Scottish Hospitals Inquiry

Witness Statement of

Graeme Greer

Preamble

1. This is my second witness statement for the Scottish Hospitals Inquiry ("SHI"). My first statement was dated 23 February 2023 **(A42760846 – Witness Statement of Graeme Greer – Final (Redacted) – Bundle 13, Volume 5 – Page 7)**. I provided oral evidence to the SHI on 5 May 2023. My previous evidence to the Inquiry broadly encompassed my involvement for the period from the Invitation to Participate in Dialogue ("ITPD") up to Financial Close (**"**FC").

2. On 10 November 2023, solicitors instructed to act on behalf of Mott MacDonald Limited (**"**MML") received an email from the SHI requesting the production of additional witness statements. This statement is intended to address, insofar as I was involved, the matters raised by the SHI in their email of 10 November 2023. In preparing this statement, I have had regard to contemporaneous correspondence and documents which I sent, was copied into or have since been shown, as well as my own recollections. The SHI has provided a list of questions on which further information is sought. I have endeavoured to answer these questions to the best of my recollection.

Background

3. I am Graeme Greer. My address for the purposes of this Inquiry is c/o Clyde & Co (Scotland) LLP, Albany House, 58 Albany Street, Edinburgh, EH1 3QR. I graduated in 2002 with BEng (Hons) degree in Civil Engineering. On leaving university I began employment with Babtie Group (which later become Jacobs UK), where I worked for about 10 years, initially as a graduate civil engineer in the reservoir and dams teams, before moving to hydropower schemes and sewer design.

This involved interfacing with PFI projects, increasingly moving away from design and into project management. In 2011 I left Jacobs UK and took up employment with MML. I joined MML as a Consultant, and then in summer 2016 I was promoted to Associate.

4. Having joined MML, I worked on various healthcare projects as technical advisor. In May 2013 I moved onto the Royal Hospital for Children and Young People & Department of Clinical Neuroscience ("RHCYP/DCN") project. By the time I became involved in the project, MML's role was to provide project management and technical advisor services to NHS Lothian ("NHSL"). My role within the RHCYP/DCN project was MML's internal Project Manager and Lead Technical Advisor, although my job title was Consultant and then Associate. From around 2019 I handed over my other roles within MML to focus exclusively on the remedial works at RHCYP/DCN. I continued to carry out this role until May 2022 when I then left MML and joined NHSL.

5. The RHCYP/DCN Project Execution Plan indicates the MML staff involved. The input from the technical team would generally report into myself and the Project Management team, and I would report to NHS Lothian. I would also report to Richard Peace (MML Project Director) and Richard Cantlay (MML Technical Advisor Director). My RHCYP/DCN role included managing the MML project team, though I did not have any line management responsibility.

6. Some of the correspondence below I was copied into, however others I was not copied into, and I have retrospectively found. The correspondence issued by MML to Project Co, would have in the majority, been discussed and agreed with NHSL prior to issue to Project Co. There is generally a significant amount of correspondence that sits behind the final issued copy to Project Co.

7. Full details of my involvement within the RHCYP/DCN project are provided within my first witness statement to the SHI **(A42760846 – Witness Statement of Graeme Greer – Final (Redacted) – Bundle 13, Volume 5 – Page 7)**.

Construction Phase

8. FC was reached on Friday 13 February 2015. After this date the project entered what is commonly referred to as the "construction phase". Whilst it is correct to say that this is the phase during which construction took place, a significant amount of design work was also undertaken during this period by Project Co. The undertaking of design work after FC is a common feature of the NPD model. This can be a consequence of the procurement model. As I understand it, the Preferred Bidder covers their own costs prior to the signing of the Project Agreement ("PA"). Until FC is reached, there is no guarantee that a project will proceed, and that the Preferred Bidder will realise a financial return. In such circumstances it is common for a Preferred Bidder not to produce a finalised design prior to FC.

9. In the early part of the construction phase, it was agreed with NHSL that I would continue as MML Project Manager and lead Technical Advisor on a full-time basis for the first six months. In agreement with NHSL, I would then reduce my input to 75%, and then to 50% as the project entered into a steady state phase, with the responsibility sitting with Project Co to deliver the Facility. After FC, MML's input was largely to provide project management support using a core team, and ad hoc technical support to NHSL's reviews of Project Co's design via the support team, as explained in paragraph 11 of my witness statement to SHI dated 22 February 2023. The support team provided technical input on a wide range of matters from civil and structural engineering, energy modelling, mechanical and electrical services and even aviation. NHSL reviews of Project Co's design were undertaken within the context of the Review Procedure, Reviewable Design Data ("RDD") **(A32435789 – Schedule Part 6: Construction matters, section 5 (Reviewable Design Data) – Bundle 13, Volume 5 – Page 44)** and the PA risk allocation.

10. My role in the construction phase was largely to lead the MML Project Management team in the coordination of NHSL reviews of RDD information. Upon receipt of an item of RDD from Project Co, this would be disseminated to the relevant technical teams within both MML and NHSL.

A collaborative sample review in the context of the Operational Functionality risk allocation would then take place. As explained at paragraph 18 of my first witness statement to the Inquiry, the architectural layouts and clinical adjacencies fell within the definition of Operational Functionality, which was the only element of the design where NHSL Lothian accepted the design risk in terms of the Project Agreement. Following the sample reviews, comments would be fed back to those of us in the Project Management team, which would then collate the comments received and issue a response to Project Co.

11. I understand that it has been suggested by the SHI that the RDD process involved a thorough review of items such as Project Co's EM. Whilst I did not undertake the reviews myself, this is not consistent with my understanding. My understanding is that NHSL entered into a contract with Project Co to undertake the design in accordance with Project Co's own quality assurance procedures. The design would therefore be checked and approved by Project Co prior to issuing RDD submissions through the Review Procedure. NHSL were therefore relying on Project Co's own design assurance and did not undertake a line by line review themselves. As NHSL had already employed Project Co to undertake the design and design check, NHSL did not ask MML to duplicate that work and it was not part of MML's remit. For example, in October 2017 TUV SUD said they had done a line-by-line review of their design. I recall discussions with NHSL, along the lines of why NHSL would pay twice for the same work product. MML did however support NHSL with respect to Operational Functionality reviews, and support NHSL with the sample reviews of the broader RDD submissions. RDD items would be returned as Level A, B, C or D. The decision on which Level was to be granted would be made by NHSL with input from MML. Irrespective of which Level was awarded, the approval granted by NHSL under the RDD process related only to Operational Functionality. Project Co remained responsible for ensuring compliance with the BCRs.

12. In addition to facilitating the review of RDD items, I would also support the administration of the Change Protocol **(A35301659 – 3.1.3 3_1 Conformed Project Agreement - Bundle 13, Volume 5 – Page 231)**. My role post-FC included attending NHSL Project Management Executive and NHSL internal

Change meetings. I also attended NHSL meetings with Project Co including the Project Management Group ("PMG"), Project Delivery Group, Design Steering Group, Change Meeting, Monthly Construction Progress Meeting, Joint Commissioning Group Meeting, Settlement Agreement meetings, Workstream meetings, Programme and Readiness meetings and the Operational Management meetings.

13. MML's input post-FC was commensurate with NHSL's requirements and reflective of the risk allocation within the PA, as I will go on to explain. On the technical side, in line with MML's agreed input with NHSL, one person per discipline was generally assigned from MML to undertake sample reviews on selected items of design data. NHSL did not require MML to undertake a detailed review and it was not MML's role in terms of their appointment as Technical Advisor to undertake a line-by-line review of all areas of Project Co's design. This also reflected the contractual risk allocation. Design reviews were undertaken as a collaborative exercise between MML and the relevant technical individual(s) within NHSL. NHSL was aware and supportive of the level of review MML was undertaking. NHSL was also aware MML was not undertaking a shadow design. NHSL's understanding of MML's role is set out in a letter from Brian Currie of NHSL to Health Facilities Scotland ("HFS") dated 1 April 2019 **(A41293071 – Three letters relating to assurances regarding the delivery of the RHSC and DCN Project, dated 01 April 2019, 12 February 2019 and 13 March 2019 - Bundle 4 – Page 228).**

14. The underlying understanding of MML (and I believe NHSL) during the construction phase was that ultimate design responsibility rested solely with Project Co, subject to the Board's retention of responsibility for matters relating to Operational Functionality. Project Co's design responsibility included an obligation to update their Environmental Matrix ("EM") in accordance with the relevant provisions of the PA and to ensure its accuracy. In line with the scope of their appointment, MML, together with NHSL, undertook sample reviews of Project Co's EM and other RDD submissions.

15. Throughout the construction phase MML was responsible for issuing correspondence to Project Co on behalf of NHSL. The correspondence issued by MML to Project Co would normally have been discussed and agreed with NHSL prior to issue. Typically, there was a significant amount of correspondence discussing the RDD item between MML and NHSL that sat behind the approved version issued to Project Co.

16. MML's role remained consistent throughout the construction phase. In spring 2018 NHSL and Project Co entered into negotiations regarding a potential Settlement Agreement ("SA1"). Although obviously not a party to SA1, MML, in its role as Project Manager and Technical Advisor, supported NHSL during the negotiations. SA1 was of course not anticipated at the time of either the PA or MML's appointment. MML raised concerns with both NHSL and the Board's other advisers, regarding a possible alteration to the PA risk profile as a result of SA1. MML were not legal advisers and I understand NHSL sought and obtained legal advice regarding the project risk allocation.

Reviewable Design Data (RDD)

17. As set out in my previous statement, at FC the Preferred Bidder's design was not yet complete. A significant amount of design work was required during the construction phase, though as I have mentioned, this is anticipated as a common feature of the NPD model. The NPD provider (Project Co) bears the risk of providing a compliant design. To develop their design during the construction phase, Project Co was required to submit items of RDD to the Board. The ability of the Board to review RDD is governed by the Review Procedure within the PA. **(A35301659 – 3.1.3 3_1 Conformed Project Agreement - Bundle 13, Volume 5 – Page 394)** It was my understanding that although the Board may have returned an item of RDD with comments, actioning these in order to provide a compliant design was the sole responsibility of Project Co.

18. As I explain in more detail later in this statement, my understanding was that Project Co's EM, in its entirety, was an item of RDD. Post-FC Project Co submitted multiple revised EMs to the Board for review. In total, Project Co

produced approximately 11 different iterations post-FC. MML, together with NHSL, undertook sample reviews of Project Co's EMs in the context of the Operational Functionality risk allocation within the PA. Where inconsistencies or potential non-compliances beyond matters relative to Operational Functionality were identified during these sample reviews, the Board would include a comment in their response to Project Co as a helpful pointer. It was for Project Co alone to ensure that any such issues were resolved and to ensure that their design complied with the Board's Construction Requirements ("BCRs").

19. Items of RDD ought to have been submitted by Project Co in accordance with the agreed schedule of submissions (a rolling look ahead RDD programme was required). Throughout the construction phase Project Co failed to adhere to this schedule. This resulted in the NHSL/MML team often becoming overburdened by the number of submissions made in a short space of time. For example, in the period 21 July – 31 July 2015, NHSL's project team received a total of 369 drawings from Project Co for review. This issue was raised with both NHSL and Project Co, for example in an email from Kamil Kolodziejczk of MML to NHSL dated 5 August 2015 **(A46802935 – Email from Kamil Kolodziejczk to NHSL dated 5 August - Bundle 13, Volume 5 – Page 907)**, and in a subsequent email from Kamil to Multiplex dated 6 August 2015 **(A46802808 – Email from Kamil Kolodziejczk to MPX dated 6 August - Bundle 13, Volume 5 - Page 913)**. It was highlighted that due to the lack of adherence to the programme and number of submissions, items would not be returned within the 15 days required under the Review Procedure.

FC EM Comments

20. The FC EM approved at Level B included a number of specific comments for Project Co to address. According to the PA, Level B meant you could proceed subject to the amendments that were noted and Level C meant would mean any amendments had to be made first and resubmitted before being granted approval **(A35301659 – 3.1.3 3_1 Conformed Project Agreement - Bundle 13, Volume 5 – Page 403)**. At FC it was always clear that Project Co would require to submit an updated EM to address the FC comments, in addition to any other changes

identified by Project Co themselves, which were required to ensure that their design was developed in compliance with the BCRs. The FC comments were issued to Project Co in November 2014 **(A42878468 – Collated comments issued by MML dated 7 November 2014 - Bundle 13, Volume 5 – Page 918).** The seven comments made at that point did not in any way detract from Project Co's overarching design responsibility for the EM, which was pointed out to them on a number of occasions, as I gone to on to explain later in my statement.

21. Project Co issued their commentary on the FC EM comments on 26 May 2015. While MML and NHSL were reviewing the EM commentary, Project Co issued an updated EM on 15 June 2015, with an Excel copy issued on 17 June 2015 **(A46803020 – Excel copy issued on 17 June 2015 - Bundle 13, Volume 5, Page 919)**. MML, on behalf of NHSL, responded to Project Co on 22 July with the Board's comments on their EM commentary via an email from Kamil Kolodziejczyk of MML to Ken Hall of Project Co **(A45500303 – 07 Re Environmental Matrix NHSL Comments Feedback - Bundle 13, Volume 5 – Page 955)**. A number of the FC comments, including the requirement to provide a detailed ventilation proposal, had not been addressed by Project Co in their commentary.

22. I understand that it is Project Co's position that the EM was only RDD to the extent of the seven FC comments, and that the rest of the EM had somehow been approved by the Board. It is my understanding that this view misapplies the risk allocation within the PA.

    The FC EM comments were made in the context of the broad risk allocation of the contract, namely that it was for Project Co, or the Preferred Bidder as they were at the time, to design the hospital and ensure compliance with the BCRs. As I go on to say, Project Co were issued with several reminders in relation to their design responsibility during the construction phase. The Board reviewed the EM within the context of the Operational Functionality risk allocation and provided helpful pointers where other discrete issues were identified. To the extent the EM contained any non-compliances which did not relate to Operational Functionality, whether identified by the Board or not, these were for Project Co alone to identify and address. Project Co had an obligation to comply with the

BCRs, and it was for them to satisfy themselves that they had done so. Although I did not personally undertake any reviews of Project Co's EMs, I did look at them retrospectively after the issues with ventilation became apparent. I understand from this that the changes made by Project Co in subsequent EMs extended to areas beyond the seven FC comments.

EM Revision 2

23. Project Co issued EM Revision 2 to NHSL and MML for RDD review on 4 December 2015 **(A32623047 – 3.2 008 20151126 WW-XX-XX-DC-XXX-001 (Rev 2) - Bundle 13, Volume 5 – Page 959)**. By this point the project was already facing the prospect of significant delay due to the failure of Pile 133 in September 2015. Programme delay created financial pressure for Project Co, due to payment being contingent upon Practical Completion being attained. However, as significant delays on site had already been experienced, IHSL and NHSL entered into discussions in December 2015 about the potential for a phased handover. I understand that a phased handover could have allowed Project Co to receive the unitary charge payment notwithstanding non-completion of other parts of the facility and would have had both practical and contractual complications. I do not believe the discussions advanced beyond the exploratory stage.

24. While I was not involved in undertaking technical reviews of the various iterations of the EM produced by Project Co, I am now aware based on the cells highlighted in red that Revision 2 contained a large number of changes compared to the previous version. As I recall, it was discussed and agreed by Project Co that any changes they made to the EM would be highlighted red on the Excel version, in accordance with good industry practice. When retrospectively reviewing EM Revision 2 in or around the second half of 2019, I observed that Project Co had changed the wording of Guidance Note 15 ("GN15"). In relation to Critical Care Areas, the words "for isolation cubicles" had been inserted after "10 ac/hr supply". This changes GN15 from stipulating that 10ac/hr was required in Critical Care bedrooms generally, to requiring 10ac/hr in Critical Care isolation rooms. Unlike the other changes which Project Co had made to EM Revision 2, the change to

GN15 was not highlighted by Project Co and therefore I suspect it would have been harder to spot them during a sample review.

25. On 9 February 2016, MML, on behalf of NHSL, issued the Board's comments on Project Co's EM **(A34225481 – 2.7_0059_20160209 MM-GC-001184 – Bundle 13, Volume 5 – Page 994)**. Level C was awarded in light of the significant number of Board comments. Although I was not personally involved in the technical review of the EM, I understand that the Board's comments related to both outstanding matters from FC and further issues identified as a result of post-FC design development by Project Co.

26. Although I was not part of the M&E technical team reviewing Revision 2 of Project Co's EM, I do not believe any of the reviewers identified the change to Guidance Note 15. The team's remit was to undertake sample reviews, with a particular focus on specific changes highlighted by Project Co.

EM Revision 5

27. On 18 March 2016 Project Co issued Revision 5 of their EM for RDD review by the Board **(A34225520 – 2.7 0074 20160415 WW-XX-XX-DC-XXX Rev 5 - Bundle 13, Volume 5 – Page 997)**. I can trace no record of EM Revisions 3 or 4 being received by MML. I assume these were internal Project Co designations. The fact Project Co appears to have developed internal versions which were not ultimately issued to NHSL is not surprising. Project Co had responsibility for the development of their design, which necessarily included a need to develop their EM over time. An Excel version of EM Revision 5 was provided on 5 April 2016, as mentioned above.

28. Project Co's revised EM was discussed during a Project Management Group ("PMG") meeting of 6 April 2016 **(A34225500 – 2.7_0071_20160406 PMG Meeting Notes – Bundle 13, Volume 5 – Page 1045)**. At this meeting it was noted by Project Co that the Room Data Sheets ("RDS") could not be populated until the EM was finalised. Accordingly, in order to make progress on their design and avoid further delay, Project Co was pushing the Board to grant the revised

EM Status B on account of the FC comments only. This course of action was agreed by NHSL during the PMG meeting.

29. Following the PMG meeting and the agreement between NHSL and Project Co, MML prepared a draft response to Project Co which was issued to Brian Currie for approval **(A46803060 – MML draft response to Project Co issued to Brian Currie - Bundle 13, Volume 5 - Page 1049).** The covering note by MML to NHSL specifically noted Project Co's desire to begin immediate production of the RDS. These would inform many parts of Project Co's design and without their production there could have been further programme delay. NHSL in response to MML confirmed agreement for Project Co to progress production of the RDS without further updates to the EM being submitted.

30. On 15 April 2015 MML issued MM-GC-001398 **(A34443843 – 3.4_0226_6.17.3 MM-GC-001398 – Bundle 13, Volume 5 – Page 1098)** on behalf of NHSL, awarding the EM status B on the basis of the FC comments. In the context of any wider design issues, the following was noted:

IHSL are also reminded that the reference design has no relevance to the current contract, and IHSL are to comply with the Project Agreement and in particular the BCRs and PCPs. Any non-compliance with the BCRs and PCPs should be highlighted to the Board.

This email reminded Project Co that they had responsibility for the development and design of their EM. They could not simply rely upon the EM which had been issued to them as part of the Reference Design. Project Co had responsibility to develop their EM so that it complied with the BCRs and SHTM 03-01. This is just one example of several reminders which NHSL's project team had to send to Project Co during the construction phase to drive home to them that they had responsibility for developing the design. As I will go on to explain, it seems clear from other correspondence issued by Project Co that they were aware they had an obligation to ensure that their design complied with SHTM 03-01, notwithstanding the content of the EM issued with the ITPD and the seven comments issued at FC.

31. Shortly after MM-GC-001398 the project was met by further delays. On 19 June 2016, for example, Dunne Group, a sub-contractor of Project Co, went into administration. This caused significant programme delay while Project Co sought to appoint a new sub-contractor to complete the concrete frame of the building.

Room Data Sheets ('RDS')

32. I spoke about RDS in paragraphs 59 to 71 of my witness statement to SHI of 22 February 2023 **(A42760846 – Witness Statement of Graeme Greer – Final (Redacted) – Bundle 13, Volume 5 – Pages 26-31)**.

    As I mentioned in paragraph 67 of my statement, Project Co had not produced a complete set of RDS by FC as had been planned. On 12 May 2015, which was three months after FC, Project Co-wrote to NHSL **(A46803025 – Project Co wrote to NHSL proposing that they delay the production of RDS - Bundle 13, Volume 5 - Page 1100)** proposing that they delay the production of RDS, suggesting that underlying sources of the relevant data be reviewed instead. This proposal specifically mentioned that the EM would directly inform the RDS.

33. Later, on 7 November 2016, MML wrote to Project Co on behalf of NHSL **(A46803033 – MML wrote to Project Co on behalf of NHSL expressing concern – dated 7 November 2016 - Bundle 13, Volume 5 – Page 1102)** expressing concern over "potential inaccurate information being transferred to the Room Data Sheets being submitted through RDD". The email further noted that "the Board still does not believe the Environmental Matrix and resultant design complies with the Project Agreement. Project Co's failure to comply with the BCR's / PCPs (as per MM-GC-002084) **(A46440429 – Appendix 5 – MM-GC-002084 – Bundle 13, Volume 5 – Page 1106)**, the Board believes would result in a non-compliant Facility. The Board would suggest that Project resolve the non-compliant issues as a matter of urgency."

34. While I was not directly involved in technical reviews of RDS, I reviewed our files at some point during 2019, when the issues with critical care ventilation had

become apparent. I observed that Project Co issued Rev 0B of the RDS via MPX-TRANSMIT-010149 on 5 January 2018 **(A46803341 - Project Co issued Rev 0B of the RDS via MPX-TRANSMIT-010149 on 5 January 2018 - Bundle 13, Volume 5 - Page 1109)**. The hospital would have been largely complete by that stage. When I looked at the Rev 0A and Rev 0B RDS later, I observed that in each iteration, the Clinical Activities for the Critical Care bedrooms rooms have been altered further from the original ADB sheet Clinical Activities and appear to be more like a normal bedroom.

In the RDS for 1-B1-009 for example **(A35272509 – 2.7.8 1.B1.009 rev B – Bundle 13, Volume 5 – Page 1111)**, which is a four bedded room in critical care, the clinical activities include: "a patient may take meals and refreshments in bed or by the bed" and "a patient may receive visitors".

Neither of these activities appear in the original ADB sheet for multi-bedded rooms in critical care. The clinical activities given for critical care bedrooms in the original ADB sheets are very different and include for example: "Accommodating a patient needing continuous medical and nursing care using piped medical gases, vacuum and life-support system and 2) Medical and nursing procedures requiring all sides access to patient whilst 1-6 staff use specialised equipment".

35. While I was not involved in undertaking technical reviews myself, my understanding is that reviewers would have had regard to the clinical activities to be performed in the room, when looking at samples of the RDS. The inclusion of activities such as taking meals and refreshments in the critical care RDS for RHCYP might have caused reviewers to form the understanding that these RDS did not relate to critical care bedrooms. The change in the clinical activities might have made any discrepancies in the air change rates harder to spot during a review.

Project Co Derogation Requests

36. Shortly prior to issuing Revision 6 of the EM, Project Co submitted derogation request WW014 **(A46365902 – Appendix 32.1 – ANX_EDN000379537 – Bundle 13, Volume 2 – Page 543)**. A derogation request was a submission from

Project Co which contained a proposal to deviate in some way from a technical standard with which their design would otherwise require to comply. It is worth noting that post-FC the PA does not provide a mechanism for contractual derogations. I understand any alterations to the design requirements during the construction phase ought to have been procured either through a Project Co Change or a Board Change. In this case, the correct form would have been a Project Co Change. Notwithstanding the form, the content of WW014 specified that Project Co sought to derogate away from the requirements of SHTM 03-01. Project Co sought to increase the air change rate in single suite en-suite bathrooms from 3ac/hr to 10ac/hr. Project Co issued WW014 in response to the Board's request for information in respect of Project Co's proposed number of air changes in en-suites being higher than that required by SHTM 03-01. My understanding is that, in submitting WW014, Project Co was accepting the fact their EM did not achieve compliance with the relevant standards. It is also an indication that Project Co was aware they had an overriding obligation to comply with SHTM 03-01, notwithstanding the content of any previous iterations of the EM, or any comments which had been issued on it. If Project Co had not believed that such an obligation existed, then there would have been no need for them to seek a derogation.

37. In addition to WW014, Project Co shortly afterwards on 1 August 2016 issued a further derogation request, WW015 **(A46365903 – Appendix 33 – ANX_EDN000429472 – Bundle 13, Volume 5 – Page 1114)**. This included a request to decrease the air change rates in single bedrooms from 6ac/hr to 4ac/hr. As with WW014, Project Co was seeking to depart from the requirements of SHTM 03-01 in order to reflect the design data contained within their EM. Once again, it appears from this request that Project Co were aware that they had an obligation to comply with SHTM 03-01. The underlying issue WW015 sought to address, single bedroom ventilation, ultimately became Item 13 of the Technical Schedule to SA1 **(A46409292 – Schedule 1 Part 1 Technical Schedule - Bundle 13, Volume 2 – Page 1315)**. As I will go on to discuss further in relation to Item 13 of the Technical Schedule, as WW015 refers to a request to reduce the air change rate from 6ac/hr rather than 10ac/hr, it is not immediately apparent

to me that WW015 would apply to single bedrooms within Critical Care, and I do not think it was apparent to other reviewers either.

38. Upon receipt of the derogation request, both WW014 and WW015 were reviewed collaboratively by MML and NHSL. On 22 September 2016 MML, on behalf of NHSL, communicated to Project Co that neither WW014 or WW015 were acceptable to the Board **(A34443840 – 3.4_0224_6.17.1 MM-GC-002006 – Bundle 13, Volume 5 – Page 1144)**.
The response issued to Project Co requested clarification from Project Co as to how compliance with SHTM 03-01 in relation to air change rates, balanced ventilation, and room heat recovery would be met.

39. Discussion surrounding WW014 and WW015 continued after the Board's initial rejection of the proposals.

EM Revision 7

40. Project Co issued EM Revision 7 on 18 September 2016 **(A32623058 – 3.2 0010 20160919 WW-XX-XX-DC-XXX-001 (Rev 7) - Bundle 13, Volume 5 – Page 1148)** for RDD review by the Board. After review, MML issued, on behalf of NHSL, MM-GC-002084 **(A46440429 – Appendix 5 – MM-GC-002084 – Bundle 13, Volume 5 – Page 1106)** to Project Co on 17 October 2016. This correspondence raised significant concerns, including that some ventilation rates within Revision 7 of the EM did not appear to comply with the BCRs. The response by the Board contained both general comments and a selection of specific comments. Significantly, it contained another reminder that design responsibility lay with Project Co, namely:

> *"Whilst the Board has noted general and specific comments above, the Board reminds Project Co that unless the Board has already accepted a derogation, it is Project Co's obligation to comply with the BCR's/SHTMs etc, and the Board not commenting, does not remove that obligation on Project Co."* **(Page 1107)**

41. Revision 7 of Project Co's EM was discussed during a PMG meeting of 2 November 2016 **(A46802201 - PMG meeting notes dated 2 November 2016 - Bundle 13, Volume 5 – Page 1170)**. Although the email of 17 October 2016 **(A46802219 – Email from MML dated 17 October 2016 - Bundle 13, Volume 5 – Page 1166)** did not give an EM Status, it appears from the minutes of the PMG meeting that it was returned to Project Co as Level C. At the PMG meeting Colin Grindlay of Project Co requested that the Board re-review Revision 7 and re-issue as Status B with comments. Mr Grindlay repeated this requested in an email to Kamil Kolodziejczyk of 3 November 2016 **(A43103333 – Email from MML to NHS Lothian dated 7 November 2016 – Environmental Matrix Status B – Bundle 13, Volume 5 – Page 1205)**. In his email to Kamil, Mr Grindlay explained that the re-issuing of the EM at Level B "would help [Project Co] greatly." A further email from Mr Grindlay of 10 November 2016 sought to further impress upon MML and NHSL why Project Co required Level B for RDD items more generally **(A46802192 - Email from Mr Grindlay dated 10 November 2016 - Bundle 13, Volume 5 – Page 1180).** In his further email Mr Grindlay noted Level C was directly delaying and stopping works onsite.

42. Upon receipt of Mr Grindlay's emails, MML undertook a review of the comments which resulted in the EM being awarded Level C. Thereafter, MML prepared a draft response to Project Co returning the EM at Level B together with caveats. In the covering email to NHSL, MML expressed unease about whether the caveats would provide the Board with sufficient protection. In an email from Kamil to Brian on 7 November 2016 **(A43103333 – Email from MML to NHS Lothian dated 7 November 2016 – Environmental Matrix Status B – Bundle 13, Volume 5 – Page 1178)**, he produced a draft caveat stating:

> '*The Board have serious concerns over the upgrading Environmental Matrix to Status B considering some of the issues raised (as per MM-GC-002084) being the same as the issues that had been raised since FC. There are also concerns over the potential inaccurate information being transferred to the Room Data Sheets being submitted through RDD.*'

43. NHSL's preference was to return Project Co's EM at Level B. Brian Currie explained the rationale for this decision in an email to Kamil of 7 November 2016 **(A34225583 – Email RE Environmental Matrix – Status B - Bundle 13, Volume 10– Page 10)**.

44. I recall NHSL awarded Status B in an attempt to avoid delaying progress on matters which were not in dispute. NHSL was attempting to finely balance the risk of continued issues in the EM against delays on all other aspects of the project, including the associated programme and commercial implications that would entail. I understand that NHSL's logic in upgrading the EM was ultimately due to the risk allocation within the PA and, in particular, Project Co's assurance that their design would be compliant. Due to the significant delays already experienced, NHSL was conscious not to cause further delay by commenting on design issues when it was not NHSL's responsibility to undertake the design.

Pre-SA1 Multi-Bedded Rooms Discussions

45. By November 2016 there was a significant difference of opinion between NHSL and Project Co as to whether Project Co was producing a compliant design. On 11 November 2016, Brian Currie wrote to Project Co **(A35004572 – Letter from B Currie to W Weir re ventilation and compliance dated 11 November 2016 - Bundle 13, Volume 5 – Page 1184)** noting the appearance of non-compliant ventilation ductwork on site and inviting Project Co to produce a fully compliant design for all ventilation related issues at the earliest opportunity. At this point the issue of ventilation compliance was escalated to Project Co board level.

46. On 11 January 2017 MML, on behalf of NHSL, responded to Project Co's email of 16 December 2016 **(A46802247 - MML responded to Project Co's email of 16 December 2016 - Bundle 13, Volume 5 - Page 1185)** regarding Project Co's proposed derogations. MML's response encapsulated the ongoing difference of opinion as to whether Project Co had provided a compliant design and proposed a ventilation workshop to work through the issues.

47. Following the initial ventilation workshops, Project Co produced revised proposals for the single and multi-bedded rooms on 31 January 2017. These proposals were referenced in a Project Co Bedroom Ventilation Key Considerations document **(A34443872 – 3.4 0241 MPX Generated Aconex 4 - Bundle 13, Volume 5 – Page 1193)**. From my understanding, Colin McRae provided technical support to NHSL in these workshops and Kamil Kolodziejczyk would provide Project Management support on any outputs.

    I do not recall being involved in these workshops myself, and I was not involved in the technical review of the updated document.

48. Project Co's proposals were further developed in an additional document issued on 9 February 2017 **(A46802501 - Project Co's proposals were further developed in an additional document issued on 9 February 2017 - Bundle 13, Volume 5 - Page 1195)**. In this document, prepared by TÜV SÜD, Project Co specified multi-bed ductwork amendment proposals to achieve room balance in 12 rooms. The 12 rooms were identified using room codes: G-A2-54, G-A2-046, G-A2-028, 1-B1-063, 1-B1-031, 1-B1-009, 3-C1.3-011, 3-C1.3-013, 3-C1.2-026, 3-C1.2-023, 3-C1.1-018, 3-C1.1-046. Project Co's proposed solution was generally to reduce the ac/hr supply from 4 ac/hr to between 3 ac/hr & 2.7 ac/hr, and increasing the dirty extract from 10 ac/hr to 17 ac/hr. Although I was not involved in the technical review of this document or the associated workshops, I understand the key objective of the proposals was to achieve the Board's requirement for pressure to be balanced or slightly negative to the corridor for rooms.

49. Project Co further updated their proposals on 23 February 2017. This update included an additional group of rooms: 1-B1-065, 3-D9-022, 1-L1-100, 1-L1-097, 3-C1.8-027, 3-C1.8-016, 3-C1.4-084, 3-C1.4-061. These additional rooms brought the total number to 20. I understand the proposed solution was broadly the same as that in in the initial proposal, in other words to reduce the ac/hr supply from 4ac/hr to between 3ac/hr & 2.7ac/hr, and increase the dirty extract from 10ac/hr to 17ac/hr. Once again, I have reviewed this document retrospectively, and it appears that as with the initial proposal, Project Co presented their solution on the basis that it was a normal bedroom and, although

room codes were provided, they did not specifically highlight that Critical Care wards were included in the proposal. I would not have been aware that these room codes related to Critical Care wards, and I believe if it had been clearer this would have helped with the review.

50. The updated proposal of 23 February 2017 added a further column to the table which specified the Severity of Works and included an indication that all the ventilation was already fabricated. In addition, from retrospectively reviewing various Construction Progress Reports issued by Project Co, it is apparent that air handling units ("AHUs") were being installed on site from at least October 2016. Although I do not have a detailed technical knowledge of AHUs, I understand they are a significant piece of plant with a long procurement lead time. Ventilation capacity of the facility was therefore "baked in" at a very early stage of the construction phase. If additional capacity was required to allow an alteration, I understand this may have necessitated significant programme delay and additional expense. Resolving system capacity proved to be a particular challenge during the remedial works of late 2019.

51. On 24 February 2017 a bedroom ventilation update meeting took place **(A46802258 - Ventilation Amendment Proposal - 24.02.17 - Bundle 13, Volume 5 - Page 1201)**. I do not recall being personally involved in the meeting, however I understand the purpose was to identify the rooms within Project Co's proposals for which a balanced/slightly negative pressure regime was considered to be essential. 14 rooms were marked as being essential: G-A2-054, G-A2-046, G-A2-028, 1-B1-063, 1-B1-031, 1-B1-009, 3-C1.3-011, 3-C1.3-013, 3-C1.2-026, 3-C1.2-023, 3-C1.1-018, 3-C1.1-046, 1-B1-065, 3-D9-022. The 14 rooms considered to be essential ultimately comprised the rooms within Item 7 of the Technical Schedule to the Settlement Agreement **(A46409292 – Schedule 1 Part 1 Technical Schedule - Bundle 13, Volume 2 – Page 1308)** Following this meeting Project Co continued to progress their proposals for the essential rooms.

52. Further developed proposals were issued by Project Co on 23 May 2017 **(A34443801 – 3.4 0230 6.19 FW R.A.M-GC-000278 Bedroom Ventilation -**

Bundle 13, Volume 5 – Page 1207). In their email providing the updated drawings, Project Co indicated their belief that the amendment to the environmental conditions and operation of the essential rooms constituted a Board Change. Project Co estimated the cost of the change would be in the Medium Value category and invited the Board to submit a formal Board Change request to advance the proposal.

I understand this position was premised on Project Co's belief that the EM was approved by the Board as Level B, subject only to the seven FC comments. At this point the principal dispute began to shift from being technical in nature to contractual.

Further Ventilation Issues

53. By June 2017 a number of design issues, and the approach being adopted by Project Co in relation to responsibility for those issues, was causing the Board a significant degree of concern. By this point in the project each side was taking a fundamentally different position on the project risk allocation. As exemplified by the multi-bedded ventilation dispute discussed above, Project Co was unwilling to alter their design in relation to these issues unless a formal Board Change request was submitted. The Board's position was that design responsibility, subject to Operational Functionality, rested solely with Project Co, and as things stood Project Co was failing to produce a compliant design. I recall NHSL were concerned about many issues, including three that were escalated:(a) design of MRI/IOMRI facilities; (b) multi bedded room ventilation; and (c) HV resilience. NHSL sought advice from their legal advisors on these points.

54. MML was asked to prepare a Design Issues Paper which summarised the key technical position in relation to each of the areas of dispute. MML issued the paper on 4 July 2017 **(A46802704 - MML issued the Design Issues Paper on 4 July 2017 - Bundle 13, Volume 5 – Page 1215)** ahead of a meeting between NHSL and Project Co, intended to allow both parties to share their views on the issues openly. MML's Design Issues paper identified bedroom ventilation as a "Change liability" issue. The other two disputes were categorised as non-

compliance issues. MML's paper provided a summary of the technical issues together with the Board's opinion. From my non-technical perspective, the paper highlighted that the fundamental concern to the Board was the risk of the spread of bacterial airborne infections into corridors and surrounding patient rooms.

It was specifically noted that Project Co's amended design provided a solution which was an operational compromise, with the matters in question focussing on whether it was for Project Co or the Board to submit a change request to action the alteration.

55. In early August 2017 Project Co made their first substantive proposal to resolve the dispute between the parties. Their proposal was for the Board to take the facility without rectification works to HV or ventilation being completed. On the face of it, this appeared to be an attempt by Project Co to secure Practical Completion notwithstanding that the facility remained incomplete. This proposal was not acceptable to the Board and the dispute remained unresolved. A "without prejudice" technical workshop took place with Project Co on the same day in an effort to define the scope of potential rectification works.

56. An independent technical expert was instructed around that time from David Rollason. The expert had copies of the documents which defined Project Co's proposed ventilation solution including the air change rates. I recall that achieving the correct pressure regime was the principal concern of the Board in relation to the multi-bedded room ventilation issue.
From my recollections, discussion of the appropriate pressure regime dominated discussions surrounding this issue during both the construction phase and SA1 negotiations.

57. By December 2017 parties had become further entrenched in their positions. I attended a meeting on 6 December 2017 which included NHSL, Project Co and the Independent Tester ("IT") **(A33394837 – 6 December 2017 – HV and Ventilation Meeting Note (061217) - Bundle 13, Volume 5 – Page 1236)**. At the meeting the IT highlighted the parties' differing interpretations of the FC documentation. Project Co again confirmed they did not accept the Board's

position of non-compliance and advised they were in the process of obtaining their own expert technical opinion. The IT noted no further progress could be made until Project Co provided their expert report.

Project Co issued an expert report on 26 December 2017, and referenced in **(A33394073 – 261217 HCP UK-GC-000945 – HV - Bundle 13, Volume 5 – Page 1240)**.

58. On 1 February 2018, Project Co, MML and NHSL met in an attempt to reach a possible compromise agreement. I understand the multi-bedded rooms were reviewed by the NHSL project and clinical teams to determine which were essential to be negative or balanced. Following the meeting the NHSL clinical director circulated an updated multi-bedded room tracker spreadsheet **(A34443845 – 3.4 0218 6.14 RE 010218 EM 4 Bed Room Tracker – revised 01 Feb xlsx - Bundle 13, Volume 5 – Page 1243)** identifying which rooms were considered by the clinical team to be essential. The tracker returned by the Clinical Director identified two rooms within Critical Care which were considered essential to be of balanced or negative pressure. This was a reduction of two rooms from the February 2017 list of essential rooms and was suggested as a means of compromise with Project Co. The Technical Schedule to SA1 ultimately provided for all four Critical Care multi bedded rooms to be balanced or negative pressure.

59. Following a Principals Meetings of 20 and 21 February 2018, Project Co issued a Contractor's Change Proposal – MPX-CCP-050 **(A35004447 – Contractors Change Proposal MPX-CCP-050 – Bundle 13, Volume 5 – Page 1245)** which included a formal request to reduce the mechanical ventilation rate in single bedrooms from 6ac/hr to 4ac/hr. This broadly mirrored derogation request WW015 and represented an acknowledgment from Project Co that relief from SHTM 03-01 was being sought in relation to the issue of single bedroom ventilation. The proposed change was discussed amongst the NHSL/MML project team. On 14 March 2018, MML issued a response on behalf of NHSL **(A35004455 – RHSC+DCN: Board Response to Contractor Change Single Bedroom Vent dated 14 March 2018 - Bundle 13, Volume 5 – Page 1246)** that sought to clarify certain matters in relation to the detail of the change. These

clarifications were intended to allow the change to be fully reviewed from a technical perspective. This change in its final agreed form ultimately comprised Item 13 of the Technical Schedule to SA1.

60. Notwithstanding the best efforts of NHSL to reach a suitable compromise agreement with Project Co, there remained a significant difference of opinion as to the contractual responsibility for the proposed change to multi bedded room ventilation. Matters were becoming increasingly tense.

61. On 22 March 2018, Project Co issued a settlement proposal **(A33393778 – 22 March 2018 – 180322.MT.SG.Settlement Proposals - Bundle 13, Volume 5 – Page 2750)**. The proposal included completion of items said to be non-compliances, NHSL post-completion works and multi bedded rooms ventilation changes. After protracted negotiations this settlement proposal formed the underlying basis for SA1.

Early Stages of Settlement Agreement Negotiation

62. Upon receipt of Project's Co's settlement proposal, NHSL emailed MML on 23 March 2018 to indicate their intention to invite Project Co to a meeting on 27 March 2018 to discuss the basis of a commercial negotiation **(A46802669 - NSHL email to MML on 23 March 2018 to indicate intention to invite Project Co to meeting on 27 March 2018 - Bundle 13, Volume 5 - Page 1248)**.
Ahead of the meeting, NHSL asked MML to produce a number of items to inform NHSL's position at the meeting. Included within the items was a request to prepare further comments on the three solutions proposed by Project Co to resolve the multi bedded rooms ventilation issue. I did not personally undertake the review; however I understand the focus was to be an assessment of whether the timescales proposed by Project Co were attainable.

63. Ahead of the Principals Meeting of 27 March 2018, MML collaborated with NHSL to produce a list of current issues **(A46802228 - MML collaborated with NHSL to produce a list of current issues.msg - Bundle 13, Volume 5 - Page 1251)**.

The list was compiled using the issues and change registers maintained by MML during the construction phase.

The finalised list comprised 76 items. Project Co produced their own list. Scottish Futures Trust ("SFT") collated the lists and on 6 April 2018 issued a Technical Completion Schedule **(A36012322 – Project Technical Completion Schedule Rev 01 – Bundle 13, Volume 5 – Page 1264)** which included all issues identified by the parties. In total the Technical Completion Schedule prepared by SFT contained 81 individual items. Item 7 was the multi bedded rooms ventilation issue. Item 13 was single bedroom ventilation. SFT's Technical Schedule included a column describing each individual issue and a second column with the Latest Agreed Action or Close Out Statement. Another column noted the current status of the issues. Item 7 was noted to be an outstanding issue. Item 13 was classified as closed. SFT's Technical Schedule was subject to a number of revisions by the parties during the SA1 negotiations. Both MML and legal advisors assisted NHSL with reviewing and revising the Technical Schedule. The agreed Technical Schedule formed the basis of the technical solution achieved by SA1.

64. In addition to the Technical Schedule, SA1 contained a front-line agreement. This set out the legal obligations of SA1. I do not recall MML having any substantive involvement in drafting the terms of the front-line agreement.

65. Beyond the front-line of the SA1 was the Disputed Works Schedule **(A46409292 – Schedule 1 Part 1 Technical Schedule - Bundle 13, Volume 2 – Page 1308)**. The documents within the Disputed Works Schedule specified the scope of the Agreed Resolutions, for example the four bedded rooms for which balanced/negative pressure would be provided.

66. By the time SA1 was proposed by Project Co, the technical issues, and in particular those concerning ventilation, had been under discussion between the parties for a considerable period of time. Although the final technical solutions in relation to Items 7 and 13 had yet to be agreed at the time SA1 was first proposed, the vast majority of engineering work and clinical reviews had already been undertaken by the time of SA1 negotiation. To the extent these issues

remained outstanding at this stage, the primary concern was one of scoping and defining rather than technical review.

Accordingly, by the time of SA1 the majority of MML's technical involvement was dedicated to other substantial issues such as heater batteries and sump pumps.

Risk Allocation

67. Early in the SA1 negotiations the question of project risk allocation was raised by both NHSL and Project Co. On 29 May 2018 I exchanged correspondence with Brian Currie regarding a proposal from Matthew Templeton of Project Co concerning the addition of a confirmation statement to the Technical Schedule **(A47277176 – RE RHSC + DCN – Little France – Draft Tech Schedule - Bundle 13, Volume 10 – Page 7)**. I cautioned such an addition may alter the long-term risk allocation. Mr Currie agreed with my concern and explained NHSL sought closure of issues but not to the effect that their rights under the PA were diluted. Mr Currie noted the purpose of the Technical Schedule was to capture the agreed alteration to the specification and where this is evidenced. The protection of NHSL's rights was a matter for the authors of the front-line agreement. We did not provide legal advice on SA1 and I am aware that NHSL took advice from their legal advisors on it.

68. On 1 June 2018 I was sent an email from Brian Currie containing a note of a meeting held with Project Co **(A46802336 - 1 June 2018 - Email from Brian Currie containing a note of a meeting held with Project Co - Bundle 13, Volume 5 - Page 1269)**. During the meeting Project Co stated their understanding that SA1 was a "settlement" of the PA and as such stood alone without being impacted by any other document. It was also suggested by Project Co during the early stages of SA1 negotiations that the Board must confirm all BCR clauses had been met. If Project Co were correct in this assertion, I was concerned SA1 would represent a fundamental realignment of the project risk allocation. Under the terms of the PA, compliance with the BCRs was a matter for Project Co alone.

69. In light of the comment from Project Co suggesting an alteration to risk allocation, I discussed my concerns internally with MML and subsequently on 4 June 2018 I emailed Brian Currie to highlight these concerns **(A46802701 - Email on 4 June 2018 from Graeme Greer to Brian Currie - Bundle 13, Volume 5 - Page 1272)**. MML had understood the function of SA1 was for the Board to remove any further objections to the design solutions proposed by Project Co and for those resolutions to be approved under the existing PA mechanism, in other words in terms of Operational Functionality only. I highlighted that should the Board agree to confirm compliance with the BCRs then there would, in my opinion, be a significant alteration of the risk allocation in favour of Project Co. I went on to explain that I did not believe the Board would be in a position to fully confirm compliance with the BCRs. MML was not appointed to design the hospital and would not be able to provide NHSL with the necessary level of design assurance to confirm Project Co's design complied with the BCRs. As this was a legal matter, I concluded my email by suggesting that NHSL obtain clarification from their legal team. Although I was privy to correspondence between NHSL and their legal advisors, I do not feel that it is my place to disclose the content of the correspondence to the Inquiry.

70. I did, however, remain concerned about the potential alteration of the project risk allocation. Between June and July, I discussed this matter internally with colleagues at MML. Given these concerns, we considered whether MML could take any further mitigation measures to protect the Board's position. I discussed with Brian Currie on or around 28 June 2018 whether this was something the Board required. Mr Currie understood why we were considering offering further mitigations however I recall Mr Currie commenting that due to Project Co's assurances of compliance to the broader NHSL team, no greater level of review was required of MML by NHSL, this was also in the context of the programme and commercial pressure noted elsewhere in the statement.

71. On 17 July 2018 Project Co issued a revised version of the Technical Schedule **(A33406349 – 16 August 2018 Technical Schedule 16 August 2018 – Bundle 13, Volume 5 – Page 1276)**. This revision included the insertion of an adjustment to Clause 7.1 of the PA.

The wording of this alteration suggested the Agreed Resolutions in the Technical Schedule were to be given precedence over the terms of the PA. As before, I was concerned a clause of this nature represented an alteration of the Project Risk allocation and included this as a comment on my review of the Technical Schedule. I raised concerns on this in an email **(A46802705 - Graeme Greer raising concerns over Clause 7.1 over email dated 20 July 2018 - Bundle 13, Volume 5 – Page 1314)**.

MML's Role During SA1 Negotiations

72. At the time of MML's appointment as Technical Advisor it was not anticipated that a settlement agreement would be required to resolve a dispute between NHSL and Project Co. SA1 was a unique situation for which there was no set formula or procedure for MML to follow in their role as Technical Advisor to the Board. I remember the attitude of everyone on the NHSL Project Team and MML team at the time was to approach matters in a manner which allowed us to assist NHSL to achieve the best possible outcome in the circumstances. Everyone did their best to move the project on as best as we could.

73. To the best of my recollection, I do not think anything fundamentally changed in MML's role during SA1 negotiations. As with the construction phase I would broadly categorise MML's involvement during SA1 negotiations to be split into both project management and technical reviews. MML continued to review technical design submissions from Project Co in collaboration with NHSL. The same RDD framework was applied to items reviewed during SA1 negotiations as was used during the wider construction phase. NHSL did not instruct any alteration to the level of design review MML was to provide. It remained the case that as MML was not designer, it was unable to provide NHSL with design assurance.

74. MML also assisted NHSL with framing the Technical Schedule. This was a collaborative process between MML, NHSL and legal advisors. The purpose of the Technical Schedule was to encapsulate the description of disputed items and

also the Agreed Resolution to resolve the item. The Technical Schedule went through a number of revisions from April 2018 to January 2019. MML assisted NHSL and legal advisors to frame the issues within the schedule and review changes in drafting made by Project Co.

Agreed Resolutions

75. The concluded Technical Schedule to SA1 contained two substantive columns. The first was a summary of the dispute between the parties. This section was intended to provide a high-level summary of the technical issue, together with a brief description of each party's position in relation to the dispute. The second column was a description of the Agreed Resolution. This section provided a summary of the technical solution agreed between NHSL and Project Co. Each Agreed Resolution provided a statement advising that the technical solution has been reviewed in accordance with the PA review procedure and, where appropriate, specified the RDD status (A or B) of approved documents. The approved documents referred to in each Agreed Resolution were included in a Disputed Works Schedule appendix and provided the technical specification of the Agreed Resolutions.

76. The Agreed Resolutions for each of the 81 items within the Technical Schedule were negotiated over a considerable period of time. The Technical Schedule went through a number of revisions and its development was very much an iterative process. The first versions of the Technical Schedule in April 2018 did not contain Agreed Resolutions. The first version of the Technical Schedule to contain fully drafted Agreed Resolutions was issued by NHSL to Project Co on 22 June 2018. Project Co responded with a heavily revised Technical Schedule in early July 2018. Negotiations then continued until the Technical Schedule was agreed on 22 February 2019. Although it took nine months to agree the Technical Schedule, the original intention was for it to be concluded within a matter of weeks. There was always a lot of urgency and pressure to reach agreement within a relatively short timeframe.

77. Drafting the agreed resolutions was a collaborative process. From NHSL's perspective, all of NHSL, MML and legal advisors were heavily involved in framing the terms of the Agreed Resolutions. At a general level, when we were drafting the Agreed Resolutions, our objective was to keep the content as narrowly drawn as possible. NHSL's aim for each of the 81 Agreed Resolutions was to ensure every resolution was precisely defined. Project Co, on the other hand, as an example sought to include the whole EM in the Agreed Resolution. The wider an Agreed Resolution was framed; the more flexibility was afforded to Project Co in terms of what was agreed. An inaccurately defined Agreed Resolution would have created risk for the Board in terms of the technical solutions agreed within SA1. When revisions to the Technical Schedule were received from Project Co, comments would be added by MML and legal advisors. While there was a degree of technical expertise required to frame the Agreed Resolutions, the underlying technical solution was contained in the approved documents within the Disputed Works Schedule **(A46409292 – Schedule 1 Part 1 Technical Schedule - Bundle 13, Volume 2 – Page 1308)**. Accordingly, insofar as the Agreed Resolutions were concerned the most important aspect was to ensure precise drafting in order to best mitigate the risk from an NHSL perspective.

Item 7 – Multi-Bedded Room Ventilation

78. By the time SA1 was proposed, the issue of multi-bedded room ventilation had been under discussion between NHSL and Project Co for a considerable period of time. Although parties remained fundamentally opposed by the time of SA1 as to whether Project Co's design in relation to multi-bedded room ventilation was compliant, the technical solution of how to achieve balanced or negative pressure for those rooms identified as being essential had been broadly agreed since around spring 2017. The effect of SA1 in terms of multi-bedded room ventilation was essentially to agree the compromise technical solution which had been developed by Project Co and risk assessed by the NHSL clinical team in 2017.

79. The outstanding technical issues in relation to multi-bedded room ventilation were extremely limited by the time the SA1 negotiations began. In the first version

of the Technical Schedule issued by SFT, it was specifically noted that 14 rooms at 4 ac/hr had already been confirmed. This was initially discussed in February 2017 and refined in 2018, as I will go on to explain. Project Co's first revision of the Schedule was issued on 9 April 2018 and noted that the design process and intent for Item 7 was generally agreed.

80. On 12 April 2018 an M&E workshop took place between NHSL and Project Co to discuss Project Co's multi-bedded room ventilation design. Kamil Kolodziejczyk was the only MML project management team attendee. Two engineers attended from the technical side. Ronnie Henderson attended on behalf of NHSL. Following the meeting, Project Co issued MPX-GC-026400 **(A45499907 – 16 GRC_002_1_00000009-22891 – Bundle 13, Volume 5 – Page 1402)** containing revised ventilation drawings demonstrating how a room balance at 4ach/hr would be achieved. On 18 April 2018 NHSL wrote to Project Co **(A39975863 – NHSL-GC-002953 dated 18 April 2018 - Bundle 13, Volume 7 – Page 362)** noting that the current schedule still referred to air change rates between 2.7ac/hr & 3.5ac/hr. NHSL sought clarification from Project Co that 4ac/hr would be provided for all 14 rooms.

    Project Co responded on 18 April 2018 to confirm TÜV SÜD had been briefed to provide 4ac/hr **(A45500078 – 18 ANX_EDN000276512 - Bundle 13, Volume 5 – Page 1404)**.

81. On 2 May 2018, Project Co submitted their revised ventilation drawings for RDD approval. MML and NHSL reviewed the submission on a RDD basis on 3 May 2018. On 4 May 2018 MML on behalf of NHSL issued MM-GC-003999 **(A32782012 – MM-GC-003999 – Bundle 13, Volume 5 – Page 1408)** accepting Project Co's multi-bedded room ventilation design at RDD Level B.
    The ventilation drawings of 2 May 2018 and Project Co's "Multi Bed – Ventilation Amendment Proposal to Achieve Room Balance" (WW-SZ-XX-DC-XXX-010) Version 7 **(A39975868 – WW-SZ-XX-DC-XXX-010 Rev 7 – Environmental Matrix – Bundle 2 – Page 1390)** comprise the agreed technical solution for multi-bedded room ventilation. The 14 rooms identified within WW-SZ-XX-DC-XXX-

010 are the same 14 rooms identified as essential in February 2017. Any approvals related to Operational Functionality only.

82. I am asked by the Inquiry to clarify how the Agreed Resolution for Item 7 applies to Critical Care rooms. The Agreed Resolution for Item 7 identifies 20 multi-bedded rooms. 14 of those rooms are to be to be balanced or negative to the corridor at 4 ac/hr. The remaining six rooms are to be as per Project Co's final Environmental Matrix (Revision 11). The 20 multi-bedded rooms are identified within WW-SZ-XX-DC-XXX-010 **(A33656531 – WW-SZ-XX-DC-XXX-010 (1) – Bundle 13, Volume 5 – Page 1412)**. As explained above, WW-SZ-XX-DC-XXX-010 forms the substance of agreed technical solution and can be found within the Disputed Works Schedule Appendix 1 Item 7 **(A46409292 – Schedule 1 Part 1 Technical Schedule - Bundle 13, Volume 2 – Page 1308)**. Of the 14 rooms to be balanced at 4ac/hr, four are within critical care (1-B1-063, 1-B1-031, 1-B1-009, 1-B1-065).

83. The Agreed Resolution for Item 7 followed the same drafting and negotiation process as I have already described. As the bulk of the technical work on this issue had been undertaken well in advance of SA1, the majority of MML's involvement with Item 7 during SA1 negotiations was limited to framing the wording of the Agreed Resolution. As with the other Agreed Resolutions, NHSL, MML and legal advisors were all involved in the collaborative drafting process.

84. SA1 was generally a compromise between the parties, intended to set out a technical solution to the 81 items within the Technical Schedule. Although I was not directly involved in undertaking the technical reviews, I developed an understanding from discussions with those undertaking the reviews that the air change rates could have an impact on the pressure balance and achieving an appropriate solution was not straightforward.

In terms of Item 7, the air change rate had been an integral part of the multi-bedded room ventilation issues from the time when it first came under discussion. Multi-bedded ventilation was a problem from a clinical perspective as NHSL required co-horting of patients with infectious diseases. In order for these

patients to be accommodated within a multi-bedded room, that room could not have a positive pressure to the hospital as this could potentially allow the spread of infectious diseases to other parts of the facility. From a clinical perspective, it was therefore essential for NHSL that at least a certain number of the multi-bedded rooms be at least balanced to the corridor. When Project Co were first invited to provide a proposal to achieve balanced pressure, their design included a proposal to reduce the air change to between 3ac/hr and 2.7ac/hr. The air change rate was therefore always an integral part of the technical solution required to reverse engineer balanced pressure into Project Co's design. Accordingly, for Item 7 to represent a complete technical solution, the inclusion of the required air change rate to achieve the correct pressure was an inherent feature of the design and necessitated inclusion within the Agreed Resolution.

85. I was not personally involved in the technical review of the ventilation proposals for multi-bedded rooms; however, I have had sight of correspondence and documentation relating to the reviews undertaken. I understand the decision for which rooms were to be included in Item 7 can be traced back to the meeting of February 2017 where NHSL confirmed the rooms for which balanced pressure was essential. From my recollections, the rooms were always simply described as bedrooms at a project team level. Each room was identified using a code rather a description of its location. It would not have been readily apparent which department each room was located in. Clinical risk assessments, including broader clinical input were undertaken by NHSL for each of the rooms identified as being essential. The clinical risk assessments identified the department in which each room was located. Due to the understanding within the NHSL Project Team that the solutions were being presented for normal bedrooms, I do not believe any specific air change rate consideration was given to the requirements for Critical Care.

86. As during the construction phase, NHSL took technical advice from a number of entities, including in relation to the proposed air changes. MML provided advice commensurate with their appointment as technical advisor. As I have discussed, I was not personally involved in the provision of advice in relation to air changes during SA1 negotiations, however I understand that to the extent this was

provided it would have been done in the context of the existing PA review mechanisms. This is reflected in the wording of the Agreed Resolution itself, which specifically refers to RDD approval.

87. I am unable to comment on the clinical advice given, as this was not within our remit.

Item 13 – Single Bedroom Ventilation

88. Unlike the multi-bedded room ventilation issue, Project Co accepted a Project Co Change was required for single bedrooms. On 1 August 2015, Project Co issued derogation request WW015 **(A46365903 – Appendix 33 – ANX_EDN000429472 – Bundle 13, Volume 2 – Page 544)**. This included a request to reduce the air change rate in single bedrooms from 6ac/hr to 4ac/hr. Although initially rejected by NHSL, technical agreement on the single bed issue was reached a long time in advance of SA1. On 19 June 2017, Project Co issued RAM-GC-00285 noting an agreed design solution had been reached for single bedroom ventilation and a Project Co Change would follow in due course **(A46803307 - Issuing of RAM-GC-00285 - Bundle 13, Volume 5 – Page 1415)**. My recollection was that it was not known to the team that any of these bedrooms were in Critical Care.

89. Ultimately the single bedroom issue also made its way into SA1 at Item 13. The first version of the Technical Schedule provided by SFT noted the technical solution for Item 13 had been agreed, with Project Co to submit Change wording for review **(A36012322 – Project Technical Completion Schedule Rev 01 – Bundle 13, Volume 5 – Page 1264)**. From a technical perspective, NHSL compromised on the air change rate to relieve Project Co of their SHTM 03-01 requirements. Item 13 was essentially concluded by the time of SA1 negotiations.

90. Once SA1 negotiations commenced, Project Co submitted Project Co Change 51 for approval on 14 May 2018. Project Co had proposed to decrease the mechanical air change ventilation rate within single bedrooms from 6 ac/hr to 4

ac/hr and increase the mechanical air change ventilation rate within single bedroom WCs from 3 ac/hr to a minimum of 10 ac/hr. Ross Southwell of MML reviewed the change on 29 May 2018. Given that the technical solution was already agreed, the focus of Mr Southwell's review was to capture the nature of the Change within the wording. Mr Southwell noted the Change should explicitly identify the elements that had been changed from FC. I do not believe that Mr Southwell otherwise commented on the technical substance of the Project Co Change.

91. The Agreed Resolution for Item 13 (single bed ventilation) states "[t]he Board/Project co agree this item is closed, and the agreed technical solution approved through Schedule Part 8 (Review Procedure) and agreed by the Board and Project Co as resolving the Dispute is as set out in Disputed Works Schedule Appendix 1 Item 13." **(A46409292 – Schedule 1 Part 1 Technical Schedule - Bundle 13, Volume 2 – Page 1308).** Accordingly, as with the multi-bedded rooms, I understand an agreement was accepted through the RDD process.

92. I am informed that SHI are seeking to understand how the Agreed Resolution for Item 13 interacts with critical care rooms. The technical solution is framed simply in terms of reducing the mechanical air change rate within single bedrooms from 6ac/hr to 4ac/hr. In terms of SHTM 03-01, my understanding is that critical care rooms ought to have 10ac/hr using mechanical ventilation only. Given that Item 13 seeks to reduce ventilation rates from 6ac/hr rather than 10ac/hr, my understanding of Item 13 is that it is not altogether clear the Agreed Resolution applies to critical are rooms at all.

93. WW015, and the associated Project Co Change, sought to reduce from 6ac/hr. It may therefore not have been obvious to the Project Team at the time that any alteration was being made to the ventilation requirements for single bedrooms in critical care.

    Given the Project Team were unaware of a potential application to Critical Care, my understanding is that the appropriateness of the change in relation to Critical Care was not considered.

94. Although I cannot recall any consideration being given to critical care in relation to the single bedroom ventilation issue, I do remember some discussions with Project Co regarding a room by room approach being adopted for single bedrooms. Project Co felt this would be impractical given the large number of rooms involved and a room-by-room approach was therefore not pursued further. To the best of my recollections, the single bedroom issue was always considered by the NHSL Project Team and presented by Project Co on the basis of ordinary single bedrooms in the context SHTM 03-01 Part A Appendix 1 **(A36372676 – H6A – SHTM 03-01 Part A (1) Draft - Bundle 13, Volume 5 – Page 2016)**.

95. As I say, the technical content of Item 13 was agreed between NHSL and Project Co a considerable period of time prior to SA1 negotiations. MML's input by the time of SA1 was therefore restricted to assisting with drafting the wording of the Project Co Change. As with the other Agreed Resolutions, the focus was on precisely defining both the issue and agreement reached. I understand that given Item 13 relieved Project Co of any physical construction works, there was much less discussion of this resolution than others. I believe this was because it was cost neutral for Project Co. To the extent MML provided technical advice on the single bedroom issue itself, this would all have been provided during the construction phase. As I have discussed elsewhere, MML's role during the construction phase involved collaborating with NHSL to review Project Co design submissions from the context of the Operational Functionality risk allocation.

96. I was not directly involved in either the technical or clinical review that resulted in the agreement of 4ac/hr. I do not believe a specific clinical risk assessment was undertaken in relation to the proposal to reduce the air change rate from 6ac/hr to 4ac/hr. Sourcing clinical input was generally a requirement for NHSL rather than MML.

    I am not in a position to comment upon the involvement of NHSL's Infection Prevention and Control Team in relation to Item 13 in any detail.

Time & Commercial Pressures

97. SA1 was first proposed in March 2018 and was ultimately signed in February 2019. While on one view this might suggest there was a considerable period of time in which to conclude the agreement, the reality was somewhat different. By the time SA1 negotiations began, the project was already nine months delayed beyond the original Completion Date of 4 July 2017.

    There was significant political, financial and reputational imperatives incumbent upon NHSL and Project Co to ensure the hospital could open as soon as possible. There was a continuous emphasis throughout the SA1 negotiations to progress matters as quickly as possible.

98. In addition to time and commercial pressures, the Technical Schedule itself was significant in size. SA1 was intended as a wrap up agreement to resolve essentially all outstanding design issues. As a result, the Technical Schedule extended far beyond all of the issues identified at the meeting of 20 and 21 February 2018 **(A46802815 - Agenda ahead of meeting of 20 and 21 February 2018 - Bundle 13, Volume 5 - Page 2202)**. The Technical Schedule was so large that in late June 2018 I recall having internal discussions within MML about the 81 items. A large number of the 81 items were issues which simply required greater design focus rather than genuine areas of dispute between Project Co and NHSL. Not only did this create greater risk to NHSL in agreeing the final Technical Schedule, but it also caused substantial complication for drafting, particularly as many of the items were not appropriately defined for inclusion within a definitive settlement agreement.

99. During SA1 negotiations the project was then met by further delay due to a burst water pipe at the site. Not only did this attract further adverse media coverage but Project Co also submitted a delay notification on 22 June 2018 **(A34483118 - 6.4_0112_20180622_Templeton_RE_RHSC DCN Notification of Delay re Flooding – Bundle 13, Volume 5 – Page 2212)**.

100. Throughout SA1 negotiations Project Co sought to apply considerable commercial pressure on NHSL to finalise the agreement. During this period

NHSL were placed in a difficult position whereby their hospital designer, being Project Co, was advising that their building was fully compliant and fit for opening, while the IT, NHSL's project team and MML, who were not the designers, were continuing to identify issues with Project Co's design. Ultimately, my recollection is that Project Co parties were unhappy when we attempted to raise further issues.

On 18 October 2018 Project Co exerted further commercial pressure on NHSL by issuing two letters relating to Notice of Delay and Compensation Events **(A34483162 – 6.4_0147_181018-IHSL-Notices of Delay – Bundle 13, Volume 5 – Page 2218**).

101. Despite being advised on multiple occasions that the facility was not yet ready for Completion, Project Co insisted NHSL and the IT attend a Completion Meeting at the site on 31 October 2018. Following this meeting and associated walk around of the incomplete facility, the IT issued a letter containing a Notice of Outstanding Matters **(A33406496 – 7 November 2018 Notice of Outstanding Matters – Bundle 13, Volume 5 – Page 2226)**. This included a list of 74 items which were continuing to prevent completion. This list differed from the Technical Schedule. Multi-bedded room ventilation was not included on the list of ongoing issues.

102. While I have explained there were significant time and commercial pressures surrounding SA1, the Agreed Resolutions were nevertheless drafted with care and attention. Everyone on the NHSL Project Team was committed to ensuring the best possible outcome was secured in the circumstances.

Much of the commercial and time pressures, for example NHSL's decision to begin paying for an incomplete facility, were focussed beyond the Project Team level and are therefore not matters I am in a position to comment upon. By this I mean this type of decision was taken at a high level.

Other Issues

103. The 81 issues comprising the Technical Schedule were generally made up of the collation of outstanding Project Co Changes, Board Changes, RDD Status C items and potential non-compliances. Items in the Technical Schedule were spread across a range of different engineering disciplines. A number of these issues such as heater batteries, void detection and foul drainage were substantial concerns and remained under discussion between NHSL and Project Co into the winter of 2018.

104. It is worth mentioning that ventilation was far from the only concern which arose during the project. Other concerns included issues over the location of a movement joint and the location of a sewage sump pump, multiple problems relating to firestopping which had to be addressed, and other construction defects.

105. By the time SA1 negotiations commenced, the hospital was essentially complete from a building envelope perspective. Accordingly, for the most part, any unresolved issue or non-compliance in Project Co's design was now built into the hospital itself. My recollection of the focus of the SA1 negotiations was a desire to draft appropriate Agreed Resolutions to generally provide mitigating technical solutions and retrospectively adjust the contract to reflect the as built hospital. I understand this then allowed the Independent Tester to issue a completion certificate.

Declaration

106. I believe that the facts stated in this witness statement are true. I understand that this statement may form part of the evidence before the Inquiry and be published on the Inquiry's website.