experts identified four aspects with</p> <p>13 room for improvement. Firstly, hold-point inspections</p> <p>14 and RISC forms; secondly, MTR's supervision and</p> <p>15 inspection of coupler installations; thirdly,</p> <p>16 contemporaneous record-keeping for couple inspections;</p> <p>17 and fourthly, management of change in connection detail</p> <p>18 and as-built records.</p> <p>19 The factual evidence is set out in section VI of our</p> <p>20 written closings -- we can give you the page number to</p> <p>21 that in due course if you need it -- and the PM experts</p> <p>22 once again have made recommendations and these are</p> <p>23 either implemented already or will be implemented in the</p> <p>24 very near future.</p> <p>25 I just want to say a little bit about the handling</p>

<p style="text-align: right;">Page 125</p> <p>1 of the trimmed bars when they were discovered on site. 2 This is dealt with in section VII of our closing. In 3 essence, it's the NCR process. 4 For the reasons set out in some detail, I fear, in 5 section VII of our written closing submissions, the MTR 6 submits that the weight of the evidence supports the 7 fact that its CM team broadly followed the PIMS 8 procedure when handling the five occurrences identified 9 by Kobe Wong. In particular, what he did was in line 10 with the guidance in PIMS PN/11-4/A4 to encourage 11 Leighton to deal with the problem immediately if 12 possible and to raise its own NCR. 13 Again, MTR accepts it would be prudent to learn from 14 these lessons and consider how appropriate measures can 15 be taken in response to what might be referred to as 16 a near-miss in the future; we don't want any more of 17 those. 18 Accordingly MTR welcomes, and once again are 19 implementing the observations of the project management 20 experts on the NCR system. 21 As I promised earlier, I'm going to give you the 22 latest update on the implementation of these 23 recommendations. I am referring to the codes in Steve 24 Hamill's table A which accompanied the letter which we 25 put before you a few days ago.</p>	<p style="text-align: right;">Page 127</p> <p>1 COMMISSIONER HANSFORD: Sorry to interrupt you. 2 Mr Boulding, what formal approval is required from 3 government? 4 MR BOULDING: Government have to approve what we are going 5 to do. 6 COMMISSIONER HANSFORD: Is that confidently expected to be 7 forthcoming? 8 MR BOULDING: I'm probably the wrong person to ask. 9 COMMISSIONER HANSFORD: Okay. 10 CHAIRMAN: Sorry, why is that? Is that so that you are 11 singing from the same hymn sheet? 12 MR BOULDING: I would have thought so. I would have 13 thought -- given the reservations that have been 14 expressed to some tests over the course of the last week 15 or so, it would be unfortunate, to say the least, if we 16 went on an expensive testing procedure and the 17 government then said it's tested at the wrong 18 temperature or in the wrong room or something like that. 19 COMMISSIONER HANSFORD: I understand that entirely. 20 However, it would also be unfortunate if we are all 21 expecting this test to be carried out on Friday, and we 22 recognise how important the results of this test might 23 be for the conclusions of this Commission, and then we 24 find they weren't actually carried out for some reason 25 that we don't know about.</p>
<p style="text-align: right;">Page 126</p> <p>1 I read into the transcript: code PP2, which is the 2 draft SCL quality management plan, is not ready as 3 planned for circulation yet, but it's planned to 4 circulate it to the Special Task Force on Quality by 5 Chinese New Year. So that's in the very near future. 6 PP5, that's the approval to the set-up panel, that's 7 the panel to review PIMS, that will be given to the 8 executive by this Thursday, which is the last day of 9 January, I think. 10 PP6: the digital system goes live tomorrow, that's 11 29 January. NCR goes live on 31 January, that's 12 Thursday. 13 PP10: manually administered NCR central register for 14 MTR NCRs is now in place. Contractor's NCRs will take 15 another week or two to load. Please bear in mind that 16 Chinese New Year is coming up. 17 CC3: use of NEC contract is not agreed for any 18 contract yet but it's being considered and the position 19 should be clarified by the end of next week. 20 I also have another update and that's on the tests 21 to be carried out by BOSA, which I referred to or 22 discussed with Prof Hansford this morning, and what I'm 23 told is that formal government approval is required, but 24 subject to that the tests will be carried out on this 25 coming Friday, 1 February 2019.</p>	<p style="text-align: right;">Page 128</p> <p>1 MR BOULDING: I accept that. But with approval, what I am 2 told is that the tests will be carried out this coming 3 Friday. The results will be available immediately, 4 albeit that a formal test report will not be available 5 until 11 February 2019, taking into account the Chinese 6 New Year. 7 No doubt those behind me have heard your various 8 queries, and if anything further can be done to assist 9 you, I'm sure it will be. 10 COMMISSIONER HANSFORD: Good. Thank you. 11 MR BOULDING: Sir, that's what I wanted to say about our own 12 submissions. I think I've got a little bit of time left 13 and I would just like to make various points on 14 China Tech's submissions, just one further point, and 15 a couple of points on the government's submissions, if 16 I may. 17 CHAIRMAN: Yes. 18 MR BOULDING: I want to do that quickly, and without turning 19 them up, and to the extent I rely upon references, I'm 20 going to read them into the transcript. 21 So far as China Technology's submissions are 22 concerned, in paragraph 14, it is submitted that by 23 sheer coincidence, Jason Poon gave evidence that coupler 24 assemblies are required to be butt-to-butt, and in that 25 regard he cited various matters. That can be found at</p>



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1 transcript Day 8, page 97, lines 8 to 10.  
 2 But we do not shirk from saying this is  
 3 a misrepresentation of the evidence, as Poon was only  
 4 saying, "the tolerance limit is just one thread or no  
 5 more than one thread, the pitch, crest to crest". We  
 6 say "crest to crest" is a clear reference to the  
 7 counting of pitches and categorically not the notion of  
 8 butt-to-butt.  
 9 In those circumstances, we do say that China Tech's  
 10 submission is misconceived. I jumped up at the time and  
 11 pointed that out. That's transcript Day 42, page 94,  
 12 lines 9 to 12. I'm going too quickly.  
 13 In terms of the government's closing, in  
 14 paragraph 3, they say:  
 15 "It is most likely that had MTR and Leighton fully  
 16 and properly discharged their duties by complying with  
 17 the required standards and procedures, the defective  
 18 works would [never] have occurred."  
 19 We say in short to that that there is a very  
 20 important distinction between the respective obligations  
 21 of MTR on the one hand and Leighton on the other.  
 22 Of course, one of the most important distinctions is  
 23 that MTR's obligation under the QSP was limited to the  
 24 inspection of 20 per cent or 50 per cent of the rebar  
 25 coupler installations, not 100 per cent.

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1 So we submit that it's obviously wrong for the  
 2 government to generally lump us together with Leighton,  
 3 and that's because we had different responsibilities.  
 4 There are many instances of that, but please watch out  
 5 for it. The Commission of Inquiry must focus on the  
 6 conduct of MTR and Leighton in all respects separately.  
 7 In this context, it also bears emphasis that the  
 8 project management experts agreed, and I quote -- this  
 9 is paragraph 5 of the joint statement -- "it is common  
 10 that some mistakes or oversights will inevitably be made  
 11 in the performance of the works of such scale and  
 12 complexity."  
 13 So, in our submission, it follows from that that  
 14 just because you find a defect, it doesn't necessarily  
 15 mean that MTR are at fault. And of course, in the  
 16 context of supervision, the opinion of the project  
 17 management experts was that supervision was not  
 18 man-marking and that the obligation on MTR was to  
 19 supervise at least 20 per cent of the splicing  
 20 assemblies.  
 21 We dealt with that in paragraph 130(i) of our  
 22 closing, and the relevant reference to the project  
 23 management experts' statement is ER1, page 9/T4.  
 24 I would also invite you to read in that context  
 25 paragraphs 152 and 153 of Steve Huyghe's report, which

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1 is at ER1/2/39.  
 2 You will have seen, sir -- and I hope it was  
 3 useful -- that in our submission we have referred to the  
 4 English case of McGlinn v Waltham Contractors,  
 5 a decision of a good friend of mine, Peter Coulson, who  
 6 is now in the Court of Appeal -- that's in our core  
 7 bundle, it's page 133, at page 139 -- and he sets out  
 8 important principles which in our submission are  
 9 relevant here in the context of what MTR was supposed to  
 10 be doing. I will leave you to read that at your  
 11 leisure, if I may.  
 12 The next point I would like to make in response --  
 13 and this is something that Mr Khaw mentioned this  
 14 morning, and it's paragraphs 23, 27 and 28 of the  
 15 government's written closing, and it's also dealt with  
 16 in the Commission's closing at paragraphs 37, 38, and in  
 17 its annex 1 diagram. Of course, it concerns the  
 18 applicability of the Buildings Ordinance.  
 19 We ought to say immediately that MTR disagrees with  
 20 government that the Buildings Ordinance applies to the  
 21 SCL project as a matter of law. That said, we note the  
 22 government's position is that the difference between  
 23 them and us on the applicability of the Buildings  
 24 Ordinance is academic. We agree, and we say that it is  
 25 unnecessary for the Commission of Inquiry to go into it,

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1 even less so decide it, but we would ask that you record  
 2 our position in your report, namely that we say that it  
 3 doesn't apply as a matter of law without deciding the  
 4 point.  
 5 Next, in paragraphs 38 and 72(2) of the government  
 6 written closing there is a statement that it was  
 7 suggested that the QSP referred to in paragraph 35 above  
 8 does not apply to the EWL slab. See evidence of Kobe  
 9 Wong, transcript Day 29, page 128, line 4, to page 133,  
 10 line 9. It was suggested that that was made without any  
 11 proper basis.  
 12 Again, we submit that care should be taken not to  
 13 conflate MTR's position with Leighton's position, in  
 14 this context on the QSP. But we point out that  
 15 government nevertheless misrepresents Kobe Wong's  
 16 evidence. Kobe Wong's evidence is that it was his own  
 17 understanding at the time that the QSP only applied to  
 18 the D-wall and not the EWL slab, as he was told the  
 19 same, by Leighton's staff and the CSF dated 23 August  
 20 2013, referred only to D-wall and barrettes. It was  
 21 never Kobe Wong's evidence that the QSP does not apply  
 22 to the EWL slab.  
 23 You might just want to look at that -- it's  
 24 B5/2659 -- because it's a very, very short point, and it  
 25 explains where he gets his understanding from. That's

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1 the one.

2 If you look under "Document title", do you see,

3 "Quality supervision plan for installation of couplers

4 for diaphragm walls and barrettes by BOSA -- second

5 submission"? If you check the evidence I've referred

6 to, that's where Kobe Wong gets his understanding from.

7 Now the next point -- I'm doing quite well -- so far

8 as government's written closing is concerned is that

9 they make a point in paragraphs 75 to 78 about the

10 absence of contemporary records. They say, to quote

11 them in paragraph 76 first:

12 "Such collective failure on Leighton and MTRCL's

13 part to maintain contemporaneous record sheets for the

14 EWL slab is inexplicable, especially when such record

15 sheets had been maintained for the D-wall and there is

16 no legitimate reason to adopt a different approach to

17 the EWL slab."

18 Then in paragraph 77(2) they say:

19 "Hold-point inspections were not properly

20 documented. Only the inspections of the top mats were

21 recorded in a RISC form. For the bottom mats, there are

22 no specific records indicating when or by whom the

23 inspections were carried out."

24 Now, we make various points in response to this, and

25 we say, first of all, there is a difference in

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1 obligations between MTR and Leightons, and if you look

2 you will see that, in paragraph 145 of our closing, the

3 QSP required the quality supervisor record sheets to be

4 prepared, maintained and kept by Leighton in

5 an inspection logbook on site, and MTR's site

6 supervisors had to countersign them.

7 We then make the point in our closing at

8 paragraph 146 that at the time of the EWL slab works,

9 Leighton had not provided any record sheets for

10 inspection logbook to MTR for countersignature. So far

11 as we're concerned, it boils down to five key points.

12 These are as follows.

13 Firstly, at the time of the EWL slab works, Jason

14 Wong's understanding and Kit Chan's understanding --

15 they were CP and CP's representative respectively -- was

16 that Kobe Wong was the quality control supervisor for

17 both the D-walls and the EWL slab, and was aware of the

18 QSP requirements.

19 The second key point: James Ho, who took up the role

20 of SConE on contract 1112 in February 2015, assumed that

21 records were kept for the EWL slab as with the D-walls.

22 The third point: the other ConEs, Derek Ma and Louis

23 Kwan, gave evidence that they were not made aware of the

24 QSP and did not attend any induction or meeting on the

25 QSP.

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1 The fourth point: Kobe Wong understood from Leighton

2 and from the cover sheet of a CSF dated 23 August that

3 the QSP only applied to the D-wall and the barrettes.

4 That's the document that we looked at a few moments ago

5 together.

6 And fifthly, Kobe Wong also explained that MTR's

7 ConE team during the D-wall works had left by the time

8 of the EWL slab works, and he was told by his seniors

9 that the ConEs were responsible for inspecting the rebar

10 fixing works.

11 So we ask you to bear in mind those five points,

12 please.

13 It's also incorrect, in our submission, to suggest

14 that the hold-point inspections were not properly

15 documented because only the top mat inspections were

16 recorded on the RISC form. This is a matter we deal

17 with in paragraph 120 of our written closing, and the

18 top and bottom rebar mats in each bay were inspected on

19 two separate occasions, and both mats were covered by

20 a single RISC form.

21 If we were to look at, for example, H1/H118, that's

22 for bay C1-1, we can in fact see -- it's very faint --

23 yes, if you look under "Part A. To be completed by the

24 contractor", and then go under (2):

25 "Work to be inspected/surveyed: inspection of rebar

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1 fixing for EWL slab C1-1", and then it says "(top and

2 bottom)".

3 If I were to take you to H142, which is bay C1-3, we

4 would see exactly the same thing. Do you see that on

5 the second line, "Work to be inspected/surveyed", go

6 across, "Inspection of rebar fixing for bay C1-3 EWL

7 slab (top and bottom steel)."

8 Finally, in this context, I remind you, albeit that

9 it was a long time ago, in paragraph 50 of his witness

10 statement, Louis Kwan's -- that's B1/B389; no need to

11 look it up -- evidence was that he was confident that

12 the top and bottom layers of rebars had both been

13 inspected on a spot-checking basis to ensure that they

14 had been properly fixed. That evidence was unchallenged

15 and in fact remains unchallenged.

16 The next point, and I'm pretty close to the end. In

17 paragraph 84 of the government's submissions, it is

18 stated:

19 "Even though [MTR's checklist] contained a footnote

20 that 'This form serves a retrospective record of coupler

21 installation', they were all dated 10 February 2017, as

22 opposed to June 2018 when they were compiled. This had

23 led Pypun to believe they were signed off on 10 February

24 2017. Kobe Wong accepted that the backdating of the

25 checklists was an attempt to make it look like they had

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1 been compiled in February 2017, at about the time when  
 2 MTRCL's internal review ..."  
 3 Then it continues:  
 4 "While Derek Ma had alleged in his witness statement  
 5 that it was emphasised to BD/RDO/Pypun representatives  
 6 the MTRCL checklists were 'retrospective records  
 7 prepared internally by MTRCL', he accepted in  
 8 cross-examination that he merely showed the checklists  
 9 to those representatives without saying they were  
 10 retrospective records. MTRCL also decided not to  
 11 cross-examine those government representatives who have  
 12 confirmed unequivocally in their witness statements that  
 13 they were never told the records were retrospective.  
 14 The government's evidence was corroborated by the  
 15 evidence of Mr Ron Yueng from Pypun."  
 16 In relation to this, we would rely upon our written  
 17 closing at paragraphs 149 to 154, but I'm not going to  
 18 take you to that because it would simply take too long.  
 19 But it bears emphasis that Derek Ma said that he showed  
 20 Kobe Wong's one-page summary table to the government  
 21 representatives on 6 June -- that date is important,  
 22 6 June -- and informed them that it was the only MTR  
 23 record available, but BD did not accept it and  
 24 specifically requested further records which were in  
 25 a similar format as appendix B of the QSP.

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1 That piece of evidence is at transcript Day 27,  
 2 page 149, line 13, to page 148, line 8.  
 3 Those representatives that Derek Ma referred to  
 4 included Buildings Department's Edward Wong Wing Wah and  
 5 Patrick Fan Tak Pun.  
 6 Now, Derek Ma's evidence is important here. In his  
 7 witness statement at paragraph 40 -- for the reference,  
 8 it's B1/367 -- he said:  
 9 "After Mr Wong had completed and signed the coupler  
 10 checklists, the coupler checklists were briefly shown to  
 11 the BD/RDO/Pypun representatives at the site ... on 7  
 12 and 8 June 2018."  
 13 That's important, 7 and 8 June 2018.  
 14 "It was emphasised to the BD/RDO/Pypun  
 15 representatives that those checklists were retrospective  
 16 records prepared internally by MTR to confirm that the  
 17 inspectorate staff had provided the requisite  
 18 supervision under the QSP, and the BD/RDO  
 19 representatives were not permitted to take any of those  
 20 internal records away or to take any copies thereof."  
 21 Again -- and this is a transcript at Day 27,  
 22 page 113, lines 6 to 9 -- Derek Ma said:  
 23 "I did emphasise that the records were prepared  
 24 retrospectively. On day one, when I showed them the  
 25 spreadsheet, I told them that we did not have those

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1 records at the time."  
 2 So we hope that has dealt with the first government  
 3 point.  
 4 But in relation to the submission that MTR decided  
 5 not to cross-examine those government representatives --  
 6 that's James Fung, Fan Tak Pun and Wong Wing Wah, who  
 7 have confirmed that they were never told the records  
 8 were retrospective -- it's noted that none is in  
 9 a position to challenge Derek Ma's evidence as they were  
 10 either not on site or not shown the checklists signed by  
 11 Kobe Wong. That of course is why they were not  
 12 cross-examined, because they were not in a position to  
 13 assist the Commission on that particular matter. That  
 14 is clear from their witness statements which make it  
 15 palpably obvious that they were not on site on either 7  
 16 or 8 June.  
 17 All in all, and drawing this together, it bears  
 18 emphasis -- and perhaps we can look at B7/4555; thank  
 19 you, that's excellent -- it bears emphasis, firstly,  
 20 that Derek Ma's unchallenged evidence was that  
 21 an express statement was put in on Michael Fu's  
 22 recommendation to make it clear that it was  
 23 a retrospective record of coupler installation.  
 24 Then at transcript Day 30, page 30, lines 18 to 19,  
 25 Kobe Wong was similarly at pains to stress this during

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1 the course of his cross-examination. He explained, as  
 2 the transcript records, that:  
 3 "At that time, I was certain that the date would not  
 4 be in 2015, because this is a retrospective record ..."  
 5 We do submit that if there had been any intention to  
 6 mislead or deceive, the checklist would have been  
 7 backdated to the period of the EWL slab works in  
 8 2015/2016, but this was distinctly not done. And in  
 9 fact both Derek Ma and Kobe Wong considered that to be  
 10 unacceptable.  
 11 In fact Kobe Wong stated that he was strongly  
 12 opposed against signing the records provided by  
 13 Leighton. That's Day 30 transcript, page 41, line 24,  
 14 to page 42, line 1.  
 15 We would say or submit that judging how full and  
 16 frank James Ho, Derek Ma and Kobe Wong were in their  
 17 witness statements and testimony, it's not consistent  
 18 with any intention to deceive or mislead anyone.  
 19 That said, in the cold light of day and with the  
 20 benefit of hindsight, one may well have done things  
 21 differently. But there were so many documents to be  
 22 collated and so little time that perhaps it's  
 23 understandable why matters were handled in that way.  
 24 Sir, I've just about finished. Those instructing me  
 25 just want to make it clear that so far as China

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1 Technology's allegations in paragraph 8 of their written  
 2 submissions are concerned, our submission is consistent  
 3 with what Mr Pennicott has said in his written  
 4 submissions, that China Technology's allegations are  
 5 simply not credible, and as Mr Pennicott, in our  
 6 submission, so accurately sums up the matters in his  
 7 written closing submission, paragraph 65, it is very  
 8 difficult to believe anything Mr Poon says. I could  
 9 have said a lot more about Mr Poon but, on reflection,  
 10 I think that neatly sums it up.

11 Unless I can assist you any further, sir or  
 12 professor, they are the submissions on behalf of the  
 13 MTR.

14 CHAIRMAN: Thank you very much, Mr Boulding.

15 MR PENNICOTT: Sir, can I just mention one thing -- I don't  
 16 want to prolong the discussion any further than we need  
 17 to -- but going back to the topic of the MTR tests,  
 18 which seem to be assuming a matter of some importance --  
 19 we obviously at the Commission have been following the  
 20 correspondence between the Buildings Department and the  
 21 MTR about these tests, and the last letter we have in  
 22 the bundle is ten days ago, on 18 January 2019, when the  
 23 Buildings Department wrote to MTR regarding the tests,  
 24 and there seemed to be a couple of items of disagreement  
 25 between the Buildings Department and MTR.

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1 It may be that over the last ten days or so things  
 2 have been ironed out and we just haven't been given the  
 3 correspondence. That's not a criticism or a complaint.  
 4 But I would just say that if there is any difficulty --  
 5 I think Prof Hansford alluded to this a little  
 6 earlier -- if there is any difficulty between MTRC and  
 7 the Buildings Department about these tests and the  
 8 approval of them, then the sooner we know about it the  
 9 better, with respect, if I may say that.

10 CHAIRMAN: Yes, of course.

11 COMMISSIONER HANSFORD: Is the letter you referred to in the  
 12 bundle?

13 MR PENNICOTT: Yes, sir, it is.

14 COMMISSIONER HANSFORD: Can I have the reference?

15 MR PENNICOTT: Yes. It's H27/46157.

16 COMMISSIONER HANSFORD: Is it a long letter?

17 MR PENNICOTT: No.

18 COMMISSIONER HANSFORD: Can we have it on the screen?

19 MR PENNICOTT: Yes, sir. You will see it's dated ten days  
 20 ago, 18 January, and it was obviously precipitated by  
 21 what was said here in the hearing on 17 and 18 January.  
 22 You can see that in the first line. Then what the  
 23 Buildings Department say is, in paragraph 2:  
 24 "Your attention is also drawn to the following  
 25 points in respect of the testing arrangement and

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1 requirements".

2 First of all, at (a), they say:

3 "The test should comply with the Code of Practice  
 4 for Structural Use of Concrete 2013 ..."

5 That's slightly odd because I thought we were  
 6 dealing with 2004, but there it is, perhaps that doesn't  
 7 make any difference.

8 Then they say -- you may recall that when  
 9 Mr Boulding was telling us about these tests on Day 44;  
 10 he told us a 500 bar was going to be used. We can see  
 11 what the Buildings Department say about that. They say  
 12 grade 460 4 millimetre diameter rebar type 2 coupler  
 13 should be adopted. So there's perhaps an issue there,  
 14 I'm not sure.

15 Then at (c) -- I'm not going to read all that out --  
 16 there is a potential issue about the number of samples  
 17 that are adopted. The upshot is that the Buildings  
 18 Department suggest MTR speak to BOSA about the number of  
 19 samples.

20 So as far as we are concerned, that was the last we  
 21 heard about these tests and we are a bit in the dark  
 22 since the 18th.

23 COMMISSIONER HANSFORD: Would it be possible for us to have  
 24 an update from MTR and government in relation to this  
 25 test tomorrow morning?

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1 MR PENNICOTT: Sir, obviously Mr Boulding and no doubt  
 2 Mr Khaw will have heard that.

3 MR BOULDING: Obviously, sir, we are here to assist you.  
 4 Those sitting behind me who know far more about this  
 5 than I do at the moment have no doubt heard what you've  
 6 said and will put the appropriate queries in the  
 7 appropriate place, and I trust government will do the  
 8 same.

9 CHAIRMAN: Yes. If possible, that would be good.

10 MR KHAW: We will be happy to do that.

11 COMMISSIONER HANSFORD: Thank you very much.

12 CHAIRMAN: Yes, Mr Shieh?

13 MR SHIEH: I can start now or I can start after any  
 14 contemplated afternoon break.

15 CHAIRMAN: It's 3.30. In fairness to each person making  
 16 an address, I think if everyone gets a chance to clear  
 17 their heads and then come back in, that's fine.

18 MR SHIEH: I may have minutes to spare, or sell at a price!

19 CHAIRMAN: Ten minutes. Thank you.

20 (3.25 pm)

21 (A short adjournment)

22 (3.41 pm)

23 Closing submissions by MR SHIEH

24 MR SHIEH: Good afternoon, Chairman and Professor. The  
 25 reason why I said I may have minutes to spare is because

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1 a number of my points have already been made by  
 2 Mr Boulding and from the way in which the exchange took  
 3 place earlier, it seems there are many, many areas  
 4 I don't need to trouble the Commission on because a lot  
 5 of them are already in writing.  
 6 So I propose to address the Commission on specific  
 7 points which I wish to remind the Commission about and  
 8 also make some responsive submissions to matters raised  
 9 by other parties.  
 10 First, I wish to make some submissions on structural  
 11 safety. I wish to remind the Commission of the fact  
 12 that the bottom mat of the EWL slab can be considered to  
 13 be redundant. I should say the rebars in the bottom mat  
 14 can be regarded to be redundant, because, as  
 15 Prof McQuillan said, the bottom mat of the EWL slab is  
 16 never in tension; it's always under compression, and so  
 17 there is no tendency on the part of the diaphragm walls  
 18 to pull away from the slab.  
 19 A sound bite was carefully planted in the transcript  
 20 about bamboo sticks in the sense that you can use bamboo  
 21 sticks and Prof McQuillan actually accepted that. But  
 22 that actually is a logical corollary of the experts'  
 23 consensus that the bottom mat of the EWL is always in  
 24 compression.  
 25 I wish to address a point made by China Technology

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1 at paragraph 28 of its closing submissions. Can I ask  
 2 for China Technology's closing, paragraph 28, at  
 3 internal page 8 at the bottom, where China Technology  
 4 made the point:  
 5 "It was suggested that purely from an engineering  
 6 perspective, the rebar bottom mat of rebar ... would  
 7 simply never be in tension. But for the necessity for  
 8 code-compliance, there was simply no need to have rebars  
 9 inside the slab. Even to be code-compliant, up to  
 10 50 per cent of the coupler assembly could be defective.  
 11 Thus, all things considered, the opening-up exercise was  
 12 considered to be unnecessary, pointless, and a waste of  
 13 time and resources. However, it was considered by the  
 14 same expert that the bottom rebars were used to enhance  
 15 the shear resistance of the concrete section. With  
 16 respect, the expert contradicts himself.  
 17 This conclusion (which is not accepted) begs  
 18 a series of questions: why did MTRCL propose those  
 19 designs in the first place?"  
 20 Et cetera.  
 21 Now, with respect, China Technology's submission  
 22 misreads and misunderstands Prof McQuillan's evidence,  
 23 and those points made by China Technology in  
 24 paragraph 29 by way of challenge have not been explored  
 25 with Prof McQuillan when he was in the witness box.

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1 But to make a short point, the reason why rebars  
 2 were not needed for structural integrity was because the  
 3 bottom mat was never in tension. That much, we say, was  
 4 common ground.  
 5 But the fact that it need not be there for  
 6 structural integrity does not alter the fact that they  
 7 were in fact there, and Prof McQuillan was simply using  
 8 the existence or the presence of the bottom mat rebars  
 9 to counter Prof Au's point made in the design change  
 10 context that there could be some kind of shear forces  
 11 operating within the concrete block which worried him.  
 12 So it's a different point. He is not contradicting  
 13 himself by saying it's not necessary and yet it is  
 14 necessary. It's a different point.  
 15 I now move on to deal with a point made by the  
 16 government this morning. That is a matter which the  
 17 Chairman has been looking for answers from time to time.  
 18 That is: where is the data requested by Prof Au? Was  
 19 there a request made of Leighton or anyone else to  
 20 provide those data? Where is it? Is it buried  
 21 somewhere in the bundle?  
 22 Can I just show to the Commission where that letter  
 23 is, where Prof Au puts forward what he actually asked  
 24 for? It's in bundle H27, page 45876. It is a letter  
 25 from the Department of Justice to the Commission's

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1 solicitors, dated 17 January:  
 2 "We refer to your email of 15 January ... We enclose  
 3 a disk containing (1) the list of proposed structural  
 4 checks ... and (2) the previous calculations prepared by  
 5 Mannings ... as mentioned by Prof Au in his oral  
 6 evidence ...  
 7 To assist the Commission in understanding the extent  
 8 of the base data required for conducting these  
 9 structural checking, we also provide in the disk the  
 10 following Excel files setting out the detailed list of  
 11 the required base data ... for the Commission's  
 12 reference ...  
 13 As advised by Prof Au and highlighted in the  
 14 remarks ... the checks are only intended to provide  
 15 a preliminary review of whether there will be any  
 16 concerns of the slab-wall joint ... Furthermore, for  
 17 more accurate assessment, the up-to-date  
 18 configurations ..."  
 19 Then over the page:  
 20 "Prof Au would like to add that while he and his  
 21 colleagues provided input in respect of the principles  
 22 and approaches which should be adopted by Mannings,  
 23 Mannings' calculations were prepared under an extremely  
 24 tight time frame based on incomplete base data. In  
 25 particular ...

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1 Given the preliminary nature of Mannings'  
 2 calculations and the time constraints, Prof Au has not  
 3 conducted any rigorous verification ..."  
 4 Then the penultimate paragraph:  
 5 "For the avoidance of doubt, the list suggested by  
 6 Prof Au from his expert point of view sets out the  
 7 further checks and tests considered advisable by him for  
 8 assisting the assessment of the structural integrity of  
 9 the diaphragm walls ... and considering if further  
 10 checking is necessary. Nothing herein ... shall in any  
 11 way alter the contractual and/or statutory duties of  
 12 MTRCL and/or any other parties, or waive the contractual  
 13 rights and/or statutory powers of any government  
 14 department/bureau/authorities."  
 15 The point I wish to make here is it is simply  
 16 a letter providing some data without any effort in  
 17 actually saying Prof Au would very much wish to conduct  
 18 the calculations, so it's an open invitation, or could  
 19 we trouble the Commission's solicitors to make the  
 20 request to the following entities, so that we could  
 21 actually get things going, because we see there is  
 22 a deadline coming up and we are trying to proactively  
 23 assist the Commission. It's simply dumping a whole load  
 24 of data on the Commission and saying, "Here's what you  
 25 asked and here's what you get."

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1 It's only until this morning that we hear there is  
 2 some kind of open invitation to the various parties to  
 3 provide the information, and we respectfully submit that  
 4 this actually reflects the approach that we had  
 5 suggested to be that of Prof Au in our closing  
 6 submissions, at paragraph 21(11). Our closing,  
 7 paragraph 21(11): Prof Au's approach was akin to  
 8 a government department waiting to be provided with  
 9 materials to satisfy himself/it rather than acting as  
 10 an independent expert seeking to proactively assist the  
 11 Commission.  
 12 With respect, we submit that that is not a very  
 13 helpful approach, when everyone knows the Commission is  
 14 acting on a very tight time frame.  
 15 I now move on to address the question of widespread  
 16 and systematic cutting. I'm not going to spend time  
 17 analysing or dissecting Mr Poon's evidence. Everyone  
 18 has made basically endless submissions about Mr Poon's  
 19 credibility so I'm going to leave that and take it as  
 20 read.  
 21 But we respectfully submit that it is crucially  
 22 important to recognise what the allegation is of Mr Poon  
 23 and what Leighton actually readily accepts to have  
 24 happened. Leighton accepts that there had been isolated  
 25 incidents of cutting of threaded ends of rebars, but the

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1 matter does not stop there because Mr Poon's allegation  
 2 is of widespread cutting, and the evidence is clearly  
 3 pitched by one against the other and the Commission will  
 4 have read the evidence but --  
 5 CHAIRMAN: Did he not change a little bit later on?  
 6 I remember him saying something to the effect of --  
 7 "I haven't said widespread, what I've said is  
 8 "systematic and planned."  
 9 MR SHIEH: He has said many things.  
 10 CHAIRMAN: Yes, I appreciate that, he has. That's as  
 11 I understood him to say, and then go on to complement  
 12 that by saying, "But there are other issues", for  
 13 example the torque issue and matters of that kind.  
 14 MR SHIEH: The torque issue has been addressed by BOSA.  
 15 There is no need to use a torque. He talked about  
 16 many --  
 17 CHAIRMAN: I don't wish to be addressed on each of those.  
 18 I am just saying I understood his final evidence being  
 19 not widespread but systematic and planned.  
 20 MR SHIEH: Can I just have a moment, because in our closing  
 21 submissions we actually set out -- yes, in paragraph 41  
 22 of our closing submissions, where we set out the  
 23 references to Poon saying various things at different  
 24 times, at subparagraph (3) there is a reference to the  
 25 30,000 pieces figure, Poon's statement to the media,

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1 thousands of rebars. Then there's "a planned  
 2 endeavour", a form of "articulated, organised sabotage".  
 3 So he may not have actually used the word  
 4 "widespread", subject to checking the media reports  
 5 which I will be coming to.  
 6 CHAIRMAN: Yes.  
 7 MR SHIEH: But certainly Mr Poon's case is not that these  
 8 are isolated; it is organised, and organised by  
 9 Leighton. So it is a matter for the Commission to  
 10 judge.  
 11 But as we acknowledge in our closing submissions,  
 12 rejecting Mr Poon's evidence is not the "be all and end  
 13 all", because we accept there are legitimate issues for  
 14 the Commission to consider on the basis of the  
 15 undisputed incidents of cutting of threaded ends and  
 16 also issues about supervision, et cetera. So this is  
 17 not just a matter of trying to discredit Mr Poon, this  
 18 Commission of Inquiry, but a good part of it has to  
 19 concern Mr Poon's testimony.  
 20 At paragraphs 91 to 93 of China Technology's  
 21 submissions, there is, in our submission, a rather  
 22 remarkable attempt to move the goalposts of Mr Poon's  
 23 allegations as to what it is that had happened.  
 24 Paragraph 91 of China Technology's submissions, the  
 25 Commission will recall, follows a cluster of paragraphs

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1 where China Technology criticised the evidence of  
 2 Fang Sheung's witnesses, and at paragraph 91 China  
 3 Technology made the submission that the truth of the  
 4 matter lies in what Fang Sheung witnesses said in the  
 5 MTRC interview. And at paragraph 91 of their  
 6 submissions, there is an extract, I believe, from the  
 7 MTRC investigation report -- at B1, page 36, for the  
 8 Commission's reference -- that "On some occasions and as  
 9 [instructed] by Leighton, they would carry out cutting  
 10 of the threaded steel bars to meet the required threaded  
 11 length. On other occasions and as requested by  
 12 Leighton, the threaded steel bars could be cut and  
 13 screwed into the couplers with the understanding that  
 14 rectification measures would be carried out by  
 15 Leighton."  
 16 Now, the Commission will be reminded, and no doubt  
 17 Fang Sheung will be addressing the Commission, about  
 18 what to make of Fang Sheung's MTRC interview. But the  
 19 point I wish to make is that there are problems with  
 20 accepting China Technology's suggestion that the truth  
 21 lies in the Fang Sheung MTR interview, for the following  
 22 reasons.  
 23 First, if the reason for cutting is because of the  
 24 need to convert some of the type B longer threads to  
 25 type A shorter threads, then the evidence is that there

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1 is nothing inherently problematic or wrong about it  
 2 because a type B threaded bar would be longer and  
 3 contains more threads, and cutting it into a type A bar  
 4 with lesser threads doesn't actually pose any problem.  
 5 In fact that is the way that Prof McQuillan had  
 6 rationalised that one famous picture which has been  
 7 flogged to death by the media, at bundle D1/228, where  
 8 Prof McQuillan said that's seems to be what's happening,  
 9 they're converting B to A.  
 10 The second suggestion at paragraph 91 was that as  
 11 requested by Leighton, the threaded steel bars could be  
 12 cut and screwed into the couplers with the understanding  
 13 that rectification measures would be carried out by  
 14 Leighton. That has, in the course of the evidence,  
 15 become known as the dowel bar remedy, where threaded  
 16 ends are cut and somehow placed next to a coupler, and  
 17 then on the understanding that Leighton would actually  
 18 put a dowel bar into a hole and then maybe use epoxy to  
 19 fill up the gaps.  
 20 The problem with this is that it doesn't seem to be  
 21 borne out by the opening-up results, because there  
 22 doesn't seem to be examples or occurrences whereby one  
 23 saw a dowel bar inserted next to an uninserted or  
 24 uncoupled threaded rebar.  
 25 But what is more problematic is that these do not

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1 match Mr Poon's allegations in a very important aspect.  
 2 And that is when Mr Chairman put it to Mr Poon as to --  
 3 Mr Chairman remembers that you put to Mr Poon,  
 4 "According to what you say, it's actually almost like  
 5 industrial sabotage, well planned" -- because he said  
 6 something like people even bought a new, better, more  
 7 efficient machine, sneaked in at night, obviously  
 8 thinking they were doing something illicit -- and,  
 9 Mr Chairman, you asked Mr Poon, "What is the motivation  
 10 for doing so?", and Mr Poon actually said, when pressed,  
 11 "Oh, it's corruption". We all know what happened to  
 12 that completely unfounded allegation of corruption.  
 13 Mr Poon had not suggested what he now  
 14 opportunistically seized upon in paragraphs 91 to 93 of  
 15 the submissions made by his legal adviser. In our  
 16 submission, it is an entirely opportunistic attempt, if  
 17 there is any truth in what Mr Poon says, he being  
 18 on site ought to have been able to articulate these as  
 19 reasons. He did not. He resorted to sensationalism.  
 20 Lastly, the reason why we also say that  
 21 paragraphs 91 to 93 do not match Mr Poon's complaint is  
 22 because it has been Mr Poon's case that the workers who  
 23 cut the rebars were not Fang Sheung workers but they  
 24 were Leighton people, Leighton workers.  
 25 Can I give the Commission a few references, and that

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1 is in the media clipping bundle. I'm not sure whether  
 2 these have been translated at the time, because some of  
 3 these have been put to Mr Poon and some may not, but  
 4 I can simply read them into the transcript -- I don't  
 5 know whether simultaneous translation is available for  
 6 this part, but I'm sure we have a way of getting around  
 7 it. It's bundle C32, page 24219, and that is an article  
 8 in an online media, HK01. The first paragraph of this,  
 9 if I may just read it, perhaps with my own English  
 10 translation -- I'm sure if I get it wrong, someone is  
 11 going to point it out:  
 12 "The incident about cutting of rebars continued to  
 13 brew. Jason Poon this morning when interviewed by radio  
 14 said that he personally saw threaded ends of rebar being  
 15 cut. He said the main contractor, Leighton, at first  
 16 thought that the cutting was too slow and therefore  
 17 bought a super-hydraulic cutter to speed up the cutting  
 18 and to conceal the cutting of threaded ends."  
 19 Then over the page at 24220, under the photograph,  
 20 he said:  
 21 "Jason Poon said the cutting of rebars were not  
 22 because of workmanship problem; it's a matter of an act  
 23 of neglect or default. It's planned and premeditated.  
 24 He suspected that the trimming down of concrete done by  
 25 Leighton went wrong and damaged some couplers and could

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1 not connect with the rebars and therefore they wanted  
 2 the workers to remedy it, to cut short the threaded  
 3 ends. He [Jason Poon] said Leighton's frontline cut the  
 4 rebars on site. At first, they did it openly and  
 5 blatantly, but later someone thought that it was too  
 6 slow, so two months later bought a hydraulic cutter to  
 7 speed it up but did it surreptitiously."  
 8 So Mr Poon, in that interview, said it's Leighton's  
 9 frontline who did the cutting.  
 10 At 24262, that is a cutting, a report from HKC News,  
 11 an online news agency, referring to a report from  
 12 Apple Daily. Reading from the top -- again, if I get it  
 13 wrong, someone is going to correct me -- the caption  
 14 was, "Who cut the rebars?" It says:  
 15 "Apple Daily earlier reported China Tech's email to  
 16 Leighton which said Leighton found two Leighton labour  
 17 cutting the rebars. The MTR report said Fang Sheung's  
 18 workers cut the rebars at Leighton's request. Jason  
 19 Poon saw and filmed the process of cutting of rebars.  
 20 At the time, which party did he see to be cutting the  
 21 rebar? Jason Poon said he signed a confidential  
 22 agreement with Leighton. He cannot answer. The  
 23 programme host asked: 'Which company's people did it?'  
 24 Jason Poon answered: 'I signed confidentiality  
 25 agreement, the answer should be there.'"

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1 Well, there is nothing cryptic about it. The  
 2 confidentiality is signed with Leighton and this is  
 3 a clear suggestion that he is saying that Leighton was  
 4 the party doing the cutting.  
 5 Lastly, at 24312 -- and of course the Commission  
 6 will remember there, there was actually a reference to  
 7 the email sent by Jason Poon where he said Leighton  
 8 labour did the cutting. 24312, this is from Oriental,  
 9 an influential and widely circulated newspaper and  
 10 media, where, as a matter of headline, it says,  
 11 "Emphasise the murderer or the culprit is not  
 12 Fang Sheung".  
 13 Then, in the photo, there actually is a caption  
 14 which says, "China Tech: not cut by Fang Sheung". Then  
 15 in the text above the photo it says:  
 16 "China Technology manager Jason Poon, in his  
 17 capacity as an eyewitness, yesterday exposed the process  
 18 of cutting of rebars on site and he said that the origin  
 19 or the reason for cutting of the rebars was because the  
 20 rebars could not be screwed into the couplers in the  
 21 D-wall. He suspected the main reason was because when  
 22 Leighton trimmed the concrete, the process went wrong.  
 23 Other reasons was because the caps of the couplers went  
 24 loose and the couplers were misaligned. These all  
 25 require subsequent rectification. He emphasised he

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1 believed that the culprit for cutting the rebar was not  
 2 Fang Sheung which was alleged by MTRC."  
 3 So Mr Poon had previously not alleged that it was  
 4 Fang Sheung who did it. He previously said it was  
 5 Leighton. So, as I say, it is entirely an act of  
 6 bandwagon jumping on the part of his submissions now to  
 7 say this Commission should adopt Fang Sheung's MTRC  
 8 interview testimony.  
 9 If I can just give one reference to the Commission.  
 10 If one were prepared to go down the route of looking at  
 11 Fang Sheung's MTR interview record, then I refer the  
 12 Commission to bundle B5/3082.30, which was an English  
 13 translation of a transcription of Joe Cheung's MTRC  
 14 interview, this is at between 1.06 pm to 3.45 pm -- if  
 15 we actually look down, it is -- further down; yes --  
 16 "Yes, very few. Yes, they would take rectification  
 17 measures."  
 18 So even for the dowel remedy, if one were to prepare  
 19 to go down the route of looking at what Fang Sheung had  
 20 said, it was on the basis of "very few".  
 21 I now move on to address the topic of the  
 22 confidentiality agreement, because there has been some  
 23 suggestion that if there was indeed nothing wrong done  
 24 by Leighton, by way of cutting of rebar, why impose  
 25 a confidentiality agreement when this has not been done

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1 for other contractors?  
 2 On a big-picture basis, and as a matter of common  
 3 sense, which sometimes could be lacking when one  
 4 actually gets through tedious witness testimony, as  
 5 a matter of common sense, we all know that even if one  
 6 is absolutely convinced that one is in the right, it's  
 7 an entirely natural and understandable for one to want  
 8 to make sure that one does not invite or tout unwanted  
 9 publicity, adverse publicity, especially with what can  
 10 be described as a troublemaker like Mr Poon.  
 11 Can I just give the Commission some evidential  
 12 references to where Leighton's witnesses have given  
 13 evidence to that effect? First of all, Mr Speed,  
 14 Day 16, page 111, at line 9. It starts at line 6:  
 15 "There is nothing in the conditions, the terms and  
 16 conditions, of the final account statement that require  
 17 them to enter into the confidentiality agreement either?"  
 18 Answer: We -- I think, as I said, the false  
 19 allegations and lies that were getting made against  
 20 [sic] China Technology, that is a reason why the  
 21 confidentiality agreement was included."  
 22 Then also Mr Zervaas, Day 17, page 106, line 22:  
 23 "We agreed the parameters of the final account and  
 24 the 1.6 million. To maintain -- the discussion around  
 25 maintaining the relationship, it was all, 'Mr Poon, how



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1 can we be assured you're not going to continue making  
 2 false allegations every time there's a commercial  
 3 dispute?' Okay? That's when it was put to him to sign  
 4 a confidentiality agreement."  
 5 So it was in the context of not wanting false  
 6 allegations to be made in a commercial context, in the  
 7 context of a commercial dispute, which we say is  
 8 absolutely commonsensical and understandable.  
 9 The Lumb report -- a good deal has been said and  
 10 a lot of time has been spent on examining Mr Lumb on the  
 11 way in which he has prepared his investigation back in  
 12 early 2017. There is some insinuation in the  
 13 government's submission at paragraph 92, when they use  
 14 the word "agenda", when they said, "It's not quite clear  
 15 what the agenda was behind" -- or when Mr Lumb prepared  
 16 the report.  
 17 Insofar as submissions or complaints about the way  
 18 Mr Lumb had prepared his investigation could have two  
 19 lines of relevance or significance: one, it may be said  
 20 by some people, maybe the government, by using the word  
 21 "agenda", that it was somehow a deliberately perfunctory  
 22 effort not to investigate for fear that the truth would  
 23 come out; so it's a patch-up pretence of  
 24 an investigation.  
 25 The second line of relevance could be, as

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1 a self-standing criticism of corporate governance  
 2 project management, but irrespective of the truth or  
 3 falsity of Mr Poon's allegation, somehow complaints in  
 4 the course of a project should be taken seriously.  
 5 On the first line of relevance, in our submission,  
 6 there can be no basis to suggest that it was a kind of  
 7 cover-up pretence, deliberately done in a perfunctory  
 8 way so as not to reveal what was known to be the truth.  
 9 The paperwork, the Commission has seen the paperwork  
 10 leading to the investigation. It did not suggest any  
 11 guilty knowledge. The contemporaneous response to Jason  
 12 Poon said it all. In any event, there is no need to  
 13 make a pretence of doing an investigation and producing  
 14 a perfunctory report, because nobody at the time was  
 15 pressing for a report, such that Leighton had to somehow  
 16 put up a show of pretending to have looked into it.  
 17 On the second point, that is to say as a matter of  
 18 good project management or more to have been done,  
 19 interviewed Jason Poon, given him some air time, these  
 20 are points that can be made but, in my respectful  
 21 submission, any possible criticism against Leighton --  
 22 Mr Chairman used the phrase "corporate arrogance" in not  
 23 giving him air time -- these are points that are to be  
 24 thrown into the mix, but we would respectfully suggest  
 25 and submit that any possible criticism made after the

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1 event should be weighed together with the fact that the  
 2 investigation related to matters that occurred 18 months  
 3 before. Leighton may be criticised for not investing  
 4 resources and manpower investigating it, but the  
 5 allegation at the time appeared to Leighton to be  
 6 nonsense, because it literally came out of the blue. It  
 7 was made by what Leighton regarded to be a disgruntled  
 8 sub-contractor, in the course of negotiating for more  
 9 money.  
 10 So I'm not shying away from the fact that one could  
 11 make points by way of criticism. I'm not conceding that  
 12 they must be well founded. But I'm simply making the  
 13 point that on a humane, sympathetic and realistic level,  
 14 any 20/20 hindsight perfectionist criticism ought to be  
 15 put in perspective and one has to place oneself in the  
 16 shoes that Leighton found themselves in at the time.  
 17 I now deal with QSP and the applicability of the  
 18 QSP. The submissions are made in Leighton's written  
 19 closing from paragraph 111 onwards. Some time was spent  
 20 this morning by the government addressing it. The  
 21 Commission has also addressed it. We submit that it is  
 22 a neat point of legal interpretation of the document to  
 23 arrive at the applicable regime.  
 24 The starting point is the BD consultation letters  
 25 which we refer to at paragraph 111, which drew

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1 a distinction between couplers with a ductility  
 2 requirement -- and the page reference for the relevant  
 3 appendix in the BD consultation letter is C13,  
 4 page 8307 -- because that is the point which required  
 5 a QSP in the context of couplers with a ductility  
 6 requirement.  
 7 For the corresponding BD consultation letters or the  
 8 relevant appendix, without -- sorry, I apologise -- the  
 9 appendix for couplers with ductility requirement is  
 10 C13/8303, and the appendix for couplers without  
 11 ductility requirement is 8307.  
 12 But the point is that the requirement for QSP only  
 13 applies to couplers with a ductility requirement. That  
 14 is not a matter of witness testimony. That is a matter  
 15 of what was written. Either it's there or it isn't.  
 16 So the enquiry then becomes whether or not the  
 17 couplers that we are concerned with at the interface,  
 18 the junction between the D-wall and the slab, are  
 19 subject to a ductility requirement. Again, that is  
 20 a matter of objective interpretation and not a matter of  
 21 lay witness testimony.  
 22 The drawings in this case -- we have set out the  
 23 drawings that we submit to be illustrative and relevant.  
 24 It's at paragraph 123. We look at Atkins' working  
 25 drawings.

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<p>1 But the point is this. There are two legends or two 2 parts of these drawings which relate to the concept of 3 ductile or ductility. Mr Khaw showed some of these 4 drawings this morning. We can look at the drawings that 5 we have extracted at page 52 of our closing.</p> <p>6 There is a concept of "ductility zone" and there are 7 also legends, those little rectangles, which denote the 8 actual couplers used. If a coupler is a hollow one, 9 then it's said to be a non-ductile -- a coupler, a mere 10 coupler, which is the legend we set out in 11 paragraph 126 -- because in paragraph 126 we set out the 12 legend. A hollow rectangle is a mere coupler. 13 A solid -- a shaded rectangle is a ductility coupler.</p> <p>14 The point we make is this. Sometimes we see solid 15 rectangles inside what is not described to be 16 a ductility zone. Because, for example, if we were to 17 look at the figures under paragraph 124 -- by way of 18 contrast, figure 1, it's NSL area A, there's a certain 19 drawing we have extracted -- the Commission can see 20 there's a ductility zone, and inside that ductility 21 zone, the couplers are ...(unclear word due to 22 coughing).</p> <p>23 If one were to move down to figure 2, this is 24 another area of NSL -- there we can see there's 25 a ductility zone on top, above the slab. That's the</p>	<p>1 objective interpretation of the documents, of the plans. 2 It is not what the government described or what the 3 Commission described to be a new point, because in 4 cross-examination of our witnesses, the fact of there 5 being ductile zone and what kind of couplers are to be 6 used inside a ductile zone or a non-ductile zone has 7 been touched on and explored.</p> <p>8 Can I ask the Commission to look at Day 25, 9 Mr Lumb's evidence, page 3, line 17: 10 "If we can just take you very briefly to two 11 drawings, just to complete this point. If we can have a 12 look at H2/440." 13 That's not the same drawing that we have looked at, 14 but for present purposes I don't think we need to 15 actually dig that up.</p> <p>16 "These are certain notes attached to the drawings 17 submitted by Atkins ... 18 ... if we can just blow up the part with the diagram 19 in the middle on the right, under the heading, "Notes on 20 diaphragm wall couplers", do you see, 'Couplers 21 positioned within the zone shown below shall be 22 classified as ductility couplers', and also we can see 23 from the diagram there's 'Ductility zones' and then 2, 24 in relation to 'Ductility couplers shall comply with 25 [the following conditions]'; do you see that?</p>
<p>Page 166</p> <p>1 ductility zone. There is another ductility zone under 2 or below the slab. But when we are actually dealing 3 with the slab itself, there is no notation which says 4 that it is a ductility zone.</p> <p>5 Yet if we actually look at the legend for the 6 couplers used inside the slab, we see solid couplers. 7 So it seems to say the couplers to be used in the slab 8 are to be ductile couplers. So what we have -- but if 9 we look further down, below the ductility zone on this 10 figure 2 we see some couplers which were hollow, not 11 shaded.</p> <p>12 What do we make of these drawings? We respectfully 13 submit that as a matter of objective interpretation, 14 there is a difference between designating an area or 15 a zone as a ductility zone, and within that zone use of 16 ductility couplers are required. If something is not 17 a ductility zone, then you are not required to use 18 ductile couplers. But nothing stops you from actually 19 saying that you use ductile couplers, or nothing stops 20 you from in fact using ductile couplers.</p> <p>21 But if the point is whether or not there is 22 a requirement for ductility, we respectfully submit the 23 governing notation should be whether or not an area or 24 a zone is designated as a ductility zone.</p> <p>25 That really is our submission. It's a point of</p>	<p>Page 168</p> <p>1 Answer: Yes. 2 Question: Have you ever come across this kind of 3 drawing? 4 Answer: I've seen this drawing. 5 Question: Maybe just as an additional example, if 6 we can take a look at --" 7 Then Mr Lumb tried to comment: 8 "Again, my opinion is that this is referring to the 9 vertical couplers in the diaphragm wall. You will note 10 there is no shading or hatching of the slab which 11 indicates any element in the slab to have any ductility 12 requirement, and if you look at the diagram beneath 13 note 4, you will also note that it is referring to the 14 vertical couplers in the diaphragm wall. There is no 15 reference to any horizontal couplers into the slab. 16 Question: I see. But you agree with me that the 17 couplers referred to here are the couplers for 18 construction of the diaphragm wall? 19 Answer: The vertical couplers, yes, not the 20 horizontal couplers. 21 Question: Right." 22 Over the page, Mr Chairman asked: 23 "Sorry, do we actually have a clear record anywhere 24 of what type of couplers were in fact installed? ... 25 Answer: I can comment --</p>

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1 Chairman: -- settle the issue?  
 2 Answer: Maybe I can help out on that?  
 3 Chairman: Yes, thank you.  
 4 Answer: I believe ductility couplers were used  
 5 everywhere, in ductile areas and non-ductile areas. But  
 6 the fact that you use a ductile coupler doesn't mean it  
 7 doesn't apply to a non-ductile zone. The requirements  
 8 for ductility couplers are more onerous, so I believe  
 9 the project just used -- they ordered purely ductile  
 10 couplers for the entire job."  
 11 The way I would interpret this is that Mr Lumb  
 12 certainly drew a distinction between ductile areas and  
 13 non-ductile areas, but he said, ductility couplers are  
 14 used everywhere and they just ordered purely ductile  
 15 couplers for the entire job.  
 16 Admittedly, the diagram they looked at there is not  
 17 the diagram or the form of diagram that we extracted,  
 18 that acknowledged. But it is not fair or accurate to  
 19 say that the point about ductility zone or what kind of  
 20 couplers are to be used in a ductile zone versus  
 21 a non-ductile zone is a new point. The fact that there  
 22 are certain notations denoting ductile zones is alive,  
 23 is a point that the government is alive to. Mr Lumb has  
 24 taken the point that ductility couplers are used  
 25 anywhere, whether it's a ductile zone or a non-ductile

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1 zone, so using a certain coupler in fact, as opposed to  
 2 whether a certain coupler is required to be used, this  
 3 difference is a difference which Mr Lumb had alluded to.  
 4 So I would reject any submission that it is a new  
 5 point. In any event, as I said, it is a matter of  
 6 interpretation and a matter of looking at the documents  
 7 and the drawings.  
 8 Just a few points of detail and record. The experts  
 9 say there was no real need for a ductility requirement  
 10 to be imposed on any of the couplers in the structure,  
 11 and for this I can do no better than to refer to the  
 12 MTR's submissions at paragraph 63 onwards.  
 13 Also, there is undisputed witness testimony that the  
 14 couplers within the slabs themselves are not subject to  
 15 a ductility requirement. That is Mr Brewster, Day 22,  
 16 page 131, line 20, to page 132, line 24.  
 17 Counsel for the Commission made two points -- well,  
 18 a few points against the point of interpretation or  
 19 construction that I have just put forward as to the  
 20 applicability of the QSP and about ductility zone.  
 21 The first point which Mr Pennicott and his team made  
 22 was that the QSP was sent to BD by MTR under a letter  
 23 which stated:  
 24 "QSP ... for diaphragm wall reinforcement cage and  
 25 slab construction ..."

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1 But our response is that is a letter sent by MTR to  
 2 BD. As far as Leighton is concerned, the version of the  
 3 QSP which Leighton sent to MTR was under a submission  
 4 form or cover sheet which was entitled -- and I can just  
 5 give the reference now -- the Commission or the  
 6 government has been referring to bundle C2 at 20441.  
 7 The document title is -- this is the one sent from  
 8 Leighton to MTR -- "Document title":  
 9 "Quality supervision plan for installation of  
 10 couplers for diaphragm wall and barrettes by BOSA --  
 11 second submission."  
 12 That was the QSP which, as far as Leighton was  
 13 concerned, it had sent to MTR.  
 14 There is no evidence or suggestion of some different  
 15 version of some different cover sheet being sent back to  
 16 Leighton, saying this was actually a QSP to be applied  
 17 generally to the slab as well. So, as far as the  
 18 evidence goes, this was the QSP which Leighton was privy  
 19 to and had sent out.  
 20 Commission counsel made the further point in his  
 21 written closing that within the QSP itself, it says  
 22 "apply to all locations". I don't need to turn up the  
 23 relevant paragraph. It is in that cluster of paragraphs  
 24 in Mr Pennicott's closing which dealt with this point.  
 25 They say, "Oh, but the QSP in the text itself says it is

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1 for all locations." That is not inconsistent with our  
 2 submission, because if it is to be governed by the  
 3 document title in the submission form, "all locations"  
 4 would mean all locations for diaphragm wall and the  
 5 barrettes. It doesn't mean "all locations" everywhere.  
 6 So the reference to the phrase "all locations" doesn't  
 7 mean it applies outside of the diaphragm walls and the  
 8 barrettes under the document title.  
 9 Commission counsel also referred to the signing off  
 10 for the submission that was made in June or July last  
 11 year, where Leighton, when it basically signed off on  
 12 its work, actually included compliance with QSP as one  
 13 of the matters which Leighton had signed off on, as some  
 14 kind of an acceptance or perception by Leighton that it  
 15 had to comply with the QSP.  
 16 Now, Mr Chairman and Professor, the short point  
 17 again -- this may be straying into legal territory -- it  
 18 is a matter of trite law that interpretation is  
 19 an objective exercise. If it's applicable, it's  
 20 applicable. If it's not, it's not. And a legal  
 21 interpretation is not influenced by how somebody might  
 22 internally or subjectively have perceived to be the  
 23 effect or applicability of a regime.  
 24 There are a number of evidential references which  
 25 I wish to give to the Commission in response to some of

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1 the criticisms or submissions made against Leighton.  
 2 There is a submission made by China Technology at  
 3 115.1 that Leighton had not inspected or done any formal  
 4 check of one layer after it had been completed, before  
 5 it moved on to the next layer. Chairman and  
 6 Mr Commissioner, you would remember the detailed  
 7 evidence given by Edward Mok and Man Sze Ho, in  
 8 particular the fact that Man Sze Ho said he would  
 9 patrol, and he would patrol two rounds a day, and  
 10 because of the speed with which these layers are laid,  
 11 within one day, during his two rounds, he would not have  
 12 a situation where more than a row or two new layers  
 13 would appear out of the blue.  
 14 Can I just give the Commission the reference to the  
 15 evidence of Edward Mok and Man Sze Ho, to show that  
 16 effectively they must have been able to see one layer  
 17 being completed before the next layer covered the first  
 18 layer.  
 19 The reference is, for Edward Mok: Day 21, page 21,  
 20 lines 13 to 16; Day 21, page 26, lines 16 to 11; Day 21,  
 21 page 29, lines 6 to 23.  
 22 And for Man Sze Ho: Day 22, page 37, lines 11 to 18;  
 23 and Day 22, page 52. That is where he said:  
 24 "In one day, one to one and a half layers of steel  
 25 can be fixed, so unless I am on leave, if I go to work,

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1 I would do a round in the morning and a round in the  
 2 afternoon, and there would not be any situation in which  
 3 two or three layers of rebars are fixed out of the  
 4 blue."  
 5 That's Day 22, page 52.  
 6 I now make some brief submissions on record-keeping.  
 7 There were complaints on two fronts. First, that --  
 8 there were two complaints. One, there was not enough or  
 9 there was no contemporaneous records of the required  
 10 inspection or supervision. Secondly, there was  
 11 a complaint about retrospective records. On the first  
 12 point, that is contemporaneous records of the required  
 13 supervision and inspection, MTRC have already dealt with  
 14 it. We would simply remind the Commission of Edward  
 15 Mok's evidence that there were contemporaneous records  
 16 in the form of the RISC forms and the pre-pour  
 17 checklist, and the fact that there may just be one RISC  
 18 form which would cover inspection of both mats in the  
 19 same block, in the same slab.  
 20 The evidential reference to Mok's testimony as to  
 21 the use of RISC forms and sometimes two inspections  
 22 would be merged into one RISC form can be found in Mok  
 23 Day 21, page 21, line 17, to page 22, line 1, and Mok  
 24 Day 21, page 22, line 15, to page 23, line 8.  
 25 Next, the compilation of retrospective records. We

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1 respectfully submit that we did not create any  
 2 misleading impression that the records created in June  
 3 purported to be contemporaneous and they were never  
 4 intended to be portrayed as contemporaneous. For this,  
 5 can I simply refer the Commission to Mr Lumb's fifth  
 6 witness statement, paragraph 10, at C35, page 26708,  
 7 where he made reference to the use particularly of the  
 8 phrase "as-built".  
 9 I know one could debate whether or not "as-built"  
 10 necessarily must rebut or refute any suggestion that it  
 11 doesn't connote contemporaneity, but Mr Lumb's evidence  
 12 in his witness statement was that he took care to use  
 13 the phrase "as-built" to show that it was actually not  
 14 intended to be understood as contemporaneous.  
 15 I move on now to some final remarks before I sit  
 16 down, and there is one matter of some importance. The  
 17 Commission's terms of reference refer to media reports  
 18 and concerns reported in the media. Mr Chairman had  
 19 emphasised, from time to time, that one of the important  
 20 remits of this Commission is to address public concerns.  
 21 It's rather fitting that this Commission begins with the  
 22 media and my submission ends with a reference to the  
 23 media. Robust and fearless media reporting is of course  
 24 essential in a democratic society. One may debate  
 25 whether Hong Kong is a democracy but leave that to one

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1 side. But a competing value for a robust and fearless  
 2 media is respect for an independent judiciary and  
 3 an independent Commission of Inquiry chaired by  
 4 a judicial officer.  
 5 Respect for an independent judiciary and  
 6 an independent Commission of Inquiry is not the type of  
 7 "heads I win, tails you lose" double standard where, if  
 8 results go or if anticipated results go in line with  
 9 what some people or entities want to achieve, then it's  
 10 hailed as the victory of an independent judiciary; but  
 11 if results go against then somehow it is a result of  
 12 a discredited Commission or the result of suppression,  
 13 oppression, or people being bullied.  
 14 I am not saying this for the first time here in my  
 15 closing: the Commission has our submissions that Mr Poon  
 16 is someone who constantly plays the media. The  
 17 Commission and the media will remember that astonishing  
 18 and dramatic incident during Mr Poon's testimony where  
 19 he actually addressed the Commission as the media and  
 20 immediately denied it, then only to admit it after the  
 21 tape was played. I used to think the ability to play to  
 22 the media, coupled with an ability to say something and  
 23 immediately deny it, is the exclusive province of  
 24 politicians and I am wrong.  
 25 The Commission also remembers my cross-examination

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1 of Poon, when I paved the groundwork for suggesting that  
 2 Mr Poon was trying to undermine the credibility of the  
 3 Commission. Can I give the Commission the reference:  
 4 Day 9, page 165, line 2; page 168, line 8; and page 176,  
 5 lines 12 to 17. Those were places where Mr Poon got  
 6 into a fight almost -- or I refer to Mr Poon getting  
 7 into a fight with Mr Pennicott, where he said  
 8 Mr Pennicott somehow targeted him and I suggested to him  
 9 this was really to pave the way; in case things turned  
 10 badly against him, he could say there is something quite  
 11 wrong about the constitution of the Commission or its  
 12 legal team.  
 13 As a reminder -- it's a small point but it's a point  
 14 worth making -- C22, among Mr Poon's various media  
 15 statements, at 24341.  
 16 At the bottom -- this is from Ming Pao -- again,  
 17 there is no translation, but can I just read out and if  
 18 I'm wrong in translating it, no doubt I will be  
 19 corrected.  
 20 MR PENNICOTT: What's the date of this one?  
 21 MR SHIEH: The date of the report is 27 September 2018.  
 22 MR PENNICOTT: Thank you.  
 23 MR SHIEH: "The MTR saga continued to brew. Mr Poon, who  
 24 held a lot of photographs and evidence, suddenly moved  
 25 from the site to the spotlight. Many times it exchanged

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1 blows with giants, MTR and Leighton. Mr Poon studied  
 2 construction. He said he doesn't want to be a hero.  
 3 When he came out, his original intent is to protect the  
 4 company. He didn't think it would brew to this stage.  
 5 Other people had attacked him as a political person.  
 6 Mr Poon, aged 46, said he voiced out not because he  
 7 wanted to take part in politics. Personal plan was next  
 8 year he would be semi-retired, go back to the campus and  
 9 study a subject that he loved, a doctorate study in  
 10 war."  
 11 It may appear to be a small point but Mr Poon is  
 12 learned in the Art of War, Sun Tzu's Art of War.  
 13 Outside of Mr Poon's testimony and China Technology,  
 14 and speaking of the Commission generally, it is  
 15 unheard-of and unthinkable if during a trial in a court  
 16 of law a witness or expert can go out of his way to  
 17 speak to the press, whether of their own volition or  
 18 whether they are invited or lured by the press, on  
 19 matters covered by his or her evidence or on matters  
 20 outside of what he or she had said in evidence, which  
 21 the court is in the course of deliberating on. It's  
 22 absolutely unheard-of, and it's unheard-of for the media  
 23 to report those matters if it had been a trial in court,  
 24 as if they were facts, as if they were treating the  
 25 Commission as non-existent.

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1 In Chinese, (Chinese spoken), "treating the  
 2 Commission as transparent/invisible".  
 3 The Commission is a judicial proceeding, just like  
 4 court proceedings. Within this hearing room, we have  
 5 counsel, leading counsel, who have been involved in  
 6 Commissions of Inquiry in the past 20-odd years, since  
 7 the Garley Building Fire on Nathan Road, the New Airport  
 8 Inquiry, Lamma Island Collision, Lead in Drinking Water  
 9 and this one, whether as counsel for the Inquiry or  
 10 involved party. I daresay and I stand corrected but  
 11 never have any of the leading counsel involved in this  
 12 room seen situations where efforts have been made such  
 13 as some efforts have been made in this case to undermine  
 14 the Commission or even to hijack it.  
 15 This is what we refer to in paragraph 9 of our  
 16 closing submissions which were filed last week. It's  
 17 a timely reminder to see what we had said and predicted.  
 18 I'm not blowing my trumpet, I could be a fortune-teller.  
 19 Paragraph 9: what is neither right nor proper is for  
 20 guerilla warfare to be waged by some parties outside of  
 21 the Inquiry or outside the scope of their Salmon letter.  
 22 During this Inquiry this has been done. That is to be  
 23 deprecated.  
 24 If may instincts serve me right, Mr Chairman and  
 25 Professor, there can be more to come. Maybe the day

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1 before the report is due to be submitted, I don't know.  
 2 What I can respectfully submit and remind the Commission  
 3 of is that there is a strong force somewhere or strong  
 4 forces somewhere wanting some conclusions and steering  
 5 the Commission in some direction, but who cannot find  
 6 anyone in the hearing room to raise it or who dares to  
 7 raise it and therefore had to resort to guerilla warfare  
 8 outside of the hearing room.  
 9 Can I refer also to the Commission's closing at  
 10 paragraph 166. This is what counsel for the Commission  
 11 had said in the Commission's closing:  
 12 "It is submitted that Mr Poon has simply invented a  
 13 good deal of his evidence and cannot, on any objective  
 14 basis, be regarded as a credible or reliable witness.  
 15 Unfortunately, this conclusion has the inevitable  
 16 consequence of tainting such parts of Mr Poon's evidence  
 17 as might otherwise have had some value. Any independent  
 18 tribunal would struggle to give credence to what Mr Poon  
 19 has said. The media may have been inadvertently drawn  
 20 in by him, but the Commission of Inquiry will not be so  
 21 easily misled."  
 22 That may be putting the level of sophistication of  
 23 the media a bit too low. Maybe they have not  
 24 inadvertently been drawn in by him.  
 25 But where do all these lead us and where am I on all

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<p>1 this? It goes to what I would respectfully suggest and 2 submit to be a point which the Commission should pay 3 close attention to in rendering its report. We do not 4 know what the outcome is. The Commission may accept 5 some of our submissions, the Commission may reject some 6 of our submissions. But the integrity of the judicial 7 process is paramount in Hong Kong. It may be said, 8 maybe in a bygone era judges may say write the judgment, 9 I don't care, the report can speak for itself. Yes and 10 no. Because a cynic might say -- in the Chairman's 11 favourite phrase -- whatever you write, the media will 12 say what they want to say, they will write what they 13 want to write, they will report what they want to 14 report. Maybe; maybe not.</p> <p>15 In an ordinary court litigation, one can expect 16 people to read a judgment. With the media having no axe 17 to grind, maybe they can report dispassionately. But in 18 this case, this is not an ordinary case. A wealth of 19 materials, spin had been published, preconceived notions 20 had been planted, even prior to the Inquiry. If the 21 Commission is minded to accept submissions such as that 22 made by Leighton, such as that made by the Commission, 23 which I have read, which somehow -- evidence on 24 structural integrity, for example, which in a way goes 25 against some part of preconceived wisdom in some part of</p>	<p>1 caricatured. Banners may appear outside this hearing 2 room.</p> <p>3 COMMISSIONER HANSFORD: Perish the thought.</p> <p>4 CHAIRMAN: Certainly not.</p> <p>5 MR SHIEH: It would be presumptuous for me to suggest or to 6 submit to the Commission how these are to be addressed. 7 But what I wish to say humbly, irrespective of the 8 way the judgment or the report may come out, for 9 Leighton or indeed for anyone else, is that these 10 matters should be carefully borne in mind when rendering 11 the report.</p> <p>12 I was doing my weekend reading from a novel where 13 someone was pondering over the power of the media versus 14 the courts, and in this novel that character said: 15 "The legal side I don't mind; the publicity I do. 16 I tell you all, I'd rather face English justice than the 17 English press."</p> <p>18 Unless I can assist any further, these are 19 Leighton's submissions.</p> <p>20 CHAIRMAN: Good. Thank you very much indeed. Thank you.</p> <p>21 We will probably have a five-minute break. So far 22 as Intrafor is concerned, how long do you think you are 23 likely to be? You may be as long as your time allotted 24 allows. We are more than happy to hear from you. It 25 just gives us an indication.</p>
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<p>1 the media or the public, or in LegCo, whether they were 2 inadvertently drawn by Poon or otherwise. It is 3 important for this Commission in its report to address 4 that aspect carefully. This is for the sake of 5 protecting the integrity of the process and making 6 sure -- because if people want to gloss over the 7 reasoning in the Commission, they can. There is nothing 8 one can do about it. But the Commission, in my 9 respectful submission, would be well advised to make 10 sure that any media spinning or impact is properly and 11 carefully considered. Because I can imagine what might 12 come out in the press, if for example someone is 13 disbelieved; results are not as people have generally 14 been led to be by the media. Headlines will go, 15 "Discredited Commission blind to gaps in the evidence 16 revealed by the media", "Whistleblower targeted by Ian 17 Pennicott", "Commission had incompetent expert". In 18 fact they might have already been written, because 19 I pointed out they may have to go back to write again -- 20 all in the name of robust reporting and fearless 21 journalism.</p> <p>22 It could be worse. It could be like the "enemies of 23 the people" headline in the Daily Mail on 4 November 24 2016, which Prof Hansford might remember; that was after 25 the Brexit judgment had come out, when judges were</p>	<p>1 MR COHEN: Sir, I shall be no more than 40 minutes and 2 I hope to be less.</p> <p>3 CHAIRMAN: Good.</p> <p>4 (Commissioners conferring)</p> <p>5 That's excellent. You take whatever time is 6 allocated to you, after ten minutes. Thank you.</p> <p>7 MR COHEN: Thank you.</p> <p>8 (4.57 pm)</p> <p>9 (A short adjournment)</p> <p>10 (5.10 pm)</p> <p>11 Closing submissions by MR COHEN</p> <p>12 MR COHEN: Sir, Professor, in overview, Intrafor 13 respectfully makes the following nine points.</p> <p>14 One, no credible evidence or effective criticism has 15 been forthcoming that would give rise to doubts, let 16 alone concerns, with regards to the structures 17 constructed by Intrafor.</p> <p>18 Two, Intrafor built the diaphragm walls and 19 barrettes properly and in accordance with the design 20 that it was instructed to build to.</p> <p>21 Three, Buildings Department, after a lengthy and 22 detailed review process, approved the as-built 23 documentation for the diaphragm walls and barrettes in 24 May 2017. In so doing, Buildings Department formally 25 recognised, from a statutory perspective, the completion</p>

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<p>1 of the works carried out by Intrafor on 5 May 2017.</p> <p>2 There has been no meaningful or credible criticism</p> <p>3 of or challenge to Intrafor's construction work or the</p> <p>4 site supervision and inspections for Intrafor's work,</p> <p>5 including the coupler connections in the diaphragm</p> <p>6 walls.</p> <p>7 There is no basis for concern that the couplers in</p> <p>8 the diaphragm walls were improperly connected or threads</p> <p>9 were unlawfully cut.</p> <p>10 Intrafor's contemporaneous records, while certainly</p> <p>11 not perfect, are satisfactory and have been the subject</p> <p>12 of generally favourable comment by a number of different</p> <p>13 parties during the hearings.</p> <p>14 The preponderance of evidence confirms that coupler</p> <p>15 connections in the diaphragm walls were properly</p> <p>16 supervised and inspected.</p> <p>17 The July 2013 video clip and photographs of couplers</p> <p>18 for the diaphragm walls that were circulated in the</p> <p>19 media in 2018 do not raise or evidence any concerns or</p> <p>20 doubts about Intrafor's works. Indeed, they do not even</p> <p>21 show the couplers or the reinforcement cages in their</p> <p>22 completed state.</p> <p>23 Furthermore, the records for the relevant panel,</p> <p>24 EM98, confirm that all of the connections for the</p> <p>25 relevant panel were properly completed and were</p>	<p>1 other aspects of the permanent works.</p> <p>2 In addition, Intrafor had no responsibility or</p> <p>3 liability for the supply or quality of the couplers or</p> <p>4 threaded rebar procured by Leighton for installation by</p> <p>5 Intrafor in the diaphragm wall.</p> <p>6 And MTR, if we now turn to statutory matters, was</p> <p>7 responsible for obtaining the necessary statutory</p> <p>8 approvals and consents needed for the diaphragm wall</p> <p>9 works. It was MTR who liaised and communicated directly</p> <p>10 with Buildings Department. Intrafor was not directly</p> <p>11 involved with this communication.</p> <p>12 Intrafor did, however, of course still have various</p> <p>13 statutory duties and related obligations. For example,</p> <p>14 Intrafor, as the registered specialist contractor for</p> <p>15 foundation works, signed a series of undertakings to the</p> <p>16 Building Authority.</p> <p>17 Intrafor was also required to comply with the</p> <p>18 relevant aspects of the Buildings Department's</p> <p>19 additional requirements for the installation and</p> <p>20 connection of the couplers. See appendixes VIII for</p> <p>21 ductility couplers and IX for non-ductility couplers of</p> <p>22 the Buildings Department's acceptance letter of</p> <p>23 25 February 2013, and also the quality supervision plan,</p> <p>24 QSP, for ductility couplers prepared by BOSA and</p> <p>25 approved by Buildings Department.</p>
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<p>1 inspected and signed off by Intrafor, MTR and Leighton</p> <p>2 before concreting began.</p> <p>3 Finally, there are no grounds for concern or doubt</p> <p>4 about the current or future safety of the diaphragm</p> <p>5 walls with regards to cracking or water leakage or any</p> <p>6 other issue. There are no structural cracks and there</p> <p>7 is no evidence that would give rise to concerns or</p> <p>8 doubts.</p> <p>9 Importantly, Intrafor was not involved in any of the</p> <p>10 work that has turned out to be the primary focus for</p> <p>11 this Commission.</p> <p>12 In all the circumstances, Intrafor respectfully</p> <p>13 invites the Commission to make no adverse findings with</p> <p>14 respect to either the diaphragm walls as constructed by</p> <p>15 Intrafor or of Intrafor itself.</p> <p>16 In terms of Intrafor's role in the project, Intrafor</p> <p>17 did not construct the slabs and nor did Intrafor connect</p> <p>18 the slabs to the diaphragm walls. This work was carried</p> <p>19 out by Leighton after Intrafor had completed its works.</p> <p>20 Intrafor was engaged as a sub-contractor by Leighton on</p> <p>21 a construction-only basis to build the diaphragm walls</p> <p>22 and barrettes. Intrafor constructed its sub-contract</p> <p>23 works in accordance with the design and instructions</p> <p>24 given to it. It had no responsibility or liability for</p> <p>25 the design or engineering of the diaphragm walls or any</p>	<p>1 Intrafor also provided as-built information and</p> <p>2 prepared as-built elevations to assist MTR with the BA14</p> <p>3 submissions process. Intrafor's authorised signatory</p> <p>4 also signed as-built drawings which had been prepared by</p> <p>5 MTR and Leightons for BA14 submission.</p> <p>6 Intrafor has played a very limited role in the</p> <p>7 Commission. Indeed, Intrafor has not spoken at the</p> <p>8 hearings since the end of Day 3, 24 October 2018 --</p> <p>9 Mr Jat's and my birthday -- when its own witness</p> <p>10 concluded his evidence.</p> <p>11 This is, respectfully submitted, not entirely</p> <p>12 unexpected or surprising. The primary focus of the</p> <p>13 hearings has been on matters that do not involve</p> <p>14 Intrafor and upon which Intrafor cannot comment or give</p> <p>15 evidence. Indeed, it was noted at the procedural</p> <p>16 hearing on 24 September 2018 that it was at least</p> <p>17 possible that Intrafor might have a relatively limited</p> <p>18 role to play in the Commission. Intrafor had no</p> <p>19 involvement with or knowledge of matters such as the</p> <p>20 alleged demolition or hacking down or trimming of the</p> <p>21 diaphragm walls, the so-called second design change, or</p> <p>22 any other alterations or further work carried out to the</p> <p>23 diaphragm walls as completed by Intrafor, TQs 33 and 34,</p> <p>24 which were never even communicated to Intrafor, the</p> <p>25 construction of the slabs and the connection of the</p>

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1 slabs.

2 The only matters which Intrafor can assist the

3 Commission with relate to or arise out of the diaphragm

4 walls as constructed and completed by Intrafor. These

5 matters were dealt with at the very start of the

6 substantive hearing, with Intrafor being the very first

7 party to give evidence.

8 None of the independent structural engineering

9 experts have identified problems or causes of concern

10 with the diaphragm walls. The structural engineering

11 experts appointed by MTR and by the Commission both

12 commented favourably on Intrafor's work and on the

13 diaphragm walls themselves.

14 Prof McQuillan, appointed by the Commission,

15 addressed the diaphragm walls at paragraphs 102 to 105

16 and 126 of his report. He concluded at paragraphs 104

17 and 105:

18 "The supervision, inspection and sign-off records

19 for the D-walls appear to have been of high quality as

20 evidenced by the generally high tolerance levels

21 achieved with coupler placement. Not many couplers

22 appear to have been misaligned or off-the-level at depth

23 which demonstrates a reasonably high degree of accuracy.

24 There is no evidence of any structural or

25 serviceability problems with the D-walls. The only

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1 instance of dampness" -- that is the only instance that

2 he had observed" -- is well within the specified

3 tolerance level."

4 Prof McQuillan further concluded, at paragraph 126,

5 that there are no safety issues or concerns with the

6 diaphragm walls.

7 Similar conclusions were reached by Dr Glover,

8 appointed by MTR, at paragraph 10.7 of his report:

9 "In my opinion, currently there is no case for

10 opening up the NSL slab or the diaphragm wall since

11 there is no evidence to suggest that these structures

12 were not built in accordance with the accepted design,

13 there have been no allegations of illegally cut threaded

14 bar in either structure and the structural utilisations

15 are low. Any opening up of these structures would

16 require considerable demolition of the installed rail

17 works and the structures and extend the delay to the

18 project further for no obvious benefit."

19 Neither Prof McQuillan nor Dr Glover were

20 cross-examined by any party on their opinions in

21 relation to the diaphragm walls.

22 The structural engineering experts appointed by

23 government, China Technology and Leighton did not

24 address Intrafor's work on the diaphragm walls

25 themselves.

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1 Turning next to Intrafor's evidence. The Commission

2 heard evidence from Intrafor's Mr Gillard on 23 and

3 24 October. He is a director of Intrafor and holds

4 ultimate responsibility for the management and operation

5 of Intrafor, including all of its projects. He had been

6 involved with the Hung Hom project from the start of

7 Intrafor's involvement. He visited the site generally

8 twice a month, and at a bare minimum once a month. On

9 these visits he would go to both the steel fabrication

10 yard and also the areas where the diaphragm walls were

11 being installed.

12 He was a credible and reliable witness. His

13 evidence was not undermined or in any way tainted, it is

14 submitted, during cross-examination. It is respectfully

15 submitted that his evidence should be accepted by the

16 Commission and given full weight.

17 His evidence was supported by a substantial volume

18 of supporting documents and exhibits. It was also

19 generally corroborated by the witnesses from other

20 companies who were involved with the diaphragm walls

21 and/or Intrafor's involvement with the project.

22 In terms of sub-contractors, the Commission heard

23 from two witnesses from Intrafor's steel fixing

24 sub-contractor, Hung Choi. These witnesses were called

25 by the Commission as Hung Choi is not and has never been

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1 an interested party before the Commission. Both

2 witnesses were credible and reliable. Their evidence

3 was also not undermined by cross-examination, and it is

4 also submitted that the Commission should accept their

5 evidence and give full weight to it.

6 Their evidence did not reveal any problems or causes

7 for concern in relation to the diaphragm walls or

8 Intrafor's works.

9 Intrafor and Hung Choi were the only sub-contractors

10 to give evidence who were involved in the construction

11 of the walls. Neither China Technology nor Fang Sheung

12 were involved with Intrafor's works. Those companies

13 were involved with the follow-on works for the slabs and

14 slab connections. China Technology, for example,

15 started work on the project in late July 2015; see

16 paragraph 26 of Mr Poon's first statement, at D1/18.

17 This was after Intrafor had completed and cast the final

18 panel of the diaphragm walls, panel EH78, on 27 June

19 2015.

20 Turning next to the media photographs and video

21 clip. The Commission, in its first letter to Intrafor,

22 of 25 July 2018, referred to a number of specific

23 articles that had appeared in HK01 and in the

24 Apple Daily, and sought responses and information from

25 Intrafor.



<p style="text-align: right;">Page 193</p> <p>1 Intrafor responded to the Commission's queries by 2 way of paragraphs 47 to 97 of Mr Gillard's first 3 statement. Mr Gillard gave further evidence in this 4 regard during his brief examination-in-chief on Day 2. 5 The video and photographs simply do not show 6 problems with Intrafor's works or couplers not properly 7 connected in the walls. The video of a worker using 8 a wrench clearly shows reinforcement cages arranged 9 horizontally in an L-shaped bed. The L-shaped beds were 10 installed in the steelyard and not at the workface for 11 the walls. In addition, the yellow beam visible is 12 a beam in the steelyard. The video simply cannot show 13 the reinforcement cages in their completed state at the 14 workface. This is because the cages are arranged 15 horizontally, as I have said, in the video, but in their 16 final state in the wall they are arranged vertically. 17 The press articles say that the video was taken in 18 July 2013. This seems likely. If so, it shows the 19 trial assembly or mock-up of the reinforcement cages in 20 the steelyard for panel EM98, the first panel to be 21 constructed. 22 It was decided to prefabricate all the cages for 23 EM98 in the steelyard, including those with three layers 24 of rebar. It was hoped that this might add to the 25 efficiency of the construction process by allowing more</p>	<p style="text-align: right;">Page 195</p> <p>1 steelyard, it still does not show them in their 2 installed or completed state. The cages were then 3 disconnected, moved, and reconnected at site. 4 Mr Gillard's evidence in relation to the video is 5 further supported by the evidence of Hung Choi's Mr Wong 6 Yiu Mo. 7 There are a number of photographs that also show the 8 rebar cages arranged horizontally in the L-framed beds 9 in the steelyard. These appear to be stills from the 10 video or photographs taken at about the same time. They 11 do not show the reinforcement cages in their installed 12 or completed state either. 13 There are two photographs showing cages partially 14 connected in their vertical arrangement, and these were 15 taken in July 2013. The panel reference EM98 can be 16 seen on one of them, marking the location for the 17 reservation pipe. It is not known what day or time the 18 photographs were taken, but the installation and 19 connection of panel EM98 took place from 26 to 31 July, 20 a five-day period. There would have been times during 21 that period where the connections were not yet fully 22 made. 23 All of the couplers and connections were fully 24 completed and inspected before Intrafor were permitted 25 to concrete. A full set of inspection records for panel</p>
<p style="text-align: right;">Page 194</p> <p>1 work to be done at the yard rather than at the workface. 2 The intention was to prefabricate the cages in the 3 L-framed beds installed in the yard. The prefabricated 4 cages would then be connected while still horizontal so 5 that the connections aligned. Once everything was 6 aligned, the cages would be disconnected from each other 7 and transported individually to the workface. Once at 8 the workface, the cages would then be reconnected in 9 a vertical arrangement. 10 Difficulties were, however, encountered in 11 connecting the couplers when the cages were in the 12 horizontal position, particularly where those cages had 13 three layers of rebar. These difficulties were more 14 pronounced when it came to trying to unscrew the 15 couplers to disconnect the cages. 16 As a result, prefabrication of triple-layer cages, 17 cages with three layers of rebar, was only carried out 18 for panel EM98. After that, Intrafor built the 19 triple-layer cages in situ and continued with 20 prefabrication for single and double-layer cages. 21 The video most probably shows cages being 22 disconnected in the yard at the end of the process, 23 because of the direction that the worker is turning the 24 wrench. In any event, even if the video did show the 25 cages in the process of being connected in the</p>	<p style="text-align: right;">Page 196</p> <p>1 EM98 has been produced. 2 The metal wire around the cage does not show that 3 the works are complete. It is a tie wire that holds the 4 reinforcement bars in place because the cage was 5 prefabricated in the yard and had to be moved. 6 There is no evidence whatsoever to suggest that any 7 unlawful cutting took place in relation to the diaphragm 8 walls. Both Intrafor and Hung Choi have confirmed that 9 they did not do so. 10 CHAIRMAN: Sorry, just remind me again, on what basis was 11 the suggestion made in those photographs that there was 12 anything untoward? 13 MR COHEN: Sir, in terms of the vertical photographs, the 14 two photographs showing the cages vertically -- 15 CHAIRMAN: Yes. 16 MR COHEN: -- it was said two things: first, that those 17 photographs showed the works in their final and 18 completed state. Second, you could tell, it was said, 19 that they were in their final and completed state 20 because there was a metal wire going around which was, 21 it was said, a sign that the works had been completed. 22 CHAIRMAN: Yes. 23 COMMISSIONER HANSFORD: I'm sorry, I don't think that's 24 quite answering the Chairman's question, because the 25 Chairman's question is asking you to remind him of what</p>

<p style="text-align: right;">Page 197</p> <p>1 problems were allegedly being shown in those 2 photographs. 3 MR COHEN: Sir, the problems that were allegedly shown was 4 that the couplers were not properly connected, and you 5 could see that they were not properly connected, you 6 could see there were gaps, and indeed a number of the 7 couplers had not yet been screwed down. 8 CHAIRMAN: I thought that was the case, yes. But you didn't 9 want to properly connect them because you didn't need to 10 at that stage? 11 MR COHEN: We were in the process of connecting them, and it 12 would take some time. It was also the case -- without 13 knowing exactly when the photograph was taken, it's not 14 possible to comment. 15 CHAIRMAN: That's quite right. What you are doing -- and 16 the horizontal ones, you were attempting -- with the 17 one-off, you didn't follow that system -- trying to put 18 everything into alignment, get it all ready, and then 19 the couplers would be screwed in, and then unscrewed 20 again in order to move them? 21 MR COHEN: That's correct. 22 CHAIRMAN: And the same with the vertical ones. You had to 23 make them first, on site, and then once everything was 24 aligned, screw in, tighten it all up, have it inspected, 25 and then sink it.</p>	<p style="text-align: right;">Page 199</p> <p>1 remedial measures have been taken by, for example, 2 pressure-grouting. 3 At no point has any stakeholder in the project ever 4 suggested or notified Intrafor that there are structural 5 concerns, whether in relation to the cracking or water 6 seepage or otherwise. Intrafor has not seen signs nor 7 been notified of structural cracks or any other signs of 8 distress in the diaphragm walls. 9 In summary, no party sought to challenge either 10 Mr Gillard or Mr Wong in relation to their evidence 11 regarding the video and the photographs. There is no 12 evidence whatsoever to support the suggestion that the 13 reason why cracks have appeared on the diaphragm walls 14 is due to steel bars not being properly connected. 15 Indeed, no credible evidence or effective criticism has 16 been forthcoming that would give rise to doubts, let 17 alone concerns, with regards to the structures 18 constructed by Intrafor. 19 Intrafor was required to construct the diaphragm 20 walls in accordance with its statutory duties and the 21 design and instruction provided to it. From as early as 22 April 2013, Intrafor was worried about congestion of 23 steel at the top of the diaphragm wall in the design 24 that it was given. The concern was that the amount of 25 steel work as originally designed would make it</p>
<p style="text-align: right;">Page 198</p> <p>1 MR COHEN: That is correct. 2 CHAIRMAN: Thank you. 3 COMMISSIONER HANSFORD: My understanding is that was a trial 4 connection and it was work in progress. 5 MR COHEN: The ones that were horizontal were a trial -- 6 COMMISSIONER HANSFORD: That's what I mean. 7 MR COHEN: -- and the ones in -- the two vertical are work 8 in progress. 9 COMMISSIONER HANSFORD: Thank you. 10 MR COHEN: There are two articles in the Apple Daily of 11 30 May 2013 that are said to show water leakage at the 12 diaphragm walls. Intrafor's evidence in relation to 13 these photographs is at paragraphs 91 to 97 of 14 Mr Gillard's first statement. 15 Whilst some of these photographs do show apparent 16 water marks, it is not possible to ascertain from the 17 photographs the extent of the seepage, let alone to 18 identify its source or cause. Some water seepage is 19 usual and to be expected in concrete structures such as 20 the diaphragm walls. This is recognised in the 21 contract, which provides for tolerances for water 22 seepage. 23 Intrafor had attended site since the completion of 24 the diaphragm walls to address non-conformance reports. 25 Where instances of water seepage have been identified,</p>	<p style="text-align: right;">Page 200</p> <p>1 difficult to build and install the steel work itself 2 together with the incorporation of the tremie and 3 reservation pipes; and secondly it could adversely 4 affect the flow of concrete when poured. 5 Intrafor's concern related to buildability. 6 Intrafor had no involvement with the design or 7 engineering. Design and engineering were for Atkins and 8 others to address. Intrafor brought their concern about 9 buildability to Leighton's attention and ultimately to 10 MTR's and Atkins'. There is, for example, reference in 11 an internal email of 5 July to a discussion at a meeting 12 on 29 April 2013 where Atkins agreed that the U-bars at 13 the top of the wall were not necessary. 14 If acceptable from a design and engineering 15 perspective, the deletion of U-bars at the top of the 16 wall would ease the congestion, aid construction, and 17 permit incorporation of reservation tubes and tremie 18 pipe. 19 In June 2013, when reviewing details of the first 20 panel, EM98, Intrafor again raised a concern about the 21 congested steel work. In addition, Intrafor alerted 22 Leighton to a further buildability problem with regards 23 to the incorporation of the tremie pipe, which is of 24 course the pipe that is used to pump down the concrete. 25 That problem arose because of the arrangement of the</p>

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<p>1 horizontal couplers at the top of the wall. These 2 couplers were evenly spaced across the whole wall and 3 width of the panel in two rows. The spacing between 4 them was not sufficient for a tremie pipe to be 5 inserted.</p> <p>6 On 11 June 2013, Intrafor provided Leighton with 7 a shop drawing detailing a possible alternative way of 8 arranging the couplers at the top of the wall and the 9 omission of the U-bars. This illustrated the creation 10 of tremie pipe space by redistributing couplers into 11 three rows with a gap for the tremie pipe. This sort of 12 arrangement would solve the buildability problem 13 associated with the tremie pipe, but Intrafor had no way 14 of knowing whether it would work from an engineering 15 perspective or not.</p> <p>16 Intrafor was not involved in the design of the walls 17 and had no access to the design and engineering 18 calculations and assumptions.</p> <p>19 CHAIRMAN: It was Atkins that designed? 20 MR COHEN: Sir, that's correct.</p> <p>21 This sort of solution would also require 22 an equivalent change in the location of the threaded 23 rebar in the slabs -- otherwise the couplers and 24 threaded rebar would be misaligned. And Intrafor had no 25 involvement with or knowledge about the slabs.</p>	<p>1 I've said, between 26 and 29 July, and concrete poured 2 on 1 August.</p> <p>3 It would seem, as a result of evidence in the 4 Commission, that the changes in the design were approved 5 by MTR's construction team but may or may not have been 6 approved by MTR's design coordination team. Intrafor 7 was not involved with the detailed liaison with MTR or 8 Atkins.</p> <p>9 Intrafor was aware of the possibility that some 10 changes to reinforcement arrangements might necessitate 11 consultation with the Buildings Department.</p> <p>12 Mr Gillard's evidence was that he had seen emails in 13 relation to some aspects of the design where Intrafor 14 had raised this question, and also emails indicating at 15 various times in June and July 2013 that there were 16 discussions between MTR/Leightons and Buildings 17 Department on aspects of the reinforcement design.</p> <p>18 Mr Gillard, however, had not been able to identify 19 whether the resolution of the buildability problems was 20 raised in this manner or not.</p> <p>21 The final design for arrangements at the top of the 22 wall in panel EM98 was then adopted for all of the 23 panels on the eastern diaphragm wall. This was the 24 design that Intrafor was required to construct the 25 eastern wall to until January 2015.</p>
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<p>1 Intrafor, as Leighton's sub-contractor, was not 2 directly involved with all of Leighton's subsequent 3 dealings with either MTR or Atkins on these matters.</p> <p>4 Intrafor participated in some discussions, and 5 produced various revisions to draft shop drawings for 6 review. But Intrafor's involvement was related to 7 buildability and not underlying design or engineering.</p> <p>8 On 5 July 2013, David Wilson of Atkins confirmed in 9 an email concerning panel EM98:</p> <p>10 "The attached mark-up suggests that U-bars may be 11 required at the top of the wall. That is not the case." 12 The final revised design that Intrafor was 13 instructed to construct for panel EM98 resolved the 14 buildability problems at the top of the eastern 15 diaphragm wall by redistributing the couplers into three 16 rows and removing the U-bars.</p> <p>17 Intrafor produced revised draft shop drawings and 18 bar bending schedules for panel EM98 that reflected that 19 final design. These were approved by Leighton on 20 19 July, and by MTR, with minor unsubstantive comments, 21 on 24 July 2013.</p> <p>22 Intrafor constructed panel EM98 in accordance with 23 the approved shop drawings and bar bending schedules. 24 The cages were prefabricated in the steelyard and then 25 moved to the workface. The cages were installed, as</p>	<p>1 On 14 January 2015, Intrafor was instructed at site 2 to add T40-150 U-bars at the top of the wall for panel 3 EH45. This was confirmed by an email on the same date 4 and Intrafor replied again on the same day, advising 5 that only 12 such U-bars could be added. Intrafor 6 explained that too high a concentration of rebar at the 7 top of the wall would impact the flow of concrete.</p> <p>8 Intrafor proceeded to incorporate the U-bars in the shop 9 drawings and in the panel.</p> <p>10 Intrafor was not a party to whatever prompted the 11 instruction to add the T40-150 U-bars at the top of the 12 wall.</p> <p>13 Intrafor was then asked to install U-bars at the top 14 of the wall for the panels constructed after EH45 and 15 did so. The number of U-bars installed varied between 16 the panels depending on how many Intrafor could squeeze 17 in without adversely affecting the flow of concrete.</p> <p>18 It is now understood that the omission of the 19 U-bars, the so-called first design change, was the 20 subject of a consultation and discussion process between 21 MTR and Atkins and Buildings Department in the middle of 22 2015, and that Buildings Department ultimately gave 23 their acceptance to it. Intrafor was not aware of or 24 involved with that process.</p> <p>25 So what did Intrafor actually construct? Intrafor</p>

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<p>1 constructed the eastern diaphragm walls in accordance 2 with the revised designs as it was instructed to do so. 3 There was, however, one exception to this, and that 4 is the concrete pour levels for five panels: EM104, 5 EH105, 106, 108 and 109. 6 The circumstances with respect to the concrete pour 7 levels for these five panels are addressed in 8 paragraphs 60 to 65 of Mr Gillard's second witness 9 statement, and its corrigendum; and paragraphs 39 to 46 10 of his third statement. 11 On 24 April 2015, Leighton instructed Intrafor by 12 email to reduce the concrete cut-off level to a plus 1 13 for panel EH106. It appears that the concern underlying 14 this instruction was it might be necessary to demolish 15 the top of the wall, install further anchorages and then 16 recast the top of the wall. This was a design and 17 engineering issue and not any problem with Intrafor's 18 workmanship or construction. This was a matter that 19 therefore was for Leighton, MTR and Atkins to address; 20 it was not a matter that directly involved Intrafor and 21 nor was the detail discussed with Intrafor. Further, 22 Intrafor was not asked to carry out any demolition to 23 the top of the walls and never did so. 24 In accordance with this instruction, Intrafor 25 installed the reinforcement cage for panel EH106 to its</p>	<p>1 provided Leightons and MTR with various as-built data, 2 records and elevations as a part of the process. 3 MTR was responsible for the submission of as-built 4 drawings and other as-built records to the Buildings 5 Department as part of the BA14 process in six batches. 6 Batches 1 to 5 were submitted between January and July 7 2015 and were rejected by the Buildings Department in 8 May to September of that year. 9 Following these rejections, MTR and Leighton carried 10 out a lengthy and detailed process which Intrafor also 11 participated in to resolve the relevant issues. This 12 process is described in paragraphs 36 to 49 of 13 Mr Gillard's second witness statement. MTR then made 14 resubmissions for batches 1 to 5, and batch 6 was 15 submitted in January 2016. 16 With hindsight, an appropriate explanatory note 17 should have been added to the as-built drawings for 18 panels 104 to 109, to make the position of the lower 19 concrete pours clearer. However, the panel record 20 summary sheet signed by Intrafor and submitted to the 21 Buildings Department as part of the same batch 6 22 submissions correctly show the level of the top of the 23 concrete as poured by Intrafor. 24 Following the resubmission of batches 1 to 5 and the 25 submission of batch 6, there was a continuing process to</p>
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<p>1 full design height but only poured concrete to a lower 2 level. 3 The position with regards to the other four panels 4 that I've identified is the same. Intrafor installed 5 the rebar cages for these panels to the full design 6 height in accordance with the approved shop drawings. 7 Intrafor was instructed to and did pour the concrete for 8 these panels to a lower level. 9 The relevant instructions were not given formally by 10 way of site instructions. They were given by email and 11 orally. These instructions to pour the concrete for 12 these panels to a lower level were not instructions to 13 vary the design of the permanent works; they were 14 a change to the pouring arrangements. 15 The design cut-off level for the panels remained 16 unchanged. When Intrafor completed its physical work 17 on site, the panels remained with the top of the cages 18 protruding from the lower cast concrete. Intrafor did 19 not know, when Mr Gillard gave his evidence last 20 October, what had ultimately happened, but it is now 21 understood that Leighton ultimately poured the concrete 22 up to full height. 23 Turning now to as-built drawings. MTR and Leightons 24 produced the as-built drawings, although Intrafor's 25 authorised signatory signed them. Intrafor also</p>	<p>1 close out the BA14 process. This involved MTR and 2 Leighton making minor amendments, checked by Intrafor's 3 authorised signatory, to the BA14 submissions. 4 The process for obtaining Buildings Department's 5 acceptance took in excess of two years and was 6 painstakingly detailed. There is, following this, 7 a satisfactory set of drawings for the diaphragm wall 8 works that have been accepted by BD. All six batches 9 were accepted by the Buildings Department in May 2017 10 and at the end of the BA14 process, on 5 May 2017, 11 Buildings Department formally acknowledged from 12 a statutory perspective the completion of the diaphragm 13 wall package. 14 The preponderance of evidence confirms that the 15 coupler connections in the diaphragm walls were properly 16 supervised and inspected. No real or credible criticism 17 of Intrafor's supervision or inspection of the 18 construction of the diaphragm walls has been voiced in 19 the Commission. The recently retired Director of 20 Highways, Mr Chung Kum Wah, in response to a question 21 from Mr Pennicott, for example, said: 22 "Question: ... so far as I can tell, having looked 23 at (a), (b), (c), (d) in paragraph 43(1) of your witness 24 statement, and the various documents that you refer to, 25 there is no criticism of the supervision of the</p>

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1 construction of the diaphragm walls by Intrafor. Do you  
 2 agree?  
 3 Answer: Indeed, there was no criticism."  
 4 Intrafor maintained the coupler records required  
 5 under the QSP and under appendixes VIII and IX of the  
 6 letter of February and also the cage-to-cage connection  
 7 records. See, for example, paragraphs 13 to 49 in  
 8 Mr Gillard's second statement and also his oral  
 9 testimony on Day 2.  
 10 These contemporaneous records, while certainly not  
 11 perfect, are satisfactory, and have been the subject of  
 12 generally favourable comment by a number of different  
 13 parties during the hearing.  
 14 Mr Aidan Rooney, formerly general manager of the  
 15 MTR, for example, commented on the Intrafor records as  
 16 being "an extremely comprehensive set of records,  
 17 probably some of the best, to be honest, that I've  
 18 seen".  
 19 Mr Leung Fok Veng, MTR's design manager, confirmed  
 20 that he has no problems in collecting the information  
 21 for checking of the splicing assembly during the BA14  
 22 submission for the diaphragm walls.  
 23 It would have been undoubtedly better if there were  
 24 not missing signatures from various of the cage-to-cage  
 25 connection records and from various of the coupler

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1 records.  
 2 However, the evidence is that even where there are  
 3 missing signatures, the inspections of the individual  
 4 connections and couplers took place. This was confirmed  
 5 by Mr Gillard in his witness statement and also in his  
 6 testimony. He was a reliable and honest witness and  
 7 further there is no evidential basis for doubting his  
 8 evidence. In addition, his evidence is also  
 9 corroborated by MTR's Wong Chi Chiu.  
 10 It is also important, it is submitted, that the  
 11 inspections that took place for connections between  
 12 cages and the diaphragm walls were conducted at close  
 13 quarters and were specifically aimed at ensuring that  
 14 the connections had been properly made.  
 15 The inspections were carried out before the cages  
 16 were lowered into the excavation trench. Mr Gillard's  
 17 clear and uncontested evidence as to how the supervision  
 18 and inspection of the coupler connections to the  
 19 diaphragm walls were carried out is at paragraphs 33 to  
 20 36 of his first statement, F1/38 to 40.  
 21 As he explained, the process was detailed and  
 22 involved close-up visual inspections of the individual  
 23 couplers. In addition, MTR measured exposed threads  
 24 with a tape measure and conducted spot-checks on random  
 25 couplers by, for example, unscrewing them.

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1 In conclusion, it is submitted that there is no  
 2 evidential or other basis for any concern whatsoever  
 3 with regards to the diaphragm walls either now or in the  
 4 future, and in all of the circumstances, Intrafor  
 5 respectfully invites the Commission to make no adverse  
 6 findings with respect to either the diaphragm walls as  
 7 constructed by Intrafor or to Intrafor itself.  
 8 Sir and Professor, unless I can help you further.  
 9 COMMISSIONER HANSFORD: No.  
 10 CHAIRMAN: Thank you very much indeed, Mr Cohen.  
 11 Good. So we have concluded for this evening.  
 12 Tomorrow morning at 9.30?  
 13 MR PENNICOTT: Yes, sir.  
 14 CHAIRMAN: Thank you.  
 15 (5.53 pm)  
 16 (The hearing adjourned until 9.30 am the following day)  
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