SCOTTISH HOSPITALS INQUIRY

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Hearing Commencing
24 April 2023

Bundle 13 – Witness Statements

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Scottish Hospitals Inquiry
Witness Statement of
Alan Morrison

Preliminaries

1. I am Alan Morrison. This witness statement follows and, as appropriate, expands upon the evidence that I provided to the Inquiry within my witness statement (dated 11 April 2022) as well as the oral evidence that I gave to the Inquiry on 16 May 2022.

2. The Inquiry has evidence within the witness statements provided previously by myself and Mike Baxter (dated 20 April 2022) and in Mike Baxter's oral evidence to the Inquiry on 16 May 2022 as to the Scottish Government's (and specifically the Scottish Government's Health and Social Care Directorates' ("SGHD")) role and responsibilities in relation to the design and delivery of large healthcare projects, including the Royal Hospital for Children Young People/Department for Clinical Neuroscience ("RHCYP/DCN")).

3. Noting that context, I have been unable to answer the majority of questions contained in the Inquiry's section 21 Notice, dated 14 December 2022, partly because some of these questions relate to matters that are not the responsibility of the Scottish Government, but mainly because the majority of the questions relate to a period pre-dating my time in post.

4. I have read the witness statement of Mike Baxter in response to s21 Notice dated 14 December 2022 and, to the extent that I have any knowledge of the matters set out therein, I do not demur from what he sets out within his statement.

ACTIVITY DATABASE AND CEL 19 (2010)

5. I cannot add further detail to that contained in Mike Baxter's statement in response to this section of the Inquiry's Section 21 Notice dated 14 December 2022.

TIMESCALES

6. I am told that the Inquiry has heard from other witnesses that Scottish Futures Trust ("SFT") were instrumental in deciding on timescales for the procurement exercise; in particular when FC should take place. I am asked whether this accords with my understanding.

7. I was not in post for the tender exercise (preferred bidder appointed in March 2014), so cannot comment on the majority of the tender exercise (as explained in the following paragraph). A target date for FC of October 2014 was set during this period but missed. FC was achieved in February 2015.

8. I cannot speak for how my predecessors operated, however, since I have been in post, while I have relied on the advice and assistance of SFT on a large number of health capital projects, the decision on timescales for procurement exercises and, in particular when FC should take place, has sat with Scottish Government (per the business case review process described at paragraphs 22 to 42 of my first statement)[1]. The Scottish Government does not, however, typically get involved in the timetable for the procurement exercise that is actually undertaken by the health board.

ITPD AND ISFT

9. I cannot add further detail to that contained in Mike Baxter's statement in response to this section of the Inquiry's Section 21 Notice dated 14 December 2022.

AEDET AND HAI-SCRIBE

[1] See particularly para 29 - "*A developer can only move on to procurement (by whatever means it considers appropriate) once it has received approval of its outline business case from the Scottish Government.*"

10. I cannot comment on the AEDET and HAI-Scribe Assessments. Health Facilities Scotland and Health Protection Scotland would have led on these issues.

PROGRESS TO FINANCIAL CLOSE

11. I cannot add further detail to that contained in Mike Baxter's statement in response to this section of the Inquiry's Section 21 Notice dated 14 December 2022.

KEY STAGE REVIEWS

12. I have been asked to provide the Inquiry with my knowledge and understanding of KSRs. In so far as it is within my knowledge, I agree with what Mike Baxter has said in his statement in response to the Inquiry's Section 21 Notice dated 14 December 2022.

13. The only additional evidence that I would draw to the Inquiry's attention, in case it is useful, is the description of KSR contained in SFT's "Project Assurance" guidance:-

> *Key Stage Reviews (KSRs) were developed in response to the introduction of large, long term, output specification based revenue funded projects. Unlike traditional capital projects, the promoter is procuring a service normally for a 25-30 year period using the EU Negotiated Procurement procedure, and more recently the Competitive Dialogue procedure. That method of project assurance places much greater importance onto ensuring that projects have: a) developed comprehensive specifications, b) a robust procurement and evaluation strategy, and c) appropriate resources and project information in place before the tender process is commenced.*[2]

[2] https://www.scottishfuturestrust.org.uk/storage/uploads/project_assurance.pdf

FULL BUSINESS CASE

14. In relation to section G of the Inquiry's Section 21 Notice dated 14 December 2022 I can add the following in addition to the evidence contained in Mike Baxter's statement produced in response thereto.

15. The Inquiry asks whether it is usual for the Pre-FC KSR to be finalised before CIG's recommendation for approval of the Full Business Case and indicates that in the RHCYP-DCN project it appears that the KSR took place after full business case approval and months after the meeting of the CIG in August 2014.

16. The CIG approval of the Full Business Case provides the authority for the NHS Board to move to FC. The pre-financial close KSR is designed to provide assurance on the detail of the contract that is due to be agreed between the health board and project co. This contract needs to be agreed, effectively, in real time. This has to be the sequencing of events and is entirely appropriate.

17. I would note that the February dates referenced within the table contained in this section of the Inquiry's section 21 Notice dated 14 December 2022 should both be 2015.

STATEMENT OF TRUTH

18. 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.

Scottish Hospitals Inquiry
Witness Statement of Colin Macrae
22 February 2023
In response to Rule 21 Request dated 8 December 2022 (re-issued 13 December 2022)

Preamble

I have been asked to provide a witness statement in response to the Rule 21 request from the Scottish Hospitals Inquiry ("SHI"), dated 8 December 2022 (re-issued on 13 December 2022). In preparing this statement I have considered two bundles of documents provided by SHI referred to as the 'November' bundle (1764 pages) which was produced on 28 November 2012 and the 'December' bundle (600 pages) produced on 8 December 2012. The SHI has provided a list of headings and questions which are highlighted below. In so far as I am able to assist, I have provided my response underneath each question.

Role on the Royal Hospital for Children and Young People/Department of Clinical Neuroscience Project ("RHCYP/DCN project"); including particular area of expertise and the period engaged on the project

1. I am Colin Macrae, aged [redacted] years. I am a mechanical engineer. I retired in March 2020, but remain available to work for Mott MacDonald on a consultancy basis. I was a chartered engineer in building services and member of the Engineering Council.

2. I have worked for Mott MacDonald for approximately eleven years. My job title before becoming a consultant was senior building services engineer. I have around 18 years of experience in working on Private Finance Initiative type projects in the NHS. My work has mainly involved reviewing operations and design information.

3. I was not involved during the capital stage of the RHCYP/DCN project. I joined the project around the same time as Graeme Greer, in or around May 2013, in my capacity as senior building services engineer, reporting to Willie Stevenson,

who was technical principal. Along with others including colleagues with different specialisms, I was

required to consider the design documents submitted by the bidders during the competitive dialogue process, and provide comments on them. I also attended meetings relating to the design of the RHCYP/DCN project after the appointment of the preferred bidder, right up until the point at which the hospital was due to open in 2019. I also had some involvement in the subsequent remedial works which took place up until I retired in 2020.

Procurement Process – The ITPD

The assessment criteria were based on a mix of price and quality with a 60/40 split in terms of price/ quality. Did you or anyone else from Mott MacDonald express any concern as to the split with a focus on price?

4. I was not involved in the ITPD stage of the RHCYP/DCN project and I therefore cannot assist on this point.

The assessment criteria were based on a mix of price and quality with a 60/40 split in terms of price/ quality. In your experience was this usual?

5. This is the normal way to assess these projects. The split of price and quality may vary. This decision would however have been taken a high level by NHS Lothian. I had no involvement in this decision, nor did I play any part in advising on it.

With reference to bundle items 1 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[1] & 3 (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[2] do you believe that the information provided to

[1] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 22, p773
[2] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 23, p942

prospective tenderers in the ITPD was sufficiently clear in relation to the purpose of the Environmental Matrix and whether bidders needed to formulate their tender to comply with the requirements set out in the Environmental Matrix?

6. The preparation of procurement documents was not part of my remit, and accordingly I was not involved in the preparation of the ITPD documents[3] nor was I really aware that there had been a reference design for the NPD project. My role was to review documents which were given to me for consideration. I am therefore unable to comment on whether the information provided to bidders was sufficiently clear. The Inquiry has asked whether I had an understanding of the documents submitted to me for review, particularly in respect of compliance with the Board Construction Requirements (BCRs) and the requirements to comply with **CEL 19 (2010) (A37215536, CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHS Scotland 2010 Revision' (2) dated 2 June 2010[4]), SHTM 03-01 (A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[5])** and the Environmental Matrix. Given the passage of time, it is difficult for me to remember in detail what I did on the project, particularly in the early stages.

7. I was not familiar with the detail of **CEL 19 (2010) (A37215536, CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHS Scotland 2010 Revision' (2) dated 2 June 2010[6])**. I now understand this to be an internal NHS policy document, but I do not recall it being on my radar at the time. I have been asked whether I would have been involved in advising on whether ADB sheets should be used but this is not the kind of level of involvement I had on the project. I am not able to comment on how a tenderer could comply with **CEL19 (2010) (A37215536, CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHS Scotland 2010**

[3] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 23, p942
[4] Bundle 1 Published Guidance, Item 6, P553
[5] Bundle 1 Published Guidance, Item 4, P333
[6] Bundle 1 Published Guidance, Item 6, P553

Revision' (2) dated 2 June 2010[7]) without using ADB as a design tool as that kind of strategic planning is outwith my remit as an M&E engineer.

8. While I cannot recall all the details, at draft final tender and tender stage I would be asked to review technical submissions from a mechanical and electrical perspective. In reviewing the bids, I would be focussing on what the bidders were proposing to design as a solution for the facility as a whole. I would be looking at the proposal, not just from a ventilation perspective, but also from the point of view of factors such as heating, medical gases, and lighting. By that early stage, the design had not been developed yet. Therefore I would not be looking at whether there was compliance with SHTMs[8] or with the many other applicable sources of guidance. Similarly, I would not be assessing compliance against the draft environmental matrix as the environmental matrix was going to be the bidder's document to develop.

9. The documents which were submitted to me for review would include the Environmental Matrix and later on also the PCPs. The ITPD included an Environmental Matrix produced by Hulley & Kirkwood for the capital scheme which was a draft and was not mandatory for bidders to follow. This Environmental Matrix was then developed by the preferred bidder themselves. The bidders were not expected to sign up to an Environmental Matrix produced by a third party. They had to develop the Environmental Matrix so that it complied with SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[9])** and other applicable guidance. Project Co did develop the Environmental Matrix after their appointment as preferred bidder.

10. My opinion regarding the different solutions submitted by IHSL and Bidder C is that Bidder C marked up the Environmental Matrix and made a number of changes whereas IHSL did not change the Environmental Matrix which had

[7] Bundle 1 Published Guidance, Item 6, P553
[8] Bundle 1 Published Guidance
[9] Bundle 1 Published Guidance, Item 4, P333

been provided in the ITPD documentation. There was no reason for this to be a cause for concern at that stage. That is because design development had not started at that point. I have been asked to comment on the marked up Environmental Matrix presented by Bidder C at final tender stage. I see that it has been marked up by them. While I cannot recall the detail of exactly what I did at the time, looking at the marked up matrix, this would not automatically have given me concerns with regard to the other bids. I would just have thought that bidder C was being proactive, in making a start in developing their design solution, even before they were appointed as preferred bidder. It would be normal and expected for the design of the Environmental Matrix to be developed after the Preferred Bidder was appointed.

ITPD Volume 2 was the draft contract. The Environmental Matrix is not mentioned in volume 2. Was the intention that the Environmental Matrix would be redundant by this stage?

11. I was not involved in drafting the ITPD or putting together the procurement documents. I am not in a position to comment on the intent behind the procurement documents.

When and why was the Environmental Matrix added into the contract as reviewable design data?

12. I was not involved in the decision to add the Environmental Matrix to the contract as reviewable design data. I was told that this had happened at some point, I believe this happened around the time of financial close or just after, but this was not something which was especially material to me in the particular role I was undertaking at the time, except perhaps that it extended the time during which we were being asked to undertake reviews. My role was simply to review any aspects of the design on which I was asked to comment. I am unable to say which individual provided advice on the decision to add the Environmental Matrix to the RDD.

The Inquiry understands that it was for NHSL to determine the elements that would make up the overall Quality score during tender evaluation, as well as the weightings given to the scored elements within the Quality score. Workshops were held involving the broader management team within NHSL, and the Project Team including NHSL's advisors. Were you or anyone else from Mott MacDonald involved in these workshops? If so, (a) can you describe what happened during these workshops? (b) Can you describe why M&E engineering was given a lower weighting than other elements.

13. I do not recall being part of these workshops but I do remember commenting on the various submissions on a comparison basis, along with colleagues specialising in other areas, during the competitive dialogue. I do not know whether M&E engineering was given a lower weighting than other elements or, if that was the case, why that decision was taken. I was not involved in taking that type of decision. I do need to emphasise that I never gave direct advice to NHSL at any point. I would review documents when asked, and prepare comments, which would be passed on to NHSL by colleagues such as Graeme Greer.

14. We reviewed the submissions as a group. The reviews undertaken during competitive dialogue involved a consideration of the bidders' approaches to M&E design. This did not involve a side-by-side comparison of the submissions themselves. My role was basically to highlight strengths and weaknesses of each bid. All three bids scored quite close together. In light of my limited remit, I am unable to say whether NHSL were assessing compliance with the pass/ fail elements of the tender submissions with or without input from Mott MacDonald. Similarly I was not involved in any feedback provided to bidders on their submissions. Around mid to end January 2014 I finished up for a period of leave due to pre-planned surgery. I was off from 23 January until 1 April 2014. I recall that I had quite a lengthy staged return when I was eventually able to go back to work. This meant that I returned to work part-time initially for some weeks. I returned two days per week initially then went up to three days. Colleagues would have been picking up my work in my absence.

- 'Technical Risks for Financial Close' dated 25 August 2014 (A36308781, Technical Risk Register[10]). We have been advised by other witnesses this appears to be a Mott MacDonald generated risk register. Is that correct? Do you recognise this as a Mott MacDonald risk register?

15. I have no recollection of this particular risk register but would comment that if it were a Mott MacDonald document it would be headed as such. The document on page 1648 does not contain a Mott MacDonald heading.

In relation to the items flagged as high risk in (A36308781, Technical Risk Register[11]) – "Technical Risks for Financial Close" dated 25 August 2014, how significant did you believe these risks to be? In particular do you have a view on how and where these risk should have been escalated? Do you know how these risks were escalated and resolved?

16. I was not involved in preparing this technical risk register. I am not sure that I have ever seen it before. I do not see that any of the flagged high risk items would be of major concern for engineering and technical services at that relevant stage of the project. This is because the project was still at a very early stage at that point. The risk register seems to be dated August 2014. Financial close did not happen for another 6 months. The design had not yet been done. There was a lot of development still to do at the time that risk register seems to have been prepared. I cannot recall this document and so cannot assist with confirmation of how and when these matters were escalated, or even whether they were, in light of the stage of the project. I would not have been involved in escalating any concerns. To clarify, there are no specific technical concerns evident from this risk register which are marked as high risk. Aside from Combined Heat and Power ("CHP") sizing, the matters identified as high risk which are in the "technical" category are all actually programme or contractual risk issues, such as delay or a lack of review time. In relation to CHP, that is also something which is arguably a bit premature. It is Mott MacDonald and/ or

[10] Bundle 10 – Miscellaneous Volume 1 (of 2), Item 10, p75
[11] Bundle 10 – Miscellaneous Volume 1 (of 2), Item 10, p75

NHSL looking into the future and forecasting that there might be a problem. The design had not been done yet so it was not possible to say at that early stage when the risk register was prepared that there would definitely be a problem.

'Risk Register' dated 18 November 2014 (A33337268, Project Risk Register Version 14-18 Nov 2014), records row 8 with a risk status of "red". What were the problems at this point and the actions put in place to address these issues?

17. I am not familiar with the Risk Register dated 18 November 2014. I was not involved in preparing it. I was not aware of any particular technical issues at this point, and do not recall being asked to comment on anything specific. I should highlight that this Risk Register **(A33337268, Project Risk Register Version 14-18 Nov 2014)** is not a technical risk register. It is a project risk register. This would have been much higher level than anything I would have been dealing with in the project. I would have had absolutely no involvement in that at all.

Problems with the Environmental Matrix that were highlighted before Financial Close

Discrepancies in the EM were identified by you before financial close (A35614364, Email – G. Greer to Brian Currie – Single Room Ventilation (with attachment[12]). These concerned single bed-rooms rather than multi-bed rooms in critical care. However, the detail at this stage of who was involved and what was decided is hazy. The key point is that issues had been identified yet there seems to be no wholesale reappraisal of the project and NHSL proceeded to sign a contract. What are your recollection of events?

18. I wrote the email of 12 November 2014 which is included at **(A35614364, Email – G. Greer to Brian Currie – Single Room Ventilation (with attachment[13])**

[12] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 17(i), p69
[13] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 17(i), p69

to explain to my colleagues and NHS Lothian what the overall ventilation strategy actually was and the implications of it. Broadly the concern was that the ventilation strategy proposed by IHSL was leaving an excess of air pressure which would require to be discharged. This meant that the bedroom was at positive pressure, and air would spill out into the corridor. This potentially created an infection control risk. My email prompted NHSL to prepare a document to be issued to Project Co entitled "Comments on PCP 4.9 2nd draft" **(A42059430- CM Enclosure 1- Comments on PCP 4.9 (second draft))** identifying that the proposed design did not comply with SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[14])** in terms of the overall ventilation strategy. I was commenting on the overall strategy, and where I saw some areas of non-compliance. This is why I sent this particular email from November 2014. It was not our role as technical adviser, to do a line-by-line check of the Environmental Matrix. It was IHSL's responsibility to produce a compliant design. The issue with the ventilation strategy came to light following review of the Environmental Matrix. We were undertaking sample reviews of each version of the Environmental Matrix produced by the preferred bidder. We tried to focus on a different area of the matrix each time. In response to the Inquiry's questions, I am not able to say why a particular tender was not rejected at the assessment stage; matters I spotted after the appointment of the preferred bidder might have arisen due to development of the design by them. Any reviews undertaken by us of the Environmental Matrix, including at tender stage, would not have involved line by line checks for compliance. We were not the designer. It was always Project Co's responsibility to ensure that they provided a compliant design. Our spot checks were simply aimed at ascertaining that the design development was progressing. I am not in a position to comment on whether NHSL were doing a line-by-line review of the Environmental Matrix. I recall that individuals from NHSL produced their own comments on the Environmental Matrix but I don't think it was a line-by-line review. The Inquiry has asked whether, looking back to the tender/ bidding process, whether NHSL or MML were aware that Bidder

[14] Bundle 1 Published Guidance, Item 4, P333

C had marked up the Environmental Matrix. Once again, given the passage of time, I am unable to recall the details of whether NHSL or MML were aware of Bidder C's amendment of the Environmental Matrix during the Bidding process. As I say though, the fact that Bidder C had produced a marked-up matrix at that early stage would not of itself have been a matter of concern.

19. In relation to the specific question being put to me, I was not involved in advising NHSL whether to sign the contract. I would not have been involved in considering or advising on strategy in terms of when Room Data Sheets required to be produced or anything at that level. I had a very specific role in the project, which was to comment on technical matters which were passed to me for review. I continued to comment on the various iterations of Project Co's Environmental Matrix right up to 2017. I continued to highlight areas of non-compliance, though it remained the position that it was not my, nor Mott MacDonald's role, to undertake a line-by-line review to check for compliance. Regarding the documents which were being sent to me for review, these would normally come from MML project management team members such as Graeme Greer, Maureen Brown, Kamil Kolodziejczyk or Kelly Bain. Occasionally, NHS staff would ask for things to be passed by me for review. My involvement on the project was on an ad-hoc basis and I worked on the project one day a week. On that day I would attend meetings and review documentation (a fraction of which would be related to ventilation). Of the time I spent on the project, about 5-10% was looking at ventilation. I spent the remainder of my time providing input on all other M&E matters. This included but was not limited to lighting, heating, internal function of the fire alarms, medical gases, IT, cabling and fibre optics, the energy centre, and drainage. I wasn't aware of the full scope of MML's remit and so when I was passed documentation to review I would look at that, and then feed my comments back to either Graeme, Kamil or Kelly. I believe there were 11 revisions of the Environmental Matrix and the first one I reviewed was revision 1 in late 2014 **(A32623039, Environmental Matrix dated 4 September 2014[15])**. I reviewed a different part of the document every time it was passed to me to avoid duplicating work. I kept notes of what I had

[15] Bundle 4 - Environmental Matrix, Item 1, P4

reviewed previously to help guide me along with my memory of what I had already looked at. These notes would have been summarised in the emails I would have sent to Kamil, Maureen or other colleagues, providing my comments on the matrix. My understanding is that these colleagues would then have passed my comments on to NHS Lothian. Up to financial close, the purpose of my reviews was to assist in the development of the approach to the mechanical and electrical design. I provided comments every time I was asked to look at the Environmental Matrix but I had to be careful to avoid offering suggested design solutions as MML were not the designer of the Environmental Matrix. I had to take care to avoid stepping into the role of designer. I was looking at a number of issues, not just ventilation, including temperature ranges, lighting levels and compliance with the schedule of accommodation.

NHSL appear to wish the ventilation system not to rely on opening windows. However, throughout the procurement exercise a mixed mode system was promoted. The issue is flagged in a series of emails originating with Mott Macdonald, see (A35614364, Email – G. Greer to Brian Currie – Single Room Ventilation (with attachment[16]). On 13 November 2014 Graeme Greer, (Mott MacDonald) forwarded an email to Brian Currie (NHSL). Mr Greer stated: "Further to the Environmental Matrix ….. Might be worth raising this again at the RDD meeting?" What was the issue that was emerging here and what were your concerns/ NHSL's concerns? How were these issues resolved in the 3 month period leading up to signing of the contract/ Financial Close.

20. Although SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[17])** includes the use of natural ventilation, it is well established that natural ventilation is not an appropriate means of providing a controlled environment. This was also detailed in the email from Ian Stewart, HFS to Jeanette Richards of NHSL dated 14 January 2014 (see page 1437 of the November bundle**) (A35614504, Email – G. Greer to Janette Richards –**

[16] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 17(i), p69
[17] Bundle 1 – Published Guidance, Item 4, P333

Natural ventilation)[18] I am unable to comment on how the matter of the mixed mode ventilation system was resolved as I was not asked to provide further input.

21. The first thing to consider is how is the ventilation being provided and to what extent is it being provided. SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013**[19]**)** has been updated since the version that was in force in 2014/15. The guidance gave the option of natural ventilation. I am a firm believer however that natural ventilation does not work in a hospital setting. Natural ventilation means opening a window so you have no control over the ventilation in the room. There are complex variables to consider. My opinion is that natural ventilation can only work in a corridor in a hospital setting and this can be achieved through opening corridor doors to allow ventilation to flow. However, this requires consideration of where in the hospital the corridor is, and whether the pressure of the rooms leading into the corridor are positive or negative pressure. My preference would be to see all-mechanical ventilation.

22. I am aware that Ian Stewart at HFS was asked by Janette Richards at NHSL to comment on the single bedroom ventilation. He provided his comments by way of an email dated 14 January 2015.

23. Maureen Brown at Mott MacDonald required to feed the above observations of Ian Stewart into IHSL and she requested my input before passing on comments. I sent an email to Maureen Brown on 28 January 2015 **(A42059431- CM Enclosure 3- Colin Macrae email to Maureen Brown regarding single bedroom ventilation)** that made clear:

    (1) The single room with en-suite ventilation design required to comply with the parameters set out in SHTM 03-01 **(A35610757, Scottish Health**

[18] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 13, p58
[19] Bundle 1 – Published Guidance, Item 4, P333

Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[20]).

(2) The design solution should not rely in any way on the opening of windows as these will be opened or closed by patient choice.

(3) The critical factor from SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[21])**. for infection control will be the resultant pressure within the room being balanced with or negative to the corridor.

(4) Isolation room ventilation should comply with SHPN 04 Supplement 1 **(A33662184, Scottish Health Planning Note 04, In-patient Accommodation Options for Choice Supplement 1 Isolation Facilities in Acute Settings dated September 2008[22]).**

24. Maureen Brown asked Janice Mackenzie at NHSL if she was content for the above points I had made to be issued to IHSL (Project Co). Janice confirmed "that seems fine" in an email dated 29 January 2015 **(A34225421, Email - Maureen brown to Janice McKenzie - Bedroom ventilation/HAI Scribe 29 January 2015[23])**. Janice Mackenzie also asked Fiona Halcrow to confirm she was happy with my suggested response to be passed onto IHSL and Fiona Halcrow confirmed "I'm fine with this" in an email on 29 January 2015. I have attached a copy of this email chain **(A42059434- CM Enclosure 5- email from Maureen Brown to IHSL regarding SHTM compliance)**. Maureen Brown then communicated these points, including the fact that the ventilation design should not be dependent in any way on opening windows, to IHSL in an email dated 29 January 2015 **(A42059434- CM Enclosure 5- email from Maureen Brown to IHSL regarding SHTM compliance)**.

[20] Bundle 1 – Published Guidance, Item 4, P333
[21] Bundle 1 – Published Guidance, Item 4, P333
[22] Bundle 1 – Published Guidance, Item 5, P518
[23] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 12, P56

The Inquiry has been provided with the following extract but not a full copy of minutes or detailed context. We understand a meeting took place on 19 November 2014 and related to a Healthcare Associated Infection (HAI) – System for Controlling Risk in the Built Environment (SCRIBE) ("HAI-Scribe") where the following was recorded:

2.2.	Is the ventilation system design fit for purpose, given the potential for infection spread via ventilation systems?	Yes		No	x	N/A	
		Some concern has been raised in relation to a potential issue with ventilation with regard to negative/balance pressure in single bed rooms. Awaiting drawings and further information to fully understand if there is a risk/issue					

Were you aware of this meeting? If so, to whom was the issue escalated and what was the result?

25. I was not involved in any HAI-Scribe meetings that I can recall and so I can't assist in providing confirmation of how this matter was addressed.

TUV Sud/Wallace Whittle (IHSL's sub-contractor) produced a draft report for air movement to single bedrooms dated 12 January 2015, titled "RHSC-DCN Edinburgh Air Movement Report For Single Bedrooms (Draft), (A34225453, Wallace Whittle – Air movement Report for Single Bedrooms (draft) 12/01/2015)[24] . Do you recall having sight of this report and providing comments? Were NHSL satisfied with TUV Sud/Wallace Whittle report?

[24] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 15, p56

26. Yes I recall this report and recall commenting at a meeting. I have been unable to find a minute of that meeting (meetings were not always minuted) but I recall that my comments were broadly as follows:

a. NHSL had stated to IHSL that opening windows are not to be included in the ventilation strategy.

b. Scenario 1, point 3: the hierarchy of cleanliness and the pressure regime shall be that the single room is to be 0 or -ve to the corridor. No air should pass from the room to the adjacent space i.e. the corridor.

c. Scenario 2 does not mention the supply air to the bedroom.

d. Scenario 3: as comment above.

e. Conclusion: I don't recall the drawings which are mentioned in the TUV Sud/ Wallace Whittle report **(A34225453, Wallace Whittle - Air movement Report for Single Bedrooms (draft) - 12 January 2015[25])**. I see however that TUV Sud still had opening windows in their strategy at that point, despite our comments. The Environmental Matrix and overall design was always for ProjectCo to develop. Ultimately it was up to ProjectCo to comply with SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[26])**.

27. I do not think TUV Sud/Wallace Whittle's report **(A34225453, Wallace Whittle - Air movement Report for Single Bedrooms (draft) - 12 January 2015[27])** was accepted by NHSL. My recollection of the meeting I mention at paragraph 23 is that it was made clear to IHSL that what they were proposing was unacceptable. Many meetings were not however formally minuted so I am unaware of whether there was a written record of this being communicated.

Risk Registers

[25] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 15, P66
[26] Bundle 1 Published Guidance, Item 4, P333
[27] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 15, P66

According to the document entitled "Design risks to the Board at Financial Close", (A36308801, Design Risks to the Board to Financial Close[28]) the risks at 28 January 2015 included the first item which related to ventilation. The risk register bears the Mott MacDonald branding but does not state what the precise issue is nor how the issue would be resolved. The terms of the "current mitigation measures" indicate that this relates to NHSL's response to Wallace Whittle's proposed solution to single bedroom ventilation, which the Board felt was not compliant with SHTM 03-01 (A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[29]). Can you expand on what the issues were? What advice did Mott MacDonald provide and what was the proposed approach to resolving?

28. To my knowledge, the issues were set out in my answer at paragraph 18. The fundamental issue was that Wallace Whittle were maintaining that their design was compliant with SHTM 03-01**(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[30])**, while the Board disagreed. The Board did not want opening windows to be part of the ventilation strategy. Mott MacDonald did not reject the proposals of IHSL as that was not our role, any rejection would have to be by NHSL. Mott MacDonald did not provide advice on what an appropriate alternative approach might be as that would leave us in the position where we would become designers. I am unaware of how this matter was eventually resolved. I understand that there was a series of meetings in February 2015 at which this matter might have been discussed but I was unable to attend the first meeting due to annual leave and subsequent follow ups due to diary clashes. One of my colleagues would have attended, possibly Kamil Kolodziejczyk.

[28] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 21, p84
[29] Bundle 1 Published Guidance, Item 4, P333
[30] Bundle 1 Published Guidance, Item 4, P333

What is the purpose of this Risk Register(A33337268, NHSL RHSC and DCN Risk Register 18 November 2014[31]), to whom was it to be shared/escalated?

29. Like any risk register **(A33337268, NHSL RHSC and DCN Risk Register 18 November 2014[32])** it is intended to track and resolve risks and issues. I do not recall having been involved in the preparation of this risk register. I don't know who would have seen this document, and what the circulation list would have been. I similarly could not say to whom it would have been escalated.

In the period from preferred bidder to financial close, the list of RDD became more extensive than expected, to the extent that it added new risks to the project. Can you explain your understanding of the risks related to RDD? What advice did Mott MacDonald provide to mitigate all of these new risks? Did NHSL take on board this advice to mitigate these risks?

30. My role did not involve directly advising NHSL on how to mitigate risks; I provided technical assistance to others who were involved in providing this advice. I therefore can't assist with confirming what specific advice would have been given, and whether NHSL took on board any advice which they received. I am not in a position to advise exactly who from MML provided advice to NHSL on how to mitigate risks but to the extent such advice was given it would have come from the project management team.

What was your role in respect of the AEDET and HAI-Scribe reviews? Whose responsibility was it to arrange the reviews?

31. I was not involved in this aspect of the project, and I do not know who was responsible for these reviews.

Did the AEDET assessments that took place before financial close include an assessment of engineering aspects? Was RIBA stage E reached before

[31] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 10, P42
[32] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 10, P42

financial close? At what stage of a project would you expect RIBA stage E to be reached?

32. I was not involved in the AEDET assessments and am not aware of when RIBA stage E would have been reached as that is outwith the scope of my involvement and indeed my area of expertise.

Was a final AEDET assessment done to score engineering? If one was done, who attended?

33. I was not involved in this aspect of the project. I do not know whether a final AEDET assessment to score engineering was carried out.

Can you explain the role of HAI-Scribe in the procurement phase of a project? Is it mandatory before project approval?

34. There are a number of HAI-Scribes during a project. For good management of a project you would conduct these as you go along. I am not certain if they are mandatory for PFI contracts but I understand HAI-Scribes are required under Implementation Strategy Scottish Health Facilities Note (SHFN) 30: Part B.

Documentary evidence shows that a Stage 3 HAI-SCRIBE review was meant to take place before Financial Close but 'the right people weren't there' and so it didn't take place on the day it was meant to. Was this workshop rescheduled?

35. I was not involved with HAI-Scribe in relation to this project so I am unable to answer this question.

Is AEDET or HAI-Scribe required as part of the business case process? How do they fit into the overall assurance process? Do the results get reported up, or are they simply for design teams to get feedback and make improvements where required?

36. I am unable to comment on whether AEDET or HAI-Scribe would be required as part of the business case process. This would be outwith the scope of my involvement as a mechanical engineer.

We note that an NDAP was not required for the project due to transitional arrangements in place. Can you confirm whether equivalent or alternative design assessment took place?

37. I was not involved in this aspect of the project and am unable to comment.

Amongst the requirements for NDAP is "Evidence that Activity Data Base (ADB) is being fully utilised during the preparation of the brief and throughout the design and commissioning process." Was an equivalent design assessment implemented to ensure compliance?

38. I was not involved in this aspect of the project and am unable to comment.

Was any design assessment done in advance of the Full Business Case? If so, can you explain the format this took?

39. I was not involved in this aspect of the project and am unable to comment.

NHSL have indicated they were not aware of any non-compliance with SHTM 03-01 (A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[33]). However we have come across evidence of discussions about Wallace Whittle's ventilation design for bedrooms where there is concern around non-compliance of the design. Could you explain the issue that was raised and outline the advice provided by Mott MacDonald together with the proposed mitigation or resolution?

[33] Bundle 1 Published Guidance, Item 4, P333

40. I am not aware of which particular issue of non-compliance is being referred to in this question but there was certainly an issue relative to single bedrooms. This was set out at item 7 of NHSL's comments IHSL's PCP's. This was based on a comment I had raised as I mention at paragraph 18 above. I am not aware of what happened after that stage. My role was to highlight anything I spotted in my reviews and escalate it to the Board via my colleagues. It would then be for the Board, perhaps advised by my colleagues, to decide how to take things forward. IHSL were designers and had design responsibility at all times. Mott MacDonald can only provide comments and outline issues. To offer suggestions for mitigation or resolution could imply that Mott MacDonald were the designers, and we were always careful to avoid that as it was not our role. I am not able to say whether there was anyone on the Board side, either internally at NHSL or an external advisor, who undertook that role. I certainly was not aware of anyone on the Board side who was offering design proposals.

One of the points made was that IHSL had a different interpretation of SHTM 03-01 (A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[34]). Is this usual for healthcare projects?

41. It is often the case in healthcare projects, at least in my experience, for the designers to have differing interpretations of SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[35]).** This is why there is a clause in the BCRs to the effect that the most onerous standard will apply. It is common in healthcare projects for the standards to contradict each other occasionally. An example of this can be seen in audiology where there is a direct contradiction with the guidance. This is why it is standard in contracts for healthcare projects to specify that the most onerous standard will be used. To my mind this removes the ambiguity. In the event that there is a change or deviation from the guidance this should be signed off as a

[34] Bundle 1 Published Guidance, Item 4, P333
[35] Bundle 1 Published Guidance, Item 4, P333

derogation. In my opinion, all SHTM guidance is clear but is not concise and is therefore still open to interpretation. For example, SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[36])**. Table A1 provides for generic rooms but does not account for patient type or clinical need. By this I mean that it only gives sample rooms and does not include any specific guidance for different patient groups (adult/ child) or clinical department.

Was it considered a risk that IHSL had a different interpretation to SHTM 03-01 (A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[37]), compliance with which was a project requirement?

42. I would not have been involved in advising on whether it would be considered a risk that IHSL had a different interpretation of SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[38]).** In my experience as I say though there are often differing interpretations of the guidance.

The register of "design risk at Financial Close" (A36308801, Design Risks to the Board to Financial Close)[39] shows the mitigation proposed for the dispute that had emerged with IHSL, but does not actually flag the risk of non-compliance of single bedroom design proposal, or in fact that there was a differing interpretation of SHTM 03-01 (A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[40]). between IHSL and NHSL. Can you provide any further insight to this?

[36] Bundle 1 Published Guidance, Item 4, P333
[37] Bundle 1 Published Guidance, Item 4, P333
[38] Bundle 1 Published Guidance, Item 4, P333
[39] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 21, p84
[40] Bundle 1 Published Guidance, Item 4, P333

43. I would not have been involved in advising the board on this point.

The Environmental Matrix

The Environmental Matrix was to be used instead of room data sheets at the early stages of the project. See Paragraph 2.5.3 of Volume 1 of the ITPD volume 1 (A34697102, ITPD volume 1[41]) which states that standard form room data sheets had not been prepared at that early stage. Guidance Note 1 to the Environmental Matrix issued with the ITPD describes the document/ spreadsheet as an "easier reference tool to replace ADB RDS M&E Sheets". During the competitive dialogue phase, room data sheets were to be prepared by bidders for certain rooms. However, "all remaining rooms" required to have room data sheets completed before financial close. At what point was it expected that the environmental matrix would be superseded/ become obsolete?

44. I was not involved at this strategic level of the project, or in any decision making around Room Data Sheets so was not aware of when they were to be produced or by whom.

In adopting the Environmental Matrix, did Hulley & Kirkwood seek clearance from Mott MacDonald or NHSL?

45. I was not involved in this aspect of the project and am unable to comment. I did not become involved until competitive dialogue stage by which time Hulley & Kirkwood were no longer involved.

Who authorised the use of the Environmental Matrix?

46. I was not involved in this aspect of the project. It was before my time.

[41] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 23, p942

Was it the intention that the Reference Design – and the environmental matrix in particular – would have fulfilled its purpose by financial close? Was the intention that it would be replaced with the preferred bidder's design solution and a full set of room data sheets? How was this intention (i.e. that the environmental matrix would be redundant at financial close) communicated to prospective tenderers?

47. I was not aware at the time that a specific reference design including the environmental matrix had been created for the NPD project. I only became involved when the procurement process was well underway and from then on my role was to review documents given to me for consideration.

Was a decision taken to deviate from what was stated in the ITPD and ISFT in order to allow the preferred bidder to refrain from producing a full set of room data sheets? If so, who took this decision? When was the decision taken? Why was the decision taken? Did this prolong the use of the environmental matrix concept? What role/ purpose did the environmental matrix have at financial close?

48. I am not in a position to provide an answer to this question. My role was limited to mechanical engineering input.

The environmental matrix was included in the final contract as reviewable design data. It is not mentioned in the draft contract in volume 2 of the ITPD as reviewable design data. When was a decision taken to include the environmental matrix as reviewable design data?

49. I believe this was shortly before Financial Close. I was not involved in this decision as I say in one of my earlier answers.

What practical implications did this have for the project and the design process in particular?

50. From my own perspective it meant that design development would be delayed so that the period in which I was asked to do reviews was extended. I would not have been aware of the impact on the overall project beyond my own remit.

Why did prospective tenderers need M&E engineering information if it was up to tenderers (and ultimately the preferred bidder) to develop the design of M&E building services?

51. The information was provided as a guide for tenderers to enable them to develop their own design.

Given that the environmental matrix became "reviewable design data", was there an agreed technical specification for the ventilation system (i.e. air changes per hour, pressure regimes, etc) as at Financial Close?

52. No. There was no technical specification as at financial close. The Environmental Matrix was commented on several times detailing areas of error and non-compliance. For example, in PCP clause 4.9 (second draft) of Project Co's proposals there are comments on the Environmental Matrix and comments on SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[42])**. Item 7 comments on their PCP with air changes comments.

A decision was taken by NHSL to use an Environmental Matrix instead of Room Data Sheets produced using ADB as a briefing tool for prospective tenderers. It is not clear who took this decision, when the decision was taken or why the decision was taken. To your knowledge was this addressed at any meetings either of the project team, the Project Board or the Board of NHSL?

53. I did not attend any meetings of the Project Team, the Project Board or the Board of NHSL so I am unable to assist with this question.

[42] Bundle 1 Published Guidance, Item 4, P333

Why was the Environmental Matrix deemed to be of equal quality to room data sheets produced using the ADB system.

54. Consideration of this type of issue was outside the scope of my remit. I would not have been in a position to take a view on this or advise on it nor would I have done so.

Did Mott MacDonald advise NHSL how to demonstrate this?

55. I was not involved in considering this type of issue or in formulating any advice on this point.

Would you consider that the decision to use the concept of an environmental matrix was the cause – or part of the cause - of the errors with the ventilation system for the new hospital (in critical care rooms)?

56. The concept of an environmental matrix works well if the designers take on the responsibility to develop it in line with the Schedule of Accommodation and guidance. Those drafting the Environmental Matrix are part of the design team and as soon as they began issuing revisions of the Environmental Matrix they are deemed to have taken ownership of the document. Any ventilation errors are those of the designers rather than simply through the use of the Environmental Matrix. I am unable to confirm definitively whether it is possible to populate an Environmental Matrix from the ADB system automatically as this was not part of my role.

What are your thoughts on EM replacing Room data sheets?

57. The Environmental Matrix is not designed to replace the Room Data Sheets but to supplement them. The Environmental Matrix is a summary of the engineering detail that should allow the designers to progress the engineering design early while development of the architectural design (such as layouts) is underway. My understanding is that the Room Data Sheets would be produced from the

ADB. Similarly my understanding would be that this is also how an environmental matrix would be prepared but I do not know the details of how Hulley & Kirkwood would have prepared the particular draft matrix issued with the ITPD for this project. The ADB provides the Room Data Sheets for all room types within a hospital. The Environmental Matrix should be compiled as an engineering summary of the detail which might also be found in Room Data Sheets as and when those became available. The Environmental Matrix is a presentational tool for the data in the Room Data Sheets. If any discrepancies were discovered between the Room Data Sheets and the Environmental Matrix then the Room Data Sheets should take precedence, subject to the most onerous standard being followed in accordance with paragraph 2.5 of the BCRs. Ultimately the Board will get to decide what would take precedence in this type of situation.

Do you accept that there was an ambiguity in the environmental matrix itself?

58. Yes, I am now aware that some of the air changes in Critical Care bedrooms did not contain 10 air changes per hour. This contradicted Guidance Note 15 of the matrix, which said that 10 air changes per hour was required. I was aware that there were other discrepancies in the Environmental Matrix. For example, I reviewed the preferred bidder's first draft of its Environmental Matrix in October 2014 **(A35616783, Environmental Matrix NHSL - 31 October 2014[43])** and prepared a document setting out my views. These were as follows:

> "The submitted Environmental Matrix does not reflect the current Schedule of Accommodation, e.g. theatres and DCN acute care are not included. IHSL to provide up to date Environmental Matrix.
> Issues within the guidance notes relating to:
> i. Environmental Matrix still dated as version 13 issued 19th September 2012 **(A34691184, Reference Design Envisaged Solution – RHSC/DCN RDS Environmental Matrix – 19 September 2012[44]),**

[43] Bundle 4 - Environmental Matrix, Item 11, P220
[44] Bundle 4 - Environmental Matrix, Item 7, P131

ii. Humidification, the requirement is for the space for future installation,
iii. HK Design reference to be removed.
The detail contained in the Clinical Output Specification requires theatre temperatures to be able to be raised to 31°C for certain operations. IHSL to reflect this in the Environmental Matrix.
Body view rooms to be able to reduce temperature for body storage. IHSL to reflect this in the Environmental Matrix.
Room descriptions are given but no room numbers shown – IHSL to add room numbers."

SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[45])** clause 2.11 states;

> "Internal temperatures in patient areas should not exceed 28°C db for more than 50 hrs per year", however the Board added an additional BCR clause regarding the 25°C as clarified below: "Measures shall be assessed, modelled and implemented to demonstrate that the internal air temperature of any room or area does not exceed the maximum acceptable level of 25°C for more than 50 hours per annum".

Further review and development of the Environmental Matrix is required to clarify the following;

> "iv. There are some rooms at 28°C which are provided with comfort cooling.
> v. There are areas / rooms in the Environmental Matrix that contradict the above BCR clause, hence once IHSL produce an updated Environmental Matrix, further discussion is required with the Board to confirm which rooms or areas are not going to meet the Clause.
> vi. Bedrooms 4ac/hr, SHTM says 6 ac/hr Bedrooms have no extract Bedroom en-suites 10 ac/hr, SHTM says 3 ac/hr

[45] Bundle 1 - Published Guidance, Item 4, P333

Bedrooms stated as positive pressure, SHTM says 0 or –ve pressure The supply air to a bedroom has to be balanced with extract
e.g. Bedroom area 19m2 and 2.4m high = volume 45.6m3 x 6ac/hr =273.6 m3 / hr
En-suite area 5 m2 and 2.4m high = volume 12.0m3 x 3ac/hr = 36 m3 / hr
To achieve balanced pressure within room bedroom extract required = 273.6 – 36 = 237.6 m3 / hr
Recovery stated as 4 ac/hr, SHTM says supply and extract 15 ac/hr
Query DSR at 10 ac/hr, this seems high for a predominantly empty room – IHSL to confirm if this correct?
Query disposal hold extract 10 ac/hr, this seems high – IHSL to confirm if this correct?
Public telephone booth area of 2m2 fitted with a radiant panel – IHSL to confirm if this correct?
Colour rendering all stated as 80 where certain areas should be 90."

I undertook a number of reviews of the preferred bidder's Environmental Matrix prior to financial close and afterwards along similar lines. Once again these were sample comments not line by line audits or compliance checks. I highlighted a number of issues and areas of non-compliance in the preferred bidder's Environmental Matrix, not just issues with SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[46])**. Other people were also reviewing the matrix from the Board's perspective. It was up to the preferred bidder to produce the design and to ensure it complied with the BCRs. I understood from colleagues such as Graeme Greer that the preferred bidder was reminded that they had this responsibility. I have been asked to comment on whether the issues with air changes would have been spotted when Room Data Sheets were produced. My recollection is that Room Data Sheets were not made available to me for review prior to Financial Close. Issues with air changes might have been spotted when Room Data Sheets were produced. Once again though, even when the Room Data Sheets did

[46] Bundle 1 Published Guidance, Item 4, P333

eventually become available my role was not to undertake a detailed compliance audit, it was a sample review. The Inquiry has asked me whether a Room Data Sheet for a critical care bedroom would have automatically pre-populated with 10 air changes per hour. The answer to this is that I do not know, as I do not produce Room Data Sheets myself. The Inquiry has asked me to comment on what checks (if any) would normally be in place on a healthcare project of this nature. I can only really comment on my own role, but I would say that the level of reviews I undertook in this project was in line with the reviews I used to undertake on other projects.

Did any of the bidders raise this ambiguity during competitive dialogue?

59. From memory, I cannot recall that any of the bidders raised this ambiguity during competitive dialogue. Certainly I cannot recall that anyone specifically brought it to anyone's attention.

In relation to CEL 19 (A37215536, CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010[47]) and "design", there was originally a requirement for room data sheets for every room in the hospital to be produced by the preferred bidder by financial close. That was set out in the ITPD and the ISFT. It was not insisted upon by NHSL. Room data sheets were produced for less than 50% of the rooms in the hospital at financial close. Did Mott MacDonald advise NHSL on this issue? If so, please outline the discussions, proposals and resolution.

60. I was not involved in this aspect of the project and I wouldn't have expected to have been. Room Data Sheets would normally be produced by architects. My role was only to undertake reviews in relation to the M&E engineering side of things.

[47] Bundle 1 Published Guidance, Item 6, P553

In both the ITPD and the ISFT there was a requirement to comply with CEL 19 (2010) (A37215536, CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010[48]) (See ITPD Volume 3 (Rev c) – pages 24 and 26) (A40236052, ITPD, Vol 3, Board's Construction Requirements, Revision C, dated August 2013). It is not clear how a bidder could do so without utilising room data sheets for the design and planning of their solution for the ventilation system for the new hospital (ie as part of the tender bid). All that bidders were required to produce at the tender stage was selected room data sheets for key rooms and generic rooms. How did the successful tenderer demonstrate to that CEL 19 (A37215536, CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010[49]) would be complied with when the briefing tool used (both by NHSL at the ITPD and ISFT stage and by IHSL at financial close) was an "environmental matrix" with only a selection of room data sheets being produced?

61. I am not in a position to provide an answer to this question. My role was limited to undertaking reviews in relation to mechanical engineering. My understanding is that CEL 19 (2010) **(A37215536, CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010[50])** is an internal NHS policy. My role did not involve providing advice at that kind of strategic level.

Reference Design

To your knowledge, who within NHSL determined how much detail would be included within the reference design?

62. I was not aware of how the reference design had been developed so I do not know who within NHSL determined how much detail would be included within it.

[48] Bundle 1 Published Guidance, Item 6, P553
[49] Bundle 1 Published Guidance, Item 6, P553
[50] Bundle 1 Published Guidance, Item 6, P553

Was that decision taken by the Project Director, Project Board or Board of NHSL decision?

63. I was not involved in the project at this stage and was not involved in this decision.

Where is this recorded?

64. I do not know the answer to this question as it is outwith the scope of my involvement.

Were NHSL and Mott MacDonald briefed on the Reference design prior to the departure of Reference Design Team?

65. This would have been before my time so I am unable to assist with this question. I only became substantively involved in the project during the competitive dialogue. I was not aware there had been a reference design team. There may have been a briefing that pre-dated my involvement.

<u>Tensions in the Period up to Financial Close</u>

There seemed to be real tensions between NHSL and IHSL in the last quarter of 2014 with the project not progressing smoothly or as quickly as anticipated. What is your understanding of the root cause of these tensions and when did you become aware of the situation?

66. I do not recall being aware of any tensions between NHSL and IHSL in the last quarter of 2014. I would not have been involved in any discussions or correspondence about this kind of thing in my role.

Many issues appeared to remain unresolved into early 2015. However, NHSL proceeded to sign a contract. Can you offer any insight as to why NHSL were comfortable with doing so given the significance of the project and the sums of money that were being committed? Were Mott MacDonald asked to provide

input or advice in the period up to financial close in relation to issues with the preferred bidder, for example in relation to the failure to produce 100% of room data sheets by financial close?

67. Once again, I am unable to offer any insight into this point. I was too far down the food chain to know about anything happening at that level.

Financial Close

The Project was due to complete in Summer 2014. This was not achieved. Can you explain why financial close was not achieved until February 2015? Was there a need to achieve Financial Close by February 2015? Are you aware of particular pressure being applied?

68. This decision would have been taken at a high level. I was not involved in that kind of strategic decision making.

By Financial Close, various risk registers recorded that there was a significant amount of Reviewable Design Data, raising a number of risks to the Board. RDD related items were contained in the document titled "Technical Risks to the Board at Financial Close" [item 24] dated 30 January 2015 (A36308810, Technical Risks to the Board at Financial Close - 31 January 2015[51]). To your knowledge did NHSL have any concerns in relation to the volume of RDD?

69. I was not aware that NHSL had any concerns in relation to the volume of Reviewable Design Data. This would have been outside my remit. I was only involved in the M&E and that was limited to when I was asked to comment.

[51] Bundle 10 – Miscellaneous Volume 1 (of 2), Item 13, P87

Did you/Mott MacDonald have concerns over IHSL ventilation strategy?

70. I recall that we did have concerns and frustration due to the lack of willingness on the part of IHSL to develop and correct the anomalies in the Environmental Matrix. I had general concerns over SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[52])** compliance, which I raised, as well as with the overall strategy as I explain earlier in my statement. This was highlighted for example in my paper dated 13 October 2014. This may not have been an exhaustive list of all of the issues present in the matrix at that stage of development prior to financial close. As I say my role was not to undertake a detailed line by line audit of the design. Instead, I would highlight any issues I saw and it was then up to the designer to review their work, update any matters arising, and check and rectify any further issues present.

Why was HFS not asked for advice at this stage, particularly given Graeme Greer's comments about this coming down to a dispute over SHTM requirement, which is HFS area of responsibility?

71. I do not know why HFS was not approached, nor am I aware whether that was something within Mott MacDonald's remit. This would have been well outside my sphere of responsibility.

<u>The Project Agreement</u>

The Project Agreement contains Room Data Sheets (appendix 1 of section 6 (Room Data Sheets) (A36308820 - Project Agreement (appendix 1 of section 6 (Room Data Sheets) of schedule part 6 (Construction Matters))of schedule part 6 (Construction Matters)). The Board's Construction Requirements required Project Co to provide facilities which met the requirements specified in those Room Data Sheets (paragraph 3.6.3, section 3 of schedule part 6) (A40236052, ITPD, Vol 3, Board's Construction Requirements, Revision C,

[52] Bundle 1 Published Guidance, Item 4, P333

dated August 2013). They also required Project Co to provide, as Reviewable Design Data, Room Data Sheets which were not included in section 6 of schedule part 6 (ibid.) To what extent did the set of Room Data Sheets in section 6 of schedule part 6 fall short of a complete set?

72. Once again, the assessment of Room Data Sheets in the Project Agreement was outwith my remit. I do not recall having been aware that any Room Data Sheets had been produced prior to Financial Close, but this was not directly relevant to my role.

Who produced the Room Data Sheets which appear in section 6 of schedule part 6?

73. I believe HLM architects, on behalf of IHSL. I say this because the Room Data Sheets I saw were all labelled HLM. I would not have been specifically aware of this at the time though.

The Room Data Sheets in section 6 of schedule part 6 (A36308820 - Project Agreement (appendix 1 of section 6 (Room Data Sheets) are preceded by lists of "Generic Rooms" and "Key Rooms". What is meant by each of these categories?

74. My understanding is a Generic Room is a room that is repeated throughout other departments and may include Nurse Base, Clean Utility, Dirty Utility, Single Rooms and En-suite etc. Key rooms are unique rooms and may include different Operating Rooms by speciality, Radiology Rooms etc. The specialities may have different types of theatres depending on their requirements. Radiology rooms may differ such as CT or X-rays where a specific clinical function takes place.

The lists provide a "Code" and a "Room Number" for each room description. What is the function of these codes and numbers?

75. The Code is normally the department code while the Room Number usually comprises the floor level, the department code and a room number e.g. G-D8-001 as ground floor, Social Work, room 001, Open Plan Office.

Issues of non-compliant (or at least arguably non-compliant) ventilation systems later arose on the project. Which (if any) of the Room Data Sheets in section 6 of schedule part 6 (A36308820 - Project Agreement (appendix 1 of section 6 (Room Data Sheets) are pertinent to those issues? To what extent did the issues arise in relation to rooms for which there was no Room Data Sheet at financial close?

76. I was not aware of these Room Data Sheets at Financial Close and therefore cannot comment.

The Room Data Sheets in section 6 of schedule part 6 (A36308820 - Project Agreement (appendix 1 of section 6 (Room Data Sheets) carry the logo of the Department of Health and the label "Activity Data Base". To what extent did the data in those data sheets (in particular, the ventilation parameters about air changes and pressure) derive directly from information in the Activity Database? Did Mott MacDonald check the contents against the database? If any of those parameters are different from those in the database, how and why are they different?

77. I was not involved in this aspect of the project. I do not know if Mott MacDonald checked the contents against the database as this was not part of my own remit. Certainly it was not my understanding of Mott MacDonald's role, that we undertook any checks of that nature as we were not designers. I do not believe that anyone at MML would have done such checks.

The Project Agreement includes an Environmental Matrix (A36636547 - Project Agreement (appendix 2 of section 6 (Room Data Sheets) of schedule part 6 Construction Matters). The Board's Construction Requirements required Project Co to comply with the Environmental Matrix (paragraph 8 of section 3 of schedule part 6) (A40236052, ITPD, Vol 3, Board's Construction

Requirements, Revision C, dated August 2013). "Environmental Matrix" was defined to mean that matrix, "as varied, amended or supplemented from time to time in accordance with the Project Agreement". At the ITPD stage the Environmental Matrix is described as a non-mandatory, or indicative, element of the reference design, provided to inform the bidders' development of room data sheets. If the environmental matrix was non-mandatory, or indicative, why did the Board's Construction Requirements require compliance with it?

78. I am not in a position to provide an answer to answer this question as I was not involved in preparing the ITPD or contract documents.

The following questions relate to the environmental matrix in the form in which it appears in the Project Agreement at Financial Close. The environmental matrix constituted Reviewable Design Data, by virtue of part 4 of section 5 of schedule part 6 (A33644029, Reviewable Design Data), and was therefore subject to the review procedure under clause 12.6 and schedule part 8. The entry in section 5 of schedule part 6 relating to the Environmental Matrix appears in a table at page 114 (A36308820 - Project Agreement (appendix 1 of section 6 (Room Data Sheets) of schedule part 6 Construction Matters), where certain Board Comments are recorded in relation to it. This indicates that the Environmental Matrix was Reviewable Design Data only insofar as necessary to meet the particular Board Comments set out in that table. Does that reflect your understanding?

79. I was not aware of the extent to which the Environmental Matrix was Reviewable Design Data at financial close though I recall that I was informed that it was Reviewable Design Data at some stage. My role was only to review the design documentation which was passed to me to consider. Matters relevant to the overall structure of the project were above my pay grade.

Amongst the Board Comments are the following: "The Environmental Matrix shall by [sic.] updated by Project Co to reflect all the rooms and room types in the proposed Facility, this should be based on an updated Schedule of Accommodation that has been commented on separately by the Board. This

also needs to reflect the names and room numbers in the GSU table." Please explain this comment.

80. The design and the Environmental Matrix have to be developed at the same time for consistency. They have to mirror each other to ensure they are aligned. This requires the architect(s) preparing the Room Data Sheets to work alongside the designers.

Why was there a need to update the Environmental Matrix to reflect all the rooms and room types?

81. The Environmental Matrix required to be consistent with the developing design as I say above. The initial Environmental Matrix would not reflect all of the rooms in the hospital and so it would need to be developed along with the design.

Please explain what is meant by the following:

(a) The "updated Schedule of Accommodation that has been commented on separately by the Board"

82. The schedule of accommodation is maintained by the architect. The board would comment separately on the schedule of accommodation and then comment separately on the Environmental Matrix.

(b) The "the names and room numbers in the GSU table"

83. This is outside my area of expertise.

"Include the requirements contained in the Clinical Output Specification …" What is meant by "the Clinical Output Specification"?

84. Every Department has its own clinical specification that describes in detail what they do and what they need to fulfil their clinical operations.

Is it a reference to the Clinical Output Based Specifications contained in Sub-Section D (Specific Clinical Requirements) of Section 3 (Board's Construction Requirements) of Schedule Part 6 (Construction Matters) (A40236052 ITPD, Vol 3, Board's Construction Requirements, Revision C, dated August 2013)?

85. I believe so.

If so, are any of the contents of these specifications pertinent to the ventilation issues which later arose?

86. I am unaware of whether the content of these specifications had any impact on the outcome.

Please explain this comment: "Detailed proposal awaited on bedroom ventilation to achieve balanced/negative pressure relative to corridor."

87. I understand this to have been a holding statement to the effect that the Board was awaiting further design development.

Is it pertinent to the ventilation issues which later arose?

88. It indicates that the Board were expecting further design development to comply with SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[53]),** but I can't say whether it was relevant to ventilation issues which arose later.

The following entry in the table states: "Project Co shall update the Schedule of Accommodation to reflect all of the individual elements of the proposed Facilities in accordance with Good Industry Practice" (in part 4 of section 5 of

[53] Bundle 1 Published Guidance, Item 4, P333

schedule part 6) (A33644029, Reviewable Design Data). Please explain this comment.

89. This would be an architectural aspect so outwith my area of expertise.

What impact, if any, would it have on the Environmental Matrix?

90. It would need to be updated to reflect any changes to align the Schedule of Accommodation with the Environmental Matrix.

The environmental matrix is apparently divided into three sections: a set of Guidance Notes; a Room Function Reference Sheet; and a table of environmental parameters for particular rooms, organised by department. What was your understanding of the function of each of these parts?

91. Guidance notes are exactly that: an introduction to and summary of the requirements. In developing their own Environmental Matrix, I would have expected ProjectCo to have had regard to the Guidance Notes in the first instance, and to start from there as a guide to the overarching requirements. As far as I can recall, Room Function Reference Sheets give departmental codes and then the table of environmental parameters is the body of the Environmental Matrix which provides the detail.

With reference to the table of room-by-room environmental parameters: To what extent was this a complete and finalised list of all rooms in the hospital?

92. This would be a question for the architect who produced the RDS but it certainly should be a complete set.

Which, if any, of the room-by-room entries are pertinent to the issues of non-compliant (or allegedly non-compliant) ventilation which later arose on the project?

93. It was entries relevant to air changes in Paediatric Intensive Care Unit. I was not aware of this at the time though. I did not undertake a line-by-line check of ProjectCo's Environmental Matrix for compliance. This would have been a very big job and it was outside my role as a reviewer.

Where did the data derive from (in particular, in relation to air changes and relative pressure)?

94. From the designers – IHSL. Specifically I understand that the Environmental Matrix was prepared by Wallace Whittle/ TUV Sud.

Who was responsible for the accuracy of those entries?

95. The designers – IHSL and their sub-consultants, Wallace Whittle/ TUV Sud.

The table includes an ADB Code for each room. What was the purpose of that code?

96. My recollection is that the ADB code is for a specific item within the room; e.g. BMS999 is a BMS sensor, SWC025 is a light switch.

Does it allow entries in the table to be cross-referred to the Room Data Sheets (such as those in section 6 of schedule part 6) (A36308820 - Project Agreement (appendix 1 of section 6 (Room Data Sheets)?

97. Yes, there should be alignment between the Environmental Matrix and Room Data Sheets.

There appear to be inconsistencies between entries in the table and Room Data Sheets at section 6 of schedule part 6) (A36308820 - Project Agreement (appendix 1 of section 6 (Room Data Sheets). For example:

(a) The Room Data Sheet with room code B0305-01 (single bed-room (RHSC)) provides for positive pressure relative to adjoining space; but the entries in the Environmental Matrix with that code require balanced pressure.

(b) The Room Data Sheet with room code B1401 requires positive pressure relative to adjoining space; but the entries in the Environmental Matrix with that code require balanced pressure. Can you comment on these apparent discrepancies?

98. No because I do not recognise those room numbers. That is where the discrepancy may arise. Room code B1401 does not look correct. There is a department B1 and I would expect a G (ground floor) or floor reference beforehand. No such reference is present. B1 is Critical Care and I would not expect 401 rooms in that department.

(c) Do they bear upon the ventilation issues which later arose?

99. I do not know.

(d) Are there other discrepancies, material to the Inquiry's Terms of Reference, so far as you are aware?

100. I am not able to assist with this question from my own involvement in the project.

With reference to the Environmental Matrix Guidance Notes. How did you understand these to relate to the other parts of the Environmental Matrix?

101. It was an introduction and a summary of the requirements. The Guidance Note for critical care states the correct critical care air changes (per SHTM 03-01) **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February**

2013)[54]. I would expect the Guidance Note to be overarching guidance. A designer is not entitled to ignore the Guidance Notes.

The Guidance Notes include the following entries: "This workbook is prepared for the Financial Close stage as an easier reference tool to replace ADB RDS M&E Sheets for the Environmental Criteria elements as described on these sheets". Please explain this Note.

102. This appears to be a statement by the designer to the effect that the Environmental Matrix replaces the RDS sheets for the environmental criteria.

What did you understand to be the relationship between the Environmental Matrix and the Room Data Sheets (that is to say, both the Room Data Sheets in section 6 of schedule part 6 (A36308820 - Project Agreement (appendix 1 of section 6 (Room Data Sheets)., and those to be produced by Project Co after financial close as reviewable design data)?

103. This was outwith my remit, but the Environmental Matrix and Room Data Sheets had to mirror / align with each other.

"The services matrices are produced from the Schedule of Accommodation Sheets". Please explain this note. What is meant by "the services matrices" and "the Schedule of Accommodation Sheets"?

104. My interpretation would be the services matrices would include the Environmental Matrix and the Schedule of Accommodation is that produced by the architects.

Ventilation air change rates and the use of natural ventilation in Patient Areas shall be reviewed throughout the detail design process to ensure a maximum internal temperature of 25C° …" Please explain this note, with particular reference to the review of air change rates and the use of natural ventilation.

[54] Bundle 1 Published Guidance, Item 4, P333

105. This note imposes stricter requirements than those set out in SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[55]).** SHTM 03- 01 states:

> "2.11 Calculations and thermal modelling should be undertaken to ensure that during the summertime, internal temperatures in patient areas do not exceed 28ºC (dry bulb) for more than 50 hours per year taking into account the level of design risk for the application."

Some Boards reduce this figure to 25ºC to improve patient comfort. This is what NHSL are doing by means of this note.

Note 15 refers to SHTM 03-01 (A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[56]). Appendix 1 for air change rates of 10 ac/hr in HDU bed areas and critical care areas. How did this relate to the entries in the table of room-by- room environmental parameters? Which entries in the table of room-by-room parameters concerned HDU and critical care areas?

106. There is a discrepancy between the air changes required in note 15, and those provided for in the room-by-room parameters. The entries relative to critical care are prefixed as "B1".

Corridor ventilation may be either mechanical or where the opportunity exists natural. To be determined during detailed design with due regard to clinical functionality." Please explain this note.

107. A corridor may have the opportunity to have natural ventilation if it has a window to external. If the corridor is designed to have mechanical extract

[55] Bundle 1 Published Guidance, Item 4, P333
[56] Bundle 1 Published Guidance, Item 4, P333

ventilation care must be exercised that this does not have a detrimental effect on the room pressure regimes off the corridor.

Single Room WC – SHTM 03-01 (A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[57]). Appendix 1 suggests 3 ac/hr extract air change rate only. We have applied 10 ac/hr extract rate to provide a more robust rate of extract." Please explain this note.

108. November Bundle page 217 item 7 details the ventilation strategy required to satisfy SHTM 03-01 **(A35610757, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A - Design and validation dated February 2013[58])** which requires extract ventilation from the bedroom. IHSL increased the extract rate from the en-suite but that increase would not achieve their proposed 4 ac/h bedroom air change rate, which would have an adverse effect on the pressure regime of the bedroom in relation to the corridor. Another adverse effect of this design is that extract from the en-suite is classified as dirty extract and does not employ heat recovery whereas extract from the bedroom is clean extract and would be available for heat recovery.

With reference to the Room Function Reference sheet. How does this relate to the table of room-by-room environmental parameters? Do any entries in it bear upon the ventilation issues which later arose on the project? Do you agree that the Environmental Matrix, read together with paragraph 8 of the Board's Construction Requirements (A40236052, ITPD, Vol 3, Board's Construction Requirements, Revision C, dated August 2013) (requiring compliance with the Environmental Matrix), constituted a requirement of the Board? If so, do you agree that it is qualitatively different from a survey report (being a matter of specification rather than information)?

[57] Bundle 1 Published Guidance, Item 4, P333
[58] Bundle 1 Published Guidance, Item 4, P333

109. The Room Function Reference sheet gives the departmental codes. The room-by-room environmental parameters (Environmental Matrix) are grouped by these departmental codes. I am not able to comment on contractual matters as these were outwith my remit.

Clause 12.5 of the Project Agreement refers to "such of Project Co's Proposals as have been initialled by the Board", and provides that those, subject to comments recorded in section 9 of schedule part 6 (A40236052, ITPD, Vol 3, Board's Construction Requirements, Revision C, dated August 2013), satisfied the Board's requirements in respect of Operational Functionality. Where are those initialled proposals to be found?

110. I am not aware of where the initialled proposals may be found.

Clause 12.6 of the Project Agreement provided for Project Co to develop and finalise the design and specification of the Works, and that the Board were to review the Reviewable Design Data. The review procedure was set out in Schedule Part 8. As at financial close, how did you anticipate this process would operate in relation to the Environmental Matrix and the Room Data Sheets? What outcome did you expect?

111. Comments were provided on several revisions of the Environmental Matrix and our expectation was that the designers would develop the Environmental Matrix to compliance. Revision 10 of the Environmental Matrix was supposed to be the outcome of a line-by-line review by TUV SUD, but my recollection is that it was never formally issued. Revision 11 was issued in late 2017.

The Reviewable Design Data was defined by reference to section 5 of schedule part 6 (A32435789- Schedule Part 6: Construction matters, section 5 (Reviewable Design Data)[59]. That document divides the Reviewable Design Data into four categories. The third category includes: Room Data Sheets (item A1); detailed specifications for all mechanical and electrical components (item

[59] Bundle 5- Contract Documents, Item 7, p767

A14); details for the control of infection (item A45); air handling systems (item H8); and ventilation (items I3 and I4). As noted above, the fourth category included the Environmental Matrix. To what extent did these identified elements of the Reviewable Design Data bear upon the issues of non-compliant ventilation which later arose? Are any other elements of Reviewable Design Data, not identified in this question, relevant to those issues?

112. I am not aware of exactly what was classified as Reviewable Design Data and cannot comment on the impact on the outcome.

Section 7 of Schedule Part 6 of the Project Agreement (A33405351- Schedule Part 6: Construction matters, section 7 (Thermal Energy Efficiency Testing Procedure) Excerpt pages 229 to 231)[60] concerns Thermal and Energy Efficiency Testing Procedure. Do you consider this to bear upon in the Inquiry's Terms of Reference? If so, please briefly explain why.

113. The change in the ventilation rate will directly impact the ongoing cost of heating or cooling the facilities. I was involved with another NHS Board who accepted a reduced ventilation rate due to the extent of the increase in those ongoing costs. This is about costs as opposed to safety / infection control. I am not however aware of how this might be directly relevant to the Inquiry's terms of reference.

Page 37, Paragraph 8 of the Board's Construction Requirements (section 3 of schedule part 6) (A33405670, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsections A, B and C Excerpt pages 1 to 149) provides, inter alia: "Project Co shall take cognisance of all the building services implications of the requirements described in Section D (Specific Clinical Requirements) and Sub-Section E (Specific Non-Clinical Requirements) of Sub-section C of the Board's Construction Requirements". Which, if any, of the provisions of the Clinical Requirements in Section D bear upon the ventilation issues which

[60] Bundle 5 - Contract Documents, Item 10, p1479

later arose? (Possibly relevant are B1 (Critical Care) and Cl.4 (Haematology and Oncology Inpatients).

The clinical output specification does not specify what ventilation is to be provided. It refers to Bl (Critical Care) and Cl.4 (Haematology and Oncology patients) and cites SHTM 2025 for ventilation guidance which is superseded. These do not have a bearing on the ventilation issues that arose later. I am not however aware of how this might be directly relevant to the inquiries terms of reference. SHTM 2025 had been superseded by SHTM 03-01 at the time of the project ITPD. SHTM 03-01 Part B Vl (A33662241, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises Part B Operational management and performance verification October 2011 - SHTM 03-01 Part B v1 dated October 2011) was published in October 2011. SHTM 03-01 Part A V2 (A33662259, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A v2.0 - Design and validation dated February 2014) was published in February 2014. Both of these have now themselves been superseded as of February 2022.

The Derogation Register in Project Co's Proposals (A41491821- Schedule Part 6: Construction matters, section 4 (Project Co's Proposals) (Disc 1 of 6: Project Co Proposals)[61] includes entries relating to the Environmental Matrix (entry 33) and Mechanical Ventilation/Air Conditioning (entry 35). The derogation request relating to the Environmental Matrix is at page 3883. It states: "Anomalies within the environmental matrix have been reviewed and proposals incorporated within the room data sheets (refer to schedule for proposed variations). This shall be further developed in conjunction with the board on the basis of the schedule of comments contained in Section 5 (RDD) Part IV". The schedule referred to in that passage does not appear in the bundle. Please exp lain your understanding of these proposed derogations. In what way, if any, do they bear upon the ventilation issues which later arose?

114. I was not aware of the proposed derogations. I do not know if they bear upon the ventilation issues.

[61] Bundle 5 - Contract Documents, Item 6

I believe that the facts stated in this witness statement are true. I understand that this statement may be used as evidence before the inquiry and be published on the inquiries website.

Signed: [redacted]

Date: 22 February 2022

SCOTTISH HOSPITALS INQUIRY

Royal Hospital for Children and Young People/ Department for Clinical Neurosciences ("RHCYP/DCN")

Witness Statement

of DAVID STILLIE

In response to Rule 21 Request dated 8 December 2022 (re-issued 13 December 2022)

I am unable to answer some of the questions raised in the section 21 notice because I was not involved in those matters. Those questions have therefore been omitted from this statement.

Role on the Royal Hospital for Children and Young People/Department of Clinical Neuroscience Project ("RHCYP/DCN project"); including particular area of expertise and the period engaged on the project

1. I am David Stillie, aged [redacted] years. I am a retired architect. I have a Batchelor of Architecture degree with honours from Heriot Watt University/ Edinburgh College of Art. I am a Fellow of the Royal Incorporation of Architects in Scotland and a Member of the Royal Institute of British Architects.

2. I started working at Mott MacDonald in January 1997 and remained with them until retirement. I retired at the end of March 2018 but continued working on the RHCYP/DCN project on a consultancy basis from June 2018.

3. I first became involved in the RHCYP/DCN project as a member of the team on the capital project as NEC Supervisor in Spring 2009. The appointment predated the construction phase of what was at that stage a capital funded design and build project. As the NEC Supervisor provides the compliance inspections during the construction phase it is important that the team has an in-depth understanding of the requirements. My own role was as supervisor for the architecture and building parts of the projects with further multi-disciplinary expertise drawn from Mott MacDonald's team of civil/structural

and building services engineers. I chaired the Delivery Group on the capital project and wrote the early drafts of the brief which, sometime later, after further amendment by others in the Mott MacDonald and NHSL teams, became the basis of the Board Construction Requirements for the NPD project. When the funding route was changed to NPD, NHSL appointed Mott MacDonald as Technical Advisors. Mott MacDonald appointed Davis Langdon to manage the preparation of the Reference Design and they in turn appointed the Reference Design Team. The Reference Design Team was managed by Davis Langdon, and I assisted Davis Langdon with facilitating the preparation of the architectural elements of the design. This included assisting NHSL with reviews of the developing design both between departments and within each department, to ensure that the required operational functionality was achieved, assisting with and minuting architectural reviews of key and generic rooms and chairing Design Team Meetings. I also attended Achieving Excellence Design Evaluation Toolkit ("AEDET") reviews as an observer and meetings with Architecture & Design Scotland ("A&DS") and City of Edinburgh Council ("CEC"). Immediately before the commencement of the procurement stage I collated the information which was available to Bidders in the Data Room as part of the Invitation to Participate in Dialogue ("ITPD") Volume 4.

4. During procurement I attended meetings with the three bidders and their designers and various NHSL teams, including the Clinical and Facilities Management Groups in an advisory capacity. At final tender stage, I prepared the evaluations of the architectural elements of each of the three bids prior to the appointment of the Preferred Bidder. I was only asked to provide an opinion and a score on the elements of the bid allocated to me, not the overall bid. My opinion was that we got three reasonable bids in terms of what I was evaluating. I was evaluating the architectural aspects of the project, of which I had to score approximately seven items. There were other architectural items which were pass or fail and I reviewed those items as well. The architectural elements included the layouts, external envelope, landscape and all the internal fittings and specifications for the architectural elements. I scored my elements of the bid out of 70 and all three bids were within 8 points of one another. The final scores ended up being quite different as weightings were applied to my scores which were then consolidated to give a final score. I was

not involved in any discussions regarding what the weightings should be, nor did I take part in discussions around the consolidation of the scores. I scored the bids against the sets of architectural criteria in the evaluation documents. I attended the competitive dialogue meetings on the architectural, clinical and FM side. My opinion is these meetings went reasonably well and there was no major disagreement. My experience of what was going on was that the only area for innovation from an architectural perspective. was on the design of the non-mandatory elements. This is because the Bidders were provided with the reference design and were expected to develop the interrelationships between the rooms and the departments within the layout of the building. The bids were evaluated for compliance with what we had as a reference design. Bidder C successfully reconfigured the layout illustrated in the reference design to suit their off-site prefabrication system. I am unable to comment on whether this approach was also adopted in relation to the Mechanical and Electrical (M&E) elements or what was said to Bidders regarding innovation on the M&E elements. Colin Macrae assisted with the technical M&E assessment/evaluation. Willie Stevenson and Paul Kelly also were involved towards the latter stages of the evaluation period.

5. Following the appointment of the Preferred Bidder I continued to attend meetings between the Clinical Team and the Bidder's Design Team. I also continued to attend meetings related to catering, equipment, security and CCTV, FM distribution, the helipad and the Arts programme, in all cases in an advisory capacity. I advised on the architectural elements within the Schedule of Derogations. I was aware that there were tensions at a high level, but I was not involved in any discussions between IHSL and the Board which made me think that relations were strained. The meetings which took place were split up by discipline. My meetings were with IHSL's design manager, and their architect and I did not observe any tensions beyond difficult negotiations which are not unusual. I was not aware as to whether the Board was seeking to make changes to the evaluation criteria stated in the procurement documents in the period from the preferred bidder being appointed too financial close.

6. Post-financial close/Construction I worked closely with the Clinical Team and

users to complete the detailed requirements for specific rooms in terms of layout and equipment (the loaded 1:50 drawings). These requirements fell into two categories, those that were considered to be design development and those that were viewed as changes to the brief. This involved changes to the groupings of equipment in specific rooms. For example, if we had a worktop in a room and NHSL decided to change it to a desk this would require financial adjustment and would be considered a change as the worktop would be Group 1 (supplied and fixed by IHSL) and the desk would be Group 3 (supplied and placed in position by NHSL). However, if the worktop was moved to another part of the room, then that would be considered design development. I assisted NHSL in negotiating the final agreed position on each of these items.

7. In addition, I continued to attend meetings of other workstreams and assisted the NHSL teams in understanding the architectural construction information which they received for review from IHSL.

8. During construction I worked with NHSL and IHSL as the design continued to develop in terms of the detailed specifications for internal fixtures and fittings, including on the room mock-ups. As a briefing tool and in consultation with the Clinical team, I also provided free-hand sketch layouts for a few individual rooms and for the Haematology/Oncology Day Care Unit which took the place of the Laboratory Facilities. Later I assisted with quality reviews of the building works and assisted the NHSL team with their programme of room inspections. This group did not have the technical knowledge nor the equipment to test the building services installations. These installations were tested separately by suitably qualified building services engineers from NHSL and IHSL with engineers from Mott MacDonald in attendance. I continued to assist the NHSL room inspection team leading up to the time of the cancellation of the building occupation. Working closely with the clinical team and users I prepared the key suiting schedule and, on behalf of the NHSL Fire Officer, I carried out surveys of the locations of various fire alarm sounders, break glass points, smoke vents, fire extinguishers, fire doors etc. to allow comprehensive as-built fire drawings to be prepared.

9. I retired in March 2018 and continued to work for Mott MacDonald as a Consultant on the RHCYP/DCN project, providing information to the MML team as and when required. Most recently I have been assisting MML in responding to questions from the Inquiry. I do not carry out any other architectural work.

Procurement Process – The ITPD

The assessment criteria were based on a mix of price and quality with a 60/40 split in terms of price/ quality. Did you or anyone else from Mott MacDonald express any concern as to the split with a focus on price?

10. When carrying out the review of bids I was told there was a breakdown of 40% for quality and 60% for costs. I cannot recall how much of the 40% was attributed to the architecture for the RHCYP/DCN project. I only evaluated a number of architectural items – approximately seven items. I recall there were discussions regarding the split. Richard Cantlay, Andy Duncan and Andrew Scott at Mott MacDonald spoke with NHSL and Davis Langdon about this. In my experience 60/40 splits were quite normal for other design/build and PFI contracts at the time; generally, the marketplace had a 60/40 split. I do not recall contributing towards discussions about the split and recall that the conversations I was involved in regarding the split tended to be high level rather than on a more detailed technical level.

The assessment criteria were based on a mix of price and quality with a 60/40 split in terms of price/ quality. In your experience was this usual?

11. 60/40 (price/quality) from my experience was normal at this time for PFI and for design build projects in other sectors and the RHCYP/DCN project was no different. I have been involved in various different contracts and 60/40 was a commonly seen split in design/build and PFI contracts that I saw as designer and in technical advisor roles for funders.

The Inquiry understands that it was for NHSL to determine the elements that would make up the overall Quality score during tender evaluation, as well as the weightings given to the scored elements within the Quality score. Workshops were held involving the broader management team within NHSL,

and the Project Team including NHSL's advisors. Were you or anyone else from Mott MacDonald involved in these workshops? If so, (a) can you describe what happened during these workshops? (b) Can you describe why M&E engineering was given a lower weighting than other elements.

12. I was not involved in weightings workshops. I was involved in evaluations given to scored elements insofar as I fed in the individual evaluations on the architectural side. I was not asked to contribute in any way towards the evaluation of the M&E engineering services.

Bundle item 20, page 1648 – 'Technical Risks for Financial Close' dated 25 August 2014 (A36308781 – Technical Risks for Financial Close – 25 August 2014)[1]. We have been advised by other witnesses this appears to be a Mott MacDonald generated risk register. Is that correct? Do you recognise this as a Mott MacDonald risk register?

13. I was aware the registers existed as I had put forward some of the items on the risk register to MML's project managers. I raised a few issues which related to architecture and construction which I thought needed to be resolved. I am unable to confirm whether this particular risk register is a Mott MacDonald document as it does not appear to be branded as a Mott MacDonald document.

There seemed to be real tensions between NHSL and IHSL in the last quarter of 2014 with the project not progressing smoothly or as quickly as anticipated. What is your understanding of the root cause of these tensions and when did you become aware of the situation?

14. A number of the Mott MacDonald team were working alongside NHSL in the same room, so we had awareness of what was going on in other workstreams, but this was not a detailed understanding. I recall the tension between NHSL and IHSL surrounded the level of detail that NHSL was asking IHSL to prepare, and IHSL was pushing back against these requests claiming that NHSL was asking them for far more detailed design than they had been asked for on other projects. I am not sure what level of detail IHSL had been asked

[1] Bundle 10 – Miscellaneous Volume 1 (of 2), item 10, p.75

to provide on other projects, but their perception was that they were being asked to provide more detail to NHSL than they had been asked for elsewhere in other projects. I don't recall IHSL saying the level of detail required by NHSL was more than appropriate, it was just more than they had been asked to provide in other projects and every project is different. It was in NHSL's interest to gain as much information as possible from the bidder prior to Financial Close as they had to be comfortable with what they were signing up to. I am unable to advise as to whether

NHSL were requesting information beyond what was stated in the procurement documentation as this is far broader than my remit on the project.

Many issues appeared to remain unresolved into early 2015. However, NHSL proceeded to sign a contract. Can you offer any insight as to why NHSL were comfortable with doing so given the significance of the project and the sums of money that were being committed? Were Mott MacDonald asked to provide input or advice in the period up to financial close in relation to issues with the preferred bidder, for example in relation to the failure to produce 100% of room data sheets by financial close?

15. I do not consider myself to be in a position to comment on NHSL's comfort levels when signing the contract. Mott MacDonald would have been asked for input in their role as technical advisor but again I cannot recall what advice was provided. NHSL may have been comfortable with the situation if there were sufficient risk mitigations in place.

16. The fact that 100% of the room data sheets were not available by Financial Close was a strategic decision as far as I am aware. A decision was made to proceed without 100% of room data sheets in place and I suspect that was negotiated between NHSL and IHSL as they could be submitted for review through the reviewable design data procedure. I was not involved in the decision to proceed without 100% room data sheets in place nor on advising NHSL on this matter. I was not involved in any discussions as to which rooms would have room data sheets submitted. This question may be better directed towards Graeme Greer.

Problems with the Environmental Matrix (EM) that were highlighted before Financial Close

Discrepancies in the EM were identified by your colleague Colin Macrae before financial close (bundle item 11, p.1433) (A35614364 – G. Greer to Brian Currie – Single Room Ventilation (with attachment) 13 November 2014)[2]. These concerned single bed rooms rather than multi-bed rooms in critical care. However, the detail at this stage of who was involved and what was decided is hazy. The key point is that a problem had been identified yet there seems to be no wholesale reappraisal of the project. Rather, NHSL proceeded to sign a contract. This needs to be explored. What are your recollection of events? Should this mis- understanding have prompted a review/reappraisal of the project and more in-depth review of room data sheets to ascertain if any other misunderstandings had arisen in

relation to SHTM requirements or indeed whether the contract should have been signed at all?

17. I 'reported up' so these questions may be better directed towards Graeme Greer or Kamil Kolodziejczyk (also formerly of Mott MacDonald and now at NHSL) who discussed matters with Brian Currie of NHSL. I may have been copied into emails for information purposes but not for more than that. I was not involved in a strategic capacity as this would have been beyond the scope of my responsibility.

NHSL appear to wish the ventilation system not to rely on opening windows. However, throughout the procurement exercise a mixed mode system was promoted. The issue is flagged in a series of emails originating with Mott Macdonald, see bundle item 11. On 13 November 2014 Graeme Greer, (Mott MacDonald) forwarded an email to Brian Currie (NHSL) (A35614364 – Email – G. Greer to Brian Currie – Single Room Ventilation (with attachment) 13 November 2014)[3]. Mr Greer stated: *"Further to the Environmental Matrix ….. Might be worth raising this again at the RDD meeting?"* What was the issue

[2] Bundle 8 - Scoring & Correspondence Regarding Issues, item 17.i), p.69

[3] Bundle 8 - Scoring & Correspondence Regarding Issues, item 17.i), p.69

that was emerging here and what were your concerns/ NHSL's concerns? How were these issues resolved in the 3 month period leading up to signing of the contract/ Financial Close.

18. I was not involved in this. I was aware that NHSL was concerned from sharing an office with them. I recall the guidance did not allow for opening windows and also there was an issue with maximum temperatures in rooms during the summertime without opening windows. This was to be included in risk registers and reviewable design data. My understanding is that NHSL and IHSL came to a compromise position which allowed them to sign the contract. I was not aware of the other details of the compromise that was agreed but opening windows were installed.

The Inquiry has been provided with the following extract but not a full copy of minutes or detailed context. We understand a meeting took place on 19 November 2014 and related to a Healthcare Associated Infection (HAI) – System for Controlling Risk in the Built Environment (SCRIBE) ("HAI-Scribe") where the following was recorded:

2.2.	Is the ventilation system design fit for purpose, given the potential for infection spread via ventilation systems?	Yes		No	x	N/A	
		Some concern has been raised in relation to a potential issue with ventilation with regard to negative/balance pressure in single bed rooms. Awaiting drawings and further information to fully understand if there is a risk/issue					

Were you aware of this meeting? If so, to whom was the issue escalated and what was the result?

19. I attended that meeting on behalf of Mott MacDonald. The HAI-Scribe of 19

November 2014 **(A35615606 – HAI-SCRIBE report – 19 November 2014)**[4] was prepared by NHSL. It provides at item 2.2: "*Some concern has been raised in relation to a potential issue with ventilation with regard to negative / balanced pressure in single bed rooms. Awaiting drawings and further information to fully understand if there is a risk / issue.*" I understand this resulted in the TUV Sud/Wallace Whittle paper being produced, dated 12 January 2015. I do not consider myself to be in a position to provide MML's view on that document.

TUV Sud/Wallace Whittle (IHSL's sub-contractor) produced a draft report for air movement to single bedrooms dated 12 January 2015, titled "RHSC-DCN Edinburgh Air Movement Report For Single Bedrooms (Draft), (bundle item 18, p.1622) (A34225453 – Wallace Whittle – Air movement Report for Single Bedrooms (draft) – 12 January 2015)[5]. Do you recall having sight of this report and providing comments? Were NHSL satisfied with TUV Sud/Wallace Whittle report?

20. I was copied into an email from Ken Hall at Multiplex on 13 January 2015 (document 1 enclosed: 'Email from Ken Hall enclosing copy of air movement report') **(A42058269 – Ken Hall email enclosing copy of air movement report)**[6] where this report (documents 2 and 3 enclosed: 'TUV Sud / Wallace Whittle air movement report for single bedrooms (draft)' and 'Air flows and room pressures drawings') was sent to Janice MacKenzie at NHSL, with a request for it to be sent to Janette Richards who was the lead HAI-Scribe infection prevention and control nurse. I did not review the report nor provide feedback on its contents as it was being discussed separately by the M&E workstream. I cannot recall Janette Richards' views on the report and expect any comments on air movement/ventilation from Mott MacDonald would have been from Colin Macrae.

<u>Risk Registers</u>

According to the document entitled "Design risks to the Board at Financial

[4] Bundle 10 – Miscellaneous Volume 1 (of 2), item 17,p.283

[5] Bundle 8 - Scoring & Correspondence Regarding Issues, item 15, p.66

[6] Bundle 10 – Miscellaneous Volume 2 (of 2), item 30, p. 902

Close", (bundle item 23, p.1751) (A36308801 – Design Risks to the Board to Financial Close)[7] the risks at 28 January 2015 included the first item which related to ventilation. The risk register bears the Mott MacDonald branding but does not state what the precise issue is nor how the issue would be resolved. The terms of the "current mitigation measures" indicate that this relates to NHSL's response to Wallace Whittle's proposed solution to single bedroom ventilation, which the Board felt was not compliant with SHTM 03-01. Can you expand on what the issues were? What advice did Mott MacDonald provide and what was the proposed approach to resolving?

21. I did not draft the risk register but believe that comments I made were fed into it. These related only to architectural issues. The items I was looking at were along the lines of "*we need the following information…*" and those information requests were inserted into the risk register and reviewable design data. The resolution and mitigation of risks was carried out at a higher level which I was not involved in. Ventilation issues were not part of my architectural input.

What is the purpose of this Risk Register, to whom was it to be shared/escalated?

22. In short, the purpose of the risk register was for NHSL and their governance. My understanding is it was to be shared within NHSL and their Board (and their advisors).

In the period from preferred bidder to financial close, the list of RDD became more extensive than expected, to the extent that it added new risks to the project. Can you explain your understanding of the risks related to RDD? What advice did Mott MacDonald provide to mitigate all of these new risks? Did NHSL take on board this advice to mitigate these risks?

23. The risk register contains notes at the side listing the party with responsibility for resolving issues such as reviewable design data (submissions and reviews). These include responsibilities resting with NHSL and IHSL. I had limited involvement in this document. There were some things like

[7] Bundle 10 – Miscellaneous Volume 1 (of 2), item 11, p.79

specifications for doors that lacked detail which I recall asking for, but my requests generally included requests for further details on materials and quality. I am unaware of the precise advice provided to mitigate risks, but I was aware the risk register involved Mott MacDonald working closely with NHSL.

What was your role in respect of the AEDET and HAI-Scribe reviews? Whose responsibility was it to arrange the reviews?

24. The initial AEDET reviews on or about 12 August 2011 and 8 March 2012 **(A40162544 – AEDET Review – 08.03.2012)**[8] did not involve Mott MacDonald. I have been provided with a copy of AEDET reviews for bidders A, B and C from June 2013. These did not involve Mott MacDonald. In my role as chairing the reference design I was involved with Neil McLennan concerning arrangements for an AEDET review or NDAP that did not happen.

25. I attended the HAI-Scribe on 13 February 2015. Janice McKenzie chaired the meeting and NHSL arranged the meeting. I attach a copy of the records of the meeting (documents 4 and 5 enclosed 'HAI-Scribe meeting minutes of 13 January and 13 February 2015' **(A42058270 – HAI-Scribe meeting minutes of 13 January and 13 February 2015)**[9] and 'Signatures of attendees for HAI-Scribe meeting on 13 January 2015) **(A42058265 – Signatures of attendees for HAI-Scribe meeting on 13 January 2015)**[10].

Did the AEDET assessments that took place before financial close include an assessment of engineering aspects? Was RIBA stage E reached before financial close? At what stage of a project would you expect RIBA stage E to be reached?

26. The AEDET assessments are fairly broad-brush reviews in terms of engineering. There was more of a focus on spatial planning. The AEDET reviews I was involved in did not include people with expertise or a background in building services / M&E.

[8] Bundle 10 – Miscellaneous Volume 2 (of 2), item 34, p.922
[9] Bundle 10 – Miscellaneous Volume 2 (of 2), item 32, p.907
[10] Bundle 10 – Miscellaneous Volume 2 (of 2), item 33, p.921

27. The RIBA Plan of Work Stage E relates to “Technical Design”. We had a pretty good idea of what the design was going to look like before financial close although there were still risks attached to it. I cannot say for certain whether RIBA stage E was reached across all disciplines before financial close but in architectural terms I think it was.

Was a final AEDET assessment done to score engineering? If one was done, who attended?

28. I am not aware of a final AEDET assessment to score engineering. I do not consider myself to be in a position to comment on whether a final AEDET assessment should have been done. This question would be better answered by NHSL.

Can you explain the role of HAI-Scribe in the procurement phase of a project? Is it mandatory before project approval?

29. There are a number of HAI-Scribes during a project. For good management of a project, they would be conducted at various stages during the design stage. I am not certain if they are mandatory for PFI contracts, but I understand HAI-Scribes are required under Implementation Strategy Scottish Health Facilities Note (SHFN) 30: Part B.

Documentary evidence shows that a Stage 3 HAI-SCRIBE review was meant to take place before Financial Close but ‘the right people weren’t there’ and so it didn’t take place on the day it was meant to. Was this workshop rescheduled?

30. I believe this relates to the pre-financial close HAI-Scribe on 13 January 2015 that was rearranged for 13 February 2015 **(A42058270 – HAI-Scribe meeting minutes of 13 January and 13 February 2015)**, and which I attended. The other attendees were Janice Mackenzie and Janette Richard of NHSL and Ken Hall, Stewart McKechnie and Brian Rutherford of IHSL.

Is AEDET or HAI-Scribe required as part of the business case process? How do they fit into the overall assurance process? Do the results get reported up, or are they simply for design teams to get feedback and make improvements where required?

31. I do not know if they are required as part of the business case process as I have not been involved in that aspect of projects. The purpose of AEDETs and HAI-Scribes in my opinion are for design teams to receive feedback. NHSL also used them to inform users as to the broader aspects of the design. The users were focussed on generic and key rooms or 1:50 layouts of their own departments. To an extent it allowed the users to understand how their own aspects of the project fitted into the overall design.

We note that an NDAP was not required for the project due to transitional arrangements in place. Can you confirm whether equivalent or alternative design assessment took place?

32. I do not believe there was a formal equivalent or alternative design assessment carried out. I am aware there was the Atkins review report. The design was being reviewed by users and the operational functionality teams all the way through the project and the design was subject to regular meetings.

Amongst the requirements for NDAP is "Evidence that Activity Data Base (ADB) is being fully utilised during the preparation of the brief and throughout the design and commissioning process." Was an equivalent design assessment implemented to ensure compliance?

33. I believe ADB was used for the equipment lists by NHSL to create lists for the whole building. I do not consider it realistic that somebody would sit down and try to write equipment lists for rooms from scratch. I am unsure if room data sheets were created from ADB for the key and generic rooms. This question should be directed to whoever produced the RDS. If they were, then ADB would provide information like room areas, room functions, finishes, equipment lists and building services information. I am not aware of an equivalent design assessment implemented to ensure compliance as part of NDAP. CEL19 (2010) allows the use of an equivalent to ADB, and a decision was made by NHSL regarding the use of the Environmental Matrix and the separate equipment list which I was not involved in. I am not aware of any advice being given regarding this point or of any specific assessment.

34. During the reference design phase of the project, prior to the issue of the

ITPD, NHSL planned to produce a set of room data sheets to be provided to the bidders. Tribal, who later became Capita, were originally asked to produce these documents but the work was later moved to Hilltron. Prior to the ITPD being issued however, NHSL decided not to proceed with room data sheets at that stage of the project, and to set out the brief in other sources of information instead. This was recorded in an email I sent to Neil McLennan of NHSL on 15 August 2012, noting that NHSL were satisfied that there was a complete set of room information documents for briefing purposes, in the sources of information listed in my email. My email also notes that "the requirement to comply with NHS Scotland design guidance is contained within the D&C Output Specification". I understand that MML holds further documentation bearing on the background to the decision which I recorded in my email dated 15 August 2012.

Was any design assessment done in advance of the Full Business Case? If so, can you explain the format this took?

35. I am aware Atkins undertook a design assessment as an appendix to the Outline Business Case. A copy of their report is included in the May 2022 hearing bundle 3 - governance, volume 2, document 57 (pages 567 – 649).

The register of "design risk at Financial Close" [item 23] (A36308810 – Design Risks to the Board to Financial Close)[11] shows the mitigation proposed for the dispute that had emerged with IHSL, but does not actually flag the risk of non-compliance of single bedroom design proposal, or in fact that there was a differing interpretation of SHTM 03-01 between IHSL and NHSL. Can you provide any further insight to this?

36. I was not involved in this aspect of the project. The register provides a high-level overview of risks.

<u>The Environmental Matrix</u>

Who authorised the use of the Environmental Matrix?

[11] Bundle 10 – Miscellaneous Volume 1 (of 2), item 11, p.79

37. NHSL was the ultimate decision maker in relation to the use of the Environmental Matrix. I wasn't involved in giving advice in relation to the Environmental Matrix or in discussions regarding CEL 19 (2010) or any requirement for room data sheets to be produced using ADB.

What are your thoughts on EM replacing Room data sheets?

38. My understanding is that there was to be both an Environmental Matrix and room data sheets with the Environmental Matrix being produced by the Board and the room data

    sheets being produced by the preferred bidder. I wasn't involved in any discussions regarding the fact that only a limited number of room data sheets had been provided by IHSL or the Environmental Matrix being included within the RDD.

Did any of the bidders raise this ambiguity [in the environmental matrix] during competitive dialogue?

39. I attended competitive dialogue meetings that were specific to architectural/clinical and facilities management discussions. I was not involved in the M&E competitive dialogue meetings or any meetings where the Environmental Matrix was discussed. I do not recall bidders raising this as an ambiguity.

<u>Reference Design</u>

To your knowledge, who within NHSL determined how much detail would be included within the reference design?

40. I do not know for certain but expect it would be the Project Director.

Was that decision taken by the Project Director, Project Board or Board of NHSL decision?

41. Again, I do not know for certain, but it would likely be the Project Director, subject to NHSL's governance procedures.

Where is this recorded?

42. I do not know where this decision was recorded.

Were NHSL and Mott MacDonald briefed on the Reference design prior to the departure of Reference Design Team?

43. To an extent this goes back to the number of review meetings we were involved in. I do not recall a formal briefing prior to departure. The design had changed little from that prepared

under the capital project and we had all been working with the reference design team for the best part of a further year. NHSL and Mott MacDonald worked closely with Davis Langdon (now AECOM) in monitoring the architectural and the M&E aspects of the design. Through numerous separate NHSL workstream meetings we were all up to date with what the reference design contained. That included floor plans illustrating the operational functionality requirements, sections and elevations, layouts for the key and generic rooms and structural and building services information. Broadly speaking the design had reached RIBA stage D, Detail Design. In terms of my involvement, it would be fair to say that with regard to the architectural aspects of the project the team was satisfied with the level of design information available at that stage and that both the mandatory and non-mandatory architectural design information defined in paragraph 2.5, paragraph 2.6 and in Appendix E of the ITPD document **(A34696936 – Draft ITPD Evaluation Criteria – 5 April 2012)**[12] was sufficiently detailed to allow bids to be invited and bidders designs to be developed. I was aware of the Environmental Matrix and its purpose, but I was not aware of its contents, nor did I have responsibility to review or comment on it at any stage.

<u>Financial Close</u>

The Project was due to complete in Summer 2014. This was not achieved. Can you explain why financial close was not achieved until February 2015? Was there a need to achieve Financial Close by February 2015? Are you aware of

[12] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, item 9, p.578

particular pressure being applied?

44. My understanding is that the delay was due to IHSL's designs not being approved by NHSL, but I was not involved in this myself. I am unaware of precise pressure being applied and consider this was an NHSL issue where they may be better positioned to comment.

By Financial Close, various risk registers recorded that there was a significant amount of Reviewable Design Data, raising a number of risks to the Board. RDD related items were contained in the document titled "Technical Risks to the Board at Financial Close" [item 24] dated 30 January 2015 (A36308801 – Technical Risks for Financial Close – 25 August 2014)[13]. To your knowledge did NHSL have any concerns in relation to the volume of RDD?

45. I cannot recall any particular people at NHSL who had concerns in relation to the volume of reviewable design data, but I believe there was a general feeling that there was a considerable volume of reviewable design data. I am not able to give MML's view on this. The RDD lists each drawing submitted to NHSL by IHSL and notes comments against each one. Many have a "no comment" status. Given the number of drawings submitted, I was not surprised by the volume of RDD.

Did you/Mott MacDonald have concerns over IHSL ventilation strategy?

46. I can only refer to the those recorded in the risk register and defer to Colin Macrae on this. As technical adviser for the architectural elements of the project I did not review the ventilation strategy, nor did I have detailed knowledge of the ventilation strategy as it was not part of my remit. It was a matter for the mechanical and electrical engineers.

<u>The Project Agreement</u>

The Project Agreement contains Room Data Sheets (appendix 1 of section 6 (Room Data Sheets) of schedule part 6 (Construction Matters) (A32505840 – Schedule Part 6: Construction matters, section 6 (Room Data Sheets),

[13] Bundle 10 – Miscellaneous Volume 1 (of 2), item 10, p.75

Appendix 1 (RDS Pack)[14]. The Board's Construction Requirements required Project Co to provide facilities which met the requirements specified in those Room Data Sheets (paragraph 3.6.3, section 3 of schedule part 6). They also required Project Co to provide, as Reviewable Design Data, Room Data Sheets which were not included in section 6 of schedule part 6 (ibid.) To what extent did the set of Room Data Sheets in section 6 of schedule part 6 fall short of a complete set?

47. To the best of my knowledge over 50% of the room data sheets were outstanding. The room data sheets we had covered only the key and generic rooms.

Who produced the Room Data Sheets which appear in section 6 of schedule part 6?

48. I was not involved and would not be able to comment with authority.

The Room Data Sheets in section 6 of schedule part 6 are preceded by lists of "Generic Rooms" and "Key Rooms". What is meant by each of these categories?

49. A key room is one that occurs once (i.e., one-off specialists) and its functionality is key. A generic room is a room which may exist in different locations throughout the

building. A good example is a domestic service room (DSR) as a generic room having the same fittings and equipment but in different configurations depending on the shape of each individual space.

The lists provide a "Code" and a "Room Number" for each room description. What is the function of these codes and numbers?

50. I am not certain as I no longer have access to ADB, but the Code is likely to have been lifted from ADB. The Room Number is the room number related to the actual layouts (i.e., 1:200 layouts). Someone reviewing the sheets can see from the room number the department and then the number of the room, including which floor it is on.

[14] Bundle 5 - Contract Documents, item 8, p.882

Amongst the Board Comments are the following: "*The Environmental Matrix shall by [sic.] updated by Project Co to reflect all the rooms and room types in the proposed Facility, this should be based on an updated Schedule of Accommodation that has been commented on separately by the Board. This also needs to reflect the names and room numbers in the GSU table."* Please explain this comment.

51. I believe this relates to adjustments to room areas within the adjusted schedule of accommodation. This reflects adjustments from the reference design through to what was being developed by IHSL.

Please explain what is meant by the following:

(a) The "*updated Schedule of Accommodation that has been commented on separately by the Board"*

52. The schedule of accommodation was constantly being updated throughout that design development stage. These are generally minor adjustments but maintaining a correct and current schedule of accommodation is crucial.

***"Include the requirements contained in the Clinical Output Specification …"* What is meant by "*the Clinical Output Specification*"?**

53. This is part of the contract documents. It relates to the operational issues around the rooms and departments.

Is it a reference to the Clinical Output Based Specifications contained in Sub-Section D (Specific Clinical Requirements) of Section 3 (Board's Construction Requirements) of Schedule Part 6 (Construction Matters)? (A41179262 – Schedule Part 6: Construction matters, section 3 (Boards Construction Requirements), Subsection D Excerpt pages 360 to 780)[15]

54. Yes.

The following entry in the table states: "*Project Co shall update the Schedule of Accommodation to reflect all of the individual elements of the proposed*

[15] Bundle 5 - Contract Documents, item 4, p.341

Facilities in accordance with Good Industry Practice" **(in part 4 of section 5 of schedule part 6). Please explain this comment.**

55. "Good Industry Practice" is a defined term under the project agreement. It is the cornerstone of the whole system of procurement and defined as "*using standards, practices, methods and procedures conforming to the Law and exercising that degree of skill and care, diligence, prudence and foresight which would reasonably and ordinarily be expected from a skilled and experienced person engaged in a similar type of undertaking under the same or similar circumstances*".

What impact, if any, would updating the Schedule of Accommodation to reflect individual elements for proposed facilities have on the Environmental Matrix?

56. It may change the areas of individual spaces and would only add extra lines to the matrix if all individual elements in the Schedule of Accommodation were not already included in the matrix. I would expect there to be no other impact on the matrix beyond that.

The environmental matrix is apparently divided into three sections: a set of Guidance Notes; a Room Function Reference Sheet; and a table of environmental parameters for particular rooms, organised by department. What was your understanding of the function of each of these parts?

57. I am not familiar with the first two parts of the EM but would expect the Guidance Notes to provide an overview of how the matrix is to be read and the Room Function Schedule to provide information on the use/s for each room. I am more familiar with the Table of Room-by-Room Environmental Parameters which provides, amongst other things, details of the specific heating, lighting and ventilation requirements for each room. I had only a passing knowledge of the specific contents of this part of the document until the commissioning period leading up to the aborted occupation date.

To what extent was this a complete and finalised list of all rooms in the hospital?

58. I was not close enough to the Environmental Matrix to say whether it was complete or not. I assume if it was updated regularly to reflect the changes to the schedule of accommodation then it would include all the rooms and spaces in the building.

Where did the data derive from (in particular, in relation to air changes and relative pressure)?

59. I am unaware from where Hulley & Kirkwood derived the data.

Who was responsible for the accuracy of those entries?

60. It would have been Hulley & Kirkwood initially and then IHSL as the design developed.

The table includes an ADB Code for each room. What was the purpose of that code?

61. This refers back to my comments at paragraph 49. The ADB Code would allow the designers to reference the requirements for each room.

Does it allow entries in the table to be cross-referred to the Room Data Sheets (such as those in section 6 of schedule part 6)?

62. Yes, it would. Albeit we did not have all room data sheets at the time.

Are there other discrepancies, material to the Inquiry's Terms of Reference, so far as you are aware?

63. I am not aware of any discrepancies material to the Inquiry's Terms of Reference.

With reference to the Environmental Matrix Guidance Notes. How did you understand these to relate to the other parts of the Environmental Matrix?

64. I need to highlight that in my role as lead technical adviser for architecture I would not have any involvement in the preparation or review of the Environmental Matrix. In all

probability I would not even have seen it, though I may have had passing

knowledge of it. My understanding is that the guidance notes provide an overview of how the information in the matrix should be read and if necessary should prompt the question as to "*which one are we working to*"? in terms of the standards.

The Guidance Notes include the following entries: "*This workbook is prepared for the Financial Close stage as an easier reference tool to replace ADB RDS M&E Sheets for the Environmental Criteria elements as described on these sheets"*. Please explain this Note.

65. The Environmental Matrix provided information to allow the room data sheets that actually applied to the new facility to be prepared. At that stage we were expecting IHSL to produce room data sheets as reviewable design data.

What did you understand to be the relationship between the Environmental Matrix and the Room Data Sheets (that is to say, both the Room Data Sheets in section 6 of schedule part 6, and those to be produced by Project Co after financial close as reviewable design data)?

66. The Environmental Matrix was to inform the room data sheets that we were expecting to receive. This meant as their design developed, IHSL had to update the Environmental Matrix in accordance with the Board's Construction Requirements and project specific Environmental Matrix Reviewable Design Data comments. IHSL also had a requirement to complete fully populated room data sheets for all rooms which reflected their developed design and submit them through the review procedure. In preparing the updated Room Data Sheets, I would have expected the designers to have had regard not only to the Environmental Matrix, but also to the Activity Data Base and their own previous experience and expertise. In the event that there is a discrepancy between the Environmental Matrix and the room data sheets produced using ADB it should have been flagged for discussion by IHSL. The BCRs contain a clause that the most onerous guidance should take precedence.

"*The services matrices are produced from the Schedule of Accommodation Sheets".* Please explain this note. What is meant by "*the services matrices"* and "*the Schedule of Accommodation Sheets"*?

67. My understanding is that the services matrices are the room-by-room environmental parameters, and the schedule of accommodation sheets are the separate lists of all the rooms with their department and location within the building and includes their areas. The schedule of accommodation forms the basis for the spreadsheet to which the room- by-room environmental parameters are added.

With reference to the Room Function Reference sheet. How does this relate to the table of room-by-room environmental parameters? Do any entries in it bear upon the ventilation issues which later arose on the project? Do you agree that the Environmental Matrix, read together with paragraph 8 of the Board's Construction Requirements (requiring compliance with the Environmental Matrix) (A32623049 – Schedule Part 6: Construction Matters, section 6 (Room Data Sheets), Appendix 2 (Environmental Matrix)[16], constituted a requirement ofthe Board? If so, do you agree that it is qualitatively different from a survey report (being a matter of specification rather than information)?

68. In terms of the issues around the ventilation, I am unable to answer this question with any certainty and defer to Colin Macrae. With regard to the requirement to comply with the Environmental Matrix, I was not involved in setting out the contractual requirements and defer to Graeme Greer and the wider Mott MacDonald team on this issue.

Clause 12.5 of the Project Agreement refers to "*such of Project Co's Proposals as have been initialled by the Board*", and provides that those, subject to comments recorded in section 9 of schedule part 6, satisfied the Board's requirements in respect of Operational Functionality (A41179209 – Schedule Part 6: Construction matters, section 9 (Agreed Form Board's Qualifications / Comments in Respect of Operational Functionality Requirements)[17]. Where are those initialled proposals to be found?

69. These reflect the 'signed off' drawings by the Board.

Clause 12.6 of the Project Agreement provided for Project Co to develop and

[16] Bundle 5 - Contract Documents, item 9, p.1454

[17] Bundle 5 - Contract Documents, item 11, p.1482

finalise the design and specification of the Works, and that the Board were to review the Reviewable Design Data. The review procedure was set out in Schedule Part 8 (A33405351 – Schedule Part 8: Review Procedure Excerpt pages 236 to 248)[18]. As at financial close, how did you anticipate this process would operate in relation to the Environmental Matrix and the Room Data Sheets? What outcome did you expect?

70. My understanding is that IHSL would update their designs and submit these for review by NHSL (and Mott MacDonald as their technical advisor).

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.

Signed: [redacted]

Date: 22 February 2023

[18] Bundle 5 - Contract Documents, item 12, p.1491

Scottish Hospitals Inquiry

Witness Statement of Donna Stevenson

Written Response to S.21 Notice dated 13 December 2022

A. Reference Design

1. (a) Why did you seek guidance from John Cole in relation to the use of a Reference Design? Did you have concerns around its use?

    i. **My recollection is that John Cole was identified as someone who had previous experience of a Reference Design and he was contacted to enable relevant people within the project to benefit from his experience. My recollection is that his involvement was not around whether we had concerns, it was simply to assist in understanding how a reference design was used based on his previous experience.**

(b) Can the witness provide details on John Cole, her association with him? Does she know if NHSL sought his experience on the use of Reference Design on other healthcare projects?

    ii. **I do not recall having had any association with John Cole previously. I do not know if NHSL sought his experience on the use of Reference Design on other healthcare projects.**

2. Was the addition of DCN adequately integrated into the design? How much of the reference design team's time did this take?

    i. **My remit did not include technical issues. It is therefore not for me to comment on whether DCN was adequately integrated into the design. I am not aware of how much of the design team's time this took.**

3. In relation to recognised roles and responsibilities did the Project delivery structure work well? Can you outline any areas where it did not work well?

    i. **I do not understand the question being asked here. Is the Inquiry asking for comment on the general structure of the project or certain individuals carrying out their role?**

b. The witness is asked if the Project delivery structure worked well in relation to roles and responsibilities. Can she provide comment on the structures in place for decision making and governance? Whether these were standard for the Project and in her own view did they work

well.

i. **NHSL formed a Project Team and advisors were appointed to carry through the Project. There was also a Working Group that I attended, and I recall that this provided updates on the project and an opportunity to discuss current issues.**

ii. **In governance terms there was a Project Steering Board and then the formal governance within NHSL of the Board of NHSL and the Committee of the Board that dealt with the project. My understanding is that the structure was fairly standard within NHSL for the delivery of the project, and I had no issues with this structure.**

4. SFT were directly concerned with the potential of Bidders to innovate and allow for improved value for money. Should this have involved closer scrutiny of what design elements were mandatory and why?

i. **I refer the Inquiry to the KSRs. Section 2, Question 7 of the Pre-OJEU KSR [A33337395 - Pre-OJEU Notice Key Stage Review dated December 2012][1] the question that was asked was *"Please explain the approach that the Procuring Authority is taking in presenting its design and specification requirements to bidders (e.g. use of exemplar or reference designs) and the opportunities available for bidders to propose alternative or innovative solutions. Please demonstrate that this approach is consistent with (i) allowing opportunity for improved value for money through bidder innovation, (ii) allowing scope for value engineering required to deliver the project within the affordability limits (iii) the procurement timetable and (iv) bidder access to project stakeholders during the procurement."***

The answer provided stated as follows: *"the Funding Conditions provide that "the extent of negotiable and non-negotiable elements is developed by the Board on the basis that bidders should be provided with flexibility to propose*

[1] Bundle 10 – Miscellaneous Volume 2 (of 2), item 3, p.13

their own design and engineering solution, within defined parameters, and avoiding the need to open up the clinical adjacencies which has been settled with the Board's clinicians to date and reflecting the constraints in the site as reflected in SA6. The final position is to be reviewed by SFT as part of the Pre ITPD KSR."

In the Pre-ITPD KSR [A33336334 - Pre-Invitation to Participate in Dialogue Key Stage Review dated 07 March 2013][2] at Section 2 Question 4 the same question was asked as noted above and the answer provided was as follows:

"The ITPD, Volume 1 section 2.5 and Appendix E sets out the elements of the Reference Design which is being provided to bidders are mandatory. These relate to the Operational Functionality as defined in the Project Agreement and there are elements of flexibility in relation to non-mandatory elements of the Reference Design."

This reflects the issues that SFT raised around flexibility in the context of Operational Functionality. It was not SFT's role to review the technical specifications or to conduct a technical review. The technical specifications were a matter for NHSL.

a) The witness states that it was not the role of SFT to review technical specifications or conduct technical reviews. This was a matter for NHSL.

How could SFT fulfil its obligations without having some oversight or understanding of technical requirements? And did SFT not have concerns that NHSL could undertake these reviews given that the Reference Design Team (including Hulley and Kirkwood) had been dispensed with?

ii. SFT's role was not to carry out a technical review. It was my role as First Reviewer of the KSRs to ask NHSL the position on the technical elements to allow them to reflect and respond on the issues that were raised. Both myself and the second reviewer would then consider the adequacy of the response in the context of the KSR.

iii. Question 29 of Section 5 of the pre-OJEU KSR [1] I asked NHSL

[2] Bundle 10 – Miscellaneous Volume 2 (of 2), item 4, p.67

to confirm the advisory appointments and NHSL confirmed that "*Mott MacDonald was appointed as the lead consultant and Technical Advisors…They will deliver the following services: NPD procurement advice, facilities management advice and design and construction advice."* NHSL therefore had the benefit of advice from technical advisers in relation to the project including the responses to the KSRs. I note that paragraph 4.14 of the Environmental Matrix Provisional Paper dated 9 December 2022[3] states:

***"Concern around the ability of NHSL to technically evaluate bids when the Reference Design Team departed was raised by Associate Director of SFT Donna Stevenson in the meeting of 26 April 2012 between SFT and NHSL, where the Approach to Reference Design paper was discussed in detail. NHSL's response to the specifics of this point are not available."* I do not recall this meeting, but I note that this took place in April whereas the Pre OJEU KSR [1] was dated December 2012, therefore by the time of the Pre OJEU KSR SFT was satisfied as to the position in relation to technical advisers in the context of the KSR, per Question 29 as referenced above.**

5. Were SFT solely concerned with value-for-money aspects of the project? Was the inclusion of mandatory elements within the Reference Design beyond their remit? Should have SFT have picked up on inconsistencies within the mandatory elements of the reference design?

    i. **It is not correct to say SFT were solely concerned with value for money of the project. SFT had two distinct roles: project assurance and guidance and advice. I would refer the Inquiry to SFT's Role Note [A33918817 - SFT's Role Note, submitted in response to the Inquiry's Request for Information dated 10 February 2021][4].**

In relation to mandatory elements of the Reference Design

[3] See Position Paper bundle
[4] Bundle 10 – Miscellaneous Volume 2 (of 2), item 5, p.113

please see my response to question 4 above, including that it was not SFT's role to review the technical specifications or to conduct a technical review.

a) The witness states that SFT had two distinct roles, project assurance and guidance and advice. Did the witness provide this guidance/advice? If so, in relation to what issues? If not the witness then who did provide this guidance/advice?

ii. **I did provide support and advice, and as noted above, I attended the Working Group. For example, in an email from myself to Brian Currie dated 18 April 2012 [A40310841 - Email from Donna Stevenson to Brian Currie dated 18 April 2012][5] I was providing Brian Currie with support on how to approach the development of the standard form Project Agreement for the ITPD that would be carried out by NHSL's legal advisers. The other advice and guidance route was through Peter Reekie in his role as leader of the NPD programme within SFT and as a member of the PSB and also through Andrew Bruce on financial issues.**

6. Given the departure of the reference design team, were SFT satisfied that NHS Lothian had sufficient technical support to evaluate the bids and sufficient information to enable the process to be carried through effectively?

i. **As part of the KSR process I sought assurances from NHSL that it was satisfied with the measures and support that was in place.**

For example, in the Pre-ITPD [2], Section 5, Question 25 asked whether there was *"an evaluation strategy (including resourcing) in place and has this been approved by the Procuring Authority."* NHSL confirmed that *"Volume 1 sets out the evaluation criteria: see questions 23 and 24 re plan and resourcing. The Project Steering Board has approved the evaluation strategy."*

a) The witness states that during KSR process she sought assurance from NHSL that it was satisfied with the measures and support in place. Can she expand on how assurance was provided? Were NHSL required to evidence measures?

The witness states that within Pre-ITPD (2), question 25 asked whether there was

[5] Bundle 10 – Miscellaneous Volume 2 (of 2), item 10, p.707

an evaluation strategy in place and has it been approved by Procuring Authority. NHSL confirmed that the Project Steering Board had approved the evaluation strategy. Did SFT undertake any assessment of this or were such statements just taken at face value?

i. **I relied on assurances that were provided by NHSL in the KSR, in the context of the knowledge that I would have had about the project and if there were inconsistencies then I believe I would have raised further questions of NHSL. I do not recall if SFT undertook any assessment of the evaluation strategy. I note that NHSL confirmed that it had been approved by the Project Steering Board.**

7. In SFTs view was the assessment of bids a robust and thorough process?
    i. **I was not involved in the assessment of bids process, so I am not in a position to comment.**
8. Did SFT have any concerns around the extent of the Reference Design's mandatory elements?
    i. **I refer to my answer to Question 4 above in relation to the Pre-ITPD KSR [2].**

We did have concerns which were raised and recorded in the Pre- OJEU KSR [1] (this is set out in my response to Question 4 above). We advised that the Procuring Authority required to consider the issue and resolve it before the Pre-ITPD KSR and added a note into the Pre-OJEU KSR that SFT would follow up on how matters had progressed during the Pre-ITPD KSR. When the Pre-ITPD KSR was completed, the concern had been resolved and that is noted in the KSR.

As noted above, SFT did not provide technical advice nor was it involved in technical decision making, we provided guidance from a value for money point of view.

Paragraph 2.5.3 of Volume 1 of the Invitation to Participate in Dialogue (ITPD) volume 1 **(A40236054 – ITPD Volume 1 pp. 17-18 of 250)**[6] states that standard form room data sheets had not been prepared at that early stage. During the competitive dialogue phase, room data sheets were to be prepared by bidders for certain rooms. However, "*all remaining rooms*" required to have room data sheets

[6] Bundle 10 – Miscellaneous Volume 2 (of 2), item 14, p.734

completed before FC.

9. Was this part of an overall intention for the Reference Design to have fulfilled its purpose by FC and for it to be replaced by the preferred bidder's design solution?

    i. **It is not for me to comment on the intention for the Reference Design as this is beyond my remit.**

10. Was a decision taken to deviate from what was stated in the ITPD?

    i. **I am not clear on the question being asked, can the Inquiry please clarify what they are referring to.**

a) The ITPD stated a requirement that the successful bidder provide 100% of Room Data Sheets (RDS) in advance of financial close. Is the witness aware of the decision to dispense with that requirement?

Would such an issue have been a matter of concern to the witness during the KSR reviews?

ii. **In relation to the decision to dispense with the requirement I note that paragraph 18.9.1 of the Provisional Position Paper on Procurement Volume 2[7] dated 21 December 2022 states:**

"The production of room data sheets was discussed at the meeting **[Paragraph 18.9 states this was a Special Steering Board Meeting held on 22 August 2014].** ***The minutes record that:***

"…NHSL and the PB [preferred bidder] had reached agreement on the content of the room data sheets (RDS) the day before, and so the production of RDS could begin and that this was on track for completion by 05/09/14. BC noted that NHSL are comfortable that 100% will not be completed for financial close, although the prioritisation of what was definitely required was still to be agreed."

I note that the response to Question 3 of Section 3 in the Pre FC KSR [4] provides:

"*The Board has confirmed that the technical documentation is at a level of development consistent with the current stage*

[7] See Position Paper bundle

of the Preferred Bidder to Financial Close programme. The Board advises that they are content with the documentation subject to further development through RDD following Financial Close and that the construction proposals are of sufficient detail to provide sufficient certainty to the Board as to what is to be provided and to permit a timely start on site."

11. If so, who took this decision? Why and when was the decision taken?

    i. **I refer to my answer in response to Question 10A above.**

12. With regard to assurance in respect of design development, would you agree that the oversight of Design Development would come from (i) the Pre-preferred Bidder KSR,
(ii) the Pre-FC KSR, and (iii) the information included in the FBC?

    i. **I have commented above in relation to technical matters such as design development, of which SFT had no role in carrying out technical reviews.**

    The KSRs included questions and challenges which were intended to prompt the Authority into considering whether or not it was satisfied that the design had developed to a standard which they were content to move onto the next stage. For example,

    The response to Question 3, Section 3 of the Pre-FC KSR [A33336933 - Pre-Financial Close Key Stage Review - 11 February 2015][8] states that *"The Board has confirmed that the technical documentation is at a level of development consistent with the current stage of the Preferred Bidder to Financial Close programme. The Board advises that they are content with the documentation subject to further development through RDD following Financial Close and that the construction proposals are of sufficient detail to provide sufficient certainty to the Board as to what is to be provided and to permit a timely start on site."*

[8] Bundle 9 – Key Stage Reviews, item 1, p.3

a) The witness states that The KSRs included questions and challenges which were intended to prompt the Authority into considering whether or not it was satisfied that the design had developed to a standard which they were content to move onto the next stage. How were SFT able to robustly assess NHSL responses if SFT had little to no understanding of the technical requirements? Were NHSL statements/responses simply taken at face value with no interrogation of the background?

ii. **If issues had been raised at a commercial level then that could have caused us to ask further questions. It was for NHSL, alongside their technical advisors, to be satisfied as to the technical elements.**

13. Did the programme allow sufficient time to conduct a full evaluation of proposals during Competitive Dialogue?

i. **It is not for me to answer whether the programme allowed sufficient time to conduct a full evaluation, I can only comment insofar as it was dealt with in the KSRs.**

I note that the pre-ITPD KSR [2] Section 5, Question 23 we asked the following question:

"Please demonstrate that a robust and comprehensive project plan is in place and that the project has a clear understanding of all tasks / work streams (including evaluation, clarifications, and approvals) to manage the project through the competitive dialogue, final tender and preferred stages of the procurement."

The procuring authority provided the following answer:
"The Board has provided a table showing the breakdown of responsibilities of each of the project team to lead on the various aspects of dialogue and confirms that this approach is to assist in ensuring that the Board will speak with a "single voice". The Board advises that there is detailed guidance (including task allocated) for the competitive dialogue and evaluation process being developed which will

be completed within 3 weeks: the Board is satisfied that this will be sufficiently early to maintain the competitive dialogue programme."

14. Do you know whether a full evaluation of design proposals was conducted at each stage?

    i. **I was not involved in the evaluation process.**

15. Why was the allocated timescale (particularly for competitive dialogue, assessment of tenders, and the period from preferred bidder to FC) deemed adequate and appropriate? Did SFT have the final say on the timescale for the procurement exercise and, in particular, when competitive dialogue should be closed and when the contract should be signed/ FC should be achieved?

    i. **My understanding is that the allocated timescales were set by NHSL as Procuring Authority following any discussions that it may have had. NHSL would advise us that it was ready to close dialogue, for example, and we would then review that as part of the KSR as to whether or not it was appropriate for the project to move onto the stage.**

b. The witness states that it was her understanding that the allocated timescales were set by NHSL following any discussions that it may have had. This does not accord with evidence obtained from other witnesses to the inquiry. We have heard that SFT sought to shorten the period allocated for competitive dialogue. Can the witness comment on this and why SFT were looking to shorten this period?

    i. **The reference to discussions in my response above includes discussions that NHSL might have had with SFT or at the Project Steering Board. In an email from me to Brian Currie on 24 October 2012 [A40787599 - Email from Donna Stevenson to Brian Currie dated 24 October 2012][9] which is also referenced in the Procurement Position Paper Volume 1 dated 21 December 2022[10] paragraph 6.5.6, I set out a number of issues including as to timescales within the procurement which we considered required to be discussed at an upcoming meeting between NHSL and SFT.**

[9] Bundle 10 – Miscellaneous Volume 2(of 2), item 11, p.717
[10] See Position Paper bundle

ii. **I can see from the minutes of the PSB held on 9 November 2012 [A32676792 - Project Steering Board Meeting Minutes dated 9 November 2012][11] that there was a discussion among NHSL, SG and SFT on whether to shorten the period for competitive dialogue. I note that the minutes state that the proposal to shorten the period from 209 days to 155 days was proposed by Brian Currie. The minutes go on to say "*after much debate, all present unanimously agreed to adopt the compressed programme.*"**

16. With respect to the document, "Capital Investment Group - Draft Business Case Checklist - IA OBC [Outline Business Case] FBC [Full Business Case] - For Discussion - December 2011" **(A36382816 - Capital Investment Group Draft Business Case Checklist, IA OBC FBC For Discussion - December 2011)[12]**. This document suggests that one of the questions for the Capital Investment Group ("CIG") is whether "*the NDAP's [NHS Scotland Design Assessment Process] response about the design assessment process been taken into consideration?"* **(A36382816 - Capital Investment Group Draft Business Case Checklist, IA OBC FBC For Discussion - December 2011)[13]**.

17. We note that an NDAP was not required for the RHSC/DCN project due to transitional arrangements in place. Can you confirm the CIG did not take into consideration any alternative or equivalent design assessment?

    i. **I cannot answer this question.**

B. Procurement

1. Following a number of design options being proffered by NHS Lothian advisers, Davis Langdon and Mott McDonald, the decision was taken to Mandate Clinical Functionality. With this option the design would be developed to a stage necessary to fix clinical functionality which would then be released to bidders. The clinical functionality elements would then be mandated in the ITPD and bidders would not be permitted to depart from them. Is this approach a departure from what normally

[11] Bundle 10 – Miscellaneous Volume 2(of 2), item 12, p.721
[12] Bundle 10 – Miscellaneous Volume 1 (of 2), item 14, p.111
[13] Bundle 10 – Miscellaneous Volume 1 (of 2), item 14, p.111

happens in a PPP type project? Did SFT agree with this approach?

i. **My understanding is that SFT produced the standard form agreement, and the concept of Operational Functionality was contained within that standard form but the definition itself was blank. The concept of Operational Functionality was therefore agreed by SFT however the specific content of Operational Functionality itself was a matter for the Procuring Authority. I refer to my response to question 8 of Section A above regarding Operational Functionality.**

2. The NPD Project Agreement included project specific amendments, which had been pre-agreed by the Board and SFT. Bidders were encouraged to accept positions within the NPD Project Agreement, which reflected SFT's standard form project agreement. Any proposed bidder amendment to the NPD Project Agreement would be a derogation, which required the approval of SFT. To your knowledge were there many derogations?

i. **I was not the individual who dealt with derogations within SFT for this project and I am therefore not in a position to say how many derogations there were on this project.**

a) The witness states that she was not the individual who dealt with derogations within SFT for this project. Can she advise who was?

ii. **The derogations process for this project from the Standard Form was carried out by Julia Kennedy, who left SFT some years ago. I have referred above to the support that I provided in relation to the development by NHSL's legal advisers of the standard form to be project specific to ITPD, which can be seen in my email to Brian Currie dated 18 April 2012 [11]. (see Question A5 above).**

3. What was your role on the Project during the procurement stage? Please outline your reporting line within SFT?

The witness states she provided guidance to the Project team (within SFT remit) throughout the procurement and in particular between the decision to procure the project using the NPD model and issue of the OJEU. Can the witness advise what guidance she provided? The witness advises that she had other additional responsibilities within SFT. Can she clarify? Were these out with the RHCYP/DCN project?

I spent time at the beginning of the project focusing on the land separation and interface issues with the RIE PFI project, this was all dealt with in SA6 with Consort. I did not have a formal role in the negotiations and the decisions were all made by NHSL, but I was involved in providing commercial support to NHSL in the discussions with Consort. I also provided guidance to the Project Team (within SFT's remit) throughout the procurement and in particular between the decision to procure the project using the NPD model and issue of the OJEU.
I provided commercial support in relation to the procurement phase, including for example providing the form of Pre- Qualification Questionnaire, but I did not produce the procurement documents, that was NHSL. A good example of the support and guidance I was providing can be seen in my email to Brian Currie dated 18 April 2012 [11].

As the project progressed forward, I was the primary reviewer in relation to the KSRs.

My reporting line was to Peter Reekie in relation to the RHCYP/DCN project during the procurement phase. My line manager varied over time as I had other additional responsibilities within SFT.
My principal role at SFT for many years, in addition to the role that I played in the NPD Programme, relates to commercial support provided to public bodies in relation to operational PPP contracts.

4. Were you a member of the Project Team? If not, how closely did you work with the Project team?

    i. **I was not a member of the Project Team. I recall attending the Working Group meetings. I also had a number of meetings with members of the Project Team, consistent with my role as noted in my response to question 3 above**.

5. As a reviewer of the Key Stage Reviews ("KSRs") should your role be separate to those working on the Project?

    i. **The "Validation of Revenue Funded Projects: The Key Stage Review Process Information Note to Projects dated December 2011" [A40787624 - Validation of Revenue Funded Projects: The Key Stage Review Process Information Note to Projects dated December 2011][14] states that *"The reviews will be carried out at no cost to the Procuring Authority by the member of the Scottish Futures Trust team who normally provides support to the project (Reviewer)."* My role on the project was therefore consistent with what was set out and envisaged by this guidance.**

b) The witness states that her role on the Project was consistent with what was set out and envisaged by the guidance contained in The "Validation of Revenue Funded Projects: The Key Stage Review Process Information Note to Projects dated December 2011". However in an email between the witness and Andrew Bruce, SFT on 07/09/2011, she states "In general it remains our intention to employ separate staff to carry out Key Stage Reviews than those involved directly in supporting the project". Can the witness explain why this is contrary to the KSR guidance dated December 2011?

6. **I note that my email is dated September 2011 and predates the December 2011 guidance. A subsequent document, titled 'Project Assurance' dated May 2013 [A37653377 - SFT Project Assurance Guidance dated May 2012][15] provides that *"SFT resources KSRs by assembling a small team internally to undertake each review. These review teams normally consist of individuals not directly involved with the specific project."* The guidance then goes on to say *"…. in line with SFT's evolving approach to supporting the revenue funded investment programme the approach to carrying out validation was remodelled during 2011 to remove the burden on project teams in providing additional background information together with completed KSR checklists to reviewers unfamiliar with the specific circumstances of each project. These KSR checklists are now completed by the relevant***

[14] Bundle 10 – Miscellabeous Volume 2 (of 2), item 6, p.121
[15] Bundle 10 – Miscellaneous Volume 2 (of 2), item 13, p.726

SFT staff member as part of his or her ongoing project support role."

7. Scottish Ministers questioned whether there was a potential conflict between SFT's advisory role on the Project Board and its role in project assurance/review. Were you aware of this challenge at the time? In your opinion did this constitute a conflict of interest?

    i. **I do not recall whether I was aware of the Scottish Ministers questioning whether there was conflict arising from SFT's role in the project. I am aware there were discussions regarding the roles predating the guidance being issued. As noted at question 5 above, the Validation of Revenue Funded Projects guidance [5] provided that the reviewer be the person who normally supported the project. I did not consider that to give rise to a conflict of interest.**

8. How would you describe relations between SFT and NHS Lothian in the procurement stage of the Project?

    i. **So far as I am concerned, I do not recall any particular issues between myself and NHSL.**

9. Why did NHS Lothian and SFT choose to issue an ISFT to three bidders, including IHSL, particularly considering the time pressure, and relative quality of the three bidders?

    i. **I do not recall being involved in that decision and cannot comment.**

10. Your colleague Gordon Shirreff raised the possibility of "down selecting" to one bidder. Can you explain why this option was proposed? Did NHS Lothian have the final say?

    i. **I do not recall being aware that Gordon Shirreff raised the possibility of 'down selecting' to one bidder, I am therefore unable to comment further.**

11. What is the purpose of the Tender evaluation? What involvement did you personally/SFT have in this process?

    i. **I am aware that SFT produced guidance on tender evaluation but I did not have any involvement in that process. If the Inquiry would like a comment on SFT's overall involvement in that respect then Peter Reekie is best placed to answer that on behalf of SFT.**

12. How was the approach to 'needs not wants' reflected in the tender evaluation

criteria? For example, what elements of the submissions were determined to be a ‘need’ and a ‘want’ and how was this decided?

i. **I was not involved in this process so I cannot comment.**

13. Did you engage with NHS Lothian’s financial advisors, Ernst and Young, on the evaluation framework for the final evaluation of bids? If not, did you have an understanding of the approach agreed? Were SFT satisfied that this criteria accorded with NPD requirements?

    i. **I think there was various correspondence with Ernst and Young that I was copied into, but the financial side was largely dealt with by Peter Reekie and Andrew Bruce. I had an understanding of the headline approach that was being taken. In relation to the last question, I am not the correct person to provide an answer to this. Peter Reekie is better placed to answer.**

14. What is the purpose of Competitive Dialogue?

    i. **I am not the correct person to provide an answer to this. Peter Reekie is better placed to answer.**

15. What role did you play in the Competitive Dialogue phase?

    i. **I do not have any recollection of attending any competitive dialogue meetings. My recollection is that during this process I would have continued to have a support role. I was the first reviewer for all of the KSRs.**

16. What role, if any, did you have in assessing bids?

    i. **I had no role in assessing bids.**

17. SFT were keen to reduce timescales. You suggested areas where NHS Lothian could look to shorten the programme, which included shortening the period for Competitive Dialogue, evaluation period of PQQ, a reduction in timescale for return of tenders and evaluation and in the dialogue and draft final tenders process. Why was this necessary? Was any potential adverse impact on the Project considered?

    i. **Peter Reekie is best placed to answer this.**

18. Did the use of a Reference Design allow for a thorough assessment of bids in terms of quality?

    i. **This is outside of my scope and I cannot comment**

19. Did SFT consider Reference Design technical specifications to fall within their remit, in relation to value for money considerations?

i. **The review of technical specifications did not fall within SFT's remit. I would refer the Inquiry to question 10 in Section E below in relation to the remit of the Atkins review.**

20. Why was M&E awarded such a low element of the assessment score? Did SFT highlight any concerns in relation to M&E scoring?

i. **This was outside of my scope and is therefore not appropriate for me to comment on. This would have been a matter for NHSL.**

18. Were SFT only concerned with value-for-money aspects of the project? Did SFT have sufficient technical expertise to pick up on inconsistencies within the Reference Design?

i. **I have dealt with this answer above. SFT was not solely concerned with value for money of the project. SFT had two distinct roles: project assurance and guidance and advice. I would refer the Inquiry to SFT's Role Note [3].**

SFT did not carry out a technical review of the Reference Design.

C. SFT's Role in Assurance

1. Do SFT have authority to stop a Project from progressing? If so, please outline the circumstances in which this could potentially happen?

i. **The funding letter [A33046853 - Funding Letter, dated 22 March 2011][16] says:**

"SFT will review and provide support to CIG in its' consideration of both the Outline Business Case and Full Business Cases for the project. Such comments will include whether, from our perspective, there are any issues that should be rectified prior to the approval of the business case."

In relation to KSRs, the Validation of Revenue Funded Projects: The Key Stage Review Process Information Note to Projects dated December 2011 [5] states that *"The Project Sponsor and/or SG will, as part of its overall sign-off, determine whether and on what basis the project should*

[16] Bundle 10 – Miscellaneous Volume 2 (of 2), item 7, p.126

proceed to the next stage taking into consideration any recommendations made in the KSR Report." **It goes on to say that** ***"The relevant Project Sponsor and/or SG will receive a completed KSR report at agreed stages aligned with their normal sign off processes. The Project Sponsor / SG will need to consider the report and decide what, if any, action is required before the project can proceed to the next stage. Procuring Authorities are required to seek formal approval from the relevant Project Sponsor and/or SG following each KSR before proceeding to the next stage."***

In considering relevant issues at each KSR one would consider whether it was an issue that is of such materiality as to impact on the project being able to proceed or materially affect the procurement or project outcomes.

On the other hand, there could be other issues that could either be resolvable before the KSR was to be finalised or alternatively by way of a recommendation in the KSR itself.

a) The witness states that In considering relevant issues at each KSR one would consider whether it was an issue that is of such materiality as to impact on the project being able to proceed or materially affect the procurement or project outcomes. If SFT failed to endorse responses provided by procuring authority what would be the repercussions?

ii. **KSRs were the product of discussions I had with NHSL and I would share the KSR with NHSL before it was finalised to ensure the responses were accurate. If SFT failed to endorse responses provided by the procuring authority then I would expect there to be further discussion to clarify any areas that required clarification so that the KSR could be completed.**

2. Generally speaking, what should happen were SFT have genuine concerns about the readiness of to proceed to the next stage?

i. **The way we tested readiness to move to the next phase was through the KSRs. In the first place any concerns would be discussed and monitored through the KSR process, and we would have sought input from the Procuring Authority to**

resolve the matters such that it could move on (if appropriate), and draft recommendations that would be included in the KSR to monitor progress.

As noted above, the Validation of Revenue Funded Projects: The Key Stage Review Process Information Note to Projects dated December 2011 [5] states that *"Procuring Authorities are required to seek formal approval from the relevant Project Sponsor and/or SG following each KSR before proceeding to the next stage."* In other words, SFT did not have the final sign off.

a) How serious would a concern need to be for SFT to flag it/ have concerns about the project moving to the next stage?

On discussing the progress of the KSR to the next stage the witness states that SFT did not have the final sign off and they would have sought input from Procuring Authority to resolve matters such that that it could move on. Does the witness recall a time where they personally have considered it appropriate for a project not to move forward at any particular point in the KSR process?

In addition, whilst we note that ultimately Scottish Government / the Project Sponsor have the final say on whether a project should proceed can SFT make that recommendation?

i. **I do not recall an instance where I personally considered it appropriate for a project not to move forward to the next stage at the point where the KSR was being signed off.**
ii. **It should though be noted that the KSRs were not completed at predetermined dates but rather when it was considered that it was appropriate for the KSR to be carried out.**
iii. **By way of example, there is a ground lease which covered the Royal Infirmary Edinburgh (RIE) Project and the car park where the current RHCYP/DCN building now sits. The ground lease had to be amended so as to excise the site of the RHCYP/DCN building and arrangements had to be made to connect the two buildings. We considered that the property and contractual arrangements had to be in place so that NHSL would control the site of the new facility.**

iv. **Question 16 of the Pre OJEU KSR [1] provides: "*The interface with Consort is a key issue to ensure both deliverability and to create a level playing field to maximise competition and hence maintain affordability. The risks have been mitigated by (a) the agreement of SA6 which has been entered into and (b) the agreement of enabling works with Consort and the consent (subject to a condition which has been acknowledged as acceptable at this stage) to the external enabling works from Consort's funders having been confirmed prior to the issue of OJEU.*" This was an example where an important issue was resolved before the KSR was completed.**

v. **The KSRs provide that SFT is to review the Project and recommend whether the project is in a position to proceed (and if so whether subject to recommendations). This would of course be subject to consents required of Scottish Government and the Project Sponsor.**

3. When would a matter be escalated to the Scottish Government? Would this be done by SFT or another body and how would that be done in practice?

i. **I think this would largely depend on the circumstances of the matter. I recall that there was ongoing dialogue with the Scottish Government, particularly in the early part of the process.**

I understand that Scottish Government had a representative on the Project Steering Board so had access to the papers that were shared with the Project Steering Board and would have been aware of any issues that were discussed at those meetings and would have had the opportunity to comment on any issue raised.

The KSR process is explained in Section C Question 1 above.

a) Out with the KSR process is it open to / appropriate for SFT to escalate concerns to Scottish Government? Is the witness aware of this ever happening in the past?

ii. **The Scottish Government had a representative on the PSB**

and was therefore involved in discussions as the project progressed. I do not recall a time when it was escalated further to the Scottish Government.

4. In an NPD project have the results of a KSR ever caused CIG to recommend that a project does not receive approval or progress to the next stage?

   i. **I am not the right person to comment.**

a) Is the witness personally aware of a time when CIG have refused to recommend that a project proceed on the basis of a completed KSR?

   ii. **No, I do not recall such a time.**

5. Generally speaking what would the impact be on a project that fails to proceed to the next stage in line with the programme?

   i. **If the result was that the procurement took longer than originally programmed it would depend on the circumstance for example, whether (a) the construction price would be held; (b) the programme to completion of the works would be held; or (c) the financing package would still be available on the same terms.**

a) Is the witness implying that a failure to proceed to the next stage would only ever result in a delay to a project? If so, does this call into question the need for a KSR process?

   ii. **The response above was on the basis of a project that fails to proceed to the next stage in line with the programme rather than the project being stopped. It would of course be possible for the outcome of the KSR to be that the project should not proceed and for there to be an issue such that it would not be able to proceed at all (or not in that form or on that basis).**

6. How integral to the project overall was SFTs input, expertise and influence? In

reality did SFT partner NHS Lothian in terms of decision making and direction?

i. **I am not the right person to comment.**

a) The witness was asked how integral to the project overall was SFTs input, expertise and influence? And in reality did SFT partner NHS Lothian in terms of decision making and direction? The witness states that she was not the right person to comment, however the witness had regular engagement with the Project Director and did provide guidance during project so should be able to offer an opinion.

ii. **SFT was responsible for the standard form of the Project Agreement that set out the basis contractual position (subject to the derogation process and project specific issues including the technical schedules that were for NHSL). This could be described as an important aspect of the procurement.**

SFT also carried out the KSRs as an assurance role. SFT provided guidance for NHSL on aspects of the procurement and was also involved in the funding competition. SFT was also a member of the Project Steering Board and therefore involved in discussions in that forum.

iii. **It was NHSL's procurement and it was NHSL that, for example, developed the procurement and technical documentation, conducted the procurement, including the competitive dialogue process, evaluation and preferred bidder discussions and finalised the contractual documentation.**

D. Special Project Steering Board

A Special Steering Board meeting was held on 22 August 2014 **(A33044733 - Board Commentary on the Technical Information Requested by the Board and Technical Information issued by IHSL - 19 November 2014)**[17], which you did not attend. The purpose of the meeting was to raise NHS Lothian's 'significant

[17] Bundle 8 – Scoring & Correspondence regarding Issues, item 5

concern' about the project programme and give IHSL an opportunity to discuss progress. The NHS Lothian project team presented a revised programme with slippage of 8 weeks, and IHSL tabled their own programme. None of these concerns appear to be raised in the KSRs and/ or be escalated to the Scottish Government.

1. Were you aware of this meeting taking place and the outcome?
    i. **I was not at the meeting, and I cannot recall whether or not I knew the meeting was taking place or the outcome of the meeting. It would not be uncommon for Peter Reekie to feedback to me following the meetings.**
2. How serious did you consider these issues to be, what actions were put in place to address these concerns and how successful they were in addressing the concerns?
    i. **I cannot answer this question.**
3. Were any issues escalated to Scottish Government outwith the KSR procedure? If not, why not? To whom should the responsibility to escalate fall to?
    i. **I am not the right person to answer that question. Having looked at the meeting minutes in the bundle I can see that Scottish Government was represented at the meeting.**
4. There is no indication of any such risk in the KSRs, is there a reason why this was not raised in the next KSR?
    i. **The meeting was held on August 2014 so the next KSR would have been the Pre-FC KSR that was dated February 2015. Each KSR dealt with the position as that time.**

       As I understand the risk you are referring to is slippage in reaching FC and by the time of the pre-FC KSR that risk would no longer be relevant as the project was at the stage of being able to go to FC. Therefore, I would not expect it to be recorded in the KSR.

5. Were you party to any discussions as to why 100% room data sheets would not be produced by FC, which was a stated requirement in both the ITPD and the ISFT? Were you aware of any SFT colleagues being involved in such discussions? If so,

a. When was a decision taken to change this requirement?
    i. **I cannot answer that.**
b. Why was the decision taken?
    i. **I cannot answer that.**
c. Does the witness recall any discussions between SFT and NHSL concerning 100% of Room Data Sheets (RDS) not being met by Financial Close? If not, does that mean that she was not involved in such discussions?
    i. **I do not recall specifically being involved in discussions concerning 100% RDS. I note that it was raised at the Special Steering Board meeting on 22 August 2014 [12] (see Question 10A above).**

6. Would this result in more reviewable design data? Did that cause any concerns on the part of SFT?
    i. **The issue that we raised in the KSR in relation to RDD was whether NHSL had the resourcing to deal with the RDD and we were given assurances that "Resourcing for the governance arrangements indicated in Annex B have been agreed by the Board." This assurance referred to various matters and included the resourcing for RDD. Please see Pre-FC KSR [4] Section 7, Question 25.**

On 25 August 2014, an item was rated as 'high risk' on the register of 'Technical Risks to Financial Close' (**A36308781 - Technical Risks for Financial Close - 25 August 2014**)[18].

7. These risks do not appear to be flagged in the KSRs either. Was SFT aware of these risks? If so, why did they not feature in the KSRs?
    i. **I do not recall seeing this document at the time.**

    I note that the document is entitled "Technical Risks to Financial Close" (A36308781 - Technical Risks for Financial Close - 25 August 2014)[19] and is dated 25 August 2014. The next KSR would have been the Pre-FC KSR in February 2015.

[18] Bundle 10 – Miscellaneaous Volume 1 (of 2), item 10, p.75
[19] Bundle 10 – Miscellaneaous Volume 1 (of 2), item 10, p.75

That KSR addresses the risks in the Project Register at that time.

8. Were any such issues escalated to Scottish Government? If not, why was that not appropriate?

    i. **I cannot answer that question.**

By 18 November 2014, the "Risk Register" **(A33337268 – Risk Register dated 18 November 2014**)[20] recorded that the delayed delivery of detailed design 'sufficient to proceed to financial close' was "red". It was recorded as *"Not satisfactory at present…Close management of progress ongoing, including engagement at most senior level in IHSL by Steering Board Commercial sub-group…".* (**A33337268 – Risk Register dated 18 November 2014**)[21]

9. Do you recall SFT having sight of this risk register?

    i. **I do not have a recollection of seeing this risk register but I recall seeing a number of project risk registers throughout the project so I might have done so.**

10. These concerns do not seem to be flagged in the KSR, are not highlighted to the CIG, are not addressed in the final business case and do not otherwise seem to be escalated to Scottish Government. Can you explain why?

    i. **The Pre-FC KSR [4] dealt with risks on the Project Risk Register at that time. The risk register you are referring to is dated November 2014 and financial close occurred in February 2015. The risks identified here are presented as risks to financial close not risks at financial risk – this is a key difference.**

b. The witness states that the risks identified in the Project Risks Register are risks to Financial Close, not risks at Financial Risk. Can she expand on what she means when she states that this is a key difference?

    i. **The risk register dated 18 November 2014 refers to risks <u>to</u> financial close that I take to mean the risk of FC being delayed or not taking place rather than risks that were still extant at financial close (and would need) to be managed thereafter. The Pre-FC KSR [4] dealt with risks on the Project Risk Register at that time.**

[20] Bundle 8 – Scoring & Correspondence Regarding Issues, item 10, p.42
[21] Bundle 8 – Scoring & Correspondence Regarding Issues, item 10, p.42 at page 43

E. Financial Close

1. The Project was due to complete in Summer 2014. This was not achieved. Can you explain why FC was not achieved until February 2015?
    i. **I cannot answer why FC was not achieved until February 2015.**
2. We have heard from another witness that SFT were concerned that FC should be achieved before the results of the 2014 Scottish Independence referendum to ensure that Project financing was not adversely impacted by the potential financial turmoil of a “Yes” vote. Is that correct?
    i. **This is not a question for me and would say that Peter Reekie would be better placed to answer that on behalf of SFT. I was not involved in the funding competition.**

b. Was the witness personally aware of an SFT concern that FC should be achieved prior to the Scottish Independence referendum to avoid turmoil in financial markets in the event of a "Yes" vote?

    i. **I do not recall being involved in any specific discussion about the timing of financial close for the project in relation to the 2014 independence referendum.**

3. Was there a need to achieve FC specifically by February 2015?
    i. **I cannot answer that.**
4. What would the impact have been on the RHSC/DCN project if it had failed to proceed to FC in February 2015?
    i. **I cannot answer that question.**

b. The witness is asked what would the impact have been on the RHSC/DCN project if it had failed to proceed to FC in February 2015? Although the witness states that they cannot answer this can they provide an answer on the basis of their own knowledge and experience?

    i. **I refer to my answer at Section C Question 5 above. If an NPD project were to be delayed it would depend on the circumstances but the main concerns would be whether (a) the construction price would be held; (b) the programme to completion of the works would be held; or (c) the financing**

package would still be available on the same terms.

5. We have heard from another witness that SFT were tracking financial markets to ensure that FC was timed to take maximum advantage of financial markets. Is that an accurate description of the situation?
    i. **This is not a question for me and would say that Peter Reekie would be better placed to answer that on behalf of SFT. I was not involved in the funding competition.**
6. We have heard from another witness that SFT made the final decision as to when FC should take place. Is that correct?
    i. **This is not a question that I can answer, Peter Reekie would be better placed to answer that on behalf of SFT.**

    b. The witness does not answer this question and states that her colleague is best placed to answer it. Is this because she does not know if SFT made that final decision as to when FC should take place or Peter Reekie is better placed to answer?

    i. **As I have said above, Peter Reekie is the best person to answer this, particularly given the role of SFT in relation to financing arrangements at FC.**

7. Were there any implications for IHSL or any other party by a delay to FC being achieved?
    i. **This is not a question that I can answer.**

By Financial Close, the risk registers recorded that there was a significant amount of Reviewable Design Data, raising a number of risks to the Board. RDD related items were contained in the document titled "Technical Risks to the Board to Financial Close" which was produced on 30 January 2015. **(A36308810 - Technical Risks to the Board at Financial Close - 31 January 2015)[22].** Was SFT aware of these issues at FC? Did SFT have any concerns in relation to the volume of RDD?

    ii. **Our concern on RDD was whether NHSL had sufficient resourcing to be able to review the RDD and this was a**

[22] Bundle 10 – Miscellaneous Volume 1 (of 2)

question that was asked in the Pre-Financial Close KSR [4], Section 7 Question 25 (resourcing strategy).

8. Was a large amount of RDD seen as a negative or a positive?

i. This is outwith of my remit as it relates to technical issues. The resourcing issue is dealt with at Question 8 above.

b. The witness is asked if the large amount of Reviewable Design data (RDD) was seen as a negative or positive and states that it was out with her remit as it related to technical issues. The question relates to pushing a number of important issues into the future that were originally intended to be completed by financial close. A detailed understanding of the underlying technical issues is not required - simply an awareness of resourcing/planning. Therefore, can the witness provide comment?

i. My understanding is that it is normal for design development to continue after FC, hence the provision in the review procedure in Part 8 of the Schedule to the Project Agreement. I cannot comment on the level of RDD that would be normal as I was not involved in technical review.

As I have detailed in my response to question 8 above, we dealt with the question of resourcing and covered this in the KSR.

9. The remit of the Atkins review suggests that SFT's assessment of the Project was concerned with more than just spatial information, more focus on life costs, maintenance costs, and efficiency of the design. Do you believe there should have been a focus on M&E Specifications, to make sure these were sustainable, cost- effective and long-lasting?

1. **The remit of the Atkin's report [A40787632 - Atkins Independent Design Review Report dated 12 December 2011][23] is set out at page 13 of the report:**

"1.1. Remit

1.1.1. From SFT Invitation Letter - Independent Design Review, 1 August 2011

"To review the Design Objectives for the Programme:

[23] Bundle 10 – Miscellaneous Volume 2 (of 2), item 8, p.137

To provide a focus for the independent review, it is important that it is targeted towards programme wide objectives. These are set out below:

- ***A design proposal that meets the strategic needs for efficient and effective long-term service delivery identified as part of the Initial Agreement and any other associated documentation.***
- ***A design that eliminates unnecessary space maximises potential sharing of space between user departments and fully integrates with an efficient service strategy.***
- ***A design specification that minimises the whole life costs of the building, including both the upfront capital cost per square metre and the ongoing maintenance and lifecycle costs. The design specification should also achieve the appropriate sustainability targets."***

1.1.2. ***From Appendix 1 to SFT Invitation Letter, 1 August 2011 "The Assessment of Value for Money: Step 3: Facility Efficiency This aspect of the VfM assessment examines whether the actual proposal for the building design:***

- ***Optimises the delivery of the clinical services;***
- ***Results in an efficient building design in terms of the capital costs to construct. For example, plan efficiency and layout, siting, adopts appropriate sharing of space between departments, has an efficient approach to the specification of the facilities;***
- ***Considers future proofing of the facility;***
- ***Results in an efficient building design in terms of operational costs to manage and maintain;***
- ***Deals efficiently with the interface with any existing facilities on the site and is consistent with potential future developments on the site."***

As is clear from the above the remit related to programme

objectives with an emphasis on value for money considerations. Accordingly, I do not believe there should have been a focus on M&E Specifications.

F. Environmental Matrix ("EM")

1. To what extent did SFT review M&E elements of the design, such as the EM?
    i. **I did not review the M&E elements of the design as this was beyond my remit.**
2. The EM was procured by NHS Lothian and incorporated into the Invitation to Participate in Dialogue ("ITPD") first issued to bidders in March 2013. During KSR2 did SFT note that the EM was mandated in the ITPD?
    i. **I refer the Inquiry to the Pre-ITPD KSR [2] , Section 2 Question 4 response which notes that:**

    "The ITPD, Volume 1 section 2.5 and Appendix E sets out the elements of the Reference Design which is being provided to bidders are mandatory. These relate to the Operational Functionality as defined in the Project Agreement and there are elements of flexibility in relation to non-mandatory elements of the Reference Design."

    I did not conduct a technical review of any technical data or document as that was beyond my remit.

    I note that the witness bundle provided to me includes pages 17 and 18 of the ITPD which includes paragraphs 2.5.3 to 2.7.1. Pages 17 and 18 do not include the whole of paragraph 2.5 and it does not include Appendix E. Can the Inquiry please provide me with a full copy of the ITPD to which it refers.
3. The EM was not approved by NHSL at FC. It was known not to comply with the Board Construction Requirements (BCRs), which included a requirement to comply with SHTM 03-01. As a result, the EM became subject to the Reviewable Design Data (RDD) process. On 19 November 2014 a Healthcare Associated Infection (HAI) – System for Controlling Risk in the Built Environment (SCRIBE) ("HAI-Scribe") meeting was held at which the following was recorded:

2.2	Is the ventilation system design fit for purpose, given the potential for infection spread via ventilation systems?	**Yes**		**No**	**x**	**N/A**	
		Some concern has been raised in relation to a potential issue with ventilation with regard to negative/balance pressure in single bed rooms. Awaiting drawings and further information to fully understand if there is a risk/issue.					

4. Were SFT aware of this issue at the time? If so, why was this issue not included within the KSR at Pre Financial Close?

   i. **I have no recollection of having seen this issue raised at the time and have not seen any documents to suggest that I had. It is a matter for NHSL to deal with its own technical requirements. As indicated above, technical issues were outwith my remit. I refer specifically to the Pre-FC KSR [4] Section 3, Questions 2 and 3 where the Procuring Authority confirmed:**

   2 – "the detail of the design has been discussed with user grounds to ensure clinical support and the Board confirms that it has received appropriate internal sign off."

   3 – "The Board has confirmed that the technical documentation is at a level of development consistent with the current stage of the

   Preferred Bidder to Financial Close programme. The Board advises that they are content with the documentation subject to further development through RDD following Financial Close and that the construction proposals are of sufficient detail to provide sufficient certainty to the Board as to what is to be provided and to permit a timely start on site. The Board has also confirmed that the FM Service Level Specification is agreed and that the FM Method Statements have been completed and agreed."

b) In response to the Pre-FC KSR the Board confirmed that technical documentation was at a level of development consistent with the current stage of the Preferred Bidder to Financial Close programme. The Board advised that they were content with the documentation subject to further development

through RDD following Financial Close. Would the witness have expected to see such documentation? What would have been the witness's position at the time if she had seen this documentation?

i. **No, I would not have expected to review the technical documentation. I would have been aware of the existence of the technical documentation but would not have been in a position to nor would I have expected to review it.**

G. Key Stage Reviews

1. Please provide an overview of the KSR process. Is it simply a "tick box" exercise?

i. **I would not say that the KSR process is a tick box exercise.**

The purpose of the KSR process was to provide an independent assurance review of the Project. We carried out an assessment of whether or not the project was ready to move onto the next phase. Each review focused on whether the project was suitably developed in terms of "Project Requirements"; "Affordability"; "Value for Money"; "Commercial" and "Readiness". The KSRs were designed to support the successful delivery of the Project.

The KSRs had a list of questions which required to be answered at each stage and this was carried through in relation to each of the reviews. In order to review the status of the project I would collate information and seek clarifications and assurances. If there was an outstanding matter or recommendation in a particular KSR that would be followed up at the next review. The recommendations were tracked throughout the project.

a) The witness states that the purpose of the KSR process was to provide an independent assurance review of the Project. Does the witness believe that SFT were truly independent during this Project?

i. **I refer to the SFT guidance document titled 'Project Assurance' dated May 2013 [16] which provides "*In order to preserve the***

integrity of independent assurance each KSR report is separately reviewed and signed off by a member of the SFT senior management team unconnected with the project."

2. For whom are KSRs prepared, what function do they fulfil and what information should be contained?

    i. **The KSRs were a condition of the Scottish Government funding: see the Funding Letter dated 22 March 2011 [6], Section 2 which states:**

    "Key Stage Review provides a structured, independent 'due diligence' review of projects, supporting Project Managers and Sponsors at commercially critical procurement stages. Key Stage Reviews help to ensure that procuring authorities are sufficiently advanced in their project development and have put in place the necessary delivery arrangements and documentation in order to secure high quality, sustainable bids. They also ensure that authorities are adequately resourced to effectively and efficiently carry out the procurement, construction and operational stages of the projects. Key Stage Reviews are a formal requirement for all projects delivered through the NPD model and will be conducted by SFT."

The "Validation of Revenue Funded Projects: The Key Stage Review Process Information Note to Projects dated December 2011
[5] provides more detail on the KSR process and states that:

"Once completed by the Reviewer, the list and draft report will be scrutinised by a member of SFT's senior management team before being issued to the relevant Project Sponsor / SG and copied to the Procuring Authority. The relevant Project Sponsor and/or SG will, as part of its overall sign-off, determine whether and on what basis the project should proceed to the next stage taking into consideration any recommendations made in the KSR report."

3. What was your role as regards KSRs?

i. I was the primary reviewer. As part of that role, I was required to be familiar with the checklist and questions which formed the requirements of the KSR.

In the run up to each review I would consider the status of the project against the relevant questions. I would also consider the information I had collated based on my own dealings with the Project as well as liaising with the project team and posing additional questions to allow me to complete the list and prepare a draft report with various comments and recommendations. If I required additional clarifications or challenges of the Procuring Authority, I would seek or make them in order to review the status of the project. I would make recommendations if there were matters which required to be resolved or monitored and these recommendations would follow through to the next KSR.

Once I had collated the necessary information to allow me to complete the KSR, I would submit it for second level reviewer approval.

a) The witness states that her role during the KSR was primary reviewer. The term "reviewer" suggests that you review a draft prepared by someone else. However, what you describe in your answer indicates that in fact you drafted the KSR with benefit of information /responses provided by NHSL. Can the witness confirm if this is correct?

To whom would you submit the KSR for second level approval - Would that be an SFT employee involved in the project? Please provide the name of the individual.

i. **It is correct to say that I was the First Reviewer and would draft the KSR based on the information and responses provided by NHSL and my own involvement in the Project. My understanding is that the term 'reviewer' is used to describe reviewer of the project and not reviewer of the KSR. Once I had prepared the KSR and it had been reviewed by NHSL I would then submit it for review by the Second Reviewer. Tony Rose was the Second Level Reviewer for (i) Pre-OJEU KSR, (ii) Pre-ITPD, (iii) Pre-Close of Dialogue and (iv) Pre-Preferred Bidder KSR. Colin Proctor was the Second Level Reviewer for the Pre-Financial Close KSR. They were SFT employees.**

4. It is our understanding that KSRs are SFT documents, to the extent that they are prepared by SFT but with input from the procuring authority. Is that understanding correct?

i. **The KSRs are SFT documents that were prepared by SFT. As the Validation Guidance [5] states, they are then to be *"issued to the relevant Project Sponsor / SG and copied to the Procuring Authority. The relevant Project Sponsor and/or SG will, as part of its overall sign-off, determine whether and on what basis the project should proceed to the next stage taking into consideration any recommendations made in the KSR report."***

NHSL was involved in the KSRs and had the opportunity to comment and review. It provided the information and updates relative the project status at that particular time and updates to any outstanding recommendations. The KSRs

also required to be signed off by NHSL's Susan Goldsmith (SRO) and she would confirm that:

"I am not aware of any information that would materially change the assessment and review of the project;"

5. How much editorial input would NHS Lothian have in relation to the content, wording and tone of KSRs?

    i. **As noted above, the KSRs were reviews conducted by SFT and were therefore SFT's documents. I drafted the KSRs and provided a draft or drafts to NHSL.**

    NHSL was given the opportunity to comment, and it would provide the relevant and necessary information to allow the KSRs to be completed.

6. Following the switch to the NPD model, SFT had a significant role in project assurance by virtue of holding the pen on KSRs. Is that understanding correct?

    i. **As noted above, it was a condition of SG funding that SFT carry out KSRs and they were SFT documents.**

a) The question asks following the switch to the NPD model SFT had a significant role in project assurance by virtue of holding the pen on KSRs. Is that understanding correct ?

    ii. **I agree that in relation to the NPD Programme in which SFT was involved, SFT had a significant role in project assurance in relation to the KSRs, subject to the comments that I have made as regards SFT's role and remit.**

7. Each review was an assessment of whether the project was suitably developed in terms of "Project Readiness"; "Affordability"; "Value for Money"; and "Commercial robustness". The KSR process superseded the Gateway Review procedure. How is a KSR different from a Gateway Review? Why is there no focus on technical details or compliance with SHTMs?

    i. **I do not know enough about the gateway review procedure**

to be able to comment on the differences between the two processes.

As noted elsewhere in my responses technical review was not part of SFT's remit though confirmation from NHSL as the Procuring authority on certain technical matters was sought as part of the reviews and examples are given elsewhere in my responses.

8. In this context, how significant do SFT concerns have to be to raise doubts in a KSR about the readiness for a project to proceed?

    i. **As noted above at Question 1 of Section C, there would be an assessment of whether an issue is of such materiality as to impact the project being able to proceed to the next stage, taking account of the impact of the issue on the procurement or the project outcomes.**

    On the other hand, there could be other issues that could either be resolvable before the KSR was to be finalised or alternatively by way of a recommendation in the KSR itself to be resolved at a later stage and followed up in the next KSR.

    a. Are there red flags?

    i. **The KSRs are an assessment based on the circumstances at the time. There would be a discussion around the identified issues and whether it was possible to resolve at that moment or over the next period or indeed at the next stage (in which case a recommendation would be added to the KSR) or whether it could be resolved during the next phase or if it could not be resolved.**

    b. What is the 'threshold' for a concern to become serious enough to cause delay to signing off a review?

    i. **As noted above it would depend on the circumstances, there is not a predetermined threshold, and for example, a consideration would be made of any impact on project**

outcomes if the project proceeded at that point.

In Peter Reekie's witness statement para 44 **(A37605865 - Witness statement of Peter Reekie - 28 April 2022)**[24] he notes *"In the run up to each review point, the Reviewer considered the status of the Project against the relevant pro-forma list on the basis of information obtained in his/her day to day dealings with the project and sought, where required, contributions from the project team to allow completion of the list and prepare a written draft report with comments and recommendations*"

9. What information were you privy to in your 'day to day dealings of the project'? For example, did SFT have access to project risk registers, databases or systems? If not, was it the case that SFT only knew as much as they were told, for example by being copied to emails etc.?
    i. **I did not have access to the Procuring Authority's database or their system. I recall that I was provided with papers at the Working Group and sometimes provided with steering board papers. If I or NHSL wanted to discuss a particular issue then we would exchange the relevant papers and discuss.**
10. To what extent did SFT communicate on an *ad hoc* as well as formal basis with NHS Lothian's project team?
    i. **My recollection is that generally, I had an ongoing dialogue with Brian Currie and Iain Graham, though the frequency of our discussions would vary at different periods of the project with it being more detailed at the beginning of the project and then became less so.**

In Peter Reekie's witness statement para 47 it is noted, *"The Reviewer also prepared a short report and made recommendations as to whether in his or her view the Project was ready to proceed to the next stage of procurement and what actions were required to achieve the appropriate state of readiness either to proceed to the next stage or in advance of the next review"*

11. Who would follow up on whether those actions had been completed and how was this achieved?

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i. **The recommendations were generally addressed to NHSL and some of them had specific dates or milestones for it to be achieved. It was for the Procuring Authority to take them forward at the next stage. My recollection is that these issues would be subject to communications and discussion during the next period. At the next KSR, I ascertained the then current status and this was recorded in the next KSR. There is a section in each of the KSRs which note the recommendations from the previous KSR with the applicable updates. The recommendations were tracked through to completion.**

With regard to the Pre-Preferred Bidder KSR, in Section 2, **(A33337163 - Pre-Preferred Bidder Appointment Key Stage Review dated 28 February 2014)**[25] Question 3, NHSL confirmed that:

> *"The Board has confirmed that all bidders have provided detailed programmes to cover the activities for the period until FC and that the development of the technical information is at least as advanced as the Board anticipated at this stage. The Board and its advisers are satisfied that any further development of technical information from PB appointment to FC is achievable within the current project timetable"*

12. Considering the outstanding issues raised in the Preferred Bidder letter **(A33337163 - Pre-Preferred Bidder Appointment Key Stage Review dated 28 February 2014)**[26], what was the basis for this statement?

i. **In preparing the KSR, I would have asked the Board for that confirmation, it would have confirmed that position to me and I would have included in the KSR. We took the assurances given by the Board and relied on what they told us.**

b) The witness states that they took assurances given by the Board and relied on what they told us. So did the witness and SFT accept these assurances at face value with no questions asked?

[25] Bundle 7 – Key parts of Mosaic's tender and marked up Environmental Matrix, item 1, p.5
[26] Bundle 7 – Key parts of Mosaic's tender and marked up Environmental Matrix, item 1, p.5

i. **Given the terms of the assurance NHSL provided I did not consider that its answer gave rise to further questions to be asked.**

13. Did NHS Lothian liaise with, or indeed rely on, SFT to ensure that there was agreement to move forward to the preferred bidder stage given SFTs expertise in relation to the requirements of the NPD model?

    i. **From my perspective the decision to move on was a decision for NHSL as Procuring Authority. I was the primary reviewer in the KSRs that was designed to determine whether the project was ready to proceed.**

14. The risk register at Annex B of the KSR contains the following: "Programme delay in reaching Financial Close" was noted as a risk. Its status was "Red". The "Adequacy of Controls" was stated to the "Not satisfactory at present". How did this impact the Project? The KSR?

    i. **The risk that you are referring to is that it was taking longer to reach Financial Close than had been initially projected. It is a risk in relation to timescale in reaching Financial Close, but it is not a risk to the project itself.**

    I would also note that Question 21 of Section 5 of the Pre-Preferred Bidder KSR [A33337163 - Pre-Preferred Bidder Appointment Key Stage Review dated 28 February 2014][27] asked what key commercial issues remain outstanding and the Board confirmed that there were no key commercial issues outstanding, subject to the funding competition and a potential variation that was covered by another recommendation. I would also refer to Question 25 and it was a recommendation that the Board develop a detailed project for due diligence.

15. With regard to the pre-FC KSR, under "Project requirements" **(A33337058 - Pre-Close of Dialogue Key Stage Review - 13 December 2013)[28]** the following

[27] Bundle 7 – Key Parts of Mosaic's tender and marked up Environmental Matrix, item 1, p.3
[28] Bundle 9 – Key Stage Reviews, item 2, p.50

questions are asked:

Question 2, "Is the Procuring Authority satisfied that the preferred bidder's solution satisfies its operational and functional requirements and delivers the project objectives, benefits and outcomes?" The answer provided was *"Yes. The detail of the design has been discussed with user groups to ensure clinical support and the Board confirms that it has received appropriate internal sign off."*

Question 3, "confirm the status of the technical documentation (i.e. design, construction and FM requirements). Is the Procuring Authority, and are its advisers, satisfied that further development/document production (if any) is achievable within the current project timetable?" The answer should have been answered with either "Yes" or "No", however the relevant box is left blank. Why? The following comment was included in the KSR:

"The Board has confirmed that the technical documentation is at a level of development consistent with the current stage of the Preferred Bidder to Financial Close programme. The Board advises that they are content with the documentation subject to further development through RDD following Financial Close and that the construction proposals are of sufficient detail to provide sufficient certainty to the Board as to what is to be provided and to permit a timely start on site. The Board has also confirmed that the FM Service Level Specification is agreed and that the FM Method Statements have been completed and agreed."

i. **The answers to questions are detailed in the comment box and that is how the answer was completed. The following answer was included in the Pre-FC KSR [4]:**

   "The Board has confirmed that the technical documentation is at a level of development consistent with the current stage of the Preferred Bidder to Financial Close programme. The Board advises that they are content with the documentation subject to further development through RDD following Financial Close and that the construction proposals are of sufficient detail to provide sufficient certainty to the Board as to what is to be provided and to permit a timely start on site. The Board has also confirmed that the FM Service Level Specification is agreed and that the FM Method Statements have been completed and agreed."

11. Was the information provided by NHS Lothian tested/ interrogated by SFT or was it simply recorded/ taken at face value?

    i. **In general, I would have relied on NHSL's assurances particularly when they related to matters of a technical nature that were outside of my remit. If a confirmation was given that did not match other evidence that I had gathered, then I would have expected that I would have questioned NHSL on that.**

12. Were NHS Lothian reliant on SFT at this stage to ensure compliance with NPD requirements? What discussions had taken place to come to this conclusion?

    i. **NPD Requirements were defined in the Project Agreement [A40787623 - Standard Form NPD Project Agreement dated 02 June 2012][29] as:**

    "(a) not to make a distribution of profit or surplus, or any transfer of assets to one or more shareholders whether by means of any payment or transfer of assets, directly or indirectly, in cash or in any kind, whether by way of dividend, bonus or release of obligation or in any other way otherwise than:

    (i) for full consideration; or
    (ii) to the Board pursuant to Clause 36 (Payment of Surpluses and Compliance with NPD Requirements) or Article 12 or 13 of the Articles of Association); or
    (iii) Project Co's Share of a Project Co Change; or
    (iv) Project Co's Share of a Refinancing Gain; and

    (b) to comply with Clause 4.4 (Changes to Funding Agreements and Refinancing)."

    I do not recall any issues being raised as to these provisions.

13. Considering the concerns raised in the documents: "Design Risks to the Board to Financial Close" (**A36308801 - Design Risks to the Board to Financial**

[29] Bundle 10 – Miscellaneous Volume 2 (of 2), item 9, p.220

Close)[30], "Technical Risks at Financial Close" (**A36308810 - Technical Risks to the Board at Financial Close - 31 January 2015**)[31], "Board Commentary on the Technical Information Requested by the Board and Technical Information issued by IHSL" **(A33044733 - Board Commentary on the Technical Information Requested by the Board and Technical Information issued by IHSL - 19 November 2014)[32]**, as well as the "Special Steering Board meeting held on 22 August 2014" **(A32676824 - Action notes RHSC and DCN Special Project Steering Board - 22 August 2014)[33]**, do you consider this an accurate and fair assessment?

i. **I do not recall seeing the Technical documents to which you refer and I have seen no documents to suggest that I had. I saw the Project level risk registers, some of which was relevant to the KSRs. My remit was not involved in the technical or design elements and I am not the correct person to provide any commentary on whether the statement above (Pre-Preferred Bidder KSR, [A33337163 - Pre-Preferred Bidder Appointment Key Stage Review dated 28 February 2014][34] in Section 2, Question 3) was an accurate assessment.**

14. How were the concerns NHS Lothian expressed at the Steering Board Commercial Sub-Group addressed? For example, the perception that the process for providing engineering information had not been successful?

i. **I was not involved in the Steering Board Commercial Sub-Group and so it is not for me to comment on whether NHSL's concerns were addressed.**

With regard to the reference design and ITPD volume 1. We note that the reference design included indicative elements, including Building services engineering solutions.

15. Were you aware of the content of the indicative elements of the reference design? Do you know if Peter Reekie would have had awareness?

i. **That is a technical issue that is outside my remit and so it is**

[30] Bundle 10 – Miscellaneous Volume 1 (of 2), item 11, p.79
[31] Bundle 10 – Miscellaneous Volume 1 (of 2), item 12, p.84
[32] Bundle 8 – Scoring & Correspondence Regarding Issues, item 5, p.23
[33] Bundle 8 – Scoring & Correspondence Regarding Issues, item 2, p.11
[34] Bundle 7 – Key Parts of Mosaic's tender and marked up Environmental Matrix, item 1, p.3

not for me to comment upon. I do not know whether Peter Reekie would have had an awareness of this.

16. Are you aware of whether 'building services engineering solutions' refers to documents produced by Hulley & Kirkwood, for example the environmental matrix?
    i. **This is a technical issue and therefore outside my remit and I am not in a position to be able to comment.**
17. With reference to Peter Reekie's evidence regarding the reference design on pp. 67-68 of the transcript **(A37605865 - Witness statement of Peter Reekie - 28 April 2022)**[35], is it usual in an NPD project to have elements outside of 'operational functionality' included in the ITPD, and associated with the Board's Construction Requirements as provided in the Project Agreement?
    i. **I am not the correct person to comment on this.**
18. In your experience of NPD projects is it usual for preliminary work to be done on M&E engineering design, given design risk falls to Project Co? If yes, please explain?
    i. **Again, this is a technical matter which is outside of my remit. It is not for me to comment.**
19. In the RHSC-DCN project it appears that the pre-FC KSR took place after FBC approval and months after the meeting of the Capital Investment Group. Is that your understanding?
    i. **My remit was as the reviewer of the KSRs, I was not a member of CIG. I am therefore not the right person to answer this.**
20. Can you explain the sequencing?
    i. **This is not a question for me and would be one for Peter Reekie to comment on.**

H. Project Agreement at Financial Close

1. To what extent were you involved in, or aware of:
   a. the contractual specification for the hospital at FC?
      i. **I was aware that the contract provided for certain technical documentation to be incorporated into the final Project**

[35] Bundle 10 – Miscellaneous Volume 1 (of 2), item 19, p.375

Agreement. These documents were technical and project specific and therefore it

was not for SFT to review them: that was a matter for NHSL and their advisors.

b. the extent to which that specification had been finalised by financial close?

i. **This is a matter for NHSL. I can only comment insofar as dealt with by the KSRs. I would refer the Inquiry to Question 3 of Section 3 of the Pre-Financial Close KSR [4] in which the Board confirmed *"that the technical documentation is at a level of development consistent with the current stage of the Preferred Bidder to Financial Close programme. The Board advises that they are content with the documentation subject to further development through RDD following Financial Close and that the construction proposals are of sufficient detail to provide sufficient certainty to the Board."***

c. the procedures set out in the contract for finalisation of that specification?

i. **I am aware that there are provisions in clause 12.6 of the Project Agreement [9] in respect of RDD and the provisions of Part 8 of the Schedule to the Project Agreement.**

2. The Project Agreement includes a procedure for the review of Reviewable Design Data (especially clause 12.6 and schedule part 8). The Reviewable Design Data included Room Data Sheets and the Environmental Matrix.

a. What do you understand to be the purpose of these arrangements?

i. **I understand the purpose was to allow for detailed design development post Financial Close, subject to the provisions of the contract.**

b. Are they features of the SFT's standard form NPD project agreement?

i. **There is clause 12.6 and schedule Part 8 [9] which were included in the standard form agreement. The standard form was subject to derogations. The standard form agreement also contained various blank sections for RDD and other matters which required to be inputted by the Procuring Authority as they were project specific.**

c. Can the witness provide further detail on SFT's derogation process?

i. **My understanding is that NHSL would put forward proposed changes to the Standard Form Agreement and they would**

submit a table showing the proposed derogations and reasons for the derogation and whether the derogation was project specific. This would then be considered in the context of the Project to be determined whether it was acceptable. I was not responsible for the derogation process for this project.

d. What role, if any, did the SFT have in considering the arrangements to ensure they served their intended commercial purpose?
    i. **SFT drafted the standard form Project Agreement and dealt with derogations through its derogations process. The project specific data and design included in the contract and the interface with the provisions of the rest of the contract was a matter for NHSL and their advisors.**
e. Was the extent of the Reviewable Design Data more, or less, than would typically be seen in an NPD project (or equivalent DBFOM project)?
    i. **That is beyond my remit and I am not able to answer that.**

3. The Board's Construction Requirements require compliance with both the Room Data Sheets and the Environmental Matrix (paragraphs 3.6.3 and 8 of the BCRs at section 3 of schedule part 6 to the Project Agreement).

a. To what extent do you understand the Room Data Sheets and Environmental Matrix which were included in the contract at FC (appendices 1 and 2 to section 6 of schedule part 6) to be an approved basis for construction?
    i. **This is not a question that I can answer, it would be inappropriate for me to provide a legal analysis of the contract.**
b. To what extent do you understand them to be subject to review after FC under the procedure which applied to Reviewable Design Data?
    i. **This is a matter outside of my scope and not one that I can comment on.**
c. What did you understand to be the intended purpose of the review procedure in relation to these items?
    i. **This is a matter outside of my scope and not one that I can comment on.**
d. What did you understand to be the intended outcome of the review

procedure to these items?

i. **This is a matter outside of my scope and not one that I can comment on.**

e. To what extent were the Room Data Sheets included in the Project Agreement at FC (appendix 1 to section 6 of schedule part 6) a finalised and complete set of such sheets for all rooms in the hospital (see paragraph 3.6.3 of the BCRs (section 3 of schedule part 6))?

i. **This is a technical question and outside of my scope and remit, it is not for me to comment on.**

f. Was it intended that Project Co would, through the review procedure, supply the Board with a RDS for every room in the hospital (ibid)?

i. **This is not in my remit and not for me to answer.**

4. What do you understand to be the intended role of the Board in the contractual review procedure (clause 12.6 and schedule part 8)?

i. **This is not in my remit and not for me to answer.**

a. To what extent did you understand the Board to have responsibility for, or rights to object to, material submitted during the review procedure?

i. **There is Schedule Part 8 which I understand includes rights of objection and consequences of the review when taken together with the rest of the contract.**

The time period allotted to the Board for comment on reviewable design data submitted to it for review was short (paragraph 1.2 of schedule Part 8: 15 business days).

5. To what extent were you aware of consideration being given, either before or after financial close, to the sufficiency of that time period?

i. **I can only answer this insofar as it is dealt with in the KSR, I refer you to the Pre-Financial Close KSR [4], Section 7 Question 25 in which the *"Procuring Authority has approved a formal resourcing strategy that clearly identifies the Procuring Authority's roles and obligations during the construction, commissioning and operational phase of the project." The Procuring Authority confirmed that "Resourcing for the governance arrangements indicated in Annex B have been agreed by the Board."***

6. Who was responsible for the final terms in which the following were included in the Project Agreement:

    - The Board's Construction Requirements?
    - Project Co's Proposals?
    - The Reviewable Design Data and the contractual procedure for review?
    - The Room Data Sheets?
    - The Environmental Matrix?

    i. **I am not the right person to answer this question. I note that NHSL and ISHL are the parties to the contract**

b. What input, if any, did SFT have in relation to their terms?

    i. **My understanding is that SFT did not have input into the documents referred to in Question 6 above. As indicated SFT drafted the standard form Project Agreement and dealt with derogations from that standard form but SFT did not deal with project specific design or technical elements.**

c. Who was responsible for ensuring that all of these provisions interacted as intended in the final form of the Project Agreement? What input, if any, did SFT have in that regard?

    i. **I am not the person to answer that question.**

d. The witness was asked who was responsible for ensuring that all of these provisions interacted as intended in the final form of the Project Agreement? What input, if any, did SFT have in that regard? The witness advised that she was not the person to answer that question. Would her colleague Peter Reekie be responsible for this?

    i. **My understanding is that SFT provided the Standard Form Agreement and dealt with the derogation process to that standard form and it was then for NHSL and its advisers, and IHSL and its advisers, as parties to the Project Agreement to ensure that all of the provisions interacted with each other as intended. I understand that the advisers to IHSL's financiers might also have had a role.**

IHSL became entitled to Monthly Service Payments on the date of the practical completion certificate, if that was after the Completion Date as defined (clause

34.1).

7. To your knowledge did a desire on IHSL's part to start receiving payment influence their conduct before and after financial close?

    i. **I am not the right person to answer that question.**

Scottish Hospitals Inquiry
Witness Statement of
GRAEME GREER

PROFESSIONAL BACKGROUND

1. 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 became 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 that 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 Mott MacDonald Limited (MML). I joined MML as a Consultant, and then in summer 2016 I was promoted to Associate.

2. On commencing employment at MML, I worked on various healthcare projects as project manager and technical advisor, working within MML's Strategic Consultancy Services team. The initial projects I worked on were on hub projects, such as Aberdeen Health and Care Village; Kittybrewster Custodial Centre; Stirling Care Village, and Tain, Woodside, and Forres, a bundle of three healthcare centres. I also worked on a number of NPD projects including the North Ayrshire Community Hospital, Dumfries and Galloway Royal Infirmary, and the Scottish National Blood Transfusion Centre. I worked on the technical advisory and project management side of Design Build Finance Maintain (DBFM) contracts. I am a Chartered Civil Engineer, and a member of the Institution of Civil Engineers.

3. In May 2013 I began working on the Royal Hospital for Children and Young People and Department of Clinical Neurosciences (RHCYP/DCN) project. I joined the team at around the stage of Competitive Dialogue meeting three. I took over as the MML internal Project Manager and Technical Advisor on RHCYP/DCN (although my job title was Consultant and then Associate). In addition, during the course of the RHCYP/DCN project, I was also: (1) MML health care lead in Scotland and Ireland; and 2) leader of the advisory team in Glasgow. From around September 2019, I handed over my Advisory team role and healthcare roles to focus on the remedial works at RHCYP/DCN. I continued to carry out this role until May 2022 when I then left MML and joined NHS Lothian, where I currently work as Programme Director, working on the National Treatment Centre at St. John's Hospital, Livingston.

OVERVIEW

4. In this statement I will address the undernoted themes:

   i. An overview of my role within the project;
   ii. Procurement Process – The competitive dialogue;
   iii. Evaluation Manual - Draft Final Tender;
   iv. Evaluation Scoring Criteria;
   v. The Evaluation Manual – Final Tender;
   vi. Appointment of Preferred Bidder;
   vii. Preferred Bidder to Financial Close;
   viii. Project Management;
   ix. M&E Meetings;
   x. Project Co's Proposals;
   xi. Room Data Sheets;
   xii. The Environmental Matrix;
   xiii. Development of IHSL's Environmental Matrix;
   xiv. Risk Registers;
   xv. Project Agreement;
   xvi. Financial Close.

ROLE WITHIN THE PROJECT

5. I joined the RHCYP/DCN project as internal project manager and technical advisor for MML around the time of competitive dialogue three. At that time, the Invitation to Participate in Dialogue (ITPD) had already been issued. I therefore had no substantive involvement in the preparation of that document.

6. My first significant involvement during this early phase was taking the formal notes in the design and construction section of the Competitive Dialogue meetings. When I took over as internal project manager and technical advisor, Richard Cantlay of MML was leading on the project. I became more involved as time passed and Richard started to hand over the client facing role to me in the run up to financial close (FC), with Richard Peace (MML Project Director) and Richard Cantlay (Lead Technical Advisor) providing approvals and oversight to the team. In my role on the RHCYP/DCN project, I would lead the MML project management team and the technical advisor teams on the ground, and would regularly liaise with Brian Currie, the Project Director for the NHS Lothian Team as we were co-located, sharing the same office space.

7. My role in the RHCYP/DCN project included managing the MML project team, though I did not have any line management responsibility. Within the NHS Lothian Team were: Iain Graham, Director of Capital Planning; Janice Mackenzie, Clinical Director; Jackie Sansbury, commissioning lead; Fiona Halcrow, DCN lead and Neil McLennan, the equipment lead. I would work with all of those on the NHS Lothian team and attend meetings with bidders during the competitive dialogue and then, ultimately, the preferred bidder Integrated Health Solutions Lothian ("IHSL").

8. By the time I became involved in the project, MML's role was to provide project management and technical adviser services to NHS Lothian. During the Competitive Dialogue, MML attended the dialogue meetings and provided comments and advice to NHS Lothian on proposals and submissions produced by bidders. Later MML provided advice on the technical elements of the ISFT, as well as technical sections of the preferred bidder letter issued at the end of

the final tender process. MML continued to advise NHS Lothian during the preferred bidder to FC phase of the project and worked with NHS Lothian to provide comments to assist the preferred bidder in the development of their proposals. When it became apparent that the preferred bidder would not be in a position to produce fully developed Project Co proposals by financial close, including a full suite of room data sheets ("RDS"), we supported NHS Lothian in mitigation measures, and assisted in maintaining a design risk and technical risk register to Financial Close. It is important to note that while MML undertook sample reviews of aspects of the design of the project on behalf of NHS Lothian, IHSL were responsible for the design of the project and for ensuring that amongst other things, the design complied with the Board's Construction Requirements (BCRs), which was essentially the Board's specification for the hospital.

PROCUREMENT PROCESS – THE COMPETITIVE DIALOGUE

9. As I say I was not involved in drafting the ITPD, which was the document which set out the rules for the procurement process. By the time I began work on the project the ITPD had already been issued. I did attend one meeting on the drafting of the ITPD right at the start of my time with MML in 2011, but I was then quickly deployed on to other projects. By the time I joined the project in earnest, the competitive dialogue was underway. By that stage, the competitive dialogue process was well established and included monthly dialogue meetings in accordance with the programme in the ITPD. Each of the dialogue meetings were structured with a set agenda. For each monthly set of meetings, submissions based on the dialogue agenda would be issued from each bidder in advance. Each set of dialogue meetings would take place over the course of a week, with meetings scheduled for each day, Bidder A on Tuesday, Bidder B on Wednesday and Bidder C on Thursday, with pre and post meetings with NHS Lothian on Monday and Friday.

10. My own role during the competitive dialogue process had two functions. The first was a project management role, managing the MML team that facilitated

the flow of information between the bidders and NHS Lothian. This was managed through a system called Conject, which facilitated the flow of communication either from the bidders to NHS Lothian, and following NHS Lothian approval, answering queries on behalf of the NHS Lothian project team.

11. The other aspect of my role was managing the technical advisor team. Depending on what was being discussed at dialogue, MML would provide technical support to the NHS Lothian project team. This ranged from architectural support to mechanical and electrical engineering support, work on civil and structural matters, acoustics, energy modelling, and even aviation, due to the presence of the helipad. We also provided advisory support on matters such as facilities management which are a crucial aspect of any NPD or PFI project. I coordinated all of these separate disciplines with the support of the project management team as well as working collaboratively with the NHS Lothian team and their legal and financial advisors. NPD projects are extremely complex and incorporate a very wide range of disciplines relevant to the design and build, and then the twenty-five-year concession period following completion. MML's input therefore encompassed project management and a broad range of technical advisory services to support the NHS Lothian team in each of the relevant disciplines.

12. A typical dialogue week would include a pre-meet with the Core Evaluation Team. This would involve NHS Lothian, Ernst & Young ("EY") who were the NHS Lothians financial advisers, MacRoberts, who were NHS Lothians legal advisers and MML, for whom the attendees would be Richard Cantlay and me. The Core Evaluation Team is identified at section 3.1.2 of the RHSC DCN Dialogue Plan and Evaluation **(A36308885 - Dialogue Plan and Evaluation,[1])** (the "Evaluation Manual"). Section 3.2 of the Evaluation Manual sets out the key individuals involved in the evaluation process. I am listed under design and construction, along with Richard Cantlay and David Stillie of Mott MacDonald but in reality, I worked across the procurement and core evaluation workstreams too.

[1] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101

13. The procedure to be followed in the Competitive Dialogue Process was set out at section 4 of the ITPD. Section 4.1.2 **(A34696936 – Draft ITPD Evaluation Criteria – 5 April 2012[2])** defined the dialogue process as a "series of meetings leading to submission of the Final Tender", making it clear that the "Board intends to continue the Dialogue until it is satisfied that Solutions from one or more Bidders are capable of meeting the Board's requirements". Section 4.1.3 set out the process to be followed during the dialogue, including discussion of aspects of the NPD Project Agreement, and the proposed risk allocation.

14. By the beginning of each dialogue week, we would already have received submissions from the bidders, which would come in around a week before the dialogue session, to allow the submissions to be reviewed. These submissions would be based on a set agenda. We would then have the dialogue meeting with the bidders on Tuesday, Wednesday and Thursday of each dialogue week, and then a debrief Core Evaluation team meeting on the Friday.

15. My recollection of the Bid teams was as follows: Bidder A included Balfour Beatty and BAM. Bidder B was Integrated Health Services Lothian (IHSL), and included Macquarie Capital, Brookfield Multiplex and Bouygues FM as FM contractor. Bidder C was Mosaic, which included Laing O'Rourke and Serco as the FM contractor. Each of the Bidders employed a contractor and their own design teams.

16. Prior to and during a dialogue week, NHS Lothian and MML would review the documents submitted by the bidders. NHS Lothian and MML would then provide comments to the MML Project Management Team. While I was not responsible for reviewing any particular submissions, I would familiarise myself as best I could with them in the time available, particularly if there were any discussion points raised by the NHS Lothian / MML reviewers. The various NHS Lothian, MML, MacRoberts and EY workstreams would meet and discuss

[2] Bundle 2 Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, item 9, p.578

the comments, and the outcome would then be fed into the Core Evaluation team. Any significant issues would be discussed at that stage. The aim of the dialogue meetings was to support the three bidders in developing their tenders.

17. Communications to any of the bidders or other stakeholders would generally be issued by the MML project management team on behalf of NHS Lothian via Conject. I recall that all communication required to be approved by NHS Lothian before issue, generally by either the Project Director or Clinical Director.

18. My recollection is that one of the main areas of focus in the competitive dialogue phase was the development of architectural layouts, and I recall additional dialogue sessions were implemented with each of the bidders to allow further development. I understand there was a particular focus on this point to ensure that the clinical teams were comfortable with the layouts. This was also important to NHS Lothian more generally. In relation to the design risk allocation in the Project Agreement, the architectural layouts and clinical adjacencies fell within the definition of Operational Functionality, which was the only element of the design where NHS Lothian accepted the design risk. All other elements of the design were for the Preferred Bidder / Project Co to develop and ensure were compliant with the BCRs. This approach to risk allocation is adopted as standard in NPD projects in my experience.

19. If matters needed to be escalated to NHS Lothian during the competitive dialogue process, then this was done through the Core Evaluation Team. This would include any technical issues. The dialogue phase was very structured in line with the meeting schedule set out in the ITPD. I understand this meeting schedule was adhered to up until dialogue four, when extra architectural sessions were put in place. That said this was also done in a very structured way.

20. After the appointment of the preferred bidder, there were a number of individual workstreams, such as a civil and structural workstream, a helipad workstream, and a number of others. There was also a mechanical and

electrical workstream. In the preferred bidder phase, I believe the structure changed so that the Core Evaluation Team became the Project Management Executive. Any issues arising would have been discussed in that forum, for example the contents of the risk registers would have been presented and discussed there. Throughout the project there was always a means of escalating any issues which arose.

21. I came into the project at stage three of the competitive dialogue process, following the submission of mechanical and electrical proposals by bidders. These had been considered at dialogue two so I was not involved in discussions on those aspects of the project. There was no formal scoring of the dialogue sessions. The dialogue process was set out at section 4.4 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[3])**, and paragraph 4 of ITPD volume 1**. (A34697102 – Invitation to Participate in Dialogue Vol 1, Revision B[4])** The bidders were invited to produce informal submissions in advance of each dialogue week. The informal submissions were produced to give NHS Lothian and the advisers a feel for how the tenders were progressing and allow them to give feedback to support the developers with the development of the tenders.

22. After dialogue five, the bidders submitted draft final tenders. According to the timetable in the ITPD, these were to be produced on 21 October 2013. Section 5.1 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation [5])** confirmed that the draft final tenders were not to be scored by NHS Lothian. Instead, they were to be used "as a tool for NHS Lothian to ensure that bidders have solutions capable of meeting its requirements, thus enabling NHS Lothian to proceed to conclude the Dialogue Period". The process for technical reviews was set out at section 5.2 of the Evaluation Manual. These all required to take place between 22 October and 7 November 2013. This would not have involved a detailed line by line check of each bid for compliance with all of the guidance in the BCRs. NHS Lothian

[3] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[4] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, item 23, p.942
[5] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101

was always mindful of the risk allocation inherent in an NPD project, and it was up to the potential NPD providers to produce a compliant design and undertake their own design assurance. From a technical perspective we would be undertaking a sample review and providing comments and feedback. There was not a lot of time available to review the tenders. Only two weeks had been allowed, and that might only allow for one or two days of a reviewer's time to be spent on reviewing all three bids, bearing in mind it was not a full-time design role for the reviewers, as MML had an advisory only role.

EVALUATION MANUAL – DRAFT FINAL TENDER

23. The aim of the draft final tender stage was to provide an opportunity for bidders to receive feedback on draft submissions to maximise bidders' opportunity to create a compliant bid. By "compliant" I mean compliance with the evaluation criteria set out in section five of the ITPD. At the draft final tender and final tender stage, bidders were expected to provide submissions in line with the level of detail set out in the ITPD, that complied with guidance such as the SHTMs.

24. At draft final tender stage, the guidance to the team reviewing each proposal from a technical perspective would be to highlight any areas which would result in a non- compliant bid. The process was well defined in the evaluation manual. The first step was a completeness check, in order to assess whether the bidders had responded to all the questions they were supposed to respond to. The draft final tender review examined whether there were any obvious areas which would have made bid non-compliant. A report was provided to each bidder, and then there was then a further dialogue session to discuss any issues arising from the draft final tenders. This had been provided for in the programme from the outset. The legal and financial advisers were also providing feedback at this point.

25. As was made clear at section 5.1.1 **(A36308885 - Dialogue Plan and**

Evaluation[6]) the draft final tenders were not scored by NHS Lothian or advisors. Instead, they were to be "used as tools during the Dialogue Period for Bidders to set out their Solutions to NHS Lothian and for subsequent feedback on whether aspects of the Informal Submissions and Draft Final Tenders meet the Board's requirements set out in the ITPD". The Evaluation Manual set out the procedure to be followed at draft final tender stage. As set out at paragraph 5.3 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[7])**, there was to be a technical review, involving "individual review and comment by the relevant member of the technical team". Paragraph 5 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[8])** indicated that "consistent with the Board's requirement to ensure fairness between bidders, there will be no detailed feedback going beyond setting out where that bidder does not meet minimum requirements". A final dialogue meeting (dialogue six), took place after the draft final tender stage to allow for clarification of any points arising at that point.

EVALUATION SCORING CRITERIA

26. Final tenders were produced in January 2014, in accordance with the programme set out at section 4.2 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[9])**. The Inquiry has asked me if I have any knowledge of the assessment criteria used for bidders on the Project and the 60/40 price/quality split. From my perspective I believe that this had been set following guidance provided to NHS Lothian by Scottish Futures Trust (SFT), but I was not involved in advising on an appropriate allocation.

27. The ITPD sets the evaluation process. In terms of the evaluation scoring criteria. 60% of the score was cost related and 40% was quality related. Of the 40% allocated to Quality, this was split into Strategic and Management (5%), Design and Construction (23%) and Facilities Management (12%).

[6] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101

[7] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[8] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[9] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101

28. A substantial proportion of the Design and Construction scoring questions and evaluation criteria weighting was allocated to the architectural related design elements. The weighting for C8, being clarity, robustness and quality of M&E engineering design proposals was 1.06% of the overall score.

29. In terms of the percentage ascribed to the mechanical and electrical elements, while I was not involved in determining the scoring breakdown, I understood there was an underlying requirement for the consortium ultimately appointed as preferred bidder to ensure that the mechanical and electrical design is compliant with the Board's Construction Requirements ("BCRs"), and that the final design required to comply with all of the applicable guidance.

EVALUATION MANUAL – FINAL TENDER

30. The Evaluation Manual sets out the process for evaluation of the final tenders. My understanding of the scope of MML's role in the evaluation process was very much determined by this document, which had been drafted by MML with input from MacRoberts and EY and had all been approved by NHS Lothian.

31. The process to be followed for evaluation of the final tender is set out in section 6 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[10])** as well as section five of ITPD volume 1 **(A34697102 – Invitation to Participate in Dialogue Vol 1, Revision B[11])**. The evaluation process involved the following steps:

- Completeness and compliance check,
- Check for compliance with the Stand Alone Requirements,
- Evaluation of all of the Quality Evaluation Criteria on a pass/fail basis,
- Evaluation of those Quality Evaluation Criteria that are evaluated on a scored basis,

[10] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[11] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, item 23, p.942

- Price Evaluation (including commercial aspects),
- Evaluation of funding proposals,
- Legal review,
- Combination of price evaluation mark and quality evaluation mark.

32. The first step was the completeness and compliance check. According to the detailed programme set out at section 6.2 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[12])**, this was due to take place over two days from 7 to 8 January 2014. This was not a technical compliance check. It was a review undertaken by the Procurement Management Team, to check that the bids were complete – i.e., that they had provided answers to all of the questions being asked of bidders – and that they otherwise complied with the submission requirements from a procurement perspective.

33. The next stage was a review of the technical submissions provided by each bidder. This required to be done between Thursday 9 January 2014 and Friday 31 January 2014. The process to be followed was set out at section 6.5 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[13])**, and broadly required review by individuals, recording any scores and comments, then a meeting to agree a consensus score, then collation of the final tender evaluation. The process all required to be completed by 12 February 2014, according to the timetable in section 6.2 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[14])**.

34. Guidance on the quality scoring was set out at section 6.6 of the Evaluation Manual **(A36308885 - Dialogue Plan and Evaluation[15])**. This provided that "using the Final Tender Evaluation Proforma in Appendix E, the Evaluation Group members will each undertake individual evaluation of the relevant evaluation criteria within each Bidders' Final Tender Submissions against the prescribed scoring criteria before meeting with their Group in a workshop, chaired by the Core Evaluation Team member leading that Group, to agree

[12] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[13] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[14] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101
[15] Bundle 8 - Scoring & Correspondence Regarding Issues, item 26, p.101

the final consensus scores for each of the evaluation criteria for which that Group is responsible.

35. From an M&E MML perspective, Colin McCrae, Willie Stevenson and Paul Kelly were involved in reviewing the submissions. From NHS Lothian, Ernie Bain (estates manager) and Brian Currie (design and construction workstream chair) were involved in the mechanical and electrical evaluation. Each of the evaluators would produce individual comments and an individual score. Once again these were sample reviews, the bidders were required to undertake their own design assurance. Mechanical and electrical reviews were only a relatively small part of the work MML were undertaking at that stage. MML were undertaking technical reviews in a whole range of areas including acoustics, civil and structural, and facilities management aspects of each bid. The evaluators would then go to a meeting with the workstream lead, and then at the meeting the evaluation team would agree consensus comments and a consensus score. I would not have been involved in reviewing the M&E aspects of each bid as this is not my area of specialism. Once again, the reviewers would not have been undertaking a detailed audit of each bidder's proposals to check in detail for compliance against the guidance in the BCRs. The Evaluation Manual also included pro-formas for the evaluators to complete for each question and bidder.

36. I was involved in the consensus design and construction meetings, in which I or one of my colleagues would collate comments and scores agreed and discuss these with the MacRoberts procurement team. This involved collating the comments and challenging the comments if they did not seem consistent. I don't recall this happening specifically on the project, however an extreme example of the input I may have provided is as follows, if the evaluators were saying a proposal was excellent and only giving a score of 6, I would advise them that the scoring criteria says that if it is excellent then it should generate a score of 10. So, either the wording was wrong or the scoring wrong. This is the type of input I would have as opposed to a technical review. I was trying to assist with ensuring consistency in the scoring of the evaluations. I was not involved in the scoring itself just supporting the collating of the comments at the end.

37. Following the consensus meeting my role was to draft the Design and Construction Draft Final Tender report, and Final Tender reports based on the consensus comments and scores produced by the evaluators.

38. With regard to the scoring of the bidders I was aware that IHSL scored higher than other bidders in some areas. I believe that this was primarily in relation to architecture. I understand they took the best parts of the reference design and enhanced it, which the clinical teams saw as a massive benefit. I understand the other bidders tried to alter significantly the architectural elements of the reference design, but it did not fit the clinical layouts that NHS Lothian were looking for.

39. At the end of the tender evaluation process, a preferred bidder letter and unsuccessful bidder letters were prepared. I worked with NHS Lothian, the MML project management team, MacRoberts and EY to populate the letters based on the scores and comments in the completed tender evaluation proformas. Following the release of the letters, I then participated in de-brief sessions with the unsuccessful bidders.

40. The Inquiry has asked me to express a view on why the anomaly in the environmental matrix between guidance note 15 and the air change rates in critical care, was not identified when the tenders were evaluated. I was not involved in reviewing the detail of the mechanical and electrical submissions, but I am now aware that Bidder C produced a version of the environmental matrix which they had marked up, whereas Bidder B did not produce an environmental matrix with their final tender at all, instead adopting the environmental matrix produced with the ITPD stage for that purpose. I can't comment in detail on the differences in each bidder's approach, as I am not a mechanical and electrical engineer. However more generally, I do not think that the fact that the bidders were proposing two different solutions would of itself necessarily have rung any alarm bells. The bidders would be expected to produce different solutions generally. With specific reference to the EM, the preferred bidder would always have to develop the environmental matrix in accordance with their own design. Even at final tender stage, the

development work on the design is still to be done. The fact that the solutions proposed by each bidder were different, would not necessarily mean that one of them had complied with guidance and the other had not. The anomaly in the environmental matrix *could* have been picked up in the final tender review or in one of the subsequent reviews, but it does not necessarily follow that it *should* have been picked up, particularly if there was no environmental matrix with bidder B's bid. The sample reviews being done at that time did not involve a detailed audit of the design.

41. I have been asked how a bidder could show at final tender stage that they had complied with CEL19 (2010). By this I understand that I am being asked how the bidders could demonstrate that ADB had been used as a design and briefing tool. Bidders did require to produce sample RDS in the final tender, which I would have expected to have been generated from the ADB, and were also required to produce a full set of RDS by financial close, though in the event this did not actually happen as I will go on to explain.

42. The Inquiry has asked me to comment on how NHS Lothian and MML assessed compliance with CEL 19 (2010), given that this required health boards to use ADB as a design and briefing tool. CEL 19 (2010) was one of a number, indeed hundreds, of documents which were referred to in the Board's Construction Requirements ("BCRs"), as being guidance with which bidders were expected to comply. In my role at Mott MacDonald Limited I would not have been checking compliance with the requirements of this document.

43. The Inquiry has also asked specifically how CEL 19 was used to assess tenders for compliance. The tenders were evaluated against the criteria set out in the evaluation manual rather than being assessed in detail against each one of the very many guidance documents contained in the BCRs. It was not part of MML's role to undertake such a review, in addition there would not have been time to assess each tender against every individual document. Similarly, the reviews undertaken at final tender stage did not involve a line-by-line audit for compliance with all the applicable guidance. Ultimately however, it would be for the successful bidder to ensure that they developed

their own design in a manner which complied with the BCRs, reflective of the risk allocation in the project agreement.

44. I don't recall compliance with CEL 19 being discussed specifically, but obviously the procurement process took place a long time ago and I was not involved in the project from the beginning. In relation to whether ADB was used as a briefing tool, I am not aware of whether ADB was used by the reference design team when preparing their design. It might have been, and certainly the existence of an environmental matrix, and the use of ADB, are not mutually exclusive. The originators of the environmental matrix may well have used ADB in populating the services requirements for each room. It is worth highlighting that every NPD project which I have worked on has had an environmental matrix. In my experience, an environmental matrix has been used as standard in healthcare projects. From reading the ITPD, RDS had not been produced by the start of the procurement process, however it was clear key and generic rooms were to be produced by the bidders for final tender, and a full set of RDS were to be produced by the preferred bidder before financial close. The originators of the RDS may well have used ADB in preparing them.

APPOINTMENT OF PREFERRED BIDDER

45. IHSL were the Preferred Bidder (PB). I understand that they employed an SPV Management company which was HCP Social Infrastructure. Multiplex were the D&C Contractor, and then Bouygues were the Facilities Management provider. Multiplex then had a supply chain of designers, this included HLM, employed as architect, Wallace Whittle (who later became TUV SUD) as mechanical and electrical consultants. Robert Bird was appointed as the Structural engineer. Acoustic design was undertaken by Acoustic Logic. Fire Engineering was undertaken by Exova and then that changed to WSP early in the PB stage. Ironside Farrer was involved in planning. Multiplex also worked with the following sub-contractors: Mercury Engineering; Dunnes; Balfour Beatty Ground Engineering; and Crummock.

PREFERRED BIDDER TO FINANCIAL CLOSE

PROJECT MANAGEMENT

46. During the Preferred Bidder (“PB”) phase, MML were on the Project Management Executive ("PME") which involved a pre-meet in preparation for meetings of the Project Delivery Group ("PDG"). The PDG managed escalated legal, technical and financial issues.

47. During the PB phase, there was also a Design Steering Group ("DSG"), and Project Management Group ("PMG"). The DSG managed escalated design issues. The PMG met weekly and managed process elements of the technical workstreams. I attended all of the above meetings. There was also an oversight meeting involving the executives of NHS Lothian, IHSL and possibly SFT, however MML were not involved in that meeting.

M&E MEETINGS

48. Throughout the PB phase of the project, workshops were scheduled for each workstream. Mechanical and electrical workshop number one took place on 7 April 2014. This was the start of series of nine planned workshops scheduled to take place between the appointment of the preferred bidder and financial close.

49. Early in the PB phase there was an M&E meeting (it might even have been M&E workshop 1) where we discussed the preferred bidder (PB) letter as IHSL had seen their M&E score and acknowledged that they were the lowest (5/10) out of all the bidders. In the preferred bidder stage, IHSL asked for some more detail on where they could improve from an M&E perspective. MML and NHS Lothian provided comments around 23 May 2014.

PROJECT CO'S PROPOSALS

50. On 2 April 2014, early into the Preferred Bidder stage, concerns were raised by MML about the initial development of the Project Co's Proposals (PCPs). This included concerns about the proposed structure of the PCPs, and concerns about regular reference to "Glasgow South" noting the following: *"Something else to be wary of is there is a common theme that the IHSL Designers are starting to rely on what they have done on Glasgow South, which is possibly a good starting point, but we need to see the detail of the proposals, and not assume that because Glasgow accepted it, NHS Lothian will too. First issue is we need the details, second issue is we need to review it".*

51. MML also noted a lack of appropriate lead/attendees at meetings and additional derogations being requested by the preferred bidder to those in the final tender. By "Glasgow South", IHSL were referring to the Queen Elizabeth University Hospital ("QEUH"). IHSL frequently sought to justify design choices made in RHCYP/DCN with reference to what Multiplex were doing at QEUH. This seemed to be a benefit to the RHCYP at that point, as at that stage the QEUH, a very significant project, seemed to be going well.

52. On 4 September 2014, following lengthy discussions about the operational functionality document stamp, NHSL responded to an email trail between NHSL, MML and MacRoberts. I recall the background to the matter related to two main issues;
(1) an additional Operational Functionality caveat that NHSL required due to a lack of developed C Sheets from the PB; and (2) the Clause 12 Project Agreement risk allocation, where I recall the final agreed RDD stamp reflected the Clause 12 Project Agreement risk allocation.

53. The lengthy conversation about the document stamp related to design risk allocation. I worked with MacRoberts on this as it was critical to the

operational functionality risk allocation in the contract, to ensure that any signing of the submitted design was limited to the operational functionality aspects of the project. This reflected the risk allocation in the project agreement. NHS Lothian was only accepting design risk for aspects of the project relevant to operational functionality. By stamping drawings as approved, there was a risk NHS Lothian could be deemed to be taking responsibility for the design, and it was only appropriate for them to be doing that for matters relevant to operational functionality. This matter was discussed by all parties, and I believe understood by all of them at the time.

54. On 14 October 2014, MML issued an email to NHS Lothian and MacRoberts stating the M&E drawings were largely level C and D, and not at the level we would expect for financial close. As there was pressure to reach financial close, the email also starts to explore possible mitigation measures including the following;

    a. *"An initial fall-back position for the Board could be to request that the Board has the "absolute right of comment" on the drawings post Financial Close…*

    b. *The absolute right of comment approach may not be acceptable to the Funder's Technical Adviser, and therefore as discussed, a further fall back position would be to provide a schedule of comments that are included in the Project Agreement, with an opening statement of "The following comments shall be incorporated into the drawing by Project Co at no additional cost to the Board, and the drawings shall be submitted by Project to the Board through Schedule* Part 8 (Review Procedure)…

55. On 10 of November 2014, following discussions with MacRoberts and NHSL, MML issued to NHSL and IHSL an updated RDD Schedule that had been expanded to include the following 4 Parts;

    "Part 1: Endorsed RDD Item - Level A or Level B but subject to re-submission to the Board through Schedule Part 8 (Review Procedure)

    Part 2: Non-Approved RDD Items - Level C or Level

D: Part 3: Reviewable Design Data:

Part 4: Non-Approved Project Co's Proposals Design Data comments:"
This started to include MML / NHSL collated workstream comments on Project Co's design data.

56. As a mitigation measure, MML explored with NHS Lothian the comments and qualifications on the PCPs, and one of those was the environmental matrix. The MML technical team in collaboration with NHS Lothian and IHSL developed those comments and qualifications, which went into the RDD schedule.

57. There then followed a number of emails back and forth between IHSL and MML/ NHS Lothian with regard to mitigation measures and in particular items to be included as Reviewable Design Data.

58. On 9 December 2014, following discussions between NHS Lothian, MML and MacRoberts, an updated RDD schedule was sent to IHSL rejecting the proposed amendments. On 11 December 2014, a meeting took place between NHS Lothian, IHSL and MML to discuss the RDD schedule. On 16 December 2014, I sent an email to NHS Lothian reflecting the points conceded by NHS Lothian in the meeting relative to revised RDD drafting, then on 18 December 2014, following approval from NHS Lothian, I issued an updated version of the RDD schedule to IHSL.

ROOM DATA SHEETS

59. My role in the development of IHSL's RDS included co-ordinating the responses from the MML / NHSL technical teams. I did not undertake any reviews and was not necessarily involved in all of the correspondence, but I have undertaken a review of the relevant parts of MML's file, and the key points were as set out below.

60. Paragraph 2.5.3 of the ITPD **(A34696936 – Draft ITPD Evaluation Criteria –**

5 April 2012[16]) sets out the plan for the development of Room Data Sheets (RDS). I think it is important to make the distinction between the template Activity Database Sheets (ADBs) versus the project specific RDS. The ADB is a central database which is now in private sector ownership, managed by a company called Talon. This contains standard form sheets setting out the design criteria for individual room types in a hospital, which need to be tailored into project specific RDS, to suit

each particular healthcare facility. I am aware that the ADB cannot always be relied upon for accuracy. My understanding on this point arises from a number of sources. Firstly, the ADB is based on the English guidance, or HTMs, rather than the guidance which applies to Scotland, which is contained in the SHTMs. Secondly, having worked on a number of healthcare projects, from my own experience, including recent project experience, the ADB is used with caution by statutory bodies, boards and private sector designers. This is in recognition of the fact that use of the ADB does not guarantee compliance with relevant standards. It can be out of date. I have seen examples of ADB containing two apparently contradictory sheets for the same area. An example of this would be two sheets which were present on the ADB at the same time relevant to multi-bedded rooms in critical care. Sheet number B1609 relates to a multi-bedroom, critical care, 4 beds including scrub up bay. Mechanical ventilation is given as 6 air changes per hour “to suit design and clinical requirements”. Sheet number B1610 on the other hand, which also relates to multi-bedded rooms in critical care, requires 10 air changes per hour. These are two apparently contradictory sheets in the ADB. My understanding therefore is that there is quite a lot of work involved, in developing RDS from the underlying ADB. The designer of the RDS would require to check that the sheets complied with the applicable guidance, rather than simply relying on what was in the ADB sheets. Aside from any issues with the ADB itself, it is well known that some of the underlying guidance can be contradictory, which is why my understanding is that there is a standard clause in NPD project agreements to the effect that the most onerous standard should always apply. In line with this approach this clause was added to the BCRs for the RHCYP/DCN project.

[16] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, p.578

61. I understand that different companies have different ways of developing room data sheets. It is possible that all companies do not necessarily go to Talon to get that information. There was a point where the Department of Health published a spreadsheet version of the ADBs and I believe some companies started to use that as opposed to those from Talon, who took over the licence to issue them.

62. Volume 1 of the ITPD states at section 2.5.3 **(A34696936 – Draft ITPD Evaluation Criteria – 5 April 2012[17])** that standard form RDS had not been prepared at that early stage. Guidance Note 1 to the draft environmental matrix, issued with the ITPD describes it as an easier reference tool to replace ADB RDS M&E sheets.

    During the competitive dialogue phase, RDS were to be prepared by bidders for certain rooms. However, all remaining rooms required to have room datasheets completed before financial close. The preferred bidder was to have responsibility for ensuring that this was done.

63. During the Competitive Dialogue phase, the bidders were each to develop RDS for the key and generic rooms for final tender, and then the Preferred Bidder ("PB") was to develop RDS for all rooms at FC.

64. On 1 April 2014, early in the PB to FC phase, RDS were identified as a priority item for the preferred bidder to develop. This was identified on a technical schedule tracker that MML developed and issued with a view to trying to ensure that progress was being made with key aspects of the project. Throughout the summer of 2014, MML on behalf of NHS Lothian wrote to IHSL on a number of occasions, asking IHSL to expedite the RDS, and even just to produce templates for the RDS that they were planning to produce. On behalf of NHS Lothian, MML set up meetings with IHSL to try to move things along. At least one of these had to be cancelled because IHSL had not produced the documents in time.

[17] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, p.578

65. By autumn 2014 it was becoming clear that RDS would not be available by financial close. On 19 September 2014, NHS Lothian circulated an email to MML noting that NHS Lothian needed to agree a position, on whether to push for completion of all (or indeed any) RDS by FC. The email from NHS Lothian noted that " the IHSL response is that they cannot do it." By November 2014, discussions were underway to update the Completion Criteria and BCRs to reflect the lack of completed IHSL RDS for financial close. These were produced on 9 December 2014. Ultimately, by financial close, NHS Lothian did not have a complete set of RDS from IHSL. This meant that NHS Lothian were unable to approve the RDS by that stage. The solution was that the RDS required to be included as Reviewable Design Data (RDD). On 27 Jan 2015, MML wrote to IHSL on behalf of NHS Lothian noting that;

As the RDS are incomplete, the Board has not stamped the drawings. In accordance with the requirements in Section 5 (Reviewable Design Data) of Schedule Part 6 (Construction Requirements) ***(A32435789 - Schedule Part 6: Construction matters, section 5 (Reviewable Design Data[18])*** *Appendix B (Completion Criteria) of Schedule Part 10 (Outline Commissioning Programme)* ***(A33405351* - Schedule Part 10: Outline Commissioning Programme Excerpt pages 299 to 313[19])**

> *Project Co has to submit to the Board through the Review Procedure completed Room Data Sheets for all Rooms whilst taking into account Section 3 of Schedule Part 6 of the Boards Construction Requirements"* **(A41179262 - Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780[20]).**

66. Following completion of the project, I reviewed the RDS which IHSL had produced prior to financial close. I noted that the Clinical Activities in the Draft Final Tender, Final Tender and FC RDS for the Critical Care bedrooms rooms have been altered from the ADB sheet Clinical Activities. The FC RDS Critical Care bedroom Clinical Activities appear more those to be expected in a

[18] Bundle 5 – Contract Documents, item 7, p.767
[19] Bundle 5 – Contract Documents, item 13, p.1504
[20] Bundle 5 – Contract Documents, item 4, p.341

normal bedroom, than a critical care bedroom. I say this because the activities specified for the rooms include taking refreshments in a sitting space, dressing and undressing, and arriving on foot. None of these activities would be expected to take place in a critical care area. This can be contrasted with the Clinical Activities in the Critical Care bedroom ADB sheets, that are clearly Critical Care Clinical Activities. This might have led any reviewers considering those RDS, to form the view that those RDS did not relate to critical care rooms, and so that specific aspects of guidance relative to critical care bedrooms in for example SHTM 03-01 was not applicable to those rooms. There may well have been a good explanation for this alteration, however I do not however recall being involved in any such discussions.

67. IHSL were unable to provide a full set of RDS prior to financial close. Due to those that were produced being submitted relatively late towards FC I do not believe they were capable of being reviewed by NHS Lothian or MML prior to financial close. I recall there being some correspondence to the effect that we had not stamped (signed off) the room datasheets.

68. The other thing we did, because the RDS had not been reviewed pre-financial close, was enhance the completion criteria relative to the RDS. There were extra clauses added, requiring IHSL to develop fully populated compliant RDS, which was agreed by all parties and added into the completion criteria. I think there might have been some changes to the BCRs as well, which related to that.

69. Having been unavailable prior to FC, the RDS would instead be reviewed when the project got to the construction phase. They would be presented in user group meetings and reviewed in the development of the design. I believe that Project Co's mechanical and electrical teams sat in on the early sessions to listen to the environmental information from the initial user group meetings, however I am not sure if that continued.

70. In terms of reviewing the mechanical and electrical data contained within the room datasheets, given that IHSL produced only a limited number of RDS

prior to financial close, and later than programmed, I do not recall MML undertaking a review of this data. When the review was undertaken in the construction phase, it would have been sample reviews and spot checks only as MML were not carrying out any design function on the project. Once again MML were not providing design assurance or undertaking an audit of IHSL's work. MML were undertaking an advisory role. The advisory team generally did sample reviews of the documents as opposed to carrying out any detailed analysis of them. MML's role was not to provide design assurance on the project.

71. I do not know how IHSL prepared their RDS, in terms of whether they used ADB or the environmental parameters for the room data sheets, I believe this information would have been taken from IHSL's own environmental matrix and then fed into the room data sheets, which may well have been produced from ADB templates. I do not think there was any changes from the environmental matrix through to the RDS. The building was almost complete I think by the time the final versions of the RDS actually became available so the majority of the environmental discussions were based on the environmental matrix as opposed to the RDS.

THE ENVIRONMENTAL MATRIX

72. I recall the environmental matrix was divided into three sections, a set of guidance notes, a room function reference sheet, and a table of environmental parameters for particular rooms organised by department. The guidance notes were instructions for the bidders to take into account in the preparation of their own design. I was however not involved in considering the detail of the environmental matrix. I understand Hulley

and Kirkwood produced the draft Environmental Matrix issued with the reference design and would be better placed to advise on the content. The room function sheet, I believe was part of the excel spreadsheet format, and I think in the original version you were able to select from a drop down list, hence if you selected a bedroom, you would copy and paste the bedroom

criteria into the table below.

73. I understand that the population of the draft environmental matrix issued to bidders with the ITPD with the data relative to the environmental parameters would have been the responsibility of Hulley and Kirkwood. I think all the mechanical and electrical information was shared in the data room to the bidders, for their use, to use how they wanted. The preferred bidder then had ownership of the environmental matrix and became responsible for developing it themselves.

74. The Inquiry has also asked me whether in my opinion the ITPD was requesting something impossible of bidders, being compliance with SHTMs and compliance with an environmental matrix which was itself not compliant with the SHTMs. I do not think that bidders were being asked to do the impossible. This is because the preferred bidder always had responsibility to design its own environmental matrix. The ITPD issue environmental matrix was a draft, for bidders to develop. The preferred bidder required to produce its own environmental matrix, and ultimately would have to construct the facility in alignment with that. It was IHSL's own, developed environmental matrix, which the BCRs required the preferred bidder to comply with. IHSL was aware of this responsibility and were they reminded of this frequently, as I will go on to explain below. In addition, IHSL did adopt the Hulley & Kirkwood matrix, applied their own branding to it, and amended it to suit their own design. All in all, IHSL produced at least eleven different iterations of the environmental matrix after they were appointed as preferred bidder. At no point do I recall IHSL saying that they were being asked to do something which was impossible.

75. The Inquiry has asked me if in my opinion, the information provided to prospective bidders in the ITPD lacked clarity in relation to the purpose of the environmental matrix, and whether bidders needed to formulate their tender to comply with the requirements set out in the environmental matrix. I do not recall the ITPD issue environmental matrix being discussed after Dialogue 3. I played no part in the drafting of the ITPD. That said, as I will go on to explain, IHSL did adopt the environmental matrix, and developed it, making

some significant changes to it. I am also confident that they were reminded at a number of points that they had responsibility for the design, including the environmental matrix, and for ensuring compliance with the BCRs. It was specifically pointed out to IHSL that the reference design had no contractual status as far as the environmental matrix was concerned. IHSL also confirmed that their design for the environmental matrix was compliant with SHTM 03-01.

76. My understanding as to the status of the environmental matrix is that it was provided to bidders in draft form to assist them with formulating their own design. It was always the responsibility of IHSL to develop their own design, including the mechanical and electrical elements contained in the environmental matrix.

77. There were mandatory elements and indicative elements in the ITPD. The environmental matrix was not one of the mandatory elements, which meant that the preferred bidder would have design responsibility for it. I understand that all information issued to bidders was issued as Disclosed Data for the purposes of Clause
7.1 of the Project Agreement. In relation to the environmental matrix, this meant that no warranties were given in relation to it, and bidders were required to prepare their own design and then verify that it complied with all of the guidance and, where there were any contradictions, with the most onerous of standards. IHSL's own environmental matrix was ultimately added into the contract as reviewable data design (RDD), because IHSL had not developed it sufficiently by the time of FC.

DEVELOPMENT OF IHSL'S ENVIRONMENTAL MATRIX

78. My role in the development of IHSL's environmental matrix was limited to co-ordinating comments from the MML / NHS Lothian technical teams. I did not undertake any reviews and was not necessarily involved in all of the correspondence, but I have undertaken review of the relevant parts of MML's

file, and the key points were as set out below.

79. The development of the environmental matrix in the PB to FC phase started with a discussion on transferring the ownership of the environmental matrix to IHSL. I recall being involved in a conversation to the effect that it was now IHSL's EM and was for IHSL to develop, following which on 3 July 2014, IHSL asked for an excel version of the environmental matrix in order that they could develop it in accordance with their own design. NHS Lothian requested the excel version of the EM from Hulley and Kirkwood, which when received was then issued to IHSL via email on the 11 July 2014. IHSL did then adopt the environmental matrix and amended it. They removed the Hulley and Kirkwood logo, updated the environmental matrix with their own document reference (WW-XX-XX-DC-001), and produced several different iterations of it. In later versions, the preferred bidder included their own logo on the environmental matrix. All in all, IHSL produced at least eleven different consecutive versions of the environmental matrix as they continued to develop their own design for the facility.

80. On 11 June 2014, IHSL issued RFI 005 relating to Guidance Note 15 of the environmental matrix and the provision of humidification in Critical Care and HDU. Guidance note 15 to the environmental matrix stipulated that "Critical Care areas - Design Criteria – SHTM 03-01 – esp Appendix 1 for air change rates – 10ac/hr Supply". IHSL did not query any discrepancy between the air change rates required for critical care in guidance note 15, and the data in the body of the spreadsheet. The RFI was passed onto the MML technical team and NHS Lothian clinical team who responded on 6 August 2014, among other things, reminding IHSL that "IHSL should also update their environmental matrix to reflect the BCR requirement". This reflected the fact that as the preferred bidder, IHSL now had design responsibility for the environmental matrix. I understand that as a result of the RFI response was IHSL altered Guidance Note 15 to reflect the humidification requirements.

81. Along with NHS Lothian, we continued to remind IHSL that they had responsibility for designing the environmental matrix so that it was compliant with the BCRs. On 24 September 2014, NHS Lothian issued an instruction to

IHSL that requested additional agenda items for the Design Steering Group including as item 1 *"1 Environmental Matrix – compliance with BCRs"*

82. On 29 Sept 2014 IHSL issued the first IHSL excel version of the EM. When reviewing this document in connection with my preparatory work for the Inquiry, it was noted that IHSL have removed HDU from this version of the environmental matrix, and also altered the humidification reference in relation to critical care in guidance note 15 to reflect the RFI.

83. In the construction phase, Project Co later altered guidance note 15 in their second version of the matrix so that it required 10 air changes per hour in critical care isolation rooms only. Contrary to an agreement between IHSL and NHS Lothian, Project Co did not highlight the changes that they had made. This meant that the changes would not have been obvious to the reviewers.

84. On 6 October 2014, the MML mechanical and electrical team undertook a sample review of IHSL's environmental matrix and then discussed the review with the NHS Lothian project team. There was an internal discussion about whether any non- compliances identified by MML might have previously been agreed by NHS Lothian directly in the reference design or competitive dialogue phase. It was decided the best course of action was to raise any concerns with NHS Lothian, and then if they agreed, flag the concerns to IHSL. This is what we then proceeded to do. The reviewers including NHS Lothian reviewers would feed comments to the project management team, and MML would issue the collated comments to NHS Lothian for approval.

85. On 6 October 2014, the environmental matrix was noted on the MML / NHS Lothian design issues register as a risk, as it did not appear to have been sufficiently developed by IHSL by that stage.

86. On 14 October 2014, MML issued comments on the environmental matrix on behalf of NHS Lothian to IHSL. NHS Lothian Estates had not yet given us any comments on the matrix at that point, which MML also raised to NHS Lothian as a project risk. One of the MML comments was that despite having changed

the matrix by that point, IHSL had kept the Hulley & Kirkwood branding on it, which was inappropriate as by that stage IHSL had become the designer.

87. Throughout autumn 2014 and after the turn of the year, there was further correspondence back and forth between NHS Lothian/ MML and IHSL with regard to IHSL's environmental matrix. There were various concerns with regard to IHSL's approach. One of these concerns arose from a HAI-SCRIBE review which took place in November 2014 relative to positive/ negative pressure in single bedrooms.

88. Following discussion with NHSL and IHSL, the following comments relative to the EM were included in Part 4 of the RDD schedule.

"Project Co shall update the Environmental Matrix to reflect the following Board comments

- *The Environmental Matrix shall by updated by Project Co to reflect all the rooms and room types in the proposed Facility, this should be based on an updated Schedule of Accommodation that has been commented on separately by the Board. This also needs to reflect the names and room numbers in the GSU table.*
- *Include the requirements contained in the Clinical Output Specification including but not limited to the requirement that theatre temperatures are to be able to be raised to 31°C for certain operations*
- *Measures shall be assessed, modelled and implemented to demonstrate that the internal air temperature of the following room types to reduce the temperature control from 28°C to 25°C;*
  - *Treatment Rooms;*
  - *Consulting Rooms;*
  - *Laboratory;*
  - *Physiotherapy Studio;*
  - *Recovery.*

These room shall not exceed the maximum acceptable level of 25°C for more than 50 hours per annum

- *Detailed proposal awaited on bedroom ventilation to achieve balanced/negative pressure relative to corridor.*

- *Colour rendering all stated as 80 where certain areas should be 90.*
- *There also need to have a consistent approach e.g. guidance notes and ED bodyview room stated as 28 -8, bereavement suite body view room stated as 25 -8.*
- *Further discussion is required on the minimum temperate requirement for the Body View Room".*

89. The Inquiry have asked me to what extent did these identified elements of the RDD bear upon the issues of ventilation issues which later arose. Whilst not a mechanical engineer, I believe the compliance elements of the ventilation issues were generally covered by the RDD comments, and in addition, there was an overarching project agreement requirement for IHSL to ensure their design complied with all the relevant guidance.

90. On 30 January 2015, ventilation was recorded on the MML Design Risk to NHS Lothian to FC register as a high-risk item.

91. On 13 February 2015, the Project Agreement was signed. This included NHS Lothian comments on the environmental matrix for Project Co to incorporate. Project Co continued to develop the environmental matrix post financial close. The Inquiry has asked me whether this meant that the ventilation specification had not been fully agreed by financial close. I think it would be more accurate to say that the ventilation specification was to be found in the BCRs and so was agreed by financial close, but that IHSL design for the environmental matrix was not complete by that stage. IHSL produced a number of further iterations of their environmental matrix following that point. Clearly this was not ideal, and not what would have been anticipated in the project timetable, which is why mitigation measures such as the extended RDD schedule were necessary. IHSL continued to be regularly reminded that they had responsibility for ensuring that the design and content of the environmental matrix was compliant with the relevant guidance.

92. On 15 April 2015 for example, shortly after financial close, MML wrote to Project Co in relation to the environmental matrix, saying that "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 BCR's and PCP's. Any non-compliance with the BCRs or PCPs should be highlighted to the Board."

93. As late as 7 November 2016, MML wrote to NHS Lothian saying: "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 BCRs / PCPs (as per MM-GC- 002084), 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, and requests that Project Co issues a strategy for resolution of these issues". There were a number of other examples during the life of the project of IHSL being reminded that it was their responsibility to ensure that their environmental matrix complied with the BCRs, and that any non-compliances with the applicable guidance required to be highlighted by them.

94. The Inquiry has asked me if I believe the decision to use the concept of an environmental matrix was a cause or part of the cause of the discrepancies within the ventilation parameters for the critical care rooms, and whether the same errors would have resulted from using room data sheets. I believe that the same issues could have happened either way and do not think the use of the environmental matrix was a critical factor. With room data sheets, it is much harder to cross check against similar room types and you would need to look at all rooms on an individual basis. The production of RDS for a project of this scale will run to hundreds of documents as an additional datasheet is required for each room, whereas the environmental matrix condenses that information into a spreadsheet. Environmental matrices are still used frequently on healthcare projects.

95. I have been asked for my opinion on whether there are any benefits to the use of an environmental matrix. In my opinion it does have some benefits in comparison to room data sheets, as you can compare similar room types and make sure that consistent criteria have been applied across similar room

types. However, as it is a spreadsheet you do not have the direct correlation to the clinical activity that you would have within the RDS. I don't know whether Hulley & Kirkwood used the ADB when preparing their draft environmental matrix. I therefore cannot comment on whether ADB was used in the preparation of the matrix. It would make sense if the environmental matrix had been prepared using ADB however as the designers would be able to review clinical activities of a room in order to get the right room function and therefore the correct environmental characteristics.

ENVIRONMENTAL MATRIX DEROGATIONS IN THE PROJECT AGREEMENT

96. As I describe below, the project agreement included a derogation register and Project Co's proposals, which included entries relating to the environmental matrix and mechanical ventilation air conditioning. The derogation request relating to the environmental matrix stated: *"Anomalies within the* environmental *matrix have been reviewed and proposals incorporated within the room datasheets. This shall be further developed in conjunction with the Board on the basis of the schedule of comments contained in section 5 of RDD*." This was raised to clarify the status of the environmental matrix i.e., for Project Co (IHSL) to update the matrix in accordance with the part 4 of the RDD comments. The Inquiry has asked me if this would have impacted upon the ventilation issues which later arose. I think indirectly yes, because there was a general requirement to update the matrix to make it compliant.

97. On 8 September 2014, the PB issued the first draft of the Schedule of Derogations, this included IHSL-MEP-015 titled "01 DRAFT Environmental Matrix".

98. On 7 October 2014, an M&E meeting took place to discuss the proposed PB M&E derogations. Whilst I did not attend the meeting, I understand the action for MEP-015 included the following - "MEP 015 – Board Action. IHSL await Environmental Matrix feedback prior to reviewing need or not for derogation".

99. On 14 October 2014, the PB issued a second draft (rev 0B) of the Schedule of Derogations, followed by the third draft (Rev 0C) on 16 October 2014, and the fourth draft (rev 0D) on 30 October 2014.

100. On 6 November 2014, a collated set of updated individual derogations was issued by the PB to MML.

101. On 7 November 2014, collated comments were issued by MML to the NHSL project team including collated comments on Rev 0D of the Schedule of Derogations (issued 30th October). For MEP-015 NHSL comments included the following;
"30/09/14 Project Co's Environmental Matrix shows maximum room temperatures of 28°C where BCR maximum states 25°C & 30/10/14 Further to meeting 29/10/14 Environmental Data Matrix has been revised to reflect agreement. Derogation now withdrawn".

102. On 5 November 2014, the PB commented MEP-15 could not be withdrawn, and it was agreed that NHSL / MML would provide comments in the RDD Schedule Part 4 for IHSL to incorporate and update the EM and RDS.

RISK REGISTERS

103. Starting in June 2014 through to FC, MML produced technical and design risk registers to financial close. The purpose of these risk registers was to inform NHSL of technical and design risks, and where possible mitigate these risks before financial close. These registers were shared with NHS Lothian and IHSL as a collaborative approach to ensure that everyone was aware of the risks as the project approached financial close.

104. On 25 August 2014, the following item was considered high risk on the technical risk register for financial close, "*Project Co proposals were insufficiently developed to the required level for* financial *close*." These proposals were the bidder's response to the BCRs. A workshop was held setting out the board's expectations and as a result a decision was made to

increase the length of the Reviewable Design Data (RDD) post FC with a greater focus on the specific design risks which IHSL still had to address.

105. Within the design risk to FC register one of the categories highlighted as high risk was ventilation issue within the single room ensuite, which NHS Lothian felt was not compliant with SHTM 03-01. The action taken by NHS Lothian and IHSL was to agree comments in terms of what still needed to be done and they would be added to part 4 of the RDD schedule for follow up after financial close.

PROJECT AGREEMENT

106. Paragraph 8 of the BCRs provides that Project Co (IHSL) shall take cognisance of all the building services implications of the requirements described in section D, and specific clinical requirements, subsection E. I have been asked by the Inquiry if any of the provisions of the clinical requirements in section D bear upon the ventilation issues which later arose. The clinical requirements were generally broken up by department, hence there was a B1 Critical Care clinical output specification that contained information within that document to determine the clinical activities in the departments.

FINANCIAL CLOSE

107. The Inquiry has asked me if I know why FC was not achieved until February 2015, despite the full business case being submitted to CIG in August 2014. I am aware that the Competitive Dialogue sessions took longer than anticipated as more sessions were implemented to develop the architectural design. As we approached FC there were issues with the development and submissions of the technical documents and legal issues in respect of the project agreement. There were issues over IHSL's ventilation strategy however my colleagues Colin McRae and William Stephenson had highlighted that as a high-risk item on the design risk register and better placed to advise on

comments raised.

108. The Inquiry has asked me if I was aware of tensions between NHS Lothian and IHSL in the last quarter of 2014, due to project not progressing smoothly. Due to the delays to financial close, I was aware of a general increase in pressure / tension, however that is not uncommon in the build up to financial close. I recall discussions post a board meeting that IHSL had suggested that NHS Lothian / MML were requesting more detail than they'd had to provide on other projects, however as MML were not involved in the board meeting I do not know the detail of the discussion.

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.

Signed:

23 February 2023

Scottish Hospitals Inquiry
Witness Statement of
Iain Graham
27 February 2023

Introduction

1. My name is Iain Fraser Graham.

2. I work for Lothian Health Board ("NHS Lothian") as the Director of Capital Planning and Projects.

3. I previously provided a written statement to the Scottish Hospitals Inquiry ("the Inquiry") for the purposes of the May 2022 Hearing relating to the Royal Hospital for Children and Young People ("RHCYP") and Department of Clinical Neurosciences ("DCN") in Edinburgh (the "Project"). That statement outlines my roles with NHS Lothian, qualifications, and work history.

4. The Inquiry has asked me to provide another written statement, this time relating to the procurement stages which took place in the period 2012 to 2015 of the Project. This statement seeks to provide that information to the best of my recollection. It has been provided in response to specific questions I was asked at an interview by the Scottish Hospitals Inquiry on 16 November 2022.

Background

5. Given the scale and parameters of the Project, the procurement process chosen for the NPD Project was competitive dialogue. This involved the following stages:
    a. Issue of Notice in the Official Journal of the European Union;
    b. Invitation to Participate in Dialogue ("ITPD");
    c. Competitive Dialogue cycles over multiple weeks (including submissions, meetings and feedback);
    d. Close of Dialogue;
    e. Draft final tenders and feedback

f. Final tender submissions and evaluation;
g. Preferred Bidder Appointment;
h. Design completion and commercial completion of the Project Agreement including funding arrangements; and
i. Financial Close.

6. In parallel to the above there were the relevant, NHS Lothian's internal governance process, Scottish Futures Trust Key Stage Reviews and Business Case approval at Scottish Government level.

Tender Evaluation

7. As part of the Non-Profit Distributing ("NPD") programme, it was a requirement of Scottish Futures Trust ("SFT") to evaluate the most economically advantageous tender on a 60/40 (price/quality) split. For capital projects, NHS Lothian allocated scoring was the opposite of this i.e. 60 on quality and 40 on price in line with Scottish Government's health department guidance. As 60/40 price/quality was a condition of the NPD funding, NHS Lothian were required to work within the percentage allocated to the quality score.

8. SFT provided an outline of the approach to evaluation for the NPD programme. There was also the experience of previous dialogue processes informed by Mott McDonald, Ernst Young and Macroberts (NHS Lothian's external advisers). This all fed into an evaluation template which was broken down into three sections: strategic management, design and construction, and facilities management.

9. There was a requirement within the SFT guidance to make sure we had covered all the technical and other areas all fully detailed in Appendix A (ii) of the ITPD **(A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[1].** The SFT guidance was being developed alongside the Project. NHS Lothian were, on the whole, one step ahead of the guidance coming through from SFT because the programme had just started and SFT were in the

[1] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 22, p773

process of developing and issuing guidance.

10. In order to make the best of those quality scores, namely to differentiate between bidders and ensure that we got a suitable emphasis across the whole gamut of responses, we put forward minimum pass/fail thresholds on a number of areas. Those pass/fails were effectively on compliance and delivery of the basic Board Construction Requirements ("BCRs"). The scoring element was intended to be identifiable as the extra quality and design elements that each bidder would be bringing above technical compliances.

11. It was for NHS Lothian to determine the elements that would make up the overall quality score including the associated weightings that were given to the scored elements of the tendering process. Workshops were held to discuss the allocation of the scores within the scored elements Quality Evaluation Criteria (the 'Workshops').

12. I was involved in the Workshops. They were internal with a core team and such other management and service leads as required including NHS Lothian's legal, technical and finance advisers. NHS Lothian has previously provided the Inquiry with further information on the Workshops in the Evaluation Criteria timeline (including background documentation) submitted to Inquiry on 21 October 2022. Essentially, the Workshops were held to finalise the quality evaluation matrix and each of elements were split up into the relevant workstreams composing of Design and Construction, Facilities Management and Strategic Management. Each workstream populated the relevant section of the quality evaluation matrix including identifying which criteria would be assessed on a pass/fail basis. There were further Workshops to agree the details of the allocated scoring for each scored question to ensure that it made up to the 40 per cent quality score.

13. The Evaluation Criteria Timeline **(A34696936- Draft ITPD Evaluation Criteria - 5 April 2012)**[2] details the process of finalising the quality evaluation criteria including further Workshops, discussion at the Project Steering Board and meetings with SFT in relation to the Pre-ITPD Key Stage Review ("KSR") **(A33336325- Pre-Invitation to Participate in Dialogue Key Stage Review -**

[2] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 9, p578

7 March 2013)[3]**.** The finalised evaluation criteria were approved by SFT as part of the Pre-ITPD KSR on 7 March 2013.

14. I have been asked if mechanical and electrical ("M&E") engineering was given a lower weighting than other elements. The answer is no, as all criteria in the BCRs required to be passed or the bid would be deemed non complaint in the procurement context. The scoring element was the differentiating factor between the bidders. Where the design approach by the bidders was more subjective, perhaps with less technical standards such as SHTMs behind the subject, it was less appropriate to solely having pass/fail criteria. Having a scoring element, however, did also establish a pass /fail threshold within scoring (i.e. too low a score would mean a fail). For example, a well-designed and maintained landscape as part of a healthcare facility is widely acknowledged to have a therapeutic value – especially for children and families. To enable bidders that did not just propose hard landscaping to reduce cost and maintenance, a score was applied to that element. M&E installations, however, have an extensive underpinning of technical standards and compliance with those was a clear pass/fail threshold which resulted in a lower percentage score than, say, landscaping.

Reference Design/ Environmental Matrix

15. The Project Steering Board made the decision to adopt a reference design approach which was reported to the Finance and Resources Committee. This included an environmental matrix being issued to bidders as part of the ITPD and Invitation to Submit Final Tender ("ISFT") **(A34916593- Invitation to Submit Final Tender (Volume 1, revision A) - 16 December 2013)**[4]. The amount of detail within the reference design was driven through the Project's technical group which Brian Currie (Project Director) and Mott MacDonald led. The environmental matrix **(A34691184- Reference Design Envisaged Solution – RHSC/DCN RDS Environmental Matrix – 19 September 2012)**[5] was included in the ITPD **(A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)**[6] but it was only included as disclosable data. It was not a warranted document.

[3] Bundle 9 - Key Stage Reviews, Item 3, p100
[4] Bundle 3 - Invitation to Submit Final Tender ("ISFT") Documents, Item 1, p3
[5] Bundle 4 - Environmental Matrix, Item 7, p131
[6] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, iItem 22, p773

16. There was a working group for each workstream which reported to the Programme Steering Board. The Programme Steering Board provided the governance andoverview of the Project and approved the ITPD documents **(A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)**[7] **(A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)**[8] based on the recommendation from the project working groups. The ITPD was drafted by Mott MacDonald.

17. I have been asked to comment on whether the reference design would be replaced by the bidder's design and full set of room data sheets. It was the intention that the reference design would have fulfilled its purpose by Financial Close and preferred bidder's design would form part of the Project Agreement. The key point is that everything relating to the Operational Functionality requirement and site constraints issues covered in the Reference Design, would be expected to be reflected by the bidders in their proposals. This was communicated to prospective bidders through the competitive dialogue process following the issue of the Pre-Qualification Questionnaire ("PQQ") statement and the ITPD. It was also discussed at the bidder's day presentation which was held after the PQQ was issued. It was highlighted from the very outset within the ITPD documentation **(A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)**[9] **(A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)**[10] and throughout competitive dialogue meetings.

18. NHS Lothian explained to bidders repeatedly during competitive dialogue meetings to ensure that all the bidders understood the connection between the NPD project agreement and their technical proposals and how it all worked together as one document. SFT had decided that all documents within the Project Agreement (including the Board Construction Requirements and Contractors Proposals, i.e. the technical documents) were of equal weight and with no hierarchy of documentation.

19. In terms of the environmental matrix, it was the intention that it would be

[7] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 22, p773
[8] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 23, p942
[9] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 22, p773
[10] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 23, p942

redundant at Financial Close as the bidder's proposals would contain all necessary information. This was extensively communicated to all Bidders within the ITPD **(A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013**)[11] **(A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)** [12] and at competitive dialogue meetings. It was one of the technical documents that formed part of the pack that went out with the ITPD.

Evaluation of final tenders

20. I was not part of the team evaluating the Mechanical & Engineering section and was not aware that Bidder C provided a marked up Environmental Matrix **(A41323397- 11 - Bidder C (Mosaic) final tender C8 Appendix - Environmental matrix)**[13]. I was involved in the strategic management evaluation and ultimately the review of commercial and cost proposals.

Design Development Assurance

21. It was my understanding that in relation to assurance in respect of the design development, Scottish Government oversight would come from the pre-preferred bidder KSR **(A33337163- Pre-Preferred Bidder Appointment Key Stage Review dated 28 February 2014)**[14] the pre-Financial Close KSR **(A33336933- Pre-Financial Close Key Stage Review - 11 February 2015)**[15] and any information included in the Final Business Case. I explain what a KSR is later in this statement. Such assurance would be based on NHS Lothian receiving the relevant assurance from our technical advisers Additionally, Scottish Government also attended a number of Programme Steering Board meetings (and received all minutes and papers for all the Programme Steering Board meetings) or were copied in on other project meetings and could raise questions on the back of them.

22. At this time, Mike Baxter attended the Project Steering Board meetings in his capacity as Deputy Director, Capital and Facilities of the Scottish Government's Health and Social Care Directorate then it was Alan Morrison

[11] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 22, p773
[12] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 23, p942
[13] Bundle 7 – Key Parts of Mosaic's tender and marked up Environmental Matrix, Item 2, p.52
[14] Bundle 7 - Key Parts of Mosaic's tender and marked up Environmental Matrix, Item 1, p3
[15] Bundle 9 - Key Stage Reviews, Item 1, p3

when he took over in early 2015.

National Design Assessment Process ("NDAP")

23. NDAP stands for National Design Assessment Process.

24. NDAP was not required for this Project because of transitional arrangements from capital to revenue funding via the NPD Programme. There was no equivalent design process used as, by this stage, we were in terms of timescale and delivery vehicle past the NDAP stage and what we applied was the Achieving Excellence Design Evaluation Toolkit ("AEDET") assessment. This was confirmed by SG in the progression of the Business Cases.

25. The focus of the AEDET assessment is architectural. Although it did cover all the technical areas, it was principally an architectural review.

26. It is a good practice for the use of Room Data Sheets or equivalent to be fully utilised during the preparation of the brief and throughout the design commissioning process. We wanted the preferred bidder to supply one hundred per cent of the room data sheets to be able to satisfy that general requirement. It informs part of the NDAP checklist.

27. I cannot recall whether the design evaluation was done in advance of the Full Business Case.

Key Stage Reviews

28. As part of the NPD programme, NHS Lothian were required to carry out an assurance process for SFT through a process involving reviews at key stages in the procurement exercise. As mentioned previously in this statement, these were called the KSRs. SFT were developing the KSR process for the acute hospital NPD programme in parallel with the Project's timeline so often KSR checklists were provided only shortly in advance of the actual completion of the KSR.

29. In relation to KSRs, NHS Lothian provided information to SFT, mainly Donna Stevenson. From recollection, we had weekly meetings or certainly very frequent meetings with Donna with all the Project and workstream leads:

technical, financial, legal and commercial which also involved NHS Lothian's external advisors from time to time. Donna would go through a list of questions or any issues, some of which were related to the specific KSR, some of which were other points of interest from an SFT perspective. We would provide Donna with any information she requested. After any meeting we would receive an email from Donna laying out exactly what information she thought we should provide to SFT. NHS Lothian would respond with the requested information or obtained assurances from our advisers. When it came to the time to complete the KSR, we (SFT and NHS Lothian) would go through the information together. I cannot recall if we went through the documentation line by line but we certainly went through the documents and we were then presented with the final version of the relevant stage KSR and NHS Lothian identified actions before the KSR was signed off by SFT.

30. I have been asked if SFT had access to the online project portal and/or copied into every email. I presume SFT did not have access to the project portal and it would not be routinely part of the process to include a member of SFT such as Donna in communications given the very large volume of communications a project like this generates on a daily basis. It was the case that SFT would receive any emails, advice or documents requested in their role as a critical friend as well as NPD programme managers.

31. SFT (Peter Reekie and Donna Stevenson) also attended the Programme Steering Board and had sight of papers and project updates. Peter and Donna would generally pick up any variance between KSR requirements and Programme Steering Board discussions but those would be communicated generally by emails. There also would be occasions where references were made by Donna to other colleagues within SFT. I cannot be specific on the timings but if there were issues which Peter or Donna identified of a technical nature, someone else from SFT would review them and provide feedback to the project team.

32. I am asked to refer to the Pre-Preferred Bidder Appointment Key Stage Review dated 28 February 2014 **(A33337163- Pre-Preferred Bidder Appointment Key Stage Review dated 28 February 2014)**[16], section 2, question 3. The procuring authority, NHS Lothian, and its advisors were

[16] Bundle 7 - Key Parts of Mosaic's tender and marked up Environmental Matrix, Item 1, p3

satisfied that any further development of technical information required from the preferred bidder appointment to Financial Close was achievable. The Pre-Preferred Bidder Appointment KSR dated 28 February 2014 details:

a. *"NHSL then confirm that the board has confirmed that all bidders have provided detailed programmes to cover the activities for the period until financial close and that the development of the technical information is at least as advanced as the board anticipated at this stage. The board and its advisers are satisfied that any further development of technical information from preferred bidder appointment to financial close is achievable within the current timetable."*

33. The above statement is Donna Stevenson's words interpreting NHS Lothian's comments in response to that particular question within the KSR. The left-hand column within the KSR document sets out the standard question posed by SFT and then the response in the right-hand column (i.e. the wording in the paragraph above) is Donna reporting to SFT's second approver what the Health Board's position was. I am not saying it is not accurate, but it is important to give context. NHS Lothian were satisfied at that point in time, based on the bidder's information provided.

34. Regarding the statement above drafted by SFT, I consider that this was a fair assessment given the terms of the preferred bidder letter and the conditions that are outlined. The preferred bidder letter was issued by NHS Lothian and then negotiated with the special purpose vehicle, Integrated Health Solutions Limited ("IHSL") and the pre-preferred bidder KSR was negotiated with SFT a month prior.

35. I am asked to refer to the Preferred Bidder appointment letter (the "PB appointment letter") (**A36382455- Preferred bidder letter from NHSL to IHSL - 5 March 2014)**[17], dated 5 March 2014, which was intended to capture and ensure that it recorded contractually any outstanding items. It was a fairly intense period of negotiations given all the workstreams that were ongoing, such as legal and commercial including the funding, design development and producing the documentation needed for Financial Close.

[17] Bundle 10 – Miscellaneous Volume 1 (of 2), Item 13, p87

36. The stage we were at with the issue of the PB appointment letter (**A36382455- Preferred bidder letter from NHSL to IHSL - 5 March 2014**)[18] was, as recorded in the pre-Preferred Bidder KSR **(A33337163- Pre-Preferred Bidder Appointment Key Stage Review dated 28 February 2014)**[19], that NHS Lothian and its advisers were satisfied that any further development of technical information from PB appointment to Financial Close was achievable within the current project timetable. What we were doing within the preferred bidder letter (**A36382455- Preferred bidder letter from NHSL to IHSL - 5 March 2014**)[20] was capturing that; in order to ensure that IHSL and their contractor clearly understood the requirement. We then entered active negotiations to close down all the items captured in the PB appointment letter (**A36382455- Preferred bidder letter from NHSL to IHSL - 5 March 2014**)[21] and outstanding issues, or where they could not be resolved completely, record in the PA documentation, how such matters would be addressed. This was the pragmatic approach to deliver Financial Close and move the Project from procurement into construction, recognising that there were multiple compromises and risk mitigations in place for Financial Close as a result of myriad of commercial, technical and governance pressures to make progress. The reduction in the number of Room Data Sheets available for inclusion in the Project Agreement (as further detailed below) was one of the many compromises and the mitigation was the provision of key and generic rooms. The completion of the pre-Financial Close KSR **(A33336933- Pre- Financial Close Key Stage Review - 11 February 2015)**[22], with SFT and SG agreement, reflected the position and knowledge at the time.

Risk Registers

37. I am asked to refer to a risk register dated 28 January 2015 **(A36308801- Design Risks to the Board to Financial Close)**[23]. The first entry is mechanical and electrical engineering ("M&E") ventilation which is scored as a high-risk impact. I do not know the context of this document and it may be

[18] Bundle 10 – Miscellaneous Volume 1 (of 2), Item 13, p87
[19] Bundle 7 - Key Parts of Mosaic's tender and marked up Environmental Matrix, Item 1, p3
[20] Bundle 10 – Miscellaneous Volume 1 (of 2), Item 13, p87
[21] Bundle 10 – Miscellaneous Volume 1 (of 2), Item 13, p87
[22] Bundle 9 - Key Stage Reviews, Item 1, p3
[23] Bundle 8 – Bundle 8 – Scoring & Correspondence Regarding issues, item 21, p.84

a Mott MacDonald document. I cannot recall the document but I can recall similar documents at Programme Steering Boards. However, I do not know the individual context of this one.

38. I am asked to refer to 'Environmental Matrix Comments' dated 13 October 2014 **(A39975805- Environmental Matrix Comments - 13 October 2014 (attachment to Email from Maureen Brown to Colin Macrae and others - 28 October 2014)**[24]**.** I assume this document relates to the technical workstream which I would not have been directly involved with so cannot comment further.

39. I have been asked if I would consider it a risk if IHSL were to have a different interpretation of SHTM 03-01 compliance. Yes, I would consider this to be a risk and I would also expect such a risk to be included in the risk registers if it had been flagged in a derogations schedule. I would expect the leader of the project workstream to have flagged any potential non-compliance or indeed interpretations issue because it is not unusual to have different interpretations of designs by contractors and designers who have worked with different health boards or trusts in the rest of the UK. As previously stated, it is not unusual to have different interpretations but any non-compliance matters must be flagged by the Bidder to the Health Board, in line with the obligations set out in the ITPD **(A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)**[25] **A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)**[26] / ISFT **(A34916593- Invitation to Submit Final Tender (Volume 1, revision A) - 16 December 2013)**[27]

40. In terms of inclusion of items on risk registers, the onus depends on the purpose of the risk register. NHS Lothian had different levels of risk registers and included risk registers in the Business Case or Board papers to identify project risks. I do not doubt that the technical advisers and other advisers had their own internal risk registers flagging areas which might be at risk or needing more work. I am sure IHSL had risk registers for all the parties that were involved in the Project. For me, the purpose ofthe risk register is to identify areas of attention to make sure that the health board are identifying

[24] Bundle 4 - Environmental Matrix, Item 15, p275
[25] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 22, p773
[26] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 23, p942
[27] Bundle 3 - Invitation to Submit Final Tender ("ISFT") Documents, Item 1, p3

either solutions or mitigation measures; or costs and the allocation of such.

41. I am asked to refer to a document titled 'Design Risks to the Board to Financial Close', (**A36308801- Design Risks to the Board to Financial Close)**[28] which is a Mott MacDonald risk register. It looks like a working document. In terms of timing, Financial Close was the middle of the following month. I do not recognise this document. That is not to say that I would not have seen it but I do not recall it.

42. I am asked to refer to the document 'Technical Risks to the Board at Financial Close'**(A36308810- Technical Risks to the Board at Financial Close - 31 January 2015)**[29] where it says IHSL pushed very hard to achieve maximum information during preferred bidder stage. The mitigation should read 'IHSL being pushed very hard to achieve maximum information during preferred bidder stage'. It was IHSL that were being pushed very hard by NHS Lothian.

Ventilation

43. I am asked about an issue in relation to opening windows which was emerging in early 2015 and referred to an email trail dated 14 January 2015. **(A35614504- Email from David Stille to Janette Richards - 13 to 14 January 2015)**[30] I was not copied into that email. Janice MacKenzie may be better placed to explain the detail of this further.

44. I am asked to refer to an email dated 13 November 2014. **(A35614364- Email - G. Greer to Brian Currie - Single Room Ventilation (with attachment) 13 November 2014)**[31] I was not copied into that email. Brian Currie is better placed to explain the detail of this further.

Room Data Sheets

45. I am asked to refer to the Programme Steering Board meeting of 22 August 2014 **(A32676824- Action notes RHSC and DCN Special Project Steering Board - 22 August 2014)**[32], in particular the paragraph titled "Production of

[28] Bundle 10 – Miscellaneous Volume 1 (of 2), Item 11, p79
[29] Bundle 10 – Miscellaneous Volume 1 (of 2), Item 12, p84
[30] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 13, p58
[31] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 17i, p69
[32] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 2, p11

Room Data Sheets". I am able to offer some comment on why a decision was taken to deviate from what was stated in the ITPD and ISFT in order to allow the preferred bidder to refrain from producing a full set of room data sheets. I cannot recall the specific detail of it other than by that point in the process we were looking to make progress and achieve Financial Close with the preferred bidder, IHSL. Their building contractor, Multiplex, was strongly resisting completing what we had required, namely 100% room data sheets, because it required too much time and cost to them before reaching Financial Close.

46. We wanted complete room data sheets to ensure that we could review everything before Financial Close and work started on site. The reason IHSL did not want to complete all the room data sheets was that it was too much cost and time to be taken before they had received any payment. From recollection and the note from the Programme Steering Board, NHS Lothian got comfortable that the prioritisation element would cover the key and generic rooms. Therefore, rather than every individual room, room datasheets would be produced for selected rooms to represent all the spread of rooms in a department or section of the building except for the support spaces.

Period up to Financial Close

47. At a strategic level what we were encountering was a push to get to Financial Close as all parties wanted to move the Project forward. There was a particular push coming from SFT in terms of NPD programming and IHSL in terms of the financial position and the Health Board seeking to ensure that all the design development that was supposed to happen had been completed. However, as things drifted on, because at that point we were heading to Financial Close, we were having to push things into the Project Agreement. Elements that were outstanding from competitive dialogue moved into preferred bidder development stage, and then into Financial Close documentation. As detailed earlier in this statement, there was the delay in receiving Room DataSheets from IHSL which was then moved to be included in the Project Agreement as reviewable design data.

48. I have referenced the timeframes and pressures that came from SFT and from IHSL. We had pressure from the Health Board too. We wanted to move this forward as a construction project because we needed a new hospital but the preferred bidder stage had taken longer than expected. Furthermore, the

shortened timeframe for procurement presented a risk that there was not enough time to conduct a full review of project documentation at that time and remained a constant challenge all the way through the Project.

49. In the period from preferred bidder to Financial Close, the list of reviewable design data became more extensive than had been expected and was acknowledged as a risk to the Project. This relates to my point that where we had an expectation of design development and information supporting that coming at the earlier stages in the procurement process e.g. completed either in the competitive dialogue stage or the preferred bidder stage. The final option was to capture the design information in the reviewable design data and follow the review process set out in the Project Agreement.

Payment Mechanism

50. I am asked to refer to Project Steering Board Action Notes 20 June 2014 **(A33328548- RHSC and DCN Project Steering Board Action Notes - 20 June 2014)**[33], in particular the "Executive Summary" at the bottom of page 148 and the reference to payment mechanisms with Macquarie. The NPD standard form project agreement had a payment mechanism in it which was different to the previous standard form Private Finance Initiative or Public Private Partnership contracts. NHS Lothian had further enhanced it to reflect experiences that the Health Board had with another early PFI project. Macquarie who were equity of ProjectCo, Bouygues who were facilities management ("FM") and the lender's technical advisers who were Currie & Brown were concerned that in the event of poor performance by the FM, the FM contract could be terminated quite rapidly with the ratcheting up of deductions and performance points. They classed it as a hair trigger which meant that it did not take much for them to go wrong.

51. We had a position which had been agreed at the tendering stage in terms of the Project Agreement including the payment mechanism. We had anticipated that the bidder, bearing in mind that this is now the post-preferred bidder appointment stage, would try to water that down by saying that the funders will not like it because the funders do not want to be in a position of carrying the risk for the FM failing or the special purpose vehicle failing and then the

[33] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 7, p31

lenders have to step in. However, we demonstrated that in the interests of the public sector or more particularly, healthcare providers, we needed the FM contractor to perform in those key areas such as maintenance of the ventilation system. We spent a lot of time with IHSL's Project team including Macquarie and Bouygues, going through it and we then had to take it to SFT (as ultimate owners of the standard form NPD Project Agreement) to get them to stand by the position. IHSL would not go out to funders, which was a post-tender requirement on IHSL, until Macquarie, as part of IHSL, were content that it was acceptable. We also spent a lot of time thereafter educating the European Investment Bank and M&G Investments, the two funders, on the same issue.

52. At this point, we were having to create programme time to discuss the payment mechanism which should not have been an area that was part of the discussion with the preferred bidder because it had already been tendered and agreed. Given attendance at the Programme Steering Board included Peter Reekie, the now Chief Executive of SFT, he was very much aware of the situation and supporting the Programme Steering Board's position.

53. The outcome of this was that NHS Lothian, more or less, achieved a payment mechanism that we were satisfied with. The payment mechanism does not apply during construction, only during the operational phase after Practical Completion.

Special Programme Steering Board Meetings

54. I am asked to refer to the minutes of a special Programme Steering Board meeting **(A32676824- Action notes RHSC and DCN Special Project Steering Board - 22 August 2014)**[34] convened on 22 August 2014. This meeting along with other special Programme Steering Board/ commercial sub-group meetings were convened to raise NHS Lothian's significant concern about the delay in reaching Financial Close directly with senior members of IHSL's project team. Members of the Programme Steering Board attended along with representatives from IHSL, Multiplex, Macquarrie Capital and other senior figures from NHS Lothian, SFT and Scottish Government including George Walker (NHS Lothian Non-Executive Director), Peter Reekie and Mike

[34] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 2, p11

Baxter.

55. The first meeting of the special Programme Steering Board held on 22 August 2014 **(A32676824- Action notes RHSC and DCN Special Project Steering Board - 22 August 2014)**[35] focused on the project programme and gave IHSL an opportunity to present their programme and deliverables to reach Financial Close.

56. At the meeting, the NHS Lothian project team presented a revised programme with slippage of eight weeks to push IHSL to table their own programme.

57. I was at this meeting and considered the issues discussed to be very serious because we were not making progress. The programme at this point is owned by IHSL. However, until this meeting, they had not produced a programme to present to us to confirm what their timescales were to reach Financial Close. It appeared to NHS Lothian there had been a disagreement between Multiplex Brookfield and Macquarie (building contractor and the equity funder) - which we thought was serious because we were not getting production of the programme to completion and the relationship within IHSL seemed tense and inconsistent. That was of concern, not just to NHS Lothian but to SFT (as the NPD programme managers) and Mike Baxter of the Scottish Government in terms of the overall position.

58. I would maybe sum up the actions that were put in place to address these concerns as pressure. We were applying the public sector pressure of having SFT, Scottish Government, and ourselves all saying to IHSL to deal with the issue. I cannot recall whether there were any specific measures in terms of cutting time out on any workstream but I think there would have been a lot of pressure from IHSL, and Multiplex in particular, to cut out design development time or other areas to just get the programme to Financial Close.

59. The notes from the Special Project Steering Board **(A32676824- Action notes RHSC and DCN Special Project Steering Board - 22 August 2014)**[36] at page 135 demonstrate the tension in that meeting. Our paranoia and lack of trust, as they saw it, meant that it was difficult for us to maintain a position of needing everything by Financial Close. The position we ended up

[35] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 2, p11
[36] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 2, p11

with was what I referred to earlier, i.e. more and more was being pushed by IHSL from preferred bidder stage into design development reviewable design data post-Financial Close. That was an element of deviation from what we were looking for originally in the procurement process. It was recorded as a risk and that ISHL were being pushed as hard as possible to provide the outstanding documentation. The mitigation is the reviewable design data process. As I discussed earlier in my statement, there was pressure to get to Financial Close from all directions and the best way forward was to utilise an existing process (RDD) already in the Project Agreement to review design development post Financial Close. IHSL were contractually obliged to provide all the RDS for review before construction could start on site.

60. Applying pressure on IHSL was partially successful in addressing the concern in terms of getting to Financial Close. I think by pushing design development into the RDD process, it added pressure during the construction and development phase. This was pressure from IHSL/Multiplex, which was resisted as far as possible by NHS Lothian, in order to hold them to their bid obligations.

61. I think across the whole project delivery, there were many areas of compromise that felt uncomfortable as both public sector and private sector wanted to get the delivery of the hospital project progressing. Nothing, as far as we could tell at the time, was missed, just elements of the private sector deliverables were pushed into the later stages. Commercially that was more advantageous to the private sector, but the design risks lay with IHSL.

62. Mike Baxter was at the Special Project Steering Board meeting of 22nd August 2014 **(A32676824- Action notes RHSC and DCN Special Project Steering Board - 22 August 2014)**[37] It was considered that his attendance along with previous dialogue was enough escalation to the Scottish Government and also SFT as they were involved in discussions. My recollection is that Peter Reekie and Mike Baxter brought joint public sector escalation and a focus on pushing IHSL to move things forward in terms of programming. The focus of this discussion was in terms of getting the programme to Financial Close agreed and the deliverables attached to it. So

[37] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 2, p11

from that point of view, Mike's attendance at that meeting was helpful. It also brought Scottish Government involvement and attention to the issues that were being faced by NHS Lothian.

63. The risks discussed in this Special Project Steering Board do not appear in the pre- Financial Close KSR. **(A33336933- Pre-Financial Close Key Stage Review - 11 February 2015)**[38] As I have mentioned earlier in my statement, my understanding is that the KSR would capture risks at a certain point in time. By the time of the pre- Financial Close KSR **(A33336933-Pre-Financial Close Key Stage Review - 11 February 2015)**[39], there was resolution to the issues discussed in the special steering group in as much as we had a programme to Financial Close. From that point of view, it would not be reflected as an action outstanding or an issue to be addressed at the KSR.

64. The next meeting of the Project Steering Board sub-group **(A33044797- Steering Board Sub-group 31 October 2014)**[40] was held on 31 October 2014. John Ballantyne from Multiplex attended this meeting along with IHSL and Macquarie.

65. The minutes from the meeting state "PR asked JB if in his opinion that board had changed what it was asking for since invitation to tender. JB replied that there was a difference of opinion over the level of detail expected of project proposals but the open- ended requirement that the board had to be satisfied was difficult to achieve." **(A33044797- Steering Board Sub-group 31 October 2014)**[41] at page 179

66. The minutes **(A33044797- Steering Board Sub-group 31 October 2014)**[42] also indicate that there were tensions between NHS Lothian and IHSL at this point and George Walker, mentioned that he was losing confidence in IHSL.

67. I agree that relations were frosty and there were many frustrations. At this time, there was still a long list of actions to be completed, documents and information to be provided or reviewed to be included within Financial Close documents. There were still some points of principle to be agreed such as

[38] Bundle 9 - Key Stage Reviews, Item 1, p3
[39] Bundle 9 - Key Stage Reviews, Item 1, p3
[40] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 6, p27
[41] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 6, p27
[42] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 6, p27

ensuring that the funders and lenders were content with everything. The main focus was in terms of getting everything from Multiplex that was necessary to satisfy Operational Functionality. But IHSL felt that NHS Lothian were very difficult to satisfy.

68. I think the issues discussed and the frustrations with IHSL were serious enough to make the Scottish Government aware of them. I would not have said that wa12 October. Subsequent to that, there would have been communications with the Scottish Government and then the final letter came out with the approval nearer the revised Financial Close date of February 2015. That letter needed to go to IHSL and their funders (including technical and legal advisers) to demonstrate that we had that Business Case approval.

69. I understood this was the first time that KSRs was being done so at that point nothing was usual. Therefore, I cannot comment on whether it was usual for the pre-Financial Close KSR **(A33336933- Pre-Financial Close Key Stage Review - 11 February 2015)**[43] to be finalised before the Capital Investment Group's recommendation for approval of the Full Business Case. I think the other aspect of the pre-Financial Close KSR **(A33336933- Pre-Financial Close Key Stage Review - 11 February 2015)**[44], was for SFT to satisfy themselves and the Scottish Government that the financial exposure by Scottish Government was okay. SFT were the final people to give approval to complete Financial Close. In other words, at Financial Close all the parties involved, including lenders to IHSL, confirm that everyone is in agreement with the terms. SFT were the last people to say yes in the room because they were the public sector Scottish Government representatives in attendance. In order for SFT to have their internal and Scottish Government approval, my understanding was that they needed to have the pre- Financial Close KSR signed off by Scottish Government. At this point that KSR was as much for Scottish Government and SFT as it was for NHS Lothian. NHS Lothian were not party to any Scottish Government and SFT discussions.

70. It was my understanding, based on what SFT told us, that the Capital Investment Group would expect to see the final KSR before providing their approval.

[43] Bundle 9 - Key Stage Reviews, Item 1, p3
[44] Bundle 9 - Key Stage Reviews, Item 1, p3

71. The pre-Financial Close KSR **(A33336933- Pre-Financial Close Key Stage Review - 11 February 2015)**[45] was completed on 11 February 2015 with contract documents including the Project Agreement and other contract arrangements being signed on 13 and 14 February marking Financial Close. Scottish Government Health Department (on the recommendation of the Capital Investment Group) formally approved the Full Business Case on 10 February 2015. Separately, Scottish Government addressed the KSR relating to the FBC and actions to be taken by NHS Lothian.

Consequences of Delay

72. If the hospital had failed to proceed to Financial Close in February 2015, the ultimate problem would be construction would not have commenced on the new children's hospital and department of clinical neurosciences. I think at a more practical level, in terms of the contract position, we had various parties that had tendered or were being funded on the back of the Project. If it had not gone forward, there was always the danger that the funders walked away or Multiplex decided that they were not going to build it and the whole procurement exercise would have failed.

73. 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.

[45] Bundle 9 - Key Stage Reviews, Item 1, p3

Scottish Hospitals Inquiry
Witness Statement of Janice MacKenzie
21 February 2023

Introduction

1. My name is Janice Margaret MacKenzie.

2. I am now retired from my role as Project Clinical Director with Lothian Health Board ("NHS Lothian"). I previously provided a written statement to the Scottish Hospitals Inquiry ("the Inquiry") for the purposes of the May 2022 Hearing relating to the Royal Hospital for Children and Young People ("RHCYP") and Department of Clinical Neurosciences ("DCN") in Edinburgh. That statement outlines my roles with NHS Lothian, qualifications, and work history.

3. The Inquiry has asked me to provide a second written statement, the focus of which is the procurement stage which took place in the period 2012 to 2015 of the RHCYP/DCN project. I was the Clinical Director from the point the procurement exercise commenced until Financial Close. I was part of the Project Team lead by Brian Currie, who was the Project Director. As explained in more detail below, there was a Core Evaluation Team who evaluated the bidders' final tenders and the bidder with the highest overall score was appointed as the Preferred Bidder.

4. This statement seeks to provide that information to the best of my recollection. It has been provided in response to specific questions I was asked at an interview by the Scottish Hospitals Inquiry on 24 November 2022.

Reference Design

5. A reference design was developed for inclusion with tender documentation for potential bidders. I did not start in my role with the RHCYP/DCN project until April 2011. Initially, this was in a part-time role because I was also part-time Chief Nurse for NHS Lothian Children's Services working as part of the clinical

management team. I was aware of discussions about a reference design and the decision to use a reference design, but I was not involved in the decision to utilise a reference design.

6. Before I joined the Project Team in April 2011, significant clinical engagement had already been undertaken. I am aware that NHS Lothian has produced a Chronological Table detailing the Clinical Input in to the Design (the Chronological Table) to assist the Inquiry in its investigations. I provided input in to the Chronological Table and it is accurate to the best of my knowledge. Although I was not part of the Project Team until 2011, as the Chief Nurse I was supporting clinical staffs' involvement in the design process and recall attending some of the design meetings in my role as Chief Nurse.

7. I am aware that from the outset of the re-provision of RHSC project, clinicians spent significant time considering what their particular service requirements were and how those requirements could be met in a newly built hospital. By way of example, in relation to critical care, it is noted in the Chronological Table that there was a sub group who met on at least 6 occasions between April and October 2008. The membership comprised of 12 clinicians, including nurses and pharmacists.

8. Isabel McCallum, the Project Director before Brian Currrie, set up a Clinical Design Task Group in around 2009. At this point, the Project was capital funded and the design was progressing with BAM as the PSCP. There was significant clinical engagement to inform and review Nightingale Associates' (NA) architectural design. This work was undertaken by the RHSC Clinical Design Task Group. It is stated in the Chronological Table that the RHSC Clinical Design Task Group met on at least 21 occasions between 17 September 2009 and 30 September 2010. The Clinical Design Task Group comprised representation from: department clinical leads; Edinburgh University; a family/public representative; Infection Control; Equipment Commissioning; Health & Safety, a Partnership Rep; NA (architects); Tribal (healthcare planners); BAM Construction (PSCP); and, the NHS Lothian Project Team and project support. In around November 2010, when the change in funding was

announced, the Project Team was at the point of planning for the third round of 1:50 meetings scheduled to start on the week of 8 November 2010 and to last for three weeks but these were cancelled due to the switch to NPD.

9. When the switch to NPD was announced, the design for the RHSC stand-alone hospital was at a relatively advanced stage. Following the switch to an NPD funded model, there was continued engagement with the clinicians (i.e. the user groups) to try and utilise and continue the design work undertaken to date. This is around the point at which I became directly involved.

10. I gave input and advice in relation to the reference design itself. Initially, when I was the Chief Nurse, it was about ensuring that the clinical staff were involved in developing the reference design and responding to any queries from the Project Team. When I joined the Project it was about facilitating those discussions, liaising with clinical teams and providing clinical advice. I attended some of the user group / clinical design task meetings.

11. During this time, I was liaising with NHSL Capital Project Managers, the clinicians, the Architects (Nightingale Associates), the Technical Advisors (Mott MacDonald/'Motts'), Healthcare Planners (Capita) and Project Managers (Davis Langdon). We had various clinical design task groups who met to discuss the 1:500; 1:200 and 1:50 drawings for key and generic rooms. The reference design team had m&e engineers, Hulley & Kirkwood, but as far as I can recall I did not speak to them directly. My main contact at Motts was David Stillie, who was an architect. The clinical design task group meetings were held in the hospital and were lead by Davis Langdon and NA were always there and as far as I can recall Motts were also normally in attendance.

12. The clinicians' input at the meetings would include explaining the requirements of their department, particularly what accommodation they required. They would provide information around specific rooms and what they were used for. For example, clinicians would explain what activities would be happening in a specific room and the equipment required so that the architects and other advisers could plan accordingly. The architects could also explain their proposals to the clinicians to seek to ensure that spaces were designed

appropriately. Various design changes were discussed during these meetings and subsequently captured in the next revised set of drawings, which were then issued for further review. This process was repeated until the drawings were physically signed off by all parties, including the lead clinicians. Davis Langdon kept a register of the process and there was a final set of signed off drawings.

13. Looking at critical care as an example, the nominated clinical leads for critical care would review NA drawings in advance of the meeting, obtain feedback from their colleagues, and then meet with NA, Davis Langdon and Motts at the user group / design task group meeting to review / revise and eventually sign off on the NA drawings for the critical care department. The clinicians were there to provide input in relation to their service requirements, i.e. operational functionality. The clinicians reviewed and signed off on the operational functionality elements of reference design for their department at 1:500; 1:200 and 1:50 stages (for key and generic rooms). The user group output was ultimately the drawings that were provided to bidders as part of the reference design package. In terms of the detail in the drawings, the 1:500 drawings were on a large scale showing departmental adjacencies; the 1:200 drawings showed the departmental layouts and the 1:50s individual room layouts. The Chronological Table at pages 3– 5 details the reference design review for critical care from July 2011 to February 2012 by way of example.

14. The reference design drawings which were the output of these meetings captured NHS Lothian's operational functionality requirements, for example departmental adjacencies and room layouts, but that is all. I understand that the reference design was there to present a diagram of the clinical adjacencies between departments and then, within departments, of the rooms; in particular, the size of rooms and the number of rooms. It was important that the bidders didn't stray too far from the operational functionality elements of the reference design because it had been designed to capture and meet the clinical/operational needs of the users, i.e. the patients, staff and families.

15. I recall that the Project Team worked closely with the clinical teams to agree the critical adjacencies between departments. This was an extremely important

factor to consider to ensure effective patient pathways and staff efficiency. Examples of this would be locating the Surgical Day Case Unit within the Theatre Department which minimised the time it took for a child to get to theatre; locating the Emergency Department adjacent to the Paediatric Acute Receiving Unit; and Critical Care on the same floor as Theatre Department.

16. Operational functionality, from my perspective, relates to adjacencies. The adjacencies between departments, adjacencies of rooms within departments, and the size of those rooms. In a way, the reference design was the diagram of what, from a clinical perspective, was needed to function and operate well. It did not include engineering requirements such as ventilation.

Clinical Output Specifications

17. Another output to support the reference design that was provided to bidders were Clinical Output Specifications (COS). The COS were developed to provide bidders with information about each department, including: the function of the department; the function of the rooms within the department; the average number of people that would be in the rooms; the processes within the department; and any specific requirements from a clinical perspective. I prepared a paper for the Project Steering Board (PSB) dated 12 October 2012 called: Clinical Output Specifications Development an Approval Process (the "COS Paper"). The purpose was to provide the PSB with an update on the development of the COS and to note the approval process for the COS.

18. By way of background, during the capital funded phase, Design Briefs for each department were developed in 2010 - 2011 which outlined each departments' clinical design needs. Following the switch to NPD, the Design Briefs were later reviewed and became known as the COS. As part of the KSR for the Design (August 2012), Scottish Futures Trust (SFT) identified a number of gaps within the Design Briefs which were addressed in the development of the COS.

19. The Design Briefs were used as a basis for the COS and the nominated clinical leads for each of the areas reviewed the content of the COS. The COS became

one of the key documents in ITPD Volume 3 and provided the preferred bidders with the detailed requirements and functions of each of the clinical departments.

20. The template used for the COS was recommended by Capita (healthcare planners). The template included Sections 8 re Environmental and Service Requirements, Section 9 re Design Guidance; and section 10 re Other Specifications. The COS were reviewed by the Technical Advisors, Motts, and Capita and further changes were made. Motts cross referenced the COS to the Schedule of Accommodation, Adjacency Matrix, Board Construction Requirements (BCRs) and relevant Health Building Notes. A workshop was held with Motts, the Project Team and other key stakeholders to ensure there was consistency across the ITPD documentation.

21. The final version of the COS were sent to the relevant Clinical Management Team (CMT) for sign off. Following sign off by the CMT, I signed off the specifications as the Project Clinical Director.

22. From my perspective, the review of the COS by Motts included ensuring that the correct design guidance was stated, including in relation to mechanical and electrical ("M&E") engineering. Motts' role would have been to ensure the relevant guidance was set out at section 9 of the COS. I nor the Clinical Leads would not have known the specific design guidance that was relevant to each department. The clinicians would provide input on some environmental issues relevant to a particular department or room in terms of specific patient needs but they would not be responsible for ensuring that any technical design guidance was followed. An example of the type of environmental issue included in the COS for Critical care is "Patient rooms should have natural daylight but ensure privacy".

23. From my perspective, the intention was that the bidders would use the COS to influence their design and to ensure their design met our requirements so that we could deliver the care that was needed within those rooms and departments.

24. I would have envisaged that COS would be used to populate certain sections of the room data sheets, particularly the section in the RDS re “clinical activities” that would be happening within that department. The COS also referred to the Design Guidance to be adhered to.

25. Each department had very specific requirements and the COS were an aid for the designers to allow them to understand the operational processes that would be happening within that department and the accommodation required to deliver these processes.

26. The clinicians were very engaged as they saw the reference design and COS as an opportunity to ensure that the new hospital was fit for purpose. The Project Team recognised the importance of effective clinical engagement as the clinical teams are best placed to know what accommodation and equipment is required to deliver patient care. This was also backed up by visits the Project Team made to other new hospital projects where their project teams emphasised the importance and benefits of strong clinical engagement throughout the design process.

27. I was involved in preparing the COS including the one for Critical Care. I can understand that initially there may have been some confusion as to what services were delivered within the Critical Care Unit, however the COS clearly explains the critical care service and the scope of that service. The opening statement in the specification states “The department will provide a comprehensive critical care service this includes Paediatric Intensive Care (PICU), High Dependency Unit (HDU) , and Surgical Neonatal Unit (SNNU)”

28. I worked closely with the clinical leads for Critical Care Unit and acted as a conduit between them and the bidders. I would provide clarity and advice to the bidders on a variety of issues for example the type pf patients that would be within those areas and the care that they required. Also from a clinical perspective, what was required in relation to equipment. I would respond to

queries from bidders in relation to the clinical design liaising with the clinical leads where appropriate.

29. From my perspective the Critical Care COS was a key document for bidders as it provided a wealth of information in relation to the scope of the service, work patterns, operational processes, accommodation requirements, patient and process flows, communication systems, key departmental relationships, environmental and service requirements and design guidance.

30. The COS clearly stated the need for flexibility in the use of critical care beds, for both High Dependency and Intensive Care, to ensure efficient use of these high specification beds. It also states that these bed spaces must be of the same specification to allow greater flexibility of use. An example of this would be if Intensive Care was at full capacity a patient requiring this level of care could be nursed in a High Dependency bed space and vice versa. This was also emphasised to bidders at design meetings by the Clinical Leads and Project Team.

Mott MacDonald

31. Mott MacDonald were our technical advisors and we had a very good working relationship with them. They had been involved during the capital phase and into the NPD phase. They advised and assisted us in relation to the use of the reference design, the ITPD, competitive dialogue, the appointment of the preferred bidder through to financial close and then going forward for the duration of the Project. They were very much part of the Project Team.

32. When we moved into competitive dialogue, Motts had some of their staff based with us, the Project Team, in the office so we were working very closely and this allowed them to be embedded in the project. Some of them would be there the majority of the time whilst others would be there less frequently. You got to know individuals, as you were working beside them. I was predominantly working with David Stillie, who was their architect, and he would attend most of the design meetings.

33. To give you an example of the type of thing Motts would assist with, when we were developing the 1 in 200s drawings, we were looking at interior design, specifically the finishes etc., which are very important, particularly from an infection control point of view. Motts were able to provide advice on types of suitable paints and flooring for specific areas. Motts input from an architectural perspective included a number of areas, for example, landscaping, signage and art.

34. There were many other types of interaction with Motts which were not architectural. It might be about the lighting, for example, what lux level you need in a light fitting to allow you to perform a clinical task in a particular room. Or it could be about drainage, acoustics or fire strategy, but I was not usually involved in that side of things unless clinical advice was required. They were our technical advisors who could and did advise on all technical issues.

35. David Stillie was an architect but there were range of advisors in the Motts team including engineers. The engineer that I predominately knew was Colin McRae. There were other people from Motts that would offer their expertise about specific issues. As far as I can recall Colin was dealing with ventilation issues.

36. Colin McRae would come to discuss certain matters with myself, Fiona Halcrow or James Steers in relation to some M&E issues where a clinical perspective was required. A good example of this would be a question along the lines of: “They're proposing this lux level in the treatment room, can you clarify the types of procedures that will be undertaken so that we ensure the correct lux level is provided”.

37. Colin McRae would sometimes need to discuss ventilation specific issues with us and Infection Control. This would be around what type of patient was going to be nursed within that area. For example, what types of patients would be cared for in a single bed room or in isolation rooms as it could be someone who has got an infection or susceptible to infection.

38. It would be my expectation that Colin McRae would know what was required in terms of ventilation requirements including any specific air changes, air pressure, or anything to do with the ventilation system, as would the relevant bidder. If Motts and/or any of the bidders needed clinical input about the types of patients or clinical activities in a room, they could and would come to myself or one of the project managers with a clinical background to discuss it. I think it is also important to say that Infection Prevention and Control would always be involved in those discussions, either the IPC nurse or a consultant microbiologist. There is an example of such a discussion below at paragraph 124 onwards.

39. The relationship with Motts was a productive one. I was happy with the advice and assistance I received from them.

Infection Prevention Control (IPC) Input

40. There was IPC input at both the reference design stage and the detailed design to financial close. IPC were invited to all the meetings and sent relevant drawings prior to the meetings. At the time of the Reference Design the IPCNs involved were mainly Carol Horsburgh and Jean Harper. Janette Richards, IPCN, became the main IPC contact after the reference design was completed and she attended design meetings and was sent any drawings. An IPCN would attend the majority of the design meetings but if unable to attend they would provide input prior to the meeting. The other clinicians involved in the design meetings included the charge nurse and lead consultant for the area, and also if required allied health professionals, radiologists, play specialists and administrative staff.

41. The IPCNs provided input into the adjacencies of rooms and activities within rooms, for example ensuring the dirty utility was not adjacent to the ward kitchen. They would also advise on equipment required and placement of fixed equipment. For example, ensuring that there is a clinical wash hand basin in

particular rooms or hand sanitisers in the corridor and the most suitable location for specific types of equipment.

42. I am not best placed to comment on what level of input an Infection Prevention and Control nurse would have in relation to ventilation system technical requirements as they would be best placed to answer this. However I would expect that if they were asked for advice they would seek assistance from relevant individuals if they did not have the necessary knowledge or expertise. As set out at paragraph 124 onwards below, at one point Janette Richards contacted Health Facilities Scotland to ask for their advice on an aspect of the ventilation system. An Infection Prevention and Control specialist is not an engineer. Therefore, they would not know detailed technical issues concerning the ventilation system. The IPCNs and clinicians' expectations would be that the engineers would build to the requisite national standards. If there was a proposed derogation that concerned patient safety, then it would be appropriate to consult with clinicians and/or infection prevention control and/or HFS / HPS in relation to the proposal.

Healthcare Planner (Capita)

43. The NHSL Healthcare Planning Team's main purpose was related to bed modelling for the new hospital. They provided information to Capita, external Healthcare Planners, for their review. The healthcare planners reviewed the current levels of patient activity and predicted what the activity would be in future years taking account of a number of factors including age profile and birth rate. This information was incorporated in the COS within the Activity Indicators Section (1.2.1). This piece of work was undertaken to determine the capacity needed within the new hospital including the number of beds, theatres, outpatient rooms etc. This in turn informed the Reference Design and the accommodation required.

44. Capita were also asked to review the COS as they had previous experience of this from other projects.

Scottish Design Guidance

45. In my role as Clinical Director, I would have been familiar with the term SHTMs or HTMs and was aware that they contained Scottish Design Guidance that should be followed. I would not have necessarily been familiar with these before I joined the RHCYP/DCN Project.

46. I was familiar with the need for specific air changes and air pressure regimes. I was aware that these related to the activities that were being carried out in the rooms, which was one of the reasons for the COS, so that bidders understood those needs. It would be fair to say that I had an awareness that there were requirements but not the specifics of what technical requirements were needed in particular rooms. At the time I would not have been able to tell you how many air changes you needed for specific spaces.

47. My role would have been to explain the requirements from a clinical perspective. For example, neutropenic patients are susceptible to infection, so need to be protected from infection. I would explain if required that clinical requirement and would defer to NHSL Technical Advisors, Motts, to ensure that satisfactory technical solution was delivered to achieve these requirements.

48. I do not specifically recall the document titled ‘Chief Executive letter 19 of 2010’ and the requirement for Health Boards to comply with a design policy issued with the letter. I was not on the Project at the time this letter was issued.

49. I have been asked if a single room in critical care still requires to be classified as “Critical care” for the purposes of SHTMs. The answer is yes. It is a single room in the Critical care department. As I have mentioned above, it was clear in the COS for Critical Care that all rooms in the critical care unit had to be used interchangeably. I understand that the SHTM also has particular requirements for “Critical care” so I don’t know what else that would apply to if not to all rooms in the critical care department. If Multiplex had any queries as to whether there were any rooms in critical care that should not be subject to the particular

critical care requirements in the relevant SHTM, I would have expected these queries to have been directed to the Project Team, most likely Mott MacDonald in the first instance who would have consulted with me, Brian Currie or Fiona Halcrow depending on the nature of the query.

Hulley & Kirkwood – Environmental Matrix

50. I understand that prior to the switch to the Non-Profit Distributing model, Hulley and Kirkwood were employed as the m&e engineers and drafted an environmental matrix (EM). As far as I can recall I became aware of this after joining the project team.

51. I can recall at times being asked questions around the type of patient that might be nursed within a particular area. I do not recall scrutinising the environmental matrix in any detail as I would not have the expertise to do this.

52. I stated earlier that I joined the Project part time in April 2011. I do not recall liaising with Hulley & Kirkwood directly. I understand that they were part of the reference design team but, as far as I can recall, they did not attend the design task group / user group meetings. However Davis Langdon, Mott MacDonald and Nightingale Associates did.

Invitation to Participate in Dialogue (ITPD)

53. I had some involvement in reviewing the documents that were part of the invitation to participate in dialogue (ITPD) or Invitations to Submit the Final tender (ISFT). For example, the clinical output specifications were part of those documents. As far as I can recall, I also reviewed parts of the ITPD and ISFT to ensure that they reflected clinical, patient and family needs. For example, I would have reviewed the sections on specific factors driving the need for change and the clinical benefits within the new RHCYP and DCN. I would also have reviewed other sections, for example, artwork, the family hotel.

Evaluation Criteria

54. I had input into the tender evaluation criteria and weightings during workshops held prior to competitive dialogue. My input was as part of a group of people that were looking at how we would split the weightings. From my perspective, and others within the team, quality was very important.

55. However, my understanding was that the 60/40 (price/quality) split was immovable. I think generally, as a Project, we raised our concerns but the feedback we were getting from SFT was that that this would not change, so we had to look at how we could make the best of the 60/40 (price/quality) split.

56. From my perspective we needed to ensure that the quality criteria weightings reflected key quality aspects from a clinical and patient perspective. It was suggested that some of the criteria could be pass or fail thus allowing other parts of the quality criteria to be scored.

57. I cannot comment on the M&E score being low relative to other elements, however I recall a lot of the M&E requirements were assessed on a pass/fail basis. This would mean that if a bidder did not pass the criteria they could not proceed.

Competitive Dialogue

58. The competitive dialogue meetings involved meeting with the bidders, key people from the Project Team and NHSL advisors to discuss bidders' current proposals. Prior to each of the dialogue meetings, bidders would submit their latest updates and proposals which were reviewed by the evaluation team and advisors prior to the dialogue meeting. At the competitive dialogue meetings, the day would start with an initial meeting with the NHSL Core Evaluation Team, the Advisors and the relevant bid team. This would be followed by breaking out into a series of sub-meetings concentrating on the three workstreams (legal, technical and commercial). The day would end with the full core evaluation team, NHSL advisors and the Bidder's team meeting again for a wrap up session.

59. I was part of the technical workstream as design was part of this. Richard Cantlay from Motts was the key person dealing with the technical aspects at the competitive dialogue meetings and then he would, as necessary, have other advisers from Motts attend. Brian Currie, the Project Director, was the nominated lead for NHSL for the technical workstream which included all aspects of the design.

60. The technical workstream was split further into different sections. For example, one of the sub-meetings would be with the bidder's architects to discuss and give feedback on their latest set of design drawings and proposals.

61. From my perspective, I was looking to see whether the bidders' design satisfied our operational functionality requirements. Myself and Fiona Halcrow both led on this aspect of the design and we would have had a pre-meet before the competitive dialogue meetings to review the bidders' proposals along with James Steers, who was Project Clinical lead for DCN. We would look at bidders' proposals in relation to the reference design and identify if they were deviating from areas previously agreed with the user groups in relation to operational functionality.

62. On occasion, we would go back to the relevant clinical lead/s to discuss what the bidders were proposing and whether their design proposal was acceptable. Sometimes we could deal with issues by email or telephone call with the clinical lead/s but sometimes we would arrange a meeting to discuss the drawings.

63. The clinicians were not directly involved in competitive dialogue meetings and evaluation of tenders, however as noted, clinical input was sought when required and the NHSL Project Team would act as the conduit between clinicians and bidders. For example, as set out in the Chronological Table, on 16 July and 24 July 2013 there were additional extraordinary meetings between IHSL and NHSL (without clinicians present) in relation to the 1:200 Design and Planning for Critical Care. Fiona and/or I would have raised the queries with critical care leads who reviewed the drawing and made various comments and

we then fed those comments back to IHSL during competitive dialogue so that they could develop their design for final tender. The same process was used for all of the bidders.

64. I was also involved in reviewing some of the other design criteria during competitive dialogue including interior design and wayfinding proposals.

65. There was some further involvement with clinicians during the dialogue process. For example clinical representatives were involved in an AEDET review with each of the bidders during competitive dialogue.

66. I have been asked if I know what an exemplar design is as there is a reference from IHSL to exemplar design. I do not recall the context of this and what IHSL meant by that.

Tender Evaluation

67. I was part of the core evaluation team, which comprised five people who each represented the following interests in evaluation:
(i) Brian Currie, Project Director;
(ii) Iain Graham – Commercial and Legal; (iii) myself – Clinical and Service User;
(iv) Carol Potter – Finance; and (v) Jackie Sansbury – Operations and Commissioning. The core evaluation team was supported by a number of advisers - legal team (MacRoberts), technical team (Mott MacDonald) and financial advisors (Ernst & Young). The core evaluation team was also supported by other members of the Project Team and NHSL corporate departments, for example, Estates, Fire, Infection Prevention Control as required.

68. There were three main workstreams: commercial, legal and technical and I was in the technical workstream. The technical workstream was further split into a number of areas including design, M&E, civil and structural. I was not in the M&E discussions or involved in scoring this section and so I cannot say how

ventilation was evaluated during that period, although as previously mentioned I was aware that many of the criteria were pass/fail.

69. I was involved in the evaluation and scoring for other elements of the design for example landscaping, interior design, wayfinding and also in the strategic management section. My focus as Clinical Director related to design in terms of operational functionality, meeting clinical and stakeholder requirements. For the design criteria, people involved included Fiona Halcrow, Infection Prevention and Control, and James Steers. We separately reviewed and scored the submission and then came together to discuss and agree a collective score and provide collective comments. The process followed is set out in the "Evaluation Manual – Evaluation of Technical Submissions" section.

70. I have been informed that that Bidder C had marked up their tender in relation to ventilation requirements. I was not aware of this at the time. I had no involvement in the evaluation of M&E engineering. At no stage did I have cause to consider SHTM 03-01 in the evaluations that I undertook. My understanding was that the hospital would be built in compliance with the Scottish Design Guidance.

Design Development from Preferred Bidder to Financial Close

71. After IHSL had been appointed as the Preferred Bidder, they had to undertake further detailed design to Financial Close. To my knowledge, the intention was that the reference design would have served its purpose by the time financial close was achieved. This was because IHSL's design solution would have superseded the reference design.

72. I prepared a Board Paper called "Design Development to Financial Close" for the PSB dated 29 November 2013. It is in Brian Currie's name as the Project Director but I was the author of the paper and as far as I can recall I presented it to the PSB. The purpose of the report was to inform the PSB of the staffing resource that would be required for the Design Development process from appointment of preferred bidder to financial close and the proposal to support

this process from the clinical management teams' whose services would be transferring. Additional support was also needed from other corporate departments, including infection control.

73. Paragraph 3.1 of the Board Paper notes that all bidders as part of their final tender had to submit their proposed programme for design development for the period between preferred bidder and financial close. During this period design development was split into three main phases:

    (i) review of 1:200s developed through competitive dialogue process;
    (ii) development and sign off of 1:50s for each room including the production of Room Data Sheets (RDS) and;
    (iii) Development and sign off of technical design, eg. Interior and external design, fire strategy, ICT etc.

74. Paragraph 3.2 of the Board Paper states that the preferred bidder will have a dedicated Design Manager leading the design team of architects who will work in conjunction with the Project Team Leads (i.e. me and Fiona Halcrow) for design development. It is stated that these individuals will manage the design programme which will include the consultation and engagement with users, monitoring of progress and sign off of the design. This is what happened.

75. The design manager for Multiplex (the Building Contractor to be appointed by IHSL) was Lianne Edwards. She was our main point of contact in Multiplex and all design would go through her. For example, HLM (the architect to be appointed by IHSL) drawings would be issued by Lianne to the Project Team (including Motts), rather than directly from HLM to the Project Team. Lianne would also attend the majority of the detailed design development meetings that we were having with HLM, Multiplex and the clinicians.

76. The Preferred Bidder, IHSL, was appointed in March 2014 and on 27 March 2014 I emailed the department leads setting out the process for detailed design development with the preferred bidder with an explanation of the process as follows:

"The first detailed design development with the Design Team will cover the following:-

- *Review of the 1:200 departmental plan. This was signed off during the competitive dialogue process and therefore we are not anticipating any change to this. Where the Design Team have made changes from the Reference Design they will explain the rationale for this and the benefits. The 1:200 drawing issued will identify the rooms (key and generic rooms) that were all ready signed off by users at 1:50 as part of the Reference Design. This drawing needs to be read in conjunction with the explanatory notes.*

- *Review of the relevant key and generic rooms for your department to ensure that no changes are required*

- *The Design Team will also start preliminary discussions with you on some of the non-key and generic rooms within your department in preparation for Round 2 & 3 meetings. As we have previously indicated some departments will not require three meetings"*.

77. 'Design development' is the term used for this period between appointment of preferred bidder and financial close. I have been asked if this included M&E engineering. It would have done, yes, but I would not have been directly involved in that because I was focusing on operational functionality in relation to the 1:200 and 1:50 drawings.

78. Fiona Halcrow and/or I would have been at the design development meetings with David Stillie from Mott MacDonald, the relevant departmental clinical leads, an HFS representative (in relation to equipment requirements) and the IPCN. Drawings would be sent to attendees prior to the meeting to allow them to review and consult with their colleagues. If infection control or HFS were not able to attend, then they would submit their comments in advance of the meeting so that they could be discussed at the design meeting. Facilities

Management representatives also had the opportunity to make comments on the drawing and submit those for discussion at meeting.

79. I have been asked who actually signed off on the 1:50s. At the design development meetings, the drawings would be marked up with the changes discussed and then everyone who attended would sign the drawing. Ultimately, once we had got to a stage where we were all in agreement that all the changes had been implemented, then either myself or Fiona Halcrow would confirm it was complete and physically sign off on the 1:50s.

80. When I have spoken about the interaction I had with Mott MacDonald, I explained they were embedded in the team and located in the same office. At that time, we were also all co-located with IHSL in the same portacabin. Whilst we were not in the same office as IHSL, we were located near them. While I did not see Lianne Edwards, MPX Design Manager, every day, I certainly saw her frequently. Contact was sometimes informal and she would pop into our office with a query. At other times contact was via email or phone. During the design development phase we had a physically close relationship with both Motts and IHSL.

Project Steering Board

81. The Project Steering Board (PSB) was involved in the governance of the Project. The PSB met monthly. I was a permanent member of the PSB and I attended regularly. The purpose of the meetings was to provide the attendees with updates on how things were progressing, raise any issues of concern that the Project Team had, and escalate any matters necessary.

82. The input I had with the PSB was varied. I was the clinical lead and also the lead for patient and public involvement from the PSB perspective. I would write reports and papers and present them to PSB. The Board Papers about the Approval of the Clinical Output Specifications and the Detailed Design Development as noted above are good examples.

83. I also contributed to the project dashboards, which were issued to the PSB and reviewed at the meetings. The project dashboard was a summary document providing an update on progress and key issues. It was split into different sections that nominated

individuals completed. It was circulated to the PSB members in advance of the meetings and discussed at the meetings.

84. I prepared the clinical update and also contributed to the stakeholder and communication and design sections of the project dashboard. Often, there were more detailed underlying papers that were part of the agenda for the PSB that were referenced in the dashboard for further information.

85. The type of issue that was included in the project dashboard from my perspective would depend on the stage in the project and the issues at that time. For example, after the appointment of preferred bidder, I would confirm the number of user group meetings that had been held or were still to be held. I would flag any issues with the bidder that might need to be resolved, e.g. around the flow of information.

Risk Registers

86. Risk registers played an important part in the project. In general terms, within the NHS, risk registers are an integral part of governance and are embedded within every service. Therefore the Project, like every service, had a requirement to have a risk register to identify any risks and the mitigation that could be put in place to reduce or avoid those risks.

87. Regarding the document, “Design risks to the board” **(A36308801 – Design Risks to the Board to Financial Close)** this is a Mott MacDonald document. I do not recall this document specifically but expect I would have seen it at the time. The first entry relates to ventilation and this is the type of issue in a risk register which would be relevant to my role as Clinical Director, as I would want to know that the design was complying with the necessary ventilation guidance.

I would be relying on Mott MacDonald's advisers, including Colin McRae, to say what the solution potentially would be. I would have expected that the solution would follow the national guidance such as SHTMs.

88. Regarding another document I have been shown, "Technical Risks to the Board to Financial Close" **(A36308810 – Technical Risks to the Board to Financial Close – 31 January 2014)** this is also a Mott MacDonald risk register and it's dated the 30 January 2015, which was just prior to financial close. I do not recall this document specifically but expect I would have seen it at the time. There is an entry:

    i. *"Despite best efforts of the board, more reviewable design data than was expected by the board. Risk to project, less well-defined proposals, therefore less certainty by the board, lack of design. IHSL pushed very hard to achieve maximum information during preferred bidder stage."*

89. To clarify, the last line should really say: "IHSL were pushed very hard by NHSL to achieve maximum information during preferred bidder stage".

90. I would have expected to have been copied into most of these types of risk registers because, if you take the above as a specific example, the reviewable design data information included various aspects that would be within my remit. So, yes, as a Project Team, we would generally be aware of all risks, even if some of them were not directly related to our areas of expertise.

91. At this time I do not specifically recall having seen either of the two risk registers outlined above, however I acknowledge that as I was involved in discussions in relation to the Project's Risk Registers throughout the project the likelihood is that I would have seen them both at the time.

AEDET

92. AEDET stands for Achieving Excellence Design Evaluation Toolkit and it is a tool to evaluate the design. It is split into three key areas with each area having subsections:
(1) Impact (Character and Information, Form and Materials, Staff & Patient Environment, Urban & Social Integration); (2) Build Quality (Performance, Engineering & Construction); and (3) Functionality (Use, Access, Space). AEDETs were undertaken at different stages in the project and involved a range of individuals.

93. We undertook AEDETs in October 2009, April 2010 and August 2010 which was during the capital funded phase. I attended the first two of these AEDET reviews as part of the clinical management team (i.e. before I joined the Project Team in April 2011) and which as far as I can recall HFS facilitated. I note that on the AEDET dated 12 August 2010 (I was not present) there is a report by HFS of the AEDET review as follows:

> *"NOTE: The AEDET workshop provides an evaluation by the stakeholders of the design presented to them. It does not provide an assessment of the compliance of the design with current healthcare planning or technical guidance. HFS acted as independent facilitators of the workshop and this report does not necessarily reflect the views of HFS."*

94. After the switch to an NPD funded model, AEDETs were undertaken in August 2011 (though I was not in attendance) and March 2012. The March 2012 AEDET was facilitated by the Architects, NA and BMJ.

95. You are not able to always score all of the sections because it depends on the stage the design is actually at and who is in attendance at the AEDET. M&E was not evaluated in any of the AEDETs I attended.

96. I cannot recall exactly where the requirement to use AEDET originates from but think it was a requirement of NHS Scotland. It was not just a requirement of the NPD model because AEDETs were completed in the capital-funded days.

97. As previously stated, I had no involvement in discussing the M&E requirements at the AEDETS. The people that were at the AEDETs I attended certainly would not have been in a position to either. Those who attended included patient representatives, clinicians, infection control and union representatives, known as “Partnership”.

98. The criteria would be scored, although as previously mentioned not all of the criteria were able to be scored. There were two options for scoring: either all individually score and then do an average or you can collectively, as a group, following discussion give an agreed score. It partly depends on the size of the number of people you have attending. The outputs from the AEDET reviews were fed back to the architects to allow them to make changes to their design in light of comments and scores made by the attendees.

99. During competitive dialogue each of the Bidders undertook an AEDET review. These were held over two days on 17th and 18th June 2013. This was to help bidders further develop their design and proposals from the feedback they received from clinical staff, patient representatives, and Infection Control. Prior to attending, participants were provided with a written briefing explaining the purpose of AEDET, the process that would be undertaken including the scoring process. It also confirmed that not all criteria would be scored. As can be seen from the scoresheet for Bidder B all of the Impact section was scored and only one question within the Performance criteria of the Build Quality section was scored. Within the Functionality section Use and Access criteria were fully scored and only two questions within Space criteria were scored. The outcome of each of the workshop was shared with the relevant bidders.

HAI-SCRIBE

100. Healthcare Associated Infection – System for Controlling Risk in the Built Environment, known as HAI-SCRIBE, is a well recognised risk management tool used to identify any risks to patients, families and staff and to mitigate against or to manage them if you cannot mitigate against them. It is widely used within the NHS in relation to any building works. HAI-SCRIBE is split into four stages that are done at different points in the development of a project. The first stage is undertaken at the beginning of the development of a project. The second stage relates to design and planning for the new development. The third stage is undertaken when you prepare to move into the construction / redevelopment stage. The final stage, Stage 4, is undertaken prior to occupying the facility.

101. Each of the stages have set criteria with a list of questions for the review group to respond to. The composition of the review group will vary depending on what stage the project is at. Infection Control are always present and review is either led by a Project Manager or Infection Control. You would not undertake an HAI-SCRIBE if Infection Control were not present.

102. There are a list of questions asked which require either a Yes, No or N/A answer and the proforma has space for any additional comments to be made. At each of the different stages there are different questions. The group undertaking the HAI Scribe will meet and complete the form together.

103. As an example of attendees I note that the HAI Scribe stage 3 (construction / redevelopment phase) dated 13 January 2015 was attended by me, Janette Richards (IPC), David Stillie (Motts), Ken Hall (IHSL), Stewart McKecahnie (IHSL), and Brian Rutherford (IHSL).

104. Regarding a new build, some of the questions are around planning. For example, whether adequate clinical hand washing facilities are being planned. There is a general section on ventilation. There is no reference in Stage 3 to the ventilation SHTMs. In relation to this Project, the main concern during the

construction phase was around the impact on the RIE as a functioning hospital. So when we did the Stage 3 HAI-SCRIBE, it involved key people from the Royal Infirmary. In HAI Scribe 3 it was noted that there was an infection risk in terms of exhaust ventilation. There is a comment to the effect that "Clinical staff in the areas located near to where building works are to be carried out will be advised to contact their local IPCN if building is affecting their clinical environment. Domestic Services within the RIE will be advised of building work schedule. Part of the Schedule of Conditions is related to the checking of the Hepa Filters by Cofley and liaising with IHSL."

105. When we did the Stage 4, three HAI-SCRIBEs were undertaken as we split the areas into three with one HAI-SCRIBE covering the inpatient areas, another covering theatres and imaging, and the third covering Outpatients. At the Stage 4 HAI- SCRIBEs there was representation from the Project Team, this included Ronnie Henderson, Estates and Facilities Lead, myself and/or relevant commissioning manager; Infection Prevention and Control and Multiplex.

106. Over the course of the Project I attended some of the HAI-SCRIBE assessments or reviews but not all of them.

107. I have been asked what a RIBA Stage E is and I do not recall this.

Room Data Sheets (RDS)

108. RDS contain information including a description of the clinical activities carried out in the room, the number of personnel that will use it, room characteristics including flooring and wall finishes, a schedule of components and equipment for use in the room and environmental data. There are various documents which inform the RDS.

109. I have been asked if it is correct that 1:50 drawings inform the content of the RDS. The 1:50s show the layout of a specific room, for example location of equipment, sockets and lights. So from an equipment perspective, the information in the 1:50 would inform the RDS. I have been asked whether it is

correct that the 1:50 for every room would have to be completed and signed off to allow the RDS to progress. I would say that the RDS might not be able to be finalised until the 1:50s are complete, as a final equipment list is needed, but they could still be progressed.

110. In relation to equipment, a crib sheet "1 – 50 Drawings review notes – Equipment" dated April 2014 was drafted by NHS Lothian with input from HFS to capture what was required in terms of reviewing the equipment requirements during the 1:50 process. It is stated:

- *Lists of equipment to be procured (or transferred) are generated from RDS (Room Data Sheets) which, in turn, are derived from the 1:50 drawings. Consequently, if items do not appear on the drawings they will not appear on the equipment lists. It is therefore important to ensure that all required equipment is identified at the 1:50 review.*

- *Room design and environmental characteristics are not shown on the 1:50 drawings but appear on the RDS or separate spreadsheets. Particular requirements should be highlighted to the Architects in order that they can be incorporated in the RDS (e.g. if lasers are to be used in Operating Theatres this should be highlighted in order that the appropriate laser protection can be included in the RDS and to highlight the need for RPA input).*

- *Layouts and equipment provision should (unless specifically derogated) comply with current guidance, Scottish Health Planning Notes, Scottish Health Technical Memoranda etc.*

- *Health Facilities Scotland (HFS) will be supporting NHSL in development of equipment specifications and procurement of equipment.*

IHSL Room Data Sheets at Financial Close

111. I have been shown the following excerpt from the ITPD:

1. *"Section 3: discussion of key issues*

ii. *All bidders, as part of their final tender, must submit their proposed programme for design development for the period between preferred bidder and financial close. During this period, design development can be split into three main phases: review of 1:200s; developed through competitive dialogue process; development and sign-off of 1:50s for each room, including the production of room data sheets."*

112. In August 2014, there was a special Project Steering Board that was convened. I was not in attendance. I have been shown a minute of the special PSB. It records that an agreement was reached that IHSL did not need to produce 100% of RDS prior to Financial Close.

113. As I was not present at the special PSB in August I was not party to this decision. However, I did have input in to the rooms which we agreed did need to have RDS for Financial Close – i.e. the key rooms and generic rooms. Key rooms were those rooms that had critical operational requirements, for example critical care single cubicle; and generic rooms were rooms that were replicated more than 4 times in a building, for example a dirty utility and a single bedroom children en-suite. The combination of the two represented 52% of the rooms in the building. The remaining 48% of the rooms comprised a range of rooms, for example, ward kitchens and play rooms. The Paper called "Design Development to Financial Close" for the PSB dated 29 November 2013 referred to in paragraph 72 of this statement has the list of Generic Rooms in Appendix 1 and List of Key Rooms in Appendix 2.

114. On 10 September 2014, Lianne Edwards from Multiplex emailed Graeme Greer at Motts with a PDF list of the rooms Multiplex proposed to provide RDS for for FC. Lianne noted "that during RDD (i.e. after FC) all room types would be generated as an RDS, culminating in and RDS attributable to each room. C-Sheets will be provided from the room list attached too". Graeme then forwarded Lianne's email and PDF list of rooms for RDS to me, Fiona Halcrow

and David Stillie at Motts and asked us to review and see if there were any additional rooms we wanted to add.

115. On 11 September, Fiona Halcrow responded to Graeme Greer with some comments and a note of additional rooms to be added to the list. On 12 September, I responded to Graeme Greer to advise I'd spent time reviewing and had collated all the rooms into a spreadsheet by department. I did that because the list Multiplex had provided was very difficult to interrogate. I added a column suggesting other rooms that should be done, which also incorporated Fiona's suggestions.

116. On 12 September, David Stillie responded to Graeme Greer to say that he had no further comment to make in addition to those made by Fiona and I. Graeme Greer then responded to Lianne's original email providing the spreadsheet I'd prepared with my comments. Lianne Edwards responded on Saturday 13 September to say that she would review in advance of Tuesday's meeting. I am unsure what meeting Lianne is referring to to in her email but this issue was discussed at the Project Management Group (PMG) however it met on the Wednesday, which would have been the 17th September 2014. She commented in her email that "time would be the most limiting factor at this stage". I was not a member of the PMG, so was not in attendance, the meeting was attended by representatives from NHSL Project Team, Mott MacDonald and IHSL.

117. Having reviewed the notes of the meeting on 17th September 2014. The note of the meeting states:-

"RDS Sheets for IHSL list will be issued as one transmittal by 22/9/14. Boards additional room list issued to IHSL. Board to re-review, due to time constraints"

118. However, I note that the RDS produced at Financial Close are dated 18 September 2014 so I can only assume that it was agreed that the list of key and generic rooms for RDS were agreed following that meeting.

119. The RDS produced by IHSL at FC were for the agreed set of generic rooms and key rooms. The key rooms in critical care were: 4 beds Low Acuity; Single-bed cubicles (isolation): single bed cubicle; 4 beds High Acuity; Open Plan Bay 3 cots (neonatal); and Single cot cubicle: Neonatal.

120. By the time the special steering board meeting in August 2014 and the subsequent emails in September 2014 took place, my working relationship with Lianne Edwards was still productive. I think, in general terms, the relationship did change a bit over time, but as for exactly at what timeframe it changed I cannot recall.

121. I would have reviewed the RDS provided by IHSL at FC along with Fiona Halcrow in relation to operational functionality, i.e. not in relation to the m&e environmental data. I would have relied on Motts as our Technical Advisors to review the RDS in relation to that environmental data and flag any issues with the Project Team. If Motts needed clinical input in relation to any issues with the RDS, they would flag this with myself or Fiona Halcrow.

Emails – Openable windows

122. I have been shown an email that was sent by Graeme Greer at Motts to Brian Currie on 13 November 2014, concerning the environmental matrix and single room ventilation. I am not copied in to this email. However, I would have been aware in or around November of an issue with single bed rooms and ventilation. I cannot recall why I was not copied into the email, but Fiona Halcrow was and I am sure that Fiona would have discussed it with me.

123. From a patient perspective, the ability to open a window makes you feel better because of the fresh air. It can be important for patients' mental well being to be able to open a window. However, there are some circumstances, for example in Child and Adolescent Mental Health, where you would ensure you have sealed windows to prevent ligature risks. You also would not have openable windows in isolation rooms because it would impact on the air pressure within the room and also potentially introduce infection.

124. I have been told that prior to January 2015, a mixed-mode ventilation system had been promoted which is a mechanical ventilation system that is assisted by fresh air being provided by opening a window. I was aware that this was being proposed at the time and as far as I can recall was being reviewed by NHSL technical advisers. However, my understanding is that the mixed-mode ventilation was only in relation to single rooms and did not apply to critical care, which had its own specialist ventilation requirements.

125. On 13 January 2015, there was a HAI-SCRIBE meeting with IHSL at which there was a request for clarification in relation to the negative/positive pressure regime within bedrooms. This is summarised in the IHSL RHSC+ DCN RFI Summary.

126. On 14 January 2015 I emailed Fiona Halcrow attaching the air movement report for single bed rooms. I wrote:

> *"FYI, we discussed this yesterday and what was meant to have been the HAI-SCRIBE Stage 3 workshop. But other than the M&E people who were there to talk about the ventilation, clearly the correct people weren't there. Anyway, David is going to discuss with Colin and Janette with HFS. IHSL do appear to have followed the relevant SHTM, so we await the outcome of these discussions."*

127. The David I have referred to in the quoted paragraph is David Stillie. He was going to discuss the matter with Colin McRae, the m&e engineer at Motts, and Janette Richards was to discuss with HFS. As previously mentioned we would expect Motts and HFS to have a greater insight into the SHTM requirements and would rely on their expertise.

128. As agreed, on 14 January 2015, Janette Richards emailed Ian Stewart at HFS to seek his input. Janette forwarded Ian's advice to me and David Stillie, who confirmed that he had forwarded Ian's email on to Colin McRae for comment.

129. Clarification is then provided by email from Motts to Ken Hall at Multiplex on 29 January 2015. The email states the Board's response to the recent RFI is as follows:

> *"The single room with en-suite ventilation design shall comply with the parameters set out in SHTM 03-01.*
> - *The design solution should not rely in any way with the opening windows as these will be opened or closed by patient choice.*
> - *The critical factor from SHTM 03-01 for infection control will be the resultant pressure within the room being balanced with or negative to the corridor.*
> - *Isolation room ventilation shall comply with SHPN 04 Supplement 1. Under the heading, "Attribute 2", the email refers to M&E building services."*

130. I was copied in to this email because I had been involved from the outset at the HAI Scribe meeting on 13 January and because there was potential impact and risk to the patients that would be being looked after in those rooms.

131. In my view this does resolve the specific query – i.e. we responded to the request for information by IHSL in relation to the pressure issue as we agreed to do at the HAI Scribe meeting on 13 January 2015. I was aware that there were some design issues that were unresolved at financial close and, accordingly, were subject to the Reviewable Design Data (RDD) process, It was part of my role as Clinical Director to engage the clinicians during the RDD process to review the continuing design.

132. I have been asked whether I would have been concerned in my role as Clinical Director about the number of issues that were not resolved by February 2015 and the answer is yes, because the expectation was that those were meant to have been resolved by FC. I think it is something that the Project Team, as a group, were concerned about. However, a pragmatic solution had to be reached and we knew that there was a contractual mechanism in place, the RDD process, to resolve the outstanding issues.

133. I had an awareness of the pressures on the Project to proceed to Financial Close in February 2015. I do not recall any pressure being put on me personally, but I was aware from feedback from Brian Currie that there were discussions at a senior level.

Reviewable Design Data (RDD) Process

134. As noted, it was part of my role as Clinical Director to engage the clinicians during the RDD process to review the continuing IHSL design. The RDD process included the architectural and technical drawings and the RDS. The RDD process involved the NHSL Project Team, supported by NHSL specialist advice from a number of different disciplines/corporate departments, for example Infection Control, Pharmacy, Health & Safety and Fire Safety; and Motts.

135. On 3 March 2015, myself, Fiona Halcrow and David Stillie at Motts prepared a paper: “Reviewable Design Data (RDD) Process – Information for Service Leads” and provided it to the clinical leads for all departments by email. The paper explained to the lead clinicians that the RDD process was the next stage in the design development process following the detailed design development from preferred bidder to FC during April – July 2014, at which time the 1:50s for each room were signed off by the nominated lead/s.

136. The paper references that design guidance was used in the development of the current 1:50s which included: relevant Health Building Notes (HBNs/SHBNs), departmental clinical output specification, guidance from manual handling, infection prevention and control and e-Health and dementia standards.

137. IHSL were to provide a pack of information to be issued to the nominated lead/s a minimum of 5 working days in advance of the meeting. The IHSL pack was to comprise:

- 1:50 Loaded Floor Plans – Copies of the individual signed-off department layouts from the previous round of user group meetings;
- C Sheets – Individual room plans and wall elevations based on the 1:50 layouts reviewed and commented on previously;
- Room Data Sheets (RDS) – Written description of each room including details of function, environment, fittings and equipment;
- Equipment List – Full departmental list covering all equipment in Groups 1, 2 and 3; and
- Reflected Ceiling Plans.

138. The paper makes it clear that sign off of the 1:50s and associated information was to confirm operational functionality only, as defined in the Project Agreement. However, if there were further changes, there was a Change Protocol in place. The meetings involved the lead user/s, representatives from the Project Team, Motts and the equipment lead and drawings were to be reviewed by facilities management, infection control and equipment representatives. The purpose of the meeting was to discuss and agree any comments that had to be fed back to IHSL.

139. The clinical departments were split in to 14 Production Groups for the RDD meetings. Critical Care was in Production Group 10 (PG10). There were 6 or so submissions from IHSL for review by PG 10 between November 2015 and October 2016. However, as I recall initially the RDS were issued for the early PG meetings but IHSL then stopped issuing them.

140. I have been asked to comment on what my understanding as to the root cause failure to produce or fully populate the RDS was. My personal view is that IHSL did not appear to view the RDS as a priority at that time as their priority was to progress with finalising the drawings for sign off as these informed the RDS. Within the RDS the relevant series of drawings would be referred to.

141. I think myself and my team were probably the first from NHS Lothian Project Team to realise that the production of RDS during the RDD process was not progressing. As I recall we discussed this within the Project Team and Motts.

142. In my role as clinical director, I viewed RDS as essential as it was a contractual requirement. In terms of developing the final 1 in 50s, from the point of view of how those rooms were going to be laid out, the RDS was not a crucial element at that time because we had the information that was required to do the layouts, for example the COS and equipment lists. However, the RDS needed to be reviewed to ensure all of the architectural and technical information contained within them was correct, e.g. in relation to the equipment, and correct series of drawings. The RDS are important at the end of the Project as a collective record of what has been built in each room. IHSL did eventually submit final RDSs and these were reviewed by a number of people. For the purposes of operational functionality myself, Fiona Halcrow, or relevant commissioning manager reviewed the relevant sections. We would review them for operational functionality (i.e. room layouts, clinical activities and equipment). Motts advisers reviewed the technical sections and if there were any issues with the environmental data I would have expected Motts to flag this.

143. 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.

Scottish Hospitals Inquiry
Witness Statement of John Ballantyne

Introduction

1. My name is John Charles Ballantyne.

2. I am a consultant now, having retired from Multiplex in June 2021. I am self-employed and work with various organisations within the construction industry.

Professional background

3. I joined John Laing Construction in 1979 on what they described as an articled pupilship, which had a five-year duration, in Quantity Surveying. I was there for 17 years.

4. I then joined Bovis Lendlease and stayed with them in the UK for about five years, and then went to America with them. I stayed in America until late 2007, then came back and re-joined Laing but as part of Laing O'Rourke. I stayed with them for a couple of years as Commercial Director for the Scottish business, and then I went to the Robertson Group to head up their construction business, but I was only there for about a year.

5. Thereafter, I joined what was then Brookfield Multiplex and was working on what became the Queen Elizabeth University Hospital, very early in its tenure. The laboratories building was just coming up to completion when I joined, and we were putting piles in the ground on the main hospital. I think this was in 2011. Then, as I said, I retired from Multiplex in June 2021.

6. As part of my tenure with Multiplex, I was on the main European Board for a couple of years towards the latter end of my employment. Specific to Royal Hospital for Sick Children ("RHSC"), when I was at the Queen Elizabeth

University Hospital, we were bidding in competition for the RHSC project as one of the three bidders going through competitive dialogue as part of the preferred bidder selection process. I led the bid, took it through Financial Close, and then for a short period of time I was Project Director on the RHSC Project. I then relinquished that responsibility to Alasdair Fernie early in the construction programme. Overall, I have around 42 years' experience in the construction industry.

7. I have been involved in a number of other hospital construction projects including (as I said above) the Queen Elizabeth University Hospital in Glasgow prior to the Edinburgh RHSC. I was also involved in the Forth Valley Hospital when I was with the Laing O'Rourke group as Commercial Director for the Scottish business. When I was in America with Bovis Lendlease, I was Area Risk Manager and on our portfolio were a number of healthcare projects.

Environmental Matrix – Royal Hospital for Sick Children (Edinburgh)

8. I am familiar with environmental matrices and they have they been used in other projects that I have been worked on. On the Queen Elizabeth University Hospital in Glasgow, for example, where you have over 7,000 rooms, albeit a number of which are repetitive in style and type, you have both the accommodation matrix which describes what size those rooms are and where they are in relation to one another. Then, sitting beside that you would have the environmental matrix on the M&E side to say how those spaces would perform. In my view, it's a very useful tool for capturing all of that data in one place rather than a library of room datasheets which would otherwise be the case.

9. One of the main aims of the Board for the RHSC project (by "Board" I mean NHSL), in my understanding, was to have absolute clarity on what they were going to receive as part of the procurement and delivery process. Brian Currie and I had many a lengthy conversation during the preferred bidder phase when the phrase environmental matrix kept reappearing. There were examples in the past where the NHS Lothian Board felt they did not get what

they thought they were going to get and then could do nothing about it. That was something they desperately wanted to avoid on the RHSC Project. This meant they went into the granular detail and absolute clarity was what they were driving to, not to get caught short by way of any misunderstanding of expectations and output result. If we look at the environmental matrix as an example, my understanding, albeit I'm not an expert on M&E services, was to clarify the performance requirements from an environmental point of view in every single type of space in the facility; for example in terms of temperature range, and air change. It was intended to give clarity and lack of ambiguity. This was imbedded and reinforced all the way through the dialogue phases and into preferred bidder by the Board and its advisory team.

10. With regard to the Board's Construction Requirements (BCR's) and our Project Co Proposals (PCPs), the Environmental Matrix would have been a line in the sand which IHSL and the Board would understand as the technical requirements IHSL was expected to deliver and so our contractual obligations.

11. The environmental matrix was one of a number of tools on the design side to support that level of clarity and non-ambiguity, to be available as a reference document, if and when it was required, so NHSL could come back and say, *"You promised to deliver this, and it appears from your commissioning reports and output data that you haven't done so."* In my view, the environmental matrix, is what NHSL would be using to validate compliance or otherwise.

12. I am asked about where there is information within the environmental matrix and that differs to that within an SHTM. Returning to how important the Board regarded the environmental matrix to be, it was seen as the Bible, for want of a better expression. Relative to an SHTM, which might expect something different, I would say they would defer and prefer to go to the environmental matrix to confirm expectations. Validation and certification were to be done against the Environmental Matrix and not against any other standard of guidance.

13. We were told at the competitive dialogue meetings that the Environmental Matrix was mandatory and that there was to be no deviation. It was absolute.

14. In my view, the Board had told us what they wanted, i.e. the Environmental Matrix and we gave that to them in out design being in compliance with the Environmental Matrix. The Matrix set the standard for the Board on this Project as it had been written and produced by them.

15. I was at arm's length to the M&E side of our team at Financial Close. It was led on our behalf by two very experienced groups: one, a domestic subcontractor in the shape of Mercury Engineering; and two, TÜV SÜD in the shape of the professional designers of M&E. I would have expected - and I believe there was - communication about the environmental matrix from those two groups on IHSL's side and the Board, to ensure that both parties understood what the expectations were.

16. Operating theatres obviously demand a far greater flow of air and a number of air changes than a single person bedroom would. So I would have expected, these two areas would have different numbers and there would have been discussions in dialogue and design sessions with the Board's advisors about that level of air change expectation.

17. If there were discrepancies, these would have been picked up by the subcontractor of M&E, the designer of M&E and in consultation with Motts and the Board's professional advisory team. They would have tabled that document (the Environmental Matrix). They would have been looking at our design offering, overlaid upon that, with the Board saying, "Yes, you're giving us what we want".

18. I don't recall specifically the terminology of room function reference sheets within the environmental matrix for every room. If you looked at a room, that would explain in very simple but clinical terms what we would understand, and our design team members would understand, that room had to do by way of clinical functionality, and what the contract then expects us to deliver. There

were parameters of performance expectation defined by the room type definition. It was clear and both parties understood it, whether for operating theatre, single patient bedroom, isolation suite, dirty utility, etc.

Procurement process

19. I couldn't tell you specifically the date when the environmental matrix, was added to the draft contract provided in the ITPD. As part of the pricing, programming and designing tasks that had to be done, we had to understand what the Board wanted, and my reference in that would be the BCRs. In those BCRs would be all of their expectations, including the performance requirements of the environmental matrix as I explain above.

20. During the competitive dialogue phase, more on the architectural side, there was a level of encouraged license that the Board wanted to give to the competing bidders. Whilst the site was physically constrained by its footprint as to how far you could go in terms of exercising that design license, they still wanted a world-class, state-of-the-art facility. It was like "*Give us what you can and be as modernistic as you can"* because one of their primary aims, because it was a children's hospital in the main sitting aside the Department of Clinical Neurosciences, was to try and take away the utilitarian type of healthcare environment, so that the children that were attending the hospital could feel as comfortable as practically possible in that space. If you go to the hospital and walk into the main atrium, for example, it is aimed to deliver a welcoming environment to the patient groups attending. In terms of all of the wayfinding artwork, all of the patient waiting areas, some of the examination rooms with sky ceilings, we were told "Be a bit creative in your design offering" and the same was said to the other two bidders.

21. I would say that Multiplex and IHSL were satisfied with the competitive dialogue process. We must have been, because we came out winning the opportunity to go forward as preferred bidder. It was a very lengthy process. I believe that we had done enough to secure the bid. Particularly on the architectural side of our design offering, I thought that HLM did an absolutely

fantastic job in their interpretation of the Board's requirements to hit those buttons of "We're giving you something different here and taking you into something ground-breaking from an architectural design point of view." It was really, really good – for patients, clinicians, and visitors alike. I thought the selection process was very good and we'd taken enough time to develop the design as far as it could be developed at that stage to give them a commercial offering, a defined design offering, in a level of detail, and a programme that was doable.

22. I think there were two rounds of questions over the final competitive bids. I can't recall specifically, but I do think it was two rounds of questions and then responses, so that if the response we gave in the first round of questions wasn't specific enough, there was the second round of questions in order to let the Board make a properly informed decision on preferred bidder selection.

23. In terms of innovation with regard to patient pathways, to afford the clinicians the right level of ability to provide treatment, that's not something we would normally mess with. Innovation was more in line with things like, "Can we do something with the non-institutional environment by way of the artwork, by way of the decor, by way of the softening it. It's still really a hospital but let's try and disguise it as much as we can into being something else." But when you have drilled or scraped the surface off that, it's still an acute hospital, and we could not breach those fundamental desires of the board that had been discussed and agreed before MPX were involved. We could not mess with that "brief". We heard the phrase, "You need to listen to what we want" and I think, on Edinburgh, through Brian Currie, the message that was coming over was: "I know what you might want to give us, but listen to what we want and respond to that, please."

24. I am asked about Room Data Sheets. (**A34108626 – IHS Lothian room data sheets – 08 October 2013[1])** IHSL was supposed to provide all room datasheets at Financial Close but there was a decision taken to relax this provision and only c.40 percent were produced.

[1] Bundle 6 - Key Sections of IHS Lothian Tender, item 7, p.405

Preferred Bidder Stage

25. Both teams (IHSL and the Board) embarked on the Preferred Bidder process co-locating at Canaan Lane in Edinburgh. Co-location of the teams was seen as a way to make it work faster and more efficiently.

26. I looked more on the architectural side than I did on the M&E side, but the Board's level of diligence, and this isn't a criticism, went back to the "*We want to understand what we get,*" mentality and meant that the length of time each of the tabled drawings took to achieve the: "*Yes, that's fine, now we know what we're getting, now move on to the next drawing",* took longer than both sides wanted it to take. As a result of that, the preferred bidder period to take it to Financial Close was taking too long; it was costing too much in resources and time and we were not going to hit the targeted dates for Financial Close. That was a matter of great debate at very senior level on both sides at that time.

27. I would challenge the suggestion that discussions around the air-change rates and pressures were unresolved at financial close. I would have said that at Financial Close the IHSL design was what we thought we were going to be expected to deliver. There was a level of mutual understanding of how far the design had got and what it would deliver. Bearing in mind, again, with my commercial hat on, we were agreeing the costs for the construction project at Financial Close based on the design - costing a set amount of money for what that design included.

28. I do not believe that the project or expectations on what was to be delivered by Multiplex changed fundamentally between the ITPD stage and the period up to Financial Close. It would have matured in terms of its depth of detail to support what the last tender included. So, on the design, you would go from a 1:100 to a 1:20 type level of scale. You're drilling down then into what should be provided to gain more specific certainty. From an equipment point of view, you're saying "I know that you might have allowed for shielding in this particular MRI suite. What type of shielding and to what extent?" So you're

moving into a deeper level of interrogation through the FC process, again seeking and getting further and further clarity, on both parties. But fundamentally it's not changing, it's just developing in its level of detail.

29. At that time too, we would have been looking at the supply chain that would be delivering on those particular elements and identifying who was going to be the provider of specific things, who was going to put the render on the walls, who was going to put the vinyl on the floor, the roof on the building, who was going to be providing the air-handling units in the plant rooms. Mercury Engineering would have been going through their procurement phase, narrowing down their supply chain on component parts of the M&E system. Again, from the Board's point of view, there were equipment specific meetings that talked to those elements: not only what IHSL would provide in the treatment suites, but what the Board knew it had to provide (imaging machines for example) and how those two elements would sit comfortably together and not clash.

Ventilation

30. There were discussions around the mixed-mode ventilation such as the opening of windows to be included as natural ventilation. These discussions started as part of the overall strategy and the architectural design around patient wellbeing. The Board wanted openable windows because openable windows benefits patient wellbeing by bringing the outside in if you like. That was always in our contemplation as part of the brief, to have the benefit of natural ventilation as opposed to the set up of the Glasgow hospital. It was the reverse. None of the windows in the Glasgow hospital were openable.

31. The Board's stance on this, I believe, came from the clinical side seeing the benefit of having openable windows. But, at the end of the day, openable or not - because in some rooms the windows even though they could be, wouldn't be opened (in winter for example), the system therefore still had to function independent of natural ventilation. On its own the system would have had to generate sufficient output to meet the Board's requirements because

you can't be reliant on a patient, or a visitor, or nursing staff opening windows to make it all work.

32. In my role there was very little direct clinical engagement, but I was not involved in the technical design. Some of the Board's advisory team were former clinicians. Two of the ladies on the board side, Jackie Sansbury and Janice MacKenzie, were both lead nurses at the Sick Children's hospital in Edinburgh, so they took the lead on what the clinicians expected in the children's hospital. There was no obvious (to me) direct departmental lead engagement, and I thought that the Board's team were suitably qualified in having those members on their side to talk on behalf of the clinicians. They had been through the ringer many times before with the clinical groups of NHS Lothian, before it was an NPD project platform for procurement. That had developed the reference design and BCR's. The definition and the opportunity to fundamentally change that input was gone by the time we came to the table, even in bidding stage.

33. At Financial Close the design was not as developed as one might expect. However, we could have built the hospital – and did, in my opinion – from the documentation that was signed off at financial close. The assurance that my business needed from me as the bid leader, and I would have suggested the same on the Board's side to allow them to enter into that contract, meant what was to be provided needed to be of sufficient clarity and definition. That wasn't going to change unless the Board told us they want it changed. On this job, because of its procurement route, you have a number of entities all having to satisfy themselves. So for example Bouygues needed to understand what the hard FM consisted of so that they could work out their lifecycle replacement liability. So you've got a number of entities all looking at it to satisfy themselves. Therefore, having reached Financial Close you're getting the blessing of not just NHSL, in my view, but the funders as well as the Facilities Management contractor on the IHSL side and the different stakeholders on the Board side.

34. Multiplex did have some concerns about the level of RDD at financial close because my understanding was some drawings had only achieved a status C for example. Status C means you can't build it since it is not yet approved. This wasn't fundamental though to the point where there was a risk for £X million pounds of more scope. It was more along the lines that the Board's not quite satisfied yet. We're going to have to do a bit more work. It wasn't going to change anything in terms of the wider design principles and approach.

35. NHS Lothian and ourselves were therefore content with items remaining open on the RDD following Financial Close. They had been flagged up but there was no "We'll never get here" because, at the end of the day, Financial Close was the catalyst to starting on-site, and once that machine starts rolling it becomes very expensive if it has to stop to re-think and interfere with the construction process. Again, Brian Currie and his team were very alert to that. A fundamental redesign after Financial Close wasn't really an option. You can't do it. The parties need to be sure when we sign what is to be provided and that whilst there may be a bit of tweaking and polishing, it doesn't require a fundamental rethink. If we look to M&E, the design was such at Financial Close that you know the number of air-handling units required to achieve the Air Change Rates, because you know what we're going to do with one air-handling unit and the flow rates to be achieved.

36. In my view the RDD process was there to check that the IHSL design was delivering what had been asked for by the Board, including for example what was in the Environmental Matrix. So, the level of air flow and air change rates would be presented with duct and plantroom information, together with the energy model to confirm performance and compliance with the Environmental Matrix.

Relationship with the Board

37. In terms of relations between Multiplex and the Board as we drew towards Financial Close, I think that the co-location at Canaan Lane was very much a

positive because we were working as one and not as two organisations. Whilst we sat in different offices, because physically it was a cellular facility, the amount of interaction the discussions, the meetings were good. There were lots of meetings every day, and the relationships in those meetings had a level of mutual spirit of trust and cooperation even although it wasn't an NEC (New Engineering and Construction Contract, this being a form of contract that expressly requires this). Obviously, there are differences of opinion and levels of stress and strain but, I think that the relationships were very good.

38. I cannot comment on the project management group meeting in August 2014, regarding a review of the environmental matrix there but I would be happy to assist if more information can be provided.

39. I do remember the Special Project Steering board meeting on 22 August 2014 **(A32676824 – Action notes RHSC and DCN Special Project Steering Board – 22 August 2014[2])** which Ross attended, where NHSL raised their concerns about the project programme and achieving Financial Closure. It goes back to the points I was making earlier that the board had a level of diligence they wanted to apply and were applying through the RDD process, but which meant it was all collectively taking too long. A level of frustration relative to how long it was taking was starting to bubble to the surface. The risk was missing the Financial Close target date because, as things take longer and dates pass, inevitably it will cost more money. There was always an overall commercial constraint on the Board which we understood. There may have been a level of criticism levied at the IHSL team side, but equally I think we were, through Ross Ballingall, pushing back on the Board side saying, "You are going into this in our opinion in a level of detail far in excess of what we believe is necessary."

40. Ross had stated there was a genuine mismatch in NHSL's and IHSL's expectation where IHSL's been asked to deliver much more than on other projects and considerably more than what was required for operational

[2] Bundle 8 - Scoring & Correspondence Regarding Issues, item 2, p.11

functionality. For example, if you looked at a particular room going through the RDD process, we would table a set of drawings. We would have the meeting. A couple of things would be moved around. We would take the drawing away, redraw it, present it for what we thought was signature, and then the board would say, “Oh, we would like to move this again. I know we put it on that wall previously, now we’d like to put it on this wall, and can we not have one of those cupboards removed? We’d like three shelves in that one as opposed to two, and now we want to put this piece of equipment in here.” So, on several occasions, the same drawing was revisited a number of times instead of, in our view, once and the second meeting is the “Now you can sign off on it. Let’s get the next rooms drawing on the table.” We were still pouring over the same drawing many, many times.

41. So it just took longer than we would normally have expected, and with more revisits, therefore our architectural and design team were spending too long on the same thing – the same thing being a room space and its internal layout in the facility. We felt “We shouldn’t have to take this long to get you satisfied. Stop changing your mind”. The Board’s answer to that would be, “But that’s who we are. We can change our mind until we get what we think we need to provide us the facility that we’re going to buy from you. And we’ve not bought it yet by the way, you’re still only preferred bidder.”

42. That was the kind of discussion that was happening at that time. So while I have said that the relationship was very good, the stresses started to show as we were getting closer to Financial Close in date but not close enough in terms of RDD progress.

43. There were issues around the PCPs. Those documents are in response to the BCRs. So how it works is the Board says “This is what we want" in the BCR. Then the PCPs are produced as this is what is being provided. So, in a way the PCPs here described the BCRs, and in the simplest of terms, you could have said, “We’ll give you what the BCRs ask full stop.” But that would be ridiculous. So, then you move forward, and you develop the PCPs and you explain it in a bit more detail. Again, the level of detail that the Board expected in the PCPs, in our opinion, was over and above what we would

normally have had to deliver to satisfy another health board. But stepping aside, why do they want them in that level of detail? In our view so they would not get to the same place they've been in before when they thought they were buying something and got something else. So I can fully understand why they wanted it in so much detail. It's just how long it takes to create that amount of detail and but also how so unusual, in our experience, it was because we've done this before and so had the Board.

44. I do not specifically recall being involved in any discussions around BREEAM, other than about how much it was going to cost for the benefit that it would actually bring. There was certainly a desire by the Board to hit an excellent rating on BREEAM. Going back to our experience, to go from "very good" to "excellent" is physically achievable and would be easier to achieve in certain facilities for example a commercial office block. "Excellent" in healthcare is pushing the BREEAM envelope quite far. Again, it comes back to how much you having to expend in order to get those additional points to get you from "very good" to "excellent," and commercially as well as operationally is it worth it to you, the Board, as the building operator?

45. You have to strike a fine balance between your M&E proposals in trying to achieve that, because how much energy you use fundamentally is a BREEAM consideration. So the energy model and its anticipated burn/use of energy is very much a mainstay to how many BREEAM points you can earn: how much water you're actually going to use and how much you're going to recirculate. The same for air. It's all a consideration in BREEAM.

46. My understanding of the term "operational functionality", which was sought by the Board, goes back to the question "What is the purpose of this building?" It is an acute hospital for children, with the ability to incorporate a department for the Department of Clinical Neurosciences. You have to have a number of rooms that do specific things. So for example you have to have a certain width of corridor so that, when that MRI machine gets replaced by the latest and the greatest version of it, you have to have a way of getting those machines in and out of the facility. So demountable wall panels overhead panels and corridor doors so that you don't have to deconstruct half the

hospital to switch the machine out." Some of those equipment machines, for example on the MRI, need special services, a quench pipe for example which needs to be routed through the facility to external safe space. Every so often the magnet gets too hot and you need to cool it down really quickly.

47. The whole way a hospital works has to be considered in the design as a builder we absolutely understood the importance of clinical functionality to the Health Board. We had been required to deliver it in a number of facilities elsewhere and did so successfully in our view.

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

Signature

Date

Scottish Hospitals Inquiry Witness
Statement of Kenneth Hall

Personal Details

1. My name is Kenneth William Hall. I am currently employed with Multiplex as a Package Manager.

Education and Career Background

2. I joined DSSR, who are mechanical and electrical consulting engineers, back in 1986, as an apprentice design engineer. Whilst employed, I was provided with day release at college for ONC and HNC education. Then in 1991, I went to Strathclyde University to study Bachelor of Engineering (Honours), which I achieved in 1994. In 1998, I became a Chartered corporate member of, what was then, the Institute of Electrical Engineers.

3. In 1999, I became a corporate member of the Chartered Institute of Building Services Engineers, which is called CIBSE. Between 2000 and 2003 I studied part time, graduating in 2003 with an MBA with distinction. Then, in 2012, I became a fellow of the IHEEM which is the Institute of Healthcare Engineering and Estates Management.

4. I have always been involved in mechanical and electrical engineering, starting with DSSR who specialised in hospitals at that time. I have held various positions as my career progressed. I was at Buro Happold from 1999 to 2005 as an Associate. It was all building services projects, so that is Mechanical, Electrical and Plumbing ("MEP") type projects. I then moved to Rybka, who again are a mechanical and electrical building services consulting engineers and that was around 2005 to 2008 as Regional Director. I was at Morgan Professional Services as an Associate Director between 2008 and 2009. In 2009 and 2010, I was a self-employed consultant which included working on Projects at Glasgow Royal Infirmary. I joined Multiplex in 2011 as a Mechanical and Electrical Manager.

5. Before joining the Multiplex team on RHCYP/ DCN I had worked on hospitals before. I was involved with QEUH in Glasgow. Prior to joining Multiplex, I was also involved with other large-scale type projects such as The State Hospital which was a new build project. It provides psychiatric care to patients, so it was a project that straddles mental health and hospitals. Then various minor works, such as upgrades in wards or just a range of projects within healthcare. My experience can be summarised as:
   - January 2011 – March 2014 – QEUH
   - 2009 – 2010 – Glasgow Royal Infirmary
   - 2006 – 2009 – The State Hospital. Ward Upgrades

Current Role

6. My role deals with managing design packages in MEP, so I am responsible to Multiplex for delivery of that element.

7. I was not involved in the Royal Hospital for Children and Young People ("RHCYP") and Department of Clinical Neuroscience ("DCN") project in 2012 for the procurement process as I only joined the project in March 2014 at the preferred bidder point.

Environmental Matrix

8. An environmental matrix is a useful document, in that it summarises the mechanical and electrical requirements that are necessary to design and build the hospital. I have seen it done in various guises, but it was certainly used at QEUH as well. The function of using the matrix can be driven by the form of contract. In some cases, it could be the client that produces it or in some cases it could be the design and build team.

9. My experience has been that the environmental matrix is produced manually and not populated automatically by way of a computer software package.

10. The RHCYP/DCN project used a Non-Profit Distributing (“NPD”) model. I have been asked by the Inquiry what my understanding of the function of the matrix was. When I became involved at the preferred bidder stage, the first thing I had to do was consider what documents we had to get us through to Financial Close. It was an audit of what we had, and one of the key documents was the environmental matrix which summarised all of the requirements that Lothian Health Board (“the Board”) wanted. I saw this as a positive because it then meant that the process had been completed and it was not required to be done. This would vary from project to project and sometimes the matrix would not have been developed to the extent it had been at that point. In some cases, it can be the contractor team or the client team that has to produce it. It is a document that you require to be able to do so many things mechanically and electrically, to design the project to what your client ultimately wants. There are a lot of technical figures in it and some people look at that and they just think it is numbers, but the information in that is so critical for so many aspects of a project that you cannot underestimate it. I was pleased to see this environmental matrix had already been prepopulated.

11. The information contained within the environmental matrix was taken as the client's briefing document which allowed the basis of the MEP design to be developed. The Board's environmental matrix was reproduced by Wallace Whittle, and through dialogue, discussion and meetings, the document was ultimately reviewed by the Board prior to Financial Close.

12. I have been asked to comment on CEL 19 (2010) (A37215536 – CEL 2010 – Letter to Chief Executives, ‘A Policy on Design Assurance for NHS Scotland 2010 Revision’ (2) dated 2 June 2010) and the requirement for Activity Data Base to be used by health boards as a design and briefing tool. I note this requirement was introduced in 2010. My experience has not been acting for health boards at this early stage of a project. I am unable to comment if health boards are working to CEL 19 (2010).

13. My understanding is that the document and data within the environmental matrix are fixed at certain points in time. During the life of a project, there can be additions and omissions as the project goes on. The duration of a hospital project could be three years plus. The client's requirements may change, so my experience with the matrix is that you could get instances where, say, some rooms have had their function changed. At that point, the environmental matrix would be updated or altered as the project progresses. It is never a document that is 100 per cent fixed at day one. However, you do need it populated at day one otherwise you cannot inform the design principles that you have to develop at that point. When I received this environmental matrix within the paperwork, I saw it as encapsulating the Board's requirements for the hospital build. Any amendments to that would have been in respect of any potential changes that came along as the project was developing because ultimately with the matrix, every room gets defined within it, and it is labelled to an actual room number. For instance, further down the line if some rooms were changed. It would mean that, as an example, if a store was changed into a bedroom, you would look at the criteria that you had at the start and you would think about the criteria that we have agreed for the bedrooms already. We would then insert revised data into the matrix, and then submit the environmental matrix for client review.

14. I have been asked what is the basis of my understanding that an environmental matrix may change during the life of a project. My experience on other projects is that on such a large and complex project with so many room types may well be subject to change as the project progresses; be it operational policy, new policy or regulation change, new technology or a requirement for different clinical needs or other reasons. Any changes are led by the client and instructed accordingly in line with the contractual procedures.

15. I have been asked to comment did I ever see the Board's Construction Requirements (BCR) (A33405670 – Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsections A, B and C Excerpt pages 1 to 149) that made compliance with SHTM03-01 mandatory. I was provided with a copy of the BCR when I joined the project team. The BCR was seen as more than simply compliance with the SHTM. For example,

paragraph 2.3 listed out the standards to be complied with, unless the Board had expressed elsewhere in the BCR a specific and different requirement. The different requirement being section 8 of the BCR where the works had to comply with the environmental matrix.

16. In relation to the question of the values being fixed within the environmental matrix, my understanding is they were fixed at certain points in time.

17. I have been asked to comment on the reference to “see guidance” on the Hulley and Kirkwood environmental matrix, Third Issue dated 19.09.12 (A34691184 – Reference Design Envisaged Solution – RHSC/DCN RDS Environmental Matrix – 19 September 2012) . The spreadsheet includes specific values for the majority of entries. There is a general “see guidance notes” under notes at the far right of the spreadsheet in column “AC”. As I understand it, Wallace Whittle used the specific values within the environmental matrix to formulate their design.

18. I have been asked to comment if the values within the environmental matrix are required to price the job / tender. I am not directly involved in the costing of a project; this is the remit of the commercial team along with the subcontractor(s). However, ventilation rates are required to assess spatial requirements and equipment selection and capacities to build up a cost model.

19. The matrix was a really comprehensive document. It was not a generic spreadsheet that when you looked at it including the backup information; we also had what I would call a reference design pack. This included items such as the Hulley and Kirkwood design intent document. Also, we had the thermal comfort document, and they all aligned with the matrix. My interpretation of the environmental matrix was this is a really good piece of work that has been done, it has been thorough, and it takes out the need to, effectively, have to produce one because the process had already been carried out.

20. I have been asked to clarify the contents of the back-up information referred to in the previous paragraph. This relates to the Hulley and Kirkwood report that identifies previous issues on the existing RIE hospital bedroom overheating,

and the computer modelling carried out to show mechanical ventilation at 4ACH resolved the overheating issue(s).

21. I have been asked to clarify what was seen as being the definitive requirement of what the Board desired in relation to environmental requirements. My understanding was the Board's environmental matrix defined the Board's requirements, and this was aligned to the Board's Construction Requirements Section 8 where it was defined that the works had to comply with the environmental matrix.

Role at the Preferred Bidder Stage

22. My discipline is mechanical and electrical (M&E). Multiplex employ designers, so we do not do any design in-house. My role within Multiplex was as mechanical and electrical Design Manager, where I was to facilitate and manage the interaction between our designers who, in this case, were Wallace Whittle and the Board.

23. At the point of looking at the matrix, I felt it was not simply as having a duty to check to see if it was complying with Scottish Health Technical Memorandum ("SHTM") and the Scottish Health Protection Network ("SHPN") regulations, and all the other relevant regulations. My understanding was that the Board were responsible for interpreting the guidance and then producing their requirements, because within the guidance, there are many considerations to be made. We talk about guidance but there are so many aspects to guidance. Maybe visualising it, you have the environmental matrix in a mind map in the middle, you then have so many other aspects that inform your environmental matrix. Taking SHTM 03-01 (A33662259 – Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A – Design and validation dated February 2013) as an example, within that, there are selections to be made on clinical requirements. It is not just about air changes. That document is 184 pages to do with ventilation. It is a huge document that covers many areas, and so it is not a document that you would just decide if there were compliance or not. There are so many aspects that need to be

analysed and discussed, and that is what feeds into the environmental matrix. Then there are other aspects that can be competing. You will have input from Estates in terms of say, energy efficiency. Or Infection Control input as well as. clinical input requirements. Some of these can be at odds with one another and that is where the client process to decide, effectively, what they really want is so important. It is not just about compliance with a standard; you need to understand operational policies. You need to understand how certain wards are going to be used or the reasons for certain air changes. With pressure regimes, that is an issue that a builder cannot exclusively decide. The end result is questioning and confirming whether it is what the client wants.

24. I have been asked if I was aware IHSL had to develop its own environmental matrix and state compliance with SHTM03-01 at tender stage. I was not involved at the tender stage of the Project, and not aware of what was discussed. I cannot assist the Inquiry with this question.

25. I have been asked to comment who would decide the ventilation pressures in relation to a department. In my opinion this would involve a range of stakeholders who represent the Board. Operational policy would form part of the decision-making process, and if it is to be positive or negative pressure for example depending on the type of infection the patient is likely to have. The combination of stakeholders would include for example, clinicians, infection control team, estates, nursing staff and others. A technical advisor may run simulations or checks and provide engineering input on what could be possible based on any ventilation design being discussed at an early stage. In summary the clinical expert sets out their requirements for the engineering solution to then be determined.

26. With room datasheets, from my experience generally I would have expected to have seen a comprehensive set of room datasheets in tandem with the environmental matrix which lags the room datasheet process. However, Wallace Whittle would not produce room datasheets because it is part of the architectural role to lead this, with input from MEP. My understanding is that your starting point would be that the health board would use the Activity Data

Base (“ADB”) system which then gives you a selection of rooms, and that becomes your starting point for the room datasheets. Within that, you have your architectural elements, and you have your mechanical and electrical elements. Then, if you imagine a large project, you have got the architectural plus the M&E per room, so you could have volumes and volumes of documents. They are very bulky, and they are not really what I would call a reference for M&E designers who have to look at key aspects regularly. My understanding is that what normally happens is that the information contained in the room datasheets, so your air changes and also things like lighting, that information then gets inserted into the environmental matrix.

27. I have been asked to comment on ADB process and the stage they would be introduced. As I understand it the employer decides how this will be set out in the client brief produced. As the starting point I understand NHS Scotland Bodies information relating to CEL 19 (2010) should be formulated from the ADB process. The process is not something I have been directly involved in.

28. I have been asked if I was concerned by the lack of room data sheets. I was not concerned because I understood the client’s environmental requirements had been defined within the environmental matrix. In my experience any RDS should have reflected the same environmental information.

29. The two design elements – architectural and MEP - are split very early on. The architects have their user group meetings, and they may be altering the room layouts based on what the users are feeding in because, in my opinion, they are a starting point. You get a generic layout from Activity Data Base which may be relevant to a particular type of room, that then must be reviewed with the user group team to understand their specific requirements. For the MEP there are also workstreams developing the MEP principles based around for example the environmental matrix. In my experience the environmental data gets spilt from the RDS process at an early stage. Both workstreams develop their respective deliverables, and at certain points in time the information contained within the environmental matrix is brought together with RDS.

30. During this process Wallace Whittle and the architect had regular dialogue where for example user group meetings were led by the architect; where there was any impact on Wallace Whittle design elements this was fed back via the room layouts marked up from each user group session, and further dialogue held accordingly to assess the impact and capture the requirements.

31. I was provided with a pre-populated environmental matrix as part of a pack with all the other reference design elements, and one of the requirements was to produce room datasheets by Financial Close. I did not see anything unusual about this because the environmental information was already provided in the form of the environmental matrix. In simplistic terms, it is the environmental information MEP am more interested in to develop the design principles.

32. During the detailed design phase, post financial close, as I understand it the architect coordinated the user group requirements and reviewed any changes with the Board.

33. If there is a conflict between the environmental matrix and guidance, in my opinion, the matrix would prevail because the interpretation of the guidance has already been done which then produced the matrix, because there are many aspects to the guidance. If you look at the environmental matrix, there are some notes at the front. For instance, in respect of the WC toilets, there was a note there, I think it's note 17 that says, "The SHTM says three air changes, but we want 10." There is another one about temperature, note 12, where maximum temperatures have not to be exceeded as contained within the matrix, typically 25 degrees for patient bedrooms, whereas the SHTM codes say 28 degrees. The Board and their advisors have made a decision they want 25, so it is not a generic document. This is a document that somebody has worked through and have really analysed their requirements and they are telling you what they want and inserted the figures that they do want within the environmental matrix. I think the decision in relation to guidance is already made because the environmental matrix is spelling out what Multiplex have to design and build.

34. I have been asked to confirm if I was aware of the BCR requirement to comply with SHTM03-01. The BCR requirement was seen as more than simply compliance with the SHTM. For example, 2.3 listed out the standards to be complied with, unless the Board had expressed elsewhere in the BCR a specific and different requirement. The different requirement being section 8 where the works had to comply with the environmental matrix.

35. The notes referred to above relate to Hulley and Kirkwood Environmental Matrix, Third Issue dated 19.09.12, tab Guidance Notes.

36. I have been asked to comment on the environmental matrix being made Reviewable Design Data and therefore subject to change, and how this relates to the matrix being fixed from the outset. In my opinion the RDD process does not mean any of the design element would necessarily be subject to change. RDD is a process that introduces a check process that verifies the Board are in agreement the document under review meets their client requirements. Any changes that are made to the stipulated values contained within the environmental matrix have to be agreed, and this is where the RDD process would capture this. However, any such changes would originate from the employer and follow the contractual change process. Other changes that could perhaps be considered in the context of the environmental matrix could be to cover any room types not included for, room numbers added as the design develops, or simply clarification points as detailed design progressed. The environmental matrix in my opinion is fixed at a point in time only, not fixed for the duration of the contract.

37. We were co-located in Morningside in Canaan Lane, so that was off-site. It was a project office with the NHS, Multiplex, Integrated Health Solutions Limited ("IHSL") team and others. We were off-site because we were still going through preferred bidder stage. That was useful because you had close contact with lots of interaction to build relationships. The key MEP designers for Multiplex were Wallace Whittle, and they had been involved in the bid stage, so it was the same people involved as well as our supply chain, Mercury. There was a

continuity there; both of those parties had been involved in the initial stage. Then we were, effectively, in the preferred bidder stage and we were taking what had been developed and discussed at the first stage with the documents that we had, so that was the Board's construction requirements and the reference design. It was all about trying to take that and get us to financial close and developing those elements to show our design intent that would satisfy the Board.

38. Then workstream wise, there were probably three key elements: the architectural, civil structure and the MEP disciplines. Given the size and complexity of the project each discipline tends to operate in workstreams.

The MEP designers work with me and we interact with the Board, but you also have Wallace Whittle interacting with the architect as well, separately. If the architects have user group meetings and there are maybe issues or changes, Wallace Whittle and the architect had their own meetings about that as a design team and get kept up to date accordingly. In addition to that, we are trying to develop the mechanical and electrical principles to complete Financial Close. What you have is the architectural design always gets developed ahead of the MEP; you cannot design MEP unless you have the architectural room layouts. You always have this kind of staggered process where the architect needs to develop their drawings and have the layouts and then the MEP would develop from this point. But you cannot wait that length of time, so what you are trying to do is get a design intent agreed in tandem with the architects' work and with the layouts.

39. I would not say I felt under pressure with time, despite the short period up to financial close from preferred bidder stage. However, we were busy which was normal and had a job to do which we got on with.

40. I have been asked to make comment on what a standard time period would be, and also was there sufficient time allocated for the volume of work to do, In my opinion there are too many variables to define what a standard time would be. I know that time pressures were tight, initially I recall September was a target that proved to be unrealistic. The revised programme on the basis of MEP was

not unrealistic given the Board's Requirements were already set out in the environmental matrix, and detailed design was not being carried out until after FC. MEP detailed design was the production of a full set of construction drawings based on the agreed architectural layouts. The MEP design would detail and coordinate all of the MEP design layouts for all areas, and the provision of equipment schedules to allow procurement of plant and equipment.

41. The room layout was led by the architectural team. As I understand it the architect was having their own meetings with Wallace Whittle

42. There was no clinician involvement attending the MEP workshops. As I understand it there was attendance at the user group meetings, and those are really led by the Architect and developing 1:50 layouts and going through that process. I did not attend the user group meetings. If there was something specific Wallace whittle required clarification on, our route was really through Mott MacDonald who attended the MEP meetings and workshops. They would take anything away and then feed it back in to us. We were one step away from having any direct involvement with the clinical team.

43. We were working with Wallace Whittle and Mott MacDonald in 2014 when I joined. We looked at the project and then decided how we were going to get the MEP design principles to where we needed it to be. What we decided was we would have weekly workshops on the MEP. We produced a list of topics going right into the future so that the Board would have the relevant people attending. How we split it was, there were various workstreams so you could have things like fire, security and Information Technology and so on, but I would say the three main workstreams were energy, electrical, and mechanical. The two relevant ones, I think in terms of ventilation that we are talking about here, would be the mechanical workstream and the energy workstream. We had people identified because these were technical issues not general. The way it was resourced was Wallace Whittle had key people for each one of those disciplines, and then Mott MacDonald then identified their technical people for each one. There were issues, for example, we said who from estates would be joining these workshops and I think Mott MacDonald tried to get estates along

but in the end they did not regularly attend. Mott MacDonald were really the front and centre in their capacity as technical advisors to The Board. They introduced themselves at each of the meetings as the technical advisors to the Board. We were liaising with the Board through Mott MacDonald. It was useful that they brought people in who were designers in the relevant workstream, so it was not administrators. The way that they resourced it was almost like a shadow design team. When we brought along mechanical solutions to talk about, Mott MacDonald would attend with the mechanical person, so that both parties were talking the technical language. That was for mechanical, electrical, and the energy side. The whole idea with these workshops was to take the client on a journey and not at the end, in six months' time produce a set of drawings and documents to review in isolation. It was all about early involvement, and the designers were tabling drawings and concepts, so it was very much a hands-on process. The drawings would be opened, Wallace Whittle would give an overview of key principles. We would get feedback. If there were questions, then Mott MacDonald would have to take them away to the Board and bring them back for further dialogue at the next workshop. It was really a journey so that by the end, we would have a position that we were all in agreement with the proposals.

44. I was involved in all of these workstreams in managing the process. The Energy Model workstream required key individuals from Wallace Whittle and the technical advisors who understood the modelling process. I use the energy workstream as an example because that is relevant to the environmental matrix and the design principles, so it is a key workstream.

45. In relation to the environmental matrix and the energy workstream, there was a contractual requirement to meet energy targets. The energy was quite complicated because, it not only had to meet targets, but it was also going to be used as the basis of measurement for the operational phase of the hospital, so it was quite a significant piece of work. Within that, to be able to produce an energy model you are collating all the components of a building that uses energy and agreeing a set of inputs, and then the actual output of the model provides you with how much energy you are going to use.

46. My understanding was the energy requirements were critical and formed part of the contractual requirements. For example, Boards Construction Requirements Part 6 Section 3 point 5.25 Sustainability, 5.25.1 Very good BREEAM and 5.26 Energy Strategy define the energy considerations to be considered (A41179262 – Schedule Part 6: Construction matters, section 3 (Board's Construction Requirement's), Subsection D Excerpt pages 360 and 780) . Project Co Proposals 4.10 Sustainability and Energy Model prepared by Wallace Whittle details the sustainability and energy model considerations encapsulated for the Project at Financial Close.

47. There were also two reports prepared by Hulley and Kirkwood for the thermal comfort. This inputs into the energy workstream. Within the energy, it was very much about what inputs you put in as this will influence what you get out. If we take mechanical ventilation as an example, you need to know, how many air changes you are having in all these spaces because that uses energy, and that provides the output result. What was agreed was that there were templates for all the different areas and if you take, say, a single bedroom, for example, requiring four air changes, that template was developed, and Mott MacDonald had to go through each one of them and through dialogue the inputs that Wallace Whittle proposed were agreed. There was dialogue and debate to reach agreement, but the combined focus was what the input was in each one of the items. In the single bedroom, it was four. That is what developed, effectively, the Project Company Proposal (PCP) for energy. There are appendices at the back of PCP 4.10 within that document, there are templates for all of the rooms that were modelled, and if you look at the single bedroom, you can go to the relevant page and you can see that it was based on four air changes. That is the kind of level of dialogue that was being carried out and reviewed during our preferred bidder stage on energy. When referring to a single bedroom, I mean a single bed so single bedroom space. There were also multi-beds as well, so that is in it as well, and again it shows it as the four air changes.

48. The thermal comfort report produced by Hulley and Kirkwood provided technical information on ventilation simulations. My interpretation of the document was that the client had issues at Edinburgh Royal Infirmary of bedrooms overheating, and that is noted in the conclusions of the document, where it appears the builder of that hospital provided a natural ventilation solution. My interpretation of the report was the client wanted to apply lessons learned for the new build hospital to prevent bedroom overheating. The simulations within the report detailed how much mechanical air would be required. There were various iterations within the report as noted within the front cover, and the conclusion was: four air changes mechanically resulted in the bedroom not overheating.

49. I have been asked to clarify what I mean by natural ventilation within the existing hospital, Edinburgh Royal Infirmary (ERI). Whilst not having been involved with the design of ERI, this is an existing hospital that appears to have had a natural ventilation solution within bedrooms where there has been overheating issues which appears to have been a key driver to ensure lessons learned are captured for the new hospital. A piece of work has been commissioned, forming part of the Reference Design contained within the Hulley and Kirkwood paper, section 4 conclusions of Thermal Comfort Analysis Report, dated 21 February 2012 (first issue) (A34225373 – Hulley & Kirkwood Thermal Comfort Analysis Report – February 2012) . It would appear energy efficiency versus overheating of the bedroom have been considered. The conclusions of the report state 4ACH mechanically resolve the overheating concerns based on the authors modelling carried out.

50. The other aspect is that, when you look at the figures contained within the environmental matrix, it appears as simply figures within a table. However, changing the figures can have major implications. For example, if you want more air in a room from the mechanical ventilation, it is going to require more energy. The running cost of the building would increase. Increased mechanical ventilation will require larger ventilation ducts that take air to and from the room. So spatially, ductwork going along corridors would increase, and with the plant and equipment increasing in capacity larger plantroom may be and so on.

Wallace Whittle developed the design principles based on the figures contained within the Environmental Matrix.

51. The design of the ventilation system was based on the requirements contained within the Environmental Matrix. If air change rates change at a later date, there is the possibility larger plant would be required given the increase in equipment capacity and equipment size. This also impacts on spatial requirements in corridors.

52. I have been asked to comment if the requirements were finalised or not at Financial Close, and how an accurate price could be put forward if the requirements were not finalised. My understanding was the environmental matrix did provide finalised requirements in relation to environmental parameters at Financial Close.

53. Mott MacDonald were involved in the weekly workshops; MEP principles were being discussed and they were liaising with the Board and coming back to us. It was a collaborative and working process, and an enjoyable and exciting time. We all had the same vision about this hospital that we all wanted to build, and so we were all contributing and working well through dialogue period. If there was something that was tabled by Wallace Whittle, then there might be a discussion and then there might be more information required to be provided. It was fluid, it was flexible. Our starting point on the journey was, “what is it that you want?” This was the time to get it right before the detailed design and construction started. That is why these workshops and all the reviewing that was going on was to get us to an agreed position.

54. There were no specific discussions that I can recall in the work streams that I was party to that focused in on critical care values contained within the environmental matrix. For Financial Close, Wallace Whittle was not producing a full detailed design. It was not possible before Financial Close, so it was very much the design principles that were getting developed. Everything is time dependent; we had around six months. If you think what is required, what you are trying to do is get all the items that could be contentious, could be

significant, so that when you do get the agreement to proceed, you have the correct level of information to hand to allow the detailed design to progress. It is about getting all of the items with a design intent clarified and agreed,

55. There was an issue with pressure brought up before Financial Close. The pressure regime noted in the Boards Environmental Matrix required positive pressure. This had to be changed following dialogue. We had a meeting with Wallace Whittle, Graeme Greer and Colin McRae on 8 July 2014. It was very much about the project's environmental matrix, how Wallace Whittle was going to produce it, and we requested we obtain the Board's environmental matrix in Excel format to allow Wallace Whittle to produce the environmental matrix. It was developed from the Hulley and Kirkwood environmental matrix that was contained within the reference design. Wallace Whittle produced the environmental matrix, and it was sent to Mott MacDonald on 29 September as draft for comment.

56. I have been asked to comment on the requirement to produce RDS at FC and when and why this was not done. I was not party to any discussions that agreed what room types would be included as part of Financial Close. Wallace Whittle produced document PCP4.9 and within MEP section 4 this details the sample rooms selected to show the MEP elements.

57. Then on 14 October, the NHS fed comments back, of which there were 12 points, and one of them related to the debate about the six air changes and the pressure regime within the bedroom. There were two issues essentially. There were other items, but air changes and pressure were the key ones.

58. I have been asked to comment if the 12 comments produced cause concern or provide pause for thought in terms of the content of the environmental matrix. At the time of receipt of comments, it did not provide cause for concern. In my opinion the level of engagement had been good throughout the Preferred Bidder period, and we were complying with the Board's Requirements already set out. Similar to all of the submissions Wallace Whittle prepared, the environmental matrix first issue was "draft format" where the Board were

encouraged to make comments that could be worked through prior to the actual document being formally submitted for review. Formal submission then followed after the draft submission capturing the Board's comments made. Comments were worked through in the usual manner, from both the Technical Advisors, and the designers Wallace Whittle; and through dialogue and meetings the list was reduced from twelve points to seven.

59. On 28 October, Wallace Whittle then responded with their commentary. It was Wallace Whittle’s comments, Multiplex forwarded the comments on to the Board. It is the designer that responds to these sorts of technical issues.

60. In respect of the air change rates, the debate about four or six and the pressure type, when I read the response back from Wallace Whittle, it seemed satisfactory to me. They were quoting the reference design. If it had been something that you thought does not seem right, then you would have got further involved or challenged the response, but to me it was perfectly legitimate. Looking at the process, we had many months of workshops and dialogue. We had agreed energy strategies on the 4ACH figures, the design principles had been tabled based on the environmental matrix, all of which informed the design principles.

61. I have been asked if I was surprised that the air change rate had not been resolved at Financial Close. I was of the opinion 4ACH was accepted as part of the dialogue and meetings held, where the final list from the meeting of 11.11.14 resulted in twelve points reduced to seven points, with the 6ACH comment dropped (A39975851 – Email dated 11 November 2014 re Environmental Matrix NHSL Comments Feedback) . Given Wallace Whittle had added clarification to the guidance notes within the environmental matrix, note 26 added in relation to 4ACH as per WW-XX-XX-DC-XX-001 Rev01 the item was considered to be accepted as 4ACH mechanically.

62. I have been asked to comment on a perceived differing interpretation of guidance and did this not require to be resolved before FC. In my opinion there was not differing interpretations of the guidance with the technical advisors.

What we had was the guidance said 6ACH, and the BCR was calling for 4ACH. The clarification was included within the environmental matrix WW- XX-XX-DC-XX-001 Rev01, note 26.

63. In reference to what was being fed back from the Board, we would normally on a day-to-day basis only see correspondence from the technical advisors. Mr Kamil Kolodziejczyk from Mott MacDonald was part of the team from Mott Macdonald as Technical Advisors to the Board, but behind the scenes I do not know who was feeding that in. I was just liaising with Mott MacDonald as they were technical advisors to the Board. Rarely did I speak to anyone like Brian Currie for example on MEP related items, Mott MacDonald were the team that I dealt with on a day-to-day basis.

64. At this stage, many months of collaborative meetings and dialogue had passed. We had come together regularly and therefore I was surprised at the comment coming back in relation to 6ACH. My initial thoughts were perhaps it was somebody back at the Mott MacDonald office that had not been involved in the job on a day-to-day basis and was not familiar with the environmental matrix.

65. The other aspect to that was that the environmental matrix stated positive pressure in the single-bed rooms, and the Boards comment was saying that they wanted it balanced or negative pressure. Wallace Whittle then updated the matrix, and that was sent back to the Board on 31 October 2014 (A40162625 – Environmental Matrix Published – 31 October 2014) . Wallace Whittle had changed the positive pressure in the environmental matrix to balanced, and the four air changes were left unchanged. That was sent back to the Board and then we requested the meeting, which was then held on 11 November (A39975851 – Email dated 11 November 2014 re Environmental Metrix NHSL Comments Feedback) . After discussion of the twelve items, the output of the meeting was seven action points. Awaiting proposals on the pressure side of things was then an action to be resolved.

66. Of the seven points, the pressure issue was one that we had to close out before Financial Close. We requested Wallace Whittle to draw up the air

movement sketches, and they were tabled with the Board in January 2015. The date of the meeting was 13 January 2015 (A35614476 – Email from Janice Mackenzie to Fiona Halcrow w/attachments – 12 to 14 January 2015) . At that point, the Board I recall were reviewing with Infection Control as part of the HAI Scribe process. The Board's environmental matrix required positive pressure to the single bedrooms.

67. Then on 19 January 2015, I issued a request for information seeking confirmation and acceptance that the Board had reviewed the sketches with Infection Control.,. That was in relation to bedroom pressure, and then on 29 January (A34225421 – Email – Maureen Brown to Janice McKenzie – Bedroom Ventilation/HAI Scribe – 29 January 2015) we received the response back from the Board via their Technical Advisors. The conclusion on that was the discussions around the Wallace Whittle paper had resolved the issue. The environmental matrix showed the pressure balanced. There had been meetings and discussions, and there was no rejection of the Wallace Whittle proposal. So, the assumption was the discussions were resolved for Financial Close.
68. It was intended that Financial Close was going to be September 2014, but it had to be extended. Production of the required information is simply a function of time, and the dialogue required, and production of information takes time to produce. The objective for Financial Close was to bottom out all MEP key principles to allow the detailed design to progress after Financial Close.

69. The Reviewable Design Data came about, I think in reality because most MEP documents had been made Level C. If you look at the NHS process in terms of the Contract, you have Level A, B, and then you have C and D. A and B are basically approved, and I think this came perhaps from the NPD type process. The feedback we received on the MEP Financial Close documents were that if the pack of documents that we had produced had been Level B, then the way the contract was set up, the Board would not get to review them again. That was just the nature of the process, so they had to be Level C, in their opinion. However, it was disappointing, given the dialogue period that we went through and everything that had been discussed, that was all documents were Level C. In one sense, it was positive because it was not Level D, meaning rejected.

Level C is subject to amendment and then proceed with a resubmission. There is a definition for the various levels. What we said was, “We hear what you are saying about the contract in terms of Level B. What we will introduce is, we will resubmit so if the Board make something a Level B, even though we did not need to resubmit anything, we said in the MEP side, “We will take your comments on board, and we will resubmit the drawings for information, so that it is quite clear how we are interpreting your comments.” That was something that we introduced post Financial Close, and it was a lot of extra work during the detailed design process, but again it was about keeping the client informed and showing how we were interpreting their Level B comments; so we added a table format to the documents, noting the Board's comment and a response included showing how we were dealing with the comments. It was again just about avoiding any misinterpretation of information, but this process adopted was at the next stage, post Financial Close. As far as I was concerned right up to Financial Close, it was very collaborative working and we were really doing everything possible to detail the design principles so we had full agreement from the Board, and thus ensure Financial Close would be achieved.

70. With all the MEP design strategy documents at Financial Close where the principles were settled that then were classified as Level C, and the set-up of the contract if the document was given Level B the Board were unable to review again, there’s always a nervousness from a client’s point of view if they have not been able to review the detailed design in its entirety that follows the design strategy phase. I took it at face value and listened to what the Board said, and we put in procedures that the Board would be reassured by having visibility with Level B comments and the response to their comments.

71. I have been asked to comment if the concern surrounding the Board reviewing documents at Level B pre–Financial Close related to RDS not being produced in all areas. In my opinion the concern related to the detailed design drawings not being available until after Financial Close. The Board wanted visibility of the entire design, not just the design concept drawings and principles settled before approving the documents. As I understand it if the strategy documents were

made status B at Financial Close, this meant Multiplex could proceed on the information tabled without further review by the Board.

72. I have been asked to comment on the procedure adopted in the above paragraph. Post Financial Close the procedure agreed with the Board over and above the contract requirements for MEP Reviewable Design Data was that any drawing made status B by the Board (with comments), we would capture the comments made on the document in a table format on the actual document, add the designers response responding to the comments, and then reissue the document “for information” at the next revision so that it was visible to the Board on how the comments had been interpreted, and they had a record documented. As I understand it under the contract for Level B drawings there was no requirement to resubmit the drawing.

73. With the room data sheet process at the point of Financial Close, I had no involvement in the decision-making process other than I have seen that Wallace Whittle had specific generic rooms, and that was contained within the Project Co Proposals. There were a series of rooms that were included within the Project Co Proposals with the actual drawings of rooms of how they would be serviced mechanically and electrically. I do not know why there was a decision taken just to produce that set of room types, as opposed to the full complement of datasheets.

74. I have been asked to comment on what the Project Co Proposals were for the project, and the significance they play. PCP 4.9 relates to Mechanical and Electrical Engineering, and PCP 4.10 relates to Sustainability and Energy Model. These were the contractor's proposals prepared on basis of the dialogue during Financial Close. My understanding is these documents were reviewed by the Board as well as the NPD Legal Team and formed part of the contract at Financial Close.

75. I have been asked to comment on why not all of the RDS were being produced at Financial Close, and if I considered this an extra layer of risk. I did not consider this as an additional risk as detailed design for MEP was not being

produced until after Financial Close. The environmental matrix contained the employer's requirements for the environmental requirements, and in my opinion this information would simply have been replicated on the RDS.

76. Regarding the relations with people I was working with, in terms of the MEP design, I thought the relations were strong and working effectively. My experience is you are working with people for a number of years, so you have to maintain relationships and treat them as respected colleagues.

77. In terms of the Reviewable Design Data, I had no concerns over the amount of data that was to be categorised as reviewable design data. The thought was that we had the MEP design intent agreed. With mechanical and electrical, there are a lot of drawings and there is a lot of reviewable information that is required, and so there was not a concern.

78. Mott MacDonald were our day-to-day contacts in their capacity as Technical Advisors to the Board, and it ran well, however they could be vocal. At the end of the day, we would not have reached Financial Close if there was something that was not acceptable as it would have been made status Level D, defined in the contract as “rejected”.

79. At Financial Close, I am not aware of any discussions around air change rates being incorrect for Critical Care, and we were not directly involved with any clinical input. If the Board were wanting to change Critical Care, we were reliant on that being fed back by Mott MacDonald. Presumably, as part of the environmental matrix review to get the twelve comments down to seven, it was a range of stakeholders including infection control and clinical input, and so the comments we received was the conclusion of the review on, “does this meet what they want?”

80. The architects would have their user group meetings, and that might be with clinicians and other stakeholders attending that workstream. If there was anything relevant from those meetings that would relate to MEP issues, I understand it was fed back to Wallace Whittle. Wallace Whittle and the

architect had their regular meetings. I think the format was that drawings were marked up during that the workshops, and then that would then be distributed to the team, but it was Wallace Whittle that would have had the direct feedback on anything. Wallace Whittle would have then fed back anything relevant to Multiplex or reflected it in what they were working on if it was significant.

81. I was not involved in the Project Steering Board.

82. I have been asked to comment on room function sheets contained within the Hulley and Kirkwood Issue 3 environmental matrix. This is not something I was involved with however I understand this detailed the room function which informed the rest of the environmental matrix.

Closing Statement

83. 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.

Scottish Hospitals Inquiry

Witness Statement of

Liane Edwards

WITNESS DETAILS

1. My name is Liane Edwards.

2. I am a registered architect, currently employed by Multiplex Construction Europe Limited ("Multiplex") in the role of Deputy Project Director. I have worked with Multiplex since June 2014.

PROFESSIONAL BACKGROUND

3. I was registered with the Architects Registration Board in 2007, having completed my Part 1 and 2 qualifications at the Scott Sutherland School of Architecture at Robert Gordon University in Aberdeen, and then the Mackintosh School of Architecture in Glasgow.

4. I have held a variety of roles in private practice. During my posts at BDP in London (Senior Architect) and IBI Nightingale (Associate Director) I worked on the outline design for the 3Ts Redevelopment at the Royal Sussex County Hospital in Brighton and the Queen Elizabeth University Hospital Glasgow during the construction phase.

5. I worked for IBI Nightingale for 2 years and 10 months.

6. I was then Head of Technology and Construction Pilbrow and Partners in London from 2013 until I joined Multiplex in 2014.

PROFESSIONAL ROLE

7. Although I am a registered architect, I was employed by Multiplex as a Design Manager when I commenced my employment with them in 2014 to work on the RHSC Project. There were several Design Managers working on the Multiplex RHSC team – Ken Hall oversaw Mechanical, Electrical and Plumbing ("MEP") and Robert Netherey oversaw external and landscaping elements.

8. As a Design Manager on the RHSC Project, the role was to manage the design consultants which Multiplex employed. I oversaw the architectural team Multiplex employed. I administered several processes, overseeing the designers who were preparing the architectural design, liaising between ourselves and our clients and users, in this case, IHSL (client) NHS Lothian (user).

9. This included overseeing the architects to ensure that they were developing the design in terms of its departmental layout, room layout, and equipment layouts within the rooms. They were also developing the architectural finishes i.e., walls, floors, ceiling, doors.

THE ENVIRONMENTAL MATRIX

10. The Environmental Matrix is a table of the environmental criteria for the hospital. It is not something I am typically involved in as an architect or as the architectural Design Manager.

11. The Environmental Matrix was a briefing document provided by NHSL. IHSL were engaged to meet the briefing criteria. In my role, I would refer to the Environmental Matrix at points where I was overseeing certain parts of work, such as the production of the Room Data Sheets (RDS) as I explain below, but I was not involved in any editing of the technical data in the document.

12. My involvement in the Environmental Matrix might involve some of the administration of bringing other design documents together for Financial Close, with an awareness that the Environmental Matrix existed. As I said above, I would not have had any involvement in the technical input as it is a mechanical and engineering document.

13. I was involved in overseeing some of the Room Data Sheet (RDS) preparation, but my role was bringing together information to ensure that the content of the Room Data Sheets reflected what had been agreed with NHSL. I would not be involved in the preparation of the RDS themselves or the specific data used to populate them.

14. I did attend some meetings at management level with NHSL, where the Environmental Matrix as a document had been discussed but, generally, these meetings were not dealing with the technical and specific data contained within the document. That was discussed in separate workstreams with the correct technical project members.

15. I would not have any cause to be looking at MEP guidance such as that included in SHTM 03-01 or SHPN 04. I am aware that SHTMs, SHPNs exist and would often refer to them architecturally, but ones which are specific to an M&E workstream would be looked at by others.

PROCUREMENT

16. I was not involved in the procurement phase. The Preferred Bidder (PB) stage was achieved in March 2014, and I joined Multiplex and the Project in June 2014.

VENTILATION DESIGN

17. The architectural team I oversaw would only feed into the ventilation system insofar as the architects are responsible for the architectural layout of the

building. That means organising where the departments go in the building, and then subsequently how the rooms are arranged within those departments. Rooms are sized as per the brief, taking cognisance of architectural guidance documentation where it exists. They would co-ordinate the design with the MEP consultants who would reflect the current architectural design in the ventilation design.

18. The guidance and briefing for this would come from a combination of NHS Lothian Clinical Output Specifications and guidance documents, such as SHTMs, HBNs– they guide Health Boards and their designers as to the typical size and shape of the rooms. The architects design the building spatially. This can be a complicated task, in order to make it all fit in the building space and be functional to the Board's satisfaction.

19. My understanding is that Room Data Sheets are normally used as a briefing tool by the Health Board. This was not, however, the case on the RHSC Project.

20. The M&E designers need to be aware of how the building is developing spatially, so they can make sure that the architecture and the mechanical and electrical design align. Multiplex employ the design consultants to co-ordinate the design. However, the architects are not technically involved in the data within an Environmental Matrix, or what the environmental performance criteria of the hospital is.

DESIGN PROCESS

21. We were co-located with the NHSL on-site, and we met with them frequently to review and discuss aspects of the design. The Project Management Group (PMG) meetings were an opportunity for all the parties to come together to discuss matters arising from the technical meetings, and overall project progress. I attended the PMG's from around August 2014.

22. I also attended User Group Meetings ("UGMs") where the architectural design and layouts of the rooms were reviewed. NHSL would bring their clinicians to these discussions, and the parties would review the drawings together. My understanding is that there were a team of clinicians per department who had a part- time secondment to take part in the RHSC project and advise the NHSL Project team.

23. When we met with clinicians, they would discuss their requirements and were able to comment on the patient safety matters, and their health care requirements. They would also comment on issues such as infection control.

24. The NHSL Project Team (Janice Mackenzie, Fiona Halcrow, David Stillie (MM)), would attend the UGMs, often supplemented by Jeanette Richards (infection control) and Patrick Mackaulay (equipment). They would also bring other relevant department clinicians, because we would usually review a department at a time. I would attend with Multiplex's design consultant architects, HLM. HLM would table the drawings and talk the NHSL team through the design. It was important to ensure that everyone understood the drawings, because not all of the clinicians had experience of looking at architectural drawings.

25. HLM would discuss the design with them, make sure they understood what they were seeing, and the clinicians would discuss and comment. The Project Team for the NHSL had an element of control over what their clinicians could and could not change.

26. Clinicians generally made no comment on environmental aspects in the meetings I attended. If they did, then the NHSL Project Team would take a note to discuss it in the separate MEP workstream. The discussions I was involved in mainly involved clinicians looking at rooms and layouts and understanding if they could operate the department and the rooms with the various clinical processes and procedures they had.

27. For example, in a high-dependency unit, they could say they needed to have access to a particular item of equipment, and how everything else would be placed around the room to make their clinical procedures effective. While SHTM and HBNs provide guidance, clinical teams could request to alter layouts as their clinical practices developed over time. My understanding is that SHTMs and HBNs are not typically revised as regularly as clinical practices may change or develop.

28. If a department such as Critical Care was being discussed, air change rates were not discussed as part of the UGM. I do not recall that any clinician passed comment on specific environmental matters in the meetings I attended.

PROGRAMME

29. When I joined the Project in June 2014, I was made aware that we were working towards a Financial Close date in September 2014. I do not recall being party to any discussions or meetings at the time where it was suggested that that the Board was of the view that the design was not as developed as it should be.

30. The discussions we were having at the time were in line with what I would have expected. For example, we had planned three rounds of user group meetings for each department. Some departments did not need three rounds of review because the clinicians had no further comments to make. There were, however, other departments which needed more than three UGM's because the clinicians still had some comments to make after each round of drawing revision.

31. Three UGMs per department were what had been programmed, but the NHSL Project Team did not seem to want to limit the opportunity for their clinicians to make comment in further rounds of review. This did impact on our ability to sign off the drawings and prepare the supporting design information such as Room Data Sheets for some departments.

32. UGMs are standard practice in my experience. All of the hospital projects I worked on had user group meetings. As far as I understand, this is a typical way to review and consider the design with clinicians in new hospital projects.

33. The UGMs were the forums where the NHSL project team and their clinicians' made comments. The meetings were recorded on the drawings with comments in red pen.

34. Our design team, in this case HLM, would take the drawings away, make any adjustments that had been agreed and then the drawings would be presented back to NHSL team at the next meeting.

35. When they saw the revised drawings, the NHSL Team would either accept them or they may want a further adjustment. We went through this process until we were at the stage of the clinicians having no comments or very minimal comments.

36. As I said above, there would also be NHSL's technical advisors in attendance at the UGM - Mott Macdonald who were technical advisors to the Board, including David Stillie. The process was collaborative. The design was developed based on NHSL's brief and their mandated design and guidance documents, but there were tweaks here and there that the clinicians could make.

37. There was often an infection control representative from the Board present. Her name was Jeanette Richards. Generally, in my recollection, she did not make comment on environmental aspects of infection control in the meetings I was at. She made comments, for example, on the position of a wash-hand basin in a room and where it was best placed to ensure nurses washed their hands, because that was the nature of the information that we were reviewing, positions of equipment in rooms. She may have been present at other meetings, but I was not in attendance and cannot confirm this.

38. If there were any discussions around the technical side of mechanical and electrical elements, ventilation for example, these would not be discussed at the UGM's. If one of these MEP subjects was raised in the UGMs, then the way it would be dealt with is that Janice MacKenzie or Fiona Halcrow, if they thought it was something to be followed up, would note it and ensure it was raised in the relevant MEP workstream for consideration.

39. As part of my role on the Project I also oversaw in the production of the PCP (Project Co Proposal) documents. This was not something I had done on the previous healthcare projects I had worked on. I managed them through the process of being drafted by our design consultants, reviewed by the Board, redrafted in light of the Board's comments, and resubmitted to the Board. I did not comment on the documents technically but instead managed and tracked the process. Multiplex had our technical design consultants employed to prepare the information, and the Board had their technical teams to review the content of the information. The Board and their team were very involved in the preparation of the PCPs.

40. The output from the UGMs were feeding into this process, as well as other teams and workstreams. The production of the PCPs was an iterative and collaborative process. It was set up to be like that. Information flowing back and forth between parties and documents being commented on by the Board, and Multiplex responding to them with the assistance of our design consultants.

41. Multiplex's view at the time was that there was a lot more detail being expected within the PCPs than was reasonable for the time frame that was available, in comparison to previous projects. I cannot really comment directly on this though, as I have not been involved in the preparation of such documents in other healthcare projects.

42. As I said above, I was aware that the date for Financial Close was initially anticipated to be in September 2014, however that did not happen. I can only comment on the aspects of this I was involved in.

43. The development of the PCPs was taking longer than anticipated, although I was not aware of that being was the sole reason why financial close was not achieved. This may have been discussed in higher level meetings that I did not attend. My day-to-day involvement was in relation to preparation of the on the PCPs. They took longer than was expected because they were regularly rejected by the Board.

44. As I recall, they were often rejected for very minimal errors or inconsistencies. It often seemed as if the documents were being rejected for reasons which were not technical.

45. The PCP documents had to keep going through several rounds of review, which, if time was of the essence seemed to be obstructive to the process.

46. As I said above, I tracked the PCP submission process. The process was that MPX's appointed design team would submit the PCP document to me. I would do a high-level review of presentation and content. Looking at the type of information, rather than the technical accuracy of the information. The PCP documents would then be presented to the Board. I do not know who the Board had to review them, but the comments were always returned by Mott MacDonald representatives.

47. Usually, the PCPs were submitted electronically for review, but if there were major comments, then as part of the collaborative approach, we would meet to discuss and review their comments.

ROOM DATA SHEETS

48. Room Data Sheets contain all of the information relating to a particular room. This can include the number of staff and patients, the function, the

clinical equipment, loose furniture, environmental criteria, wall/floor/ceiling finishes, lighting levels, windows, doors, blinds and curtains.

49. In my experience these are typically provided as briefing documents to Contractors and their Design Teams by the ultimate client. These are often developed as the design progresses and provided as an ‘as-built’ record at the conclusion of the project. NHS Health Boards and their Facilities Management Contractors then use these as an operational management tool during the operational term of the Facility.

50. RDSs were not provided as part of the briefing document on the RHSC project.

51. Revising RDS provided by the client for every room in large hospitals can in itself be challenging in the timeframes that are usually available.

52. In this project IHSL were required to prepare the RDS from scratch using other design and briefing documents which had been provided by the Board and discussed and developed in the various workstreams.

53. It was proposed to provide a reduced number of RDS for Financial Close, reflecting the number of room types rather than every single room in the building.

54. I am not aware who proposed this and who agreed it. However, due to the amount of repetition of room types within a hospital, in my experience this approach is pragmatic and had been used by other Health Boards. This is because the RDS for the specific room types can then be used to create each individual room RDS of that type after Financial Close.

55. In relation to the environmental criteria, my understanding is that Room Data Sheets reflect the Environmental Matrix. The Environmental Matrix was the source of the environmental conditions used to populate the RDS. The Environmental Matrix is a very user-friendly tool because you can see all the data together in one place and interrogate it easily.

56. Room Data Sheets are a multi-page document that contains all the information pertaining to a room. During the design and construction phase, it is common to have the environmental data contained in its own spread sheet so that the data can be reviewed and analysed in isolation from the architectural criteria which is also contained in the RDS.

57. I was involved in Room Data Sheet discussions with HLM where, as I recall, HLM and I attended a meeting with the Board where we discussed which rooms were to be provided for Financial Close.

58. As I remember, once the decision had been made that a reduced list of RDS would be agreeable, the discussion about which room types would be included was amicable.

59. I was then involved in reviewing the individual Room Data Sheets themselves only as far as to make sure they were populated with the information we agreed would be provided. The technical detail was provided by our Design Team.

DISCUSSIONS AROUND VENTILATION

60. I was aware through attendance at meetings from around September 2014, that there were ongoing discussions around ventilation. I had an awareness that there were things to be discussed, but I was not aware of how they had come about.

PROJECT MANAGEMENT GROUP USER MEETING 27 AUGUST 2014

61. On 27 August 2014 I attended a Project Management Group Meeting (**A34225367 – Project Management Group Meeting Minute – 27 August 2014**)[1]. At point 2.8 the minutes record: "*LE advised that, during a review of the Environmental Matrix, a number of discrepancies have been uncovered.*

[1] Bundle 8 – Scoring & Correspondence Regarding Issues – Table of Contents – Item 11, p.54

impacting on RDS production and requested input from NHSL. IHSL to raise RFI."

62. HLM was extracting information from the Environmental Matrix, in order to populate the Room Data Sheets. This is because on this project the Environmental Matrix had been provided as the briefing tool for the environmental conditions.

63. HLM were not responsible for the environmental data, however as part of their own due diligence, if they spotted something unusual, they would highlight it. For example, where a cell was blank and required an input, or multiple rooms of the same room type had different values. It would be highlighted by HLM and queried with Wallace Whittle. HLM would not query what value was correct- they would simply highlight that one was different and question if that was the intention.

64. We were working collaboratively with the Board so in the meeting referred to above, I have stated that our designers have found a few *discrepancies* as they were populating the Room Data Sheets, and that we may come back to the Board to just clarify these points because the data was coming from the Board's briefing document. I made this comment so that NHSL were aware that we may have some Requests for Information (RFI) to submit.

65. Others were dealing with that technical side of this, and I believe, that instead they resubmitted the entire Environmental Matrix after this for review by the Board, rather than individual RFIs.

66. My understanding is that in populating the Room Data Sheets, the Environmental Matrix was the document that was referred to, because the Environmental Matrix had been provided as the brief and it contained all the environmental data. When HLM then prepared the room data sheets, HLM extracted that information from the matrix into the sheets.

67. It was the Design Team who were taking the data from the Environmental Matrix to populate the Room Data Sheets as per what was agreed should be produced at financial close.

68. At point 3.1 of the recorded minutes of that meeting (**A34225367 – Project Management Group Meeting Minute – 27 August 2014)**[2] there is an entry that records: *"Design Steering Group - 01/09/14 – Board will send LE design risks for IHSL to add to the agenda."*

69. I think that minute refers to Graeme Greer of Mott McDonald. I believe that he was collating a series of 'issues', which he has called 'risks', which have arisen from the detailed technical meetings and were intended to be raised in the agenda for the Design Steering Group.

70. It probably should not have said 'risks', it should have said 'issues,". The Design Steering Group meeting was a place to discuss items that might need to be resolved at a higher level than the forum in which they had been raised.

ENVIRONMENTAL MATRIX COMMENTS

71. I have been shown a document relating to Environmental Matrix Comments dated 13 October 2014. (**A39975805 – Environmental Matrix Comments – 13 October 2014 (attachment to Email from Maureen brown to Colin Macrae and others – 28 October 2014)**[3]**.** At item 7 of that document there is a mention of four air changes per hour in bedrooms, but it refers to guidance for six air changes per hour.

72. I was not involved in any discussion about air changes, which is out with my area of technical expertise.

[2] Bundle 8 – Scoring and Correspondence Regarding Issues – Item 11, p54,
[3] Bundle 4 – Environmental Matrix – Table of Contents - A39975805 – Environmental Matrix Comments – 13 October 2014 (attachment to Email from Maureen brown to Colin Macrae and others – 28 October 2014) – Item 15, p.275

CLOSING COMMENTS

73. 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.

SCOTTISH HOSPITALS INQUIRY

Witness Statement of
Michael O'Donnell

Professional background

1. I am Michael O'Donnell. My address for the purposes of this inquiry is c/o Hulley and Kirkwood, The Stack, Papermill Wynd, Edinburgh, EH7 4QL. I have been a qualified Engineer since 1988, having graduated from Strathclyde University with an Honours degree in Mechanical Engineering. Following this I commenced employment with Blyth and Blyth consulting engineers as a graduate engineer, where I remained for a year until joining Hulley and Kirkwood in 1989. I have been a Chartered Engineer and a full member MCIBSE since 2007.

2. I am now Company Director at Hulley and Kirkwood and also an owner/shareholder of the business. During my time at Hulley and Kirkwood I have been involved in a number of projects within the construction industry, working in most sectors such as education, commercial and residential , infrastructure and healthcare. This included Hull Oncology(Queen's centre for Oncology and Haematology) and the original Edinburgh Royal Infirmary, which was one of the first Scottish PFI hospitals, Victoria Hospital in Kirkcaldy, technical advisers to NHS Orkney and work at the Western General Hospital.

Overview

3. In this statement I will address the undernoted themes: -

a. Hulley & Kirkwood's appointment as M & E Design Consultant (2009-2010)
b. Hulley & Kirkwood's appointment as M & E Consultant (2011-2012)

c. The Environmental Matrix
d. The Thermal Comfort Analysis/Reports
e. Responses to Rule 8 request dated September 2021

Hulley & Kirkwood's appointment as M & E Design Consultant (2009-2010)

4. In 2009 Hulley and Kirkwood were employed as Mechanical and Electrical Consultant (M&E) via the Healthcare Frameworks Scotland 2 procurement programme in support of the Royal Hospital for Children and Young Persons (RHCYP) new build. At this time the project was to be capital funded. Hulley and Kirkwood were to act as consultants within the supply chain of BAM construction who were the design and build (D and B) contractors and appointed to deliver the project at that time.

5. Due to it being a capital funded project it wasn't constrained to a set of Reference Design deliverables at that time. Hulley and Kirkwood were working their way through the design in order for the contractor BAM to price it and agree the contract and then commence building. We had probably reached Concept Design RIBA Stage 2 and were involved in market testing various packages to assist in costs planning at that time. This had resulted in a number of reports, documents and deliverables being produced to help progress the design.

6. On 14 December 2009, a Design Team Meeting was held by BAM Construction, which I attended. At this meeting it was confirmed that the DCN Reprovision would not be delivered as part of a joint build with the new RHSC at Little France. Internal summary notes from the meeting set out the focus for the design on the RHSC only project going forward. Nightingale Architects were also in attendance. They advised that ADB files from NHS Lothian had been through the user review process already, that these would be issued to facilitate Codebook, that Environmental Data would be generic, and that Hulley and Kirkwood were to develop a bespoke Environmental Matrix to take over from the information contained in the ADB sheets. This was our first instruction to produce an Environmental Matrix spreadsheet.

7. In 2010 the project was halted and would move to Non-Profit Distribution model of funding rather than capital.

Hulley & Kirkwood's appointment as M & E Consultant (2011-2012)

8. In 2011 Hulley & Kirkwood were re-engaged as M&E Consultant by the client NHS Lothian through Davis Langdon LLP, who were design team and project managers, Mott McDonald, who were project technical advisors. It was a chain that started with NHS Lothian, Mott McDonald, Davis Langdon and then the Design Team of which we were one of the Design Team Members involved in aiming to deliver reference design outputs. Our role would be to support the RHCYP and DCN Reference Design and to provide mechanical and electrical services conceptual design input. These contributions centred around M&E Plant & Riser strategy input, Building Research Establishment Environmental Assessment Method (BREEAM) Pre Assessment scoring input, creation of a Reference Design, Room Data Sheets, Environmental Matrix, Section 6 Building Regs Compliance Report, Ward Bedroom Daylight and Thermal Comfort Analysis/Reports. There were tasks defined within the appointment; a list of reference design deliverables. We were contacted to re-engage in the project via an e-mail dated 14 April 2011 from Fraser McQuarrie of Davis Langdon.

9. During this period Hulley and Kirkwood would work alongside other partners involved in the Reference Design, which included Nightingale Associates (Architects), BMJ (Clinical Architect), Arup (Civil & Structural Engineer/Fire Strategy/Acoustics), Thomson Gray (Technical Advisers) and Turner Townsend (CDM Co-ordinator). The process of the programme involved developing information so it could be shared, reviewed, revised and taken forward. This was typically channelled through Davis Langdon who would share with Mott MacDonald and other client groups.

10. I do not recall any significant deviations from the reference design deliverables, other than being advised by David Langdon via email on 19 Jan 2012 that a decision had been taken by the PME to instruct Nightingale Associates to cease the production of room data sheets and that the room data sheets would now be produced by MML. Hulley & Kirkwood were still expected to complete the environmental matrix and the matrix still needed to go through the NHSL comment process which from start to finish takes about 4 weeks and that the matrix was needed by the end of January for this

process. Other changes that occurred were to the schedule of accommodation information, which meant that information that had been produced needed to be revised and reissued. If there was anything outwith the scope of the reference design deliverables, we would receive a change control instruction. We would be asked to assess the impact of it and put a fee proposal against it; that would then go up the hierarchy to Mott MacDonald to liaise with the client to decide whether or not that was instructed.

The Environmental Matrix

11. I have been asked by the Inquiry to provide some insight into the use and implementation of the Environmental Matrix (EM) during the project. For most health project that Hulley and Kirkwood have been involved in the Environmental Matrix has been used as a standard reference briefing document. This document aids the design briefing process and the referencing of information against the schedule of accommodation, which assists in dialogue with client and other stakeholders. The EM is populated with data from HTM/SHTM/HBN principally, depending on type of accommodation or department and used for the purposes of mechanical and electrical services. The data is input manually. It is not pre-populated using a computer software programme. I have been asked by the Inquiry to explain the purpose of an environmental matrix and explain the difference between this and room data sheets. On the original HK RHSC EM Guidance Note 1, it sets out the purpose of the EM i.e. " This workbook is to promote discussion and feedback to develop an Agreed Workbook by FBC sign off date and is intended as an easier reference tool to replace ADB RDS M&E Sheets for elements described on these sheets". On the subsequent HK Reference Design EM, Guidance Note 1 was revised to " This workbook is prepared for the *Reference Design Stage* as an easier reference tool to replace ADB RDS M&E Sheets for the Environmental Criteria elements as described on these sheets". ADB Room Data Sheets cover briefing information for individual room design character information (walls/floor,ceiling, windows, glazing, hatches) and Schedule of Components by Room (fixtures , fittings , equipment, sockets etc) as well as M&E Environment Room Data. An EM attempts to abstract relevant Environmental Data per room on a Departmental basis using the SoA listed room names to provide an easier reference tool for review and sense checking by appropriate end user groups. It does

not intend to take the place of the full content of ADB Room Data Sheets. ADB sheets cover all aspects of room briefing whilst an EM only attempts to cover relevant Environmental Data in a concise manner.

12. I have been asked by the Inquiry to address whether CEL19 (2010) **(A37215536 – CEL 2010 – Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010)**[1] had been drawn to our attention, would the Environmental Matrix have been produced. My thoughts are that if ADB RDS sheets (including Room Data M&E/Environmental Sheets) were to be produced and actually customised through consultation with clinicians and other stakeholders to suit individual department requirements for the project as part of client briefing information, there would have been no need for the development of an Environmental Matrix. However, I would also note that the new SHTN 02-01 from Oct 2021: Sustainable Design and Construction (SDaC) Guide requires the use of an EM and states with regards Environmental Matrix " It is expected that 'sense checking' with appropriate end user groups (including HFS/FM/Estate Management representatives) will commence at an early stage and continue throughout all project delivery stages."

13. I have been asked to clarify the sequencing of what comes first, the EM or RDS? There is no defined procedure for this as far as I am aware. Ideally, ADB RDS sheets reviewed by clinical leads would be provided as client briefing information at the start of any healthcare project and go through a review, consultation and customisation process throughout all project delivery stages as is now described for an EM in SHTN 02-01. Perhaps because an EM is a more manageable tool to journey through a review and consultation process across design stages, once the process has been concluded and agreed, then ADB M&E RDS sheets could be produced to align.

14. For the RHCYP only build in 2009-2010, the first EM was produced by us 9th September 2010 **(A34691163 – Environmental Matrix Version 1 issued in September 2010)**[2] to aid the design briefing process and to aid the referencing of

[1] Bundle 1 – Published Guidance, Item 6, Page 553
[2] Bundle 4 – Environmental Matrix, Item 3, Page 42

that information against the schedule of accommodation. It was also to aid dialogue with the client, essentially, to see what information within it is agreed. The review process was channelled through BAM onto a project intranet called BIW Information Share. The BAM project managers would encourage stakeholders and parties (which included clinicians) to review the matrix. However, no formal comments were received back through this process. It was our experience that the clinical specialists only get to go through this process once or twice in their careers. It is not as though they get involved in the briefing of a new major project routinely, and so they have a difficult challenge to (a) carve out the time to understand that it is quite an important process to get their input on, and (b) get their own mindset clear to actually engage, to address things that need to be addressed. The impetus to provide the second matrix issued 22nd December 2010 **(A34691173 – Environmental Matrix Version 2 issued on 22 December 2010)**[3] was the schedule of area update, version 8.

15. The HK Reference Design Stage Environmental Matrix was first issued 3rd February 2012 **(A34691181 – Reference Design Envisaged Solution – RHSC/DCN RDS Environmental Matrix – 3 February 2012)**[4] , second Issue 13th March 2012 **(A34691183 - Reference Design Envisaged Solution – RHSC/DCN RDS Environmental Matrix – 13 March 2012)**[5] and third Issue 19th September 2012 **(A34691184 - Reference Design Envisaged Solution – RHSC/DCN RDS Environmental Matrix – 19 September 2202012)**[6] and prepared by Jonathan McMillan, currently HK Associate but design engineer at time of drafting documents. His qualifications at that time were, M Eng (Hons) Mechanical Engineering from University of Edinburgh, BRE Approved Certifier of Design for Section 6 Compliance, Integrated Environmental Solutions (IES) accreditation covering Section 6 Compliance for building types 3, 4 & 5 and for preparation of Energy Performance Certificates, BRE ISBEM software qualification, CIBSE Low Carbon Consultant Simulation Specialist, CIBSE Low Carbon Consultant Building Design Specialist and Licensed BREEAM Assessor – Health Care. The Matrix was produced on an excel spreadsheet.

16. Jonathan McMillan and I came up with the concept of the room function

[3] Bundle 4 – Environmental Matrix, Item 4, Page 60
[4] Bundle 4 – Environmental Matrix, Item 5, Page 77
[5] Bundle 4 – Environmental Matrix, Item 6, Page 103
[6] Bundle 4 – Environmental Matrix, Item 7, Page 131

reference sheet. It was an abstract summary highlighting all room types referenced in the SoA and produced key criteria relevant to the room type. It had guidance notes. It was set out as a table and then there was an entry for the room function in each of the entries of the EM. We were trying to improve the EM and make it an easier document for parties to get a bigger picture of the common repeatable rooms. So you might have 15, 16, 20 room types throughout different departments. It is just trying to pull it together, bring it back to one and produce key criteria that's relevant to that room type. It listed the correct air change rates for HDU. The room function reference sheet was put in place as a result of us receiving no feedback – and that includes no clinical feedback - regarding the EM during the original project. I have been asked to clarify on who decided what room function was prescribed to a specific room. This was prescribed by HK during the creation of the RHSC DCN Environmental Matrix and the development of the Room Function Reference Sheet. I have been asked to confirm if nobody from the Board provided input on the specific room function. There was no input from the Board.

17. The purpose of the Environmental Matrix was that it was intended to provide an easier Reference Design "Envisaged Solution" reference tool, relating to the Reference Design Schedule of Accommodation to help summarise proposed environmental criteria, whilst referring back to relevant SHTM/HTM/HBN guidance. It was Hulley and Kirkwood's view that the Reference Design Environmental Matrix Envisaged Solution was not intended to be prescriptive for every design and that the eventual Preferred Bidder would be responsible for their own project specific Environmental Matrix, aligned to their specific building design approach within the constraints of relevant guidance and project briefing. Attached to the EM were Guidance Notes, which were provided to add context to relevant important SHTM/HTM/HBN guidance. Every page of the matrix cross refers back to the Guidance Notes for reference so they would be read and understood together and therefore the Guidance Notes provided an overarching status and relevance in relation to the information contained within the Department Sheets.

18. Beyond the Reference Design and upon selection of a preferred bidder design concept, the detail design process up to financial close would involve the creation, review, development and agreement of a new project specific Environmental Matrix. This would be aligned to the actual building design proposals and any relevant

guidance current during that period. It would normally involve a review process where any discrepancies and anomalies can be purified during the course of detail design development and on completion of design, before procurement, installation, testing and commissioning proceeds.

19. I have been asked if Hulley & Kirkwood were told at the time that "Beyond the Reference Design and upon selection of a preferred bidder design concept, the detail design process up to financial close would involve the creation, review, development and agreement of a new project specific Environmental Matrix". No-one specifically told us this as far as I recall, however given that the Reference Design was only an Envisaged Approach taken to the equivalent of RIBA Stage C Concept Design and that there was no specific architectural elevational design treatment provided by the Architect during the Reference Design, it follows that a new EM would be required that related to the preferred bidders actual design proposals. On the HK Reference Design Stage EM, Guidance Note 1 explains it is for the Reference Design Stage. In addition, Guidance Note 5 of the EM also states " ventilation air change rates and the use of natural ventilation in Patient Areas shall be reviewed throughout the detail design process…". In the Reference Design Thermal Comfort Analysis Report **(A34225373 – Hulley & Kirkwood Thermal Comfort Analysis Report – February 2012)**[7] we explained that the envisaged approach is not intended to be prescriptive and that alternative approaches where put forward beyond the Reference Design could also be valid. Finally the RHSC DCN M&E reference Design Approach Report within Section 3.0 Encode Checklist , lists under Follow Up Actions all aspects where the successful bidder actual solutions beyond the Reference Design should be reviewed, including Ventilation approach.

20. The EM subsequently replaced the M&E parts of the Activity Database (ADB) sheets, which were being produced by Nightingales, (architect) during the course of the Reference Design. These documents are prepared by architects / healthcare planners and drafted with information from the ADB database. The software package pre-populates the room data sheets with environmental information. Codebook is an extension of the ADB database. It does not produce automatically correct information. It has to be reviewed in the same way as the EM has to be reviewed and purified.
I have been asked to clarify if it was the intention that the EM and RDS would be

[7] Bundle 4 – Environmental Matrix, Item 19, Page 283

agreed documents or were they to be RDD? HK viewed the Reference Design Stage EM as an Envisaged approach for the Reference Design Stage. This was not intended to be prescriptive and that alternative approaches beyond the Reference Design could also be valid. This is mentioned in our Ward Bedrooms Thermal Comfort Report and intimated in our M&E Reference Design Approach Paper Encode Checklist. This would therefore require the preferred bidders design specific EM to be produced relative to their actual design proposals (including actual elevation proposals and natural ventilation proposals). We would have expected normal due process being that this EM or subsequent ADB RDS would follow through an RDD process.

21. The ADB sheets had been part of the original deliverables in the Reference Design but Nightingales had been advised to stop producing these but Hulley & Kirkwood were still expected to complete the environmental matrix . The ADB M&E sheets should align with the EM but the notion that ADB sheets can be reviewed concisely by lots of different parties in a co-ordinated fashion is both very difficult and impractical. Having a consolidated EM of information, with focus on elements of room data sheets from a Mechanical and Electrical design perspective, is a very useful tool to co-ordinate and agree what room type should have against the criteria stipulated by HTM/SHTM/HBN. The EM does not necessarily capture all the information that may be contained within ADB sheets, however seeks to capture key principal components such as temperature criteria, air change rates and other parameters relating to ventilation.

22. I have been asked if it is my position that the RDS should align with the EM. My view is if both were to be provided they should eventually align. In the event of any discrepancy where both RDS and EM exist, there would need to be a process to discuss the discrepancy, review both documents against relevant guidance whilst also sense checking with end user groups to arrive at an agreed alignment. Ultimately they should align. A review procedure of sense checking with stakeholders, clinicians and appropriate end user groups commencing at an early stage and to continue throughout all project delivery stages would be necessary to deal with discrepancies.

23. The fundamental piece of information that you need to start the EM is the schedule of accommodation. The architect provides this, and there is also a healthcare planner. They worked together. We got the schedule of areas; a

spreadsheet of the summary of the departments; the net internal area, the gross internal area; the total area of the hospital. For every department that has its net internal and gross internal area, behind that there is a spreadsheet for that department, with every room in that department, and that will list the room's briefed target area. It might also – if there's layout drawings that support the design by the architect – compare the briefed target area versus the actual drawn area. We take that information – the departments, room names, net internal area – and then patch in the key environmental data for each room across that. On top of that, we do our guidance notes where we try to list and highlight issues that stakeholders need to be aware of. For example, where there's contradictory guidance or where there's briefing that deviates from the guidance (such as the 25 degree stipulation for ward bedroom maximum internal temperature versus 28 degree maximum in guidance), or just simple nuances between SHTM and HTM. The guidance notes are there to support the key principle elements of design nuances, and then we run through the department sheets for every room and every department. The default position is to stick with the guidance unless we are told otherwise. I have been asked to explain how a specific room function sheet is determined. The room function reference sheet within the HK EM is a summary of repeating room types summarised from the SoA. Determining the room function was a judgement made by the engineer in the development of the EM.

24. It is our experience that the outputs from ADB sheets in terms of environmental criteria were often inaccurate or incomplete, which is why I think the EM became the main source for environmental data for the Reference Design. There can often be confusion in regards the use of a room within a healthcare setting (for example, whether a room is a regular examination/consulting room or whether it's a treatment room), as it's the application (or function) of the room which will define the ventilation for it. This then needs to be abstracted to create the ADB room sheets and define the environmental criteria for the room, ADB sheets are usually 4 pages of data for that room. So if we look at a large acute hospital with hundreds of rooms and numerous departments ADB room sheets can generate thousands of pages, which are cumbersome to manage and review. The EM generates less and is more consolidated with more focus on environmental information and is easier to control and review. One has to unravel SHTM and HTM requirements along with client specific instructions, such as the maximum ward room temperature of 25 degrees, which was a deviation from the standard 28 degrees maximum within guidance for general ward bedrooms.

I have been asked to explain why in my experience the outputs from ADB sheets in terms of environmental criteria are inaccurate or incomplete. In my experience, the ADB software is used by healthcare architects and health planners to assist in developing the clients briefing information. In my view, incomplete data outputs are typically because room data sheets are developed for key and generic rooms and then customised through consultation with clinicians to suit individual departmental requirements and this process requires time to arrange input from a number of stakeholders which is not always available when required. Example areas of confusion often arise whether a room is a Treatment Room or a Consulting/Exam Room, whether a Treatment Bay should be considered a Treatment Room, whether a Triage Hub is a Treatment Room, whether a Ward Isolation Room is supply vent only or supply and extract vent to achieve the required pressure, or has a PPVL approach. In addition, a general ward room can for example be provided with a natural or mechanical ventilation solution, or both (i.e mixed mode). A client may decide to deviate from guidance on maximum temperature criteria. The implications and outcomes of this is usually determined through simulation modelling which requires design development time to engage various design disciplines to determine what might be possible for any ward room on any given orientation and this design development may evolve over a number of design stages. So it therefore follows that unless the results of such studies are known and agreed and consultation takes place before the generation of ADB M&E sheets to make sure the room listing is correct, the listing for the Environmental Approach in certain rooms may be in doubt until discussions take place, solutions developed ,discussed and agreed which then defines the need for an iterative review process of ADB M&E sheets or EM (or both) across the design development stages.

25. I have been asked by the Inquiry if I agree with the expert, Professor Maddocks witness testimony that ADB RD sheets are best practice, as opposed to an EM. From my experience on the projects that I have worked on, ADB sheets need to be purified. I think it is best practice if they are correct, but they are not, by default, always correct. See also paragraph 20. Also note that the original RHSC and DCN NHSL Design Brief dated 10 June 2011 in Clause 4.11 Design Guidance recognises this where it states “ room data sheets are developed for key and generic rooms and then customised through consultation with clinicians to suit individual departmental requirements.”
I have been asked if I would expect the EM to be superseded by the point at which a contract is concluded, with RDS for all spaces having been completed. My view is if

by the point at which a contract is concluded ADB Room Data Sheets for all spaces had been completed i.e. customised through consultation with clinicians and other stakeholders to suit individual room and departmental requirements and sense checked and agreed, then it would be sensible at this point for the EM to be superseded.

26. I have been asked if HK had knowledge of the use of Room Data Sheets (RDS) during design process, however I have no knowledge of the use of these during the Reference Design other than being advised by David Langdon via email on 19 Jan 2012 that a decision had been taken by the PME to instruct Nightingale Associates to cease the production of room data sheets and that the room data sheets would now be produced by MML. Hulley & Kirkwood were still expected to complete the environmental matrix and the matrix would need to go through the NHSL comment process which from start to finish takes about 4 weeks and that the matrix was needed by the end of January for this process.

27. Matrices are reviewed by clinician user stage leads who engage with the architects regarding the use and arrangements of the rooms. These leads help to inform the brief for the architect. Estates teams are also involved as are facilities management. It is my understanding that reviews of the EM were undertaken by NHSL Estates. The First Issue was reviewed by them with comments received via email 07/03/2012 (I shall provide the e-mail to the Inquiry). The Second Issue was revised to align with SoA 10 as well as NHSL Estates comments as noted in the revisions notes of the EM. The Third Issue was further revised to align with a later SoA 13, which arose after the Reference Design deliverables had been completed.

28. At the RHCYP/DCN Reference Design stage, the EM of 3 February 2012 (within Page 5, Dept Code B1 for Critical Care/HDU/Neonatal Surgery Department Sheet) had the “Room Function” association assigned within the spreadsheet from the Accommodation SoA room definitions of “Open Plan Bay (4 beds)” to align with the generic “Multi-bed Wards” data. This unintentionally attributed the 4 ac/hr supply condition for this department, creating the discrepancy with the Guidance Notes listed as 10 ac/hr. There was however a cross reference to “See Guidance Notes” within the Notes Column of the Department sheet, which should have highlighted the anomaly of the listed 4 ac/hr relative to overarching Guidance Note 15 and the stated need for

10 ac/hr, specifically for HDU bed areas/Critical Care areas. I have been asked to explain why critical care values were not ascribed and why HDU was not ascribed as a room function. Critical Care was not a room name in the SoA, however HDU was a room name in the SoA and therefore HDU was ascribed as a room function on the Room Function Reference Sheet.

29. I have been asked why the EM for RHCYP/DCN stipulated that the mechanical ventilation system for critical care multi-bed rooms would deliver 4 air changes per hour despite SHTM 03-01 guidance, which sets out 10 air changes per hour. This was not a derogation from the SHTM 03-01 guidance but a discrepancy, an error. Jonathan McMillan compiled the EM. He reported to me and I signed off on the EM to be sent to the architects after it had been finalised. I cannot answer why other parties did not spot the error, but I think that the cover guidance notes and room function reference sheet probably gave a reassurance to anyone upon initial view that the important parts of the guidance are captured, resulting in no actual digging into the individual cells per room on the departmental sheets.

30. I have been asked to confirm if the discrepancy/error was simply a manual transcription error. This was a manual transcription error creating a discrepancy with correct information referred to within the matrix guidance notes and correct information on the HDU Room Function Sheet listing. The HDU transcription discrepancy was not intended and therefore not listed as a derogation. The general ward bedrooms mixed mode ventilation approach is a valid approach described in HTM 03-01 from 2007 and SHTM 03-01 from 2011 **(A33662241 – Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises Part B Operational management and performance verification October 2011 – SHTM 03-01 Part B v1 dated October 2011)**[8] and therefore not in our view a derogation. This type of approach has been reinforced by the new SHTM 03-01 Part A Feb 2022 which now also sets out a hierarchy of ventilation strategies in order to reduce energy costs and provide a more sustainable healthcare estate and support the declared zero carbon target, ventilation selection should be : First choice - Natural Ventilation, Second Choice – mixed mode ventilation, Final option – mechanical ventilation. Although the Reference Design Team compliance statement was issued in March 2012, we were

[8] Bundle 1 – Published Guidance, Item 2, Page 103

formally instructed by Mott McDonald on 12 Sept 2012 to provide a further EM update to align with SoA V13. We were not asked for confirmation that the final version of the EM complied with published guidance. I have been asked to consider potential errors highlighted in the Inquiry's Provisional Position Paper on the Environmental Matrix at paragraph 7.12 and on page 28 and state whether I agree that these were all errors in terms of compliance with HTMs. I do not agree for the reasons stated below.

31. From Paragraph 7.12 -

Tables abstract information from the HK RHSC Only Scheme original issue EM:
B1 Crit Care/HDU/Neonatal Surgery - Open Plan Bay (4 beds) : Whilst HTM 03-01 Part A Appendix 2 Table lists 10 ac/hr Supply (note SHTM 03-01 was not published until 2011 but also lists 10 ac/hr Supply in Appendix 1 Table A1) , however HBN 57 Facilities for Critical Care P27 Clause 4.52 states that Mechanical ventilation should ensure that both supply and extract systems are in balance and also HTM 03-01 yr 2007 Clause 2.13 also advises Supply & Extract should be provided in ICU's where there is a need to control room pressure in relation to adjacent spaces. Hence the most onerous guidance taking into account guidance context beyond the Table was applied being 10 ac/hr both supply and extract with balanced pressure relating to the department overall. The matrix guidance notes cross refer to HBN 57 as well as HTM 03-01 for context in this regard. This is a good example of why iterative review of any EM is necessary across design stages to arrive at an agreed solution taking into consideration context and overall department and room layouts.

Crit Care/HDU/Neonatal Surgery – Single Bed Cubicle : This table seems to abstract from HK RHSC Only EM original issue 09 Sept 2010. This Single Bed Cubicle Room was revised to 10 ac/hr S&E on the 22 December 2010 EM revision.

C1 InPatient Pathway/Ward Care – 4 Bed Room and Bedroom Single : The table comparison does not reference the initial client deviation from guidance i.e. HTM 03-01 = 28C maximum versus client brief = 25C maximum. The client brief for T Max 25C for the patient bedrooms meant that a natural ventilation only approach meeting T max 25C (which is significantly more onerous than the requirement within HTM 03-01 yr 2007 Clause 2.15 i.e. internal temperature in patient areas do not exceed 28C for more than 50 hrs pa) was not feasible according to the Design Thermal Comfort simulation studies undertaken (Referred to under Note 14 of this EM). Hence all of

the above drove the Design Approach for a mixed mode ventilation approach which provided for natural ventilation but avoided a total reliance on natural ventilation also and whilst doing so could also meet the T max 25C criteria with 4 ac/hr cooled supply air supplemented by natural ventilation. Our view is this was a valid approach in relation to HTM 03-01 from 2007 and which has subsequently been restated and reinforced with a listed hierarchy in new SHTM 03-01 from year 2022.

P28 -
Tables abstract information from the RHSC-DCN Reference Design Scheme EM's:

B1 PICU / HDU - PICU Open Plan Bay 4 Beds and High Acuity Single Cot Cubicle : The departmental room cell 4 ac/hr listing was a transcript error, should have referred to HDU 10 ac/hr, creating a discrepancy with EM Guidance Notes and Room Function Reference Sheet

B1 PICU / HDU - High Acuity – 6 beds -Single Bed Isolation Cubicle : HK EM references HBN 4 which is cross referred to in HBN 57 for Critical Care Facilities. SHPN 4 Supplement 1 (2008 version) **(A33662184 – Scottish Health Planning Note 04, In-patient Accomodation Options for Choice Supplement 1 Isolation Facilities in Acute Settings dated September 2008)**[9] carries the same Engineering Requirements Guidance as that explained in HBN 4 Supplement 1.

32. In summary, the original EM was generated as a tool to promote discussion and feedback through a process, a process which on RHSC did not come to a conclusion and on RHSC DCN Reference Design ended at an early stage of design, and so not a complete process for either set of matrices.

33. The only explanation I have for the discrepancy occurring in the first place during the Reference Design period is that there was possibly less focus on the Sick Kids matrix department sheets when the room function reference sheet was created and when the schedule of accommodation was updated leading to the anomaly between the department sheet cell and the matrix guidance notes and room function reference sheet. In the original Sick Kids matrix, we did, have the correct air change rate for a high dependency room at 10 air changes. I think between that and knowing

[9] Bundle 1 – Published Guidance, Item 5, Page 518

that the original matrix was correct, we've just been convinced into believing something that has been correct was still correct. That is the only way I can rationalise it because we did miss that. Having spent considerable time on the Design when the Sick Kids was a capital funded project our mindset was fixed that the EM was correct, which would allow us to focus on the DCN add-on and drafting the EM for that whilst also creating the new format with the Room Function Reference Sheet overall. On reflection the EM does state that users should refer to guidance notes and the guidance notes are correct and at the very least I would have thought a question could have been raised on that to have it clarified. The normal routine judgment as an engineer would be always to go with the most onerous condition until it's clarified.

34. I have been asked to confirm if a room data sheet produced using ADB would have contained the same inaccuracy. My view is the potential for discrepancies are also possible using ADB RDS output which is why we have stated ADB RDS sheets would also need to follow a sense checking and user group review process in the same way as any EM.

35. In regards to the original RHSC only project EM and the basis on which 10 air changes per hour was listed for both supply and extract with balanced pressure for the open plan bay 2,3 and 4-bed rooms, whilst year 2007 HTM 03-01 Part A, Appendix 2, lists 10 ac/hr supply (note SHTM 03-01 was not published until 2011 but also lists 10 ac/hr supply in Appendix 1 Table A1), HBN 57 Facilities for Critical Care (Document Purpose listed as Best Practice Guidance) p27 Clause 4.52, states that mechanical ventilation should ensure that both supply and extract systems are in balance. Note also that HTM 03-01 Part A of 2007 Clause 2.13 and SHTM 03-01 Part A of 2011 Clause 2.9 also advises Supply & Extract should be provided in ICU's where there is a need to control room pressure in relation to adjacent spaces. Hence the most onerous guidance taking into account guidance context beyond the Table was applied being 10 ac/hr both supply and extract with balanced pressure relating to the department overall. The matrix guidance notes cross refer to HBN 57 as well as HTM 03-01 for context in this regard. This is a good example of why iterative review of any EM is necessary across design stages to arrive at an agreed solution taking into consideration context and overall department and room layouts.

36. The Environmental Matrix dated 9th September 2010, was prepared for the original RHSC standalone project and not associated with the Reference Design for the combined RHSC/DCN Project. The page 5 matrices for department B1 Critical Care/HDU/Neonatal Surgery for the Open Plan Bed Bays was consistent with the Page 2 Guidance Notes, listing 10 ac/hr S&E for these critical care ward rooms.

37. I have been asked if there were ever any discussions around the requirements of CEL 19 (2010), which states essentially that ADB room data sheets are the default position unless there was justification by Lothian Health Board for using a different system. It was not raised in meetings, conversations or anything that I was part of. I do think it's interesting, though, that the new SHTN 02-01 from Oct 2021: Sustainable Design and Construction (SDaC) Guide document requires the use of an EM and states with regards Environmental Matrix " It is expected that 'sense checking' with appropriate end user groups (including HFS/FM/Estate Management representatives) will commence at an early stage and continue throughout all project delivery stages.".

Thermal Comfort Analysis/Reports

38. The HK Thermal Comfort Analysis Report, dated 17/02/2012, demonstrated that with natural ventilation only in summertime and with stated simulation component properties, ward rooms could potentially experience significant hours of internal temperatures above 25oC and up to 28oC, and in many cases more than 50 hours above 28oC referred to in SHTM 03-01 guidance. The simulation analysis at the time showed that in summertime the internal temperatures in ward rooms could be maintained at comfortable levels with 4 ac/hr (air changes per hour) of cooled fresh air supply with mechanical ventilation and could be controlled in summertime between 22oC and 25oC maximum. The rooms could also benefit from supplementary natural ventilation. The report conclusions noted that the envisaged approach was not intended to be prescriptive and alternative approaches where put forward beyond the Reference Design, could also be valid provided the conditions of planning were not compromised and could be complied with and that the level of thermal comfort achieved satisfied the clients brief and expectations.

39. The Reference Design for the RHSC-DCN scheme was to adopt the approach of having natural ventilation, opening windows accompanied with mechanical

ventilation i.e. a mixed mode ventilation approach. This would address the client's wishes and ensure that they did not have the same experiences as the original Edinburgh Royal Infirmary PFI scheme, where there was feedback that natural ventilation only wards would overheat during hot weather to the point where patients and staff were uncomfortable. The natural progression for the Sick Kids only project and the subsequent RHSC-DCN Reference Design was the client's criteria to limit the maximum temperature in a ward room to 25 degrees in summer time.

40. The most current guidance at the time was from HTM 03-01 2007, as SHTM 2025 2001 at that time did not reference air change rates at all (other than operating suites and a few general rooms). It referenced encouragement of natural ventilation where possible, but tested against a criteria where the internal temperature would be no greater than 3 degrees above the external shade temperature at any point in time. HTM 03-01 has a criteria that still recognises and encourages the approach of natural ventilation where possible, but asks for an overheating criteria to be tested of 50 hours per annum over 28 degrees internal temperature. The client felt from their experiences of the original ERI that the 50 hours over 28 degrees was not good enough and so a redefined criteria of 25 degrees maximum for ward bedrooms was sought, which led to still having the motivation to utilise natural ventilation, because we have a local climate that can take advantage of that most of the time, but also to try and address the 25 degrees. The mixed mode ventilation approach of 4 air changes of cool supply air with natural ventilation was supplemented to try and match the 6 air change criteria that was in HTM 03-01 at that time. I also advised a mixed mode ventilation approach was a valid approach described in the guidance current at the time of the original RHSC only design and the later RHSC DCN reference design and that the new SHTM 03-01 Part A Feb 2022 now also sets out a hierarchy of ventilation strategies in order to reduce energy costs and provide a more sustainable healthcare estate and support the declared zero carbon target, ventilation selection should be as follows : First choice - Natural Ventilation, Second Choice – mixed mode ventilation' Final option – mechanical ventilation. It also needs to be highlighted that an exclusively naturally ventilated approach to any ward bedroom would not provide 6 ac/hr with windows closed.

41. When we moved to the RHCYP/DCN reference design the criteria hadn't changed, however SHTM 03-01 arrived then around October 2011, which was the first

update since SHTM 2025 - year 2001, which had no air change rate criteria (other than operating suites and a few general rooms). There were lots of parallels between SHTM 03-01 and HTM 03-01 and some subtle differences, but mostly the same. The philosophy and criteria had not changed and we tested through a thermal comfort simulation model to ensure that the criteria could still match what the client was seeking for the RHCYP/DCN design. Incidentally, within the thermal comfort report with regards to critical care, the report stated in clause 2.6 that: “As such critical care and high dependency type ward rooms which receive air change rates in the region of 10 ac/hr, have not been analysed in this study.” This statement aligned with our intention under the Reference Design that Critical Care and High Dependency Bed Areas would receive the 10 ac/hr design approach as noted within the Guidance Notes listed within the Reference Design Environmental Matrix.

Building Research Establishment Environmental Assessment Method (BREEAM)

42. I have been asked by the Inquiry if I believe that trying to achieve energy efficiency targets using the BREEAM model played a part on the air change rate discrepancies. The driving influence on the actual air change rate for a healthcare scheme is driven by HTM and SHTM guidance not by BREEAM.

43. There is a connection between air change rates, energy consumption, energy targets and large acute healthcare facilities that have high air change rate departments. During the reference Design process for RHCYP/DCN I expressed advice to other parties where I specifically mentioned critical care departments being high air change rate. The connection between the solutions for the departments in terms of air movement, heating, cooling and fan energy associated with a movement of fresh air manifests in high energy consumption. So with the heating and cooling burden, the power consumption that drives the AHU fan systems that moves and treats the fresh air, all means that where there is motivation to have the most energy efficient, low energy, low carbon facility, there are always challenges and aims to promote natural ventilation or mixed mode ventilation where possible to reduce energy demand.

44. I recall the debates at the time of drafting the Reference Design for the RHCYP/ DCN, where very low aspirational real operational energy targets were getting thrown

into the melting pot and I expressed the view that adopting those targets would be extremely challenging in my experience for an acute facility of that size and type. I expressed what I thought was achievable and I reinforced that advice using reference information from healthcare guidance, EnCO2 HTM 07-02, which has record data of operational energy for a number of hospitals across the UK. I was referencing what I thought was in the design against what I thought the energy that would manifest in real-life operations and expressing that it was more likely to be a level different from client aspirations and targets that were being suggested.

45. In regards the meeting of BREEAM targets there was a bit of a disconnect here as BREEAM has many elements within it that are assessed under an environment assessment criteria. One of those sections of the assessment criteria is to do with energy and under that assessment there is one criteria, that is called ENE01 credit, which defines the number of points you get against a carbon emission score. It's not anchored against real-life total operational energy, it's anchored against a building regulations compliance model. So building regulations assess "regulated" energy and these assessments can be made of different types of buildings and facilities. The energy is assessed against NCM (National Calculation Model) templates that go into the building regulations compliance model, which do not align with the air change rates for UK healthcare. So air change rates that go into the building regulation compliance model templates for a hospital facility in the UK are much less than the real life HTM/SHTM guidance air change rates within a healthcare facility and are not intended to be used as a measure of real life operational energy.

46. What is often termed unregulated energy or non-regulated energy and by that I mean energy that's not in the building regulation energy model but exists in the real life operational hospitals is not reflected in the building regulations compliance model and it's not meant to be. This is the process energy, which comes from compressed air, medical gas, vacuum plants, renal dialysis, water treatment plants, a whole host of process energy functions and burdens that are in large acute hospitals but not in these models as well as the reality of HTM/SHTM full fresh air high air change rates and the real life energy consumption associated with that.

47. There was a client brief and a BREEAM target sought, however BREEAM is defined against the assessment criteria that's current at any point in time, as the

criteria is shifting and moving. Under the Sick Kids only project we were using BREEAM Healthcare 2008 as the criteria which it was registered against. Upon moving to the NPD model of the RHCYP/DCN Reference Design we kept the project registration against the BREEAM 2008 criteria rather than the new BREEAM 2011 criteria . We had a debate with the client about retaining that registration and letting it carry through for the Reference Design and for the actual delivery of the project. This would have given the client a better chance of achieving a BREEAM rating of excellent, which was relatively easier than the later BREEAM criteria, which came out in 2011 **(A34957859 – Hulley and Kirkwood Consulting Engineers Ltd, 'Reference Design Stage BREEAM 2008/2011 Comparison and Project Implications' – September 2011 (Issue No.2, Rev A))**[10].

48. During the Reference Design for the RHCYP/DCN the client NHSL sought a target of excellent against BREEAM . We asked the client if they wanted to try and test it against the new BREEAM criteria or hang on to the old criteria as it would be easier to achieve excellent. The client requested a report outlining the differences between both the new BREEAM criteria and the old BREEAM criteria and the risks for each. This report was produced. However I'm not sure if it was carried forward or the actual building was assessed against the new criteria beyond the Reference Design period.

Responses to Rule 8 request dated 29 July 2021

49. I have been asked by the Inquiry why no air changes per hour was specified for both supply and extract for the single bed isolation cubicle and the significance instead of the reference under "Type" to HBN4. Within HTM 03-01 Part A 2007 Appendix 2, Ward Isolation Room Table, no air changes are listed, instead there is a reference to "See Health Building Note 04-01 (Supplement 1) ". Also, within HBN 57 Clause 4.56, Ventilation of single bedrooms, reference is made to the HBN 4 Supplement 1 (2005 version) approach. This approach involves providing supply air to a PPVL (positively pressurised ventilation lobby) to then pass the supply air through to the isolation room indirectly and then extracted via the room or en-suite or both depending on layout. It was therefore felt that it would be clearer to refer to HBN4 rather than listing an air change rate for the actual Isolation Room which may have been misleading. This is

[10] Bundle 2 – Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 19, Page 687

also the approach taken in HTM03-01 Appendix 2 Table listing for Ward isolation room.

50. I have been asked by the Inquiry why balanced pressure was specified for the single bed isolation cubicle. Within HBN 57, Clause 4.56, the HBN 4 Supplement 1 (2005 version) approach was applied which is a PPVL (positively pressurised ventilation lobby) to provide a balanced supply and extract approach to the actual Isolation room, with the pressurised lobby providing the barrier.

51. I have been asked by the Inquiry why the basis on which 4 air changes per hour was specified for supply and no air changes per hour was specified for extract for the open plan bay 4-bed rooms. The Reference Design Environmental Matrix of 3 Feb 2012, within Page 5, Dept Code B1 for Critical Care/HDU/Neonatal Surgery Department Sheet, is where the “Room Function” association was assigned. This was taken from the spreadsheet of the Accommodation SoA room definitions of “Open Plan Bay (4 beds)” to align with the Room Function Sheet Reference for “Multi-bed Wards” data, which then unintentionally attributed the 4 ac/hr supply condition for these rooms within this department. This created the discrepancy with the Guidance Notes listed 10 ac/hr. There is however a cross reference to “See Guidance Notes” within the Notes Column of the Department sheet. This should have highlighted the anomaly of the listed 4 ac/hr relative to overarching Guidance Note 15 and the stated need for 10 ac/hr, specifically for HDU bed areas/Critical Care areas. With regards why no air changes per hour was specified for extract for General ward open plan bay 4 bed rooms, the concept was that these were the mixed mode natural/mechanical type ward rooms where extract could be provided by virtue of en-suite toilet extract .

52. I have been asked by the Inquiry in relation to the single bed isolation cubicles, why under the columns for supply and extract air changes per hour reference was made to “HBN4 Dependant” with balanced air pressure. Within HBN 57 Clause 4.56, Ventilation of single bedrooms, reference is made to the HBN 4 Supplement 1 (2005 version) approach. Within HTM 03-01 Part A 2007 Appendix 2, Ward Isolation Room Table, no air changes are listed, instead there is a reference to “See Health Building Note 04-01 (Supplement 1) “.(Note that SHTM 03-01 Part A from October 2011 Appendix 1 Table A1 refers to SHPN 4 Supplement 1 (2008 version) which carries the same Engineering Requirements Guidance as that explained in HBN 4

Supplement 1.) This approach involves providing supply air to a PPVL (positively pressurised ventilation lobby) to then pass the supply air through to the isolation room indirectly and then extracted via the room or en-suite or both depending on layout. It was therefore felt that it would be clearer to refer to HBN4. Also within HBN 57 Clause 4.56, the HBN 4 Supplement 1 Approach was applied which is a PPVL (positively pressurised ventilation lobby) to provide a balanced supply and extract approach to the actual Isolation room. Note also the Matrix Guidance Note 21 also refers.

53. I have been asked by the Inquiry the basis on which the discrepancy arose between guidance note 15 (which specified 10 air changes per hour for critical care) and section B1 of the Environmental Matrix (which specified 4 air changes per hour for supply to the open plan bay 4-bed rooms in critical care. I have explained this in paragraph 43.

54. I have been asked by the Inquiry In relation to the Ward Room Thermal Comfort Analysis Report dated 21 February 2012, confirmation of why the reference at paragraph 2.6 to air change rates “in the region of 10 ac/hr" for critical care areas was not mirrored in the Environmental Matrix dated 3 February 2012 or its subsequent revision dated 13 March 2012. The Environmental Matrix Guidance Notes Note 15 does make reference to 10 ac/hr for Critical Care Areas. The discrepancy arose in the Page 5 Dept Code B1 for Critical Care/HDU/Neonatal Surgery Department Sheet where the “Room Function” association was assigned within the spreadsheet from the Accommodation SoA room definitions of “Open Plan Bay (4 beds)” to align with the Room Function Reference Sheet “Multi-bed Wards” data which then attributed the 4 ac/hr supply condition, creating the discrepancy with the Guidance Notes listed 10 ac/hr. There is however a cross reference to “See Guidance Notes” within the Notes Column of the Department sheet which should have highlighted the anomaly of the listed 4 ac/hr within this particular department relative to Guidance Note 15 and the need for 10 ac/hr for HDU bed areas/Critical Care areas

55. 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.

SCOTTISH HOSPITALS INQUIRY

Witness Statement of

Michael Baxter ("Mike Baxter")

In response to s21 Notice dated 14 December 2022

14 February 2023

Preliminaries

1. I am Mike Baxter. This witness statement follows and, where appropriate, expands upon the evidence that I provided to the Inquiry within my witness statement dated 20 April 2022 and the oral evidence that I gave to the Inquiry on 16 May 2022.

2. In my earlier statement and oral evidence I endeavoured to provide the Inquiry with evidence, drawing upon my experience and knowledge, that would help the Inquiry understand the Scottish Government's (and the Scottish Government's Health and Social Care Directorates' ("SGHD")) role and responsibilities in relation to the design and delivery of large healthcare projects, including the Royal Hospital for Children Young People/Department for Clinical Neuroscience ("RHCYP/DCN")). I have been unable to answer, or meaningfully answer, a number of questions contained in the Inquiry's section 21 Notice, dated 14 December 2022, because some of these questions relate to matters that are not the responsibility of the Scottish Government. In the first instance, it may be helpful for me to restate (briefly) the Scottish Government's role and responsibilities in relation to the delivery of large health care projects as it pertains to the RHCYP/DCN.

3. Health is a devolved matter. SGHD are responsible for delivering health and social care in Scotland. Health Finance (now Health Finance, Corporate Governance and Value) is the directorate responsible for administering Scotland's capital healthcare budget: this includes approval, from a financial

perspective, of large healthcare projects. The responsibility for delivery of such projects lies with NHS health boards.

4. At paragraphs 10 to 50 of my earlier statement I explain the operation of the SGHD Capital Investment Group ("CIG"). As I explain in my earlier statement, business cases are reviewed by CIG at different stages of a project's lifetime to ensure, amongst other things, that health needs are appropriately met by the development proposed by the NHS board and that the development is affordable. This process is conducted in accordance with the Scottish Capital Investment Manual. CIG (and by extension) SGHD are not involved in the detail of the procurement, design and construction of the development. That is, primarily[1], a matter for the Health Board, drawing upon its own internal skills and experience and the professional (financial, legal and technical) advisers instructed by them.

5. As I explained in my earlier statement, my experience relevant to RHCYP relates to my engagement with the project as Deputy Director of the Capital Planning and Asset Management Directorate. Accordingly, whilst I have tried to be helpful in answering the questions posed to me in the Inquiry's section 21 Notice dated 14 December 2022, I cannot comment on matters outwith my knowledge and experience and would prefer not to speculate.

6. For completeness, I can also advise that I have also read paragraphs 7 to 42 of Alan Morrison's statement, dated 11 April 2022 and confirm that I agree with its content and the description of SGHD, the operation of CIG and the business case review process described therein.

7. In providing this statement, I have referred to the bundle entitled "Bundle of documents for the purpose of taking witness statements from Scottish Ministers witnesses commencing December 2022".

[1] The health board may engage NHS NSS bodies, such as HFS in this process as well as other public sector bodies/organisations such as the Scottish Futures Trust. These bodies are independent of, but accountable to, the Scottish Government.

ACTIVITY DATABASE AND CEL 19 (2010)

8. CEL 19 (2010) **(A37215536 – CEL 2010 – Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) – 2 June 2010)**[2] required NHS Scotland bodies to comply with "A Policy on Design Quality for NHS Scotland" for new hospital projects ("the Policy on Design Quality"). Mandatory Requirement 7 of the Policy on Design Quality provides:-

> *All NHSScotland Bodies engaged in the procurement of both new-build and refurbishment of healthcare buildings must use and properly utilise the English Department of Health's Activity Data Base (ADB) as an appropriate tool for briefing, design and commissioning. [If deemed inappropriate for a particular project and an alternative tool or approach is used, the responsibility is placed upon the NHSScotland Body to demonstrate that the alternative is of equal quality and value in its application.]"*

9. If ADB is deemed inappropriate for a particular project, the Policy on Design Quality places a responsibility on the NHS Scotland Body (i.e., NHS Lothian ("NHSL") for the RHCYP/DCN) to demonstrate that an alternative tool that is adopted is of equal quality and value in its application. I would expect a derogation from a mandatory requirement contained in the Policy on Design Quality to be highlighted in the NHS Board's business case. The evidence I have provided at paragraphs 122 to 124 of my earlier statement, in relation to SHTMs, applies equally to mandatory requirement 7 of the Policy on Design Quality.

10. I am advised that a decision was taken by NHSL to use an Environmental Matrix instead of Room Data Sheets produced using ADB as a briefing tool for prospective tenderers. I cannot recall being made aware that NHSL had, prior to financial close ("FC"), or at any time during the business case review

[2] Bundle 1 Published Guidance, Item 6, p.553.

process, taken the decision to utilise an Environmental Matrix instead of Room Data Sheets produced using ADB as a briefing tool for prospective tenderers.

11. I cannot comment on how NHSL should have utilised ADB in the briefing of bidders, other than to say that the guidance on the use of ADB or an alternative tool or approach of equal quality and value in its application should have been followed per CEL 19 and the Policy on Design Quality. If NHSL had intended to depart from mandatory requirement 7 of the Policy on Design Quality this should have been included in their submissions to CIG as part of the business case review process.

12. I narrate how, during my tenure, the Scottish Ministers satisfied themselves that NHS bodies complied with CEL 19 during the procurement stage of a new build hospital project at para 140 of my witness statement **[A37723594 – Witness Statement of Mike Baxter dated 22 April 2022)**[3] as regards oversight. I am asked if I can add anything to this description. I don't think that I can.

13. I am asked whether, in other new build hospital projects, Environmental Matrices were used instead of room data sheets as a design and briefing tool. To my knowledge, and certainly during my relevant tenure[4], there was not another hospital construction project for which Environmental Matrices were used instead of room data sheets.

14. It is outwith my expertise to comment on the extent of the Environmental Matrix, whether an Environmental Matrix is of equal quality to room data sheets produced using the ADB or whether the concept of an Environmental Matrix pose any greater risks than the use of ADB; but the requirements of the Policy on Design Quality re use of ADB are clear. The responsibility sits with the NHS Scotland Body to demonstrate that any alternative to ADB is of equal

[3] Bundle 10 - Miscellaneous Volume 2 (of 2), item 15, p.
[4] Between the publication of CEL 19 (2010) in June 2010 and when I left my role as Deputy Director of Health Finance in December 2014.

quality and value in its application. In the event that a NHS board sought to derogate from mandatory requirement 7 of the Policy on Design Quality I would have expected this to be brought to CIG's attention during the business case review process. The evidence I have provided at paragraphs 123 and 124 of my earlier statement regarding "derogation process" applies equally to mandatory requirement 7 of the Policy on Design Quality as it does to SHTM.

15. Further, I am asked if the approach taken by NHSL [to use an Environmental Matrix rather than room data sheets produced by ADB] had been disclosed, without a derogation being agreed, would this have had any impact on business case approval? A derogation from the Policy on Design Quality would require the agreement of SGHD. I would not expect CIG to approve a business case presented to it that disclosed an unapproved derogation, albeit, as I state at paragraph 123 of my earlier statement I am only aware of one prior derogation request being made during my tenure and that related to single room policy.

16. I am asked to comment on whether the use [by NHSL] of an Environmental Matrix was a cause, or part of the cause, of the errors in the ventilation systems in critical care rooms in RHCYP. My understanding from material I have read subsequent to my relevant tenure is that the entry of incorrect data into the environmental matrix has been identified by others as the cause, or part of the cause, of the relevant ventilation errors. I was not aware of error(s) within the ventilation system in the design of critical care rooms in the RHCYP/DCN during my tenure. As I am not an expert in ADB or Environmental Matrices (both matters concerning design and construction at project level), I cannot comment in my own right on whether the decision to utilise the concept of an Environmental Matrix was the cause, or part of the cause. I would, accordingly, prefer not to speculate in relation thereto.

17. I am asked to comment on the role of "Design Champion" per CEL 19. The responsibilities of "Design Champion" are set out in CEL 19, as are the responsibilities of NHS Boards in relation thereto. My expectation was that NHS Boards should put in place appropriate arrangements to ensure

compliance with those requirements. Such arrangements include the mandatory requirement for a Design Action Plan which was required to be submitted annually with the Board's Property and Asset Management Strategy (PAMS), which were reviewed by Health Facilities Scotland on behalf of the Scottish Government.

A. TIMESCALES

18. I am told that the Inquiry has heard from other witnesses that Scottish Futures Trust ("SFT") were instrumental in deciding on timescales for the procurement exercise; in particular when FC should take place. I am asked whether this accords with my understanding. I am aware SFT were involved in agreeing the procurement approach with NHSL. The details of those discussions are a matter, however, for SFT and NHSL. As I left the Scottish Government in December 2014 I cannot comment on the timing of FC or how that was determined.

19. I am told that the Inquiry has heard from another witness that SFT were concerned that FC should be achieved before the results of the 2014 Scottish Independence referendum to ensure that Project financing was not adversely impacted by the potential financial turmoil of a "Yes" vote. In general terms, this accords with my recollection of matters albeit, I would not use the word "turmoil". I say this accords with my understanding because I can recall issues being discussed by SFT, NHSL and within the Scottish Government, regarding the pricing and availability of debt (and associated government credit rating that would influence that) as well as currency risk, but cannot recall the detail of those discussions. RHCYP/DCN, as an NPD project, involved both public and private finance. Events that might impact the availability or cost of such finance, such as the outcome of the 2014 referendum are likely to have been of concern or interest to those involved in delivery of the project (both in the private and public sectors). SFT may be best placed to answer this question.

20. I have been referred to (**A33328073 – NHS Lothian, 'Action Notes RHSC & DCN Project Working Group' – 2 June 2011)**[5] which is a record of a meeting that took place in June 2011 involving NHSL and their advisers (including SFT). Under the heading *"Competitive dialogue process – developed programme"* it is stated: *"Confirmed that allocating 1 full day of dialogue for each bidder during each dialogue cycle was the preferred option. PH/DK/DC to consider how ISOS and ISDS should be handled. Initial thoughts are that these interim phases should be high level review of activity and direction rather than full evaluation given that bidders will also submit a draft final tender as part of the procurement process. This will be reviewed at the next workstream meeting."*

21. I am asked for my observation in relation to the shortening of timeframes during NHSL's tendering process. I was not in attendance at this meeting so can only make general observations. In relation to the timeframes agreed at the meeting I observe that NHSL, having had the benefit of input from SFT and technical advisors, who had experience in such matters, agreed the timetable. I would, therefore, have expected SFT and such technical advisors to have provided advice to the NHSL Board in order to ensure that the evaluation process was robust and transparent.

22. I am asked whether CIG were made aware of the shortening of timeframes. I cannot recall any detail on the CIG's awareness or otherwise of the decision to shorten timeframes in 2011 or at any point prior to FC. However, as I observe above, if CIG were made aware (via the KSR process discussed below), comfort would have been taken that at the relevant time NHSL were making decisions with the input and the assistance of SFT and their other technical advisors.

23. I am also asked about the evaluation of design proposals during, I think, the different stages of NHSL's tendering process. I do not recall whether a full

[5] Bundle 2 Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 5, p.171.

evaluation of design proposals was conducted at each stage of the tender process. Such evaluation would be a matter for NHSL (if it took place).

24. I am told that the Inquiry has evidence before it that the time allocated for the competitive dialogue phase was reduced and then subsequently extended. I cannot comment on the detailed assumptions underpinning the original timetable adopted by NHSL or the extension to that timetable, but I assume, given the subsequent extension, there were either issues with the submissions from bidders or points of clarification that required additional time for further engagement.

25. I am not in a position to comment upon whether the timescales were adequate, shorter or longer than other projects of a similar scale – I would expect the particular facts and circumstances of each individual project to be taken into account in determining what was reasonable in any given circumstances.

26. I have been referred to the document "Capital Investment Group - Draft Business Case Checklist - IA OBC [Outline Business Case] FBC [Full Business Case] - For Discussion - December 2011" **(A36382816 - Capital Investment Group Draft Business Case Checklist, IA OBC FBC For Discussion - December 2011)[6].** The Inquiry highlights the following extract from this document (quoting fully) "[Has] *the NDAP's [NHS Scotland Design Assessment Process] response about the design assessment process been taken into consideration?"*. The Inquiry observes that NDAP was not required for the RHCYP/DCN project due to transitional arrangements in place. I am asked whether CIG took into consideration any alternative or equivalent design assessment.

27. I describe CIG's approach to "design assurance" in relation to RHCYP/DCN at paragraphs 101 to 110 of my earlier statement. I expanded upon this section of my earlier statement during my oral evidence to the Inquiry. I do not

[6] Bundle 10 Miscellaneous Volume 1 (of 2), Item 14, p.111.

consider that I can usefully add, in this statement, to the written and oral evidence I have already provided.

28. I have been referred to a minute of a Project Steering Board meeting on 29 November 2013 **(A32676816 – Project Steering Board Action Notes – 29 November 2013)**[7] where it was agreed that the dialogue phase of NHSL's tender process should close and the Invitation to Submit Final Tender should be issued on the conclusion of the Key Stage Review ("KSR"). According to the minutes, after discussion of a number of points to do with outstanding bidder's concerns and land issues. My attention is drawn to the undernoted passage.

> *"SG [Susan Goldsmith] asked the Steering Board to confirm their support for closing dialogue as planned on 6 December. PR [Peter Reekie] noted that while the points discussed were outstanding, he saw no reason for them not to be completed in the next week to achieve Close of Dialogue. BC [Brian Currie] summarised the position that the team had reached, with three affordable bids for designs that met the Board's requirements. The team were to be congratulated on this achievement, and SG asked BC to pass on her thanks to the wider project team."*

29. The Inquiry has observed that SGHD was not represented at this meeting, given my apologies. I would, however, have been sent a copy of the minutes of the meeting. Albeit, I cannot, at this time (some 9 years later), recall receiving this minute. For completeness, I add that my role on the Project Steering Board was that of "observer" as opposed to "decision maker". It would not have been appropriate for me to act as a decision maker on the Project Steering Board standing my role as the Chair of CIG.

30. I have been asked to provide my understanding of the "*outstanding issues"* referenced by Susan Goldsmith. Unfortunately, I cannot add anything to the narrative contained in **(A32676816 – Project Steering Board Action Notes –**

[7] Bundle 8 Scoring & Correspondence Regarding Issues, Item 1, p.5

29 November 2013)[8]. The points that Peter Reekie has discussed as outstanding appear to relate to NHSL's tender process which is not something SGHD has direct involvement in. Further, it would appear that whatever is being discussed is under control. In those circumstances, I would not have expected escalation of the outstanding issues to SGHD, which accords with my recollection that none of these issues were escalated to me at Scottish Government.

31. I am also asked for my understanding of the issues flagged on the section of Bundle Item 13 headed "Risk Register" [**A32676816 - Project Steering Board Action Notes 29 November 2013]**[9]. Unfortunately, and standing the passage of time since I have considered this minute, I cannot add any understanding that might usefully assist the Inquiry beyond what is contained in the minute itself.

32. I have been asked to comment on whether, notwithstanding the outstanding issues noted above by reference to **[A32676816 – Project Steering Board Action Notes – 29 November 2013]**[10] it was appropriate for NHSL to conclude the dialogue phase of its tender process. It is a matter for the Project Steering Board to take a view, in light of the analysis presented to it, as to whether it deemed it appropriate to conclude the dialogue phase (albeit, I would also have expected the KSR undertaken by SFT prior to close of dialogue to provide independent assurance). It is clear from the terms of **[A32676816 – Project Steering Board Action Notes – 29 November 2013]**[11] that the Project Steering Board were so satisfied.

B. ITPD AND ISFT

33. Paragraph 2.5.3 of Volume 1 of the ITPD volume 1 **[A40236054 –ITPD Volume 1]**[12] states that standard form room data sheets had not been

[8] Bundle 8 Scoring & Correspondence Regarding Issues, Item 1, p.5
[9] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 1, p.5
[10] Bundle 8 Scoring & Correspondence Regarding Issues, Item 1, p.5
[11] Bundle 8 Scoring & Correspondence Regarding Issues, Item 1, p.5
[12] Bundle 10 Miscellaneous Volume 2 (of 2), item 14

prepared at that early stage. Guidance Note 1 to the Environmental Matrix issued with the ITPD describes the document/ spreadsheet as an "easier reference tool to replace ADB RDS M&E Sheets". During the competitive dialogue phase, room data sheets were to be prepared by bidders for certain rooms with "*all remaining rooms*" required to have room data sheets completed before financial close.

34. I note that I attended a meeting of the Project Steering Board on 22 August 2014 **(A32676824 – Action notes RHSC and DCN Special Project Steering Board – 22 August 2014)**[13] where it was discussed that IHSL would not be able to produce 100% Room Data sheets before FC but that the process of prioritising what could be produced was being managed by NHSL. I cannot recall the detail of these discussions nor can I recall having received any advice on this matter.

35. I am asked for my views as to whether it is unusual to deviate from the requirements contained in ITPD or ISFT. SGHD is not involved in the detail of the tender process so I do not feel I have sufficient expertise or experience to comment. The Inquiry may wish to direct this question to SFT. As I note above, I cannot recall the detail of discussions related to the "100% Room Data Sheet" deviation.

36. For the same reasons I outline in the preceding paragraph, I do not feel I am qualified to comment on the implications of the decision to postpone creation of room data sheets; nor was I party to any discussions on this matter, to the best of my recollection (questions (4) - (6) of the Inquiry's section 21 Notice dated 14 December 2022)

37. I am asked to outline my recollection of relations between Project Co and NHSL in the run up to FC. I have no specific recollections of anything remarkable about the relations between Project Co and NHSL during the period from preferred bidder to FC.

[13] Bundle 8 Scoring & Correspondence Regarding Issues, Item 2, p.11.

C. AEDET AND HAI-SCRIBE

38. I have insufficient knowledge to comment on the AEDET and HAI-Scribe assessments. HFS or the NHS Board would be best placed to comment.

D. PROGRESS TO FC

39. Risk registers highlight a ventilation issue in relation to opening windows **(A36308801 – Design Risks to the Board to Financial Close)**[14] and a significantly higher quantity of reviewable design data than was envisaged **(A36308810 – Technical Risks to the Board at Financial Close – 31 January 2015)**[15].

40. I do not recognise the risk registers referred to above, but it has been nearly 10 years since they would have been produced. I would only have seen such documentation as part of Project Steering Board Papers.

41. I have no recollection of the issue in relation to opening windows having been raised with me at the relevant time. These would have been technical issues to be dealt with at project, rather than government, level.

42. It is highlighted to me that none of these issues appear on the Pre-FC KSR. I cannot comment as I had left my role in the Scottish Government in relation to this Project before Pre FC KSR was undertaken.

43. I am asked whether the issue of opening windows was suggestive that Project Co had a different interpretation to SHTM03-01 and whether I would consider that serious enough to warrant a reassessment of the project or impede progress to FC. I am not a technical expert and cannot comment on the issue of whether Project Co had a different interpretation to SHTM03-01 and whether that would have been serious enough to warrant a reassessment of

[14] Bundle 8 Scoring & Correspondence Regarding Issues, Item 21, p.84.
[15] Bundle 10 Miscellaneous Volume 1 (of 2), Item 12, p.84

the project or impede progress to FC. I would have expected the NHS Board and their technical advisors to have ensured compliance with SHTM and if necessary to seek advice from HFS. The evidence I provided in my earlier statement at paragraphs 121 to 124 regarding derogation from SHTM is relevant to the question posed by the Inquiry.

44. I am referred to **(A32676824 - Action notes RHSC and DCN Special Project Steering Board - 22 August 2014)**[16]**,** which is a minute of a meeting of the Special Project Steering Board that took place on 22 August 2014. I was in attendance at this meeting. I am asked if the Scottish Government were concerned by the issues that were being raised at this meeting. Clearly any matters impacting on the successful delivery of the project would have been of concern to the Scottish Government. I am recorded in the Minute of this meeting as seeking assurances on a range of matters. There was regular dialogue between NHSL and the Scottish Government and such matters would have been raised as part of those discussions.

45. During this time I had regular meetings with the then Director of Finance (John Matheson) and would have updated verbally on progress and any issues to inform any direct conversations between him and NHSL. I do not recall any further escalation of the matters discussed at the meeting of 22 August 2014 within SGHD or the wider Scottish Government.

46. I am asked if I would have expected the issues discussed at the meeting of 22 August 2014 to be included in a KSR. I would expect all relevant procurement/commercial matters relating to the progression of a project from one procurement stage to the next to be reflected in the KSR. The function of the KSR was to provide assurance re readiness (or not) to proceed to the next procurement stage. If such assurance could not be provided then the KSR should detail the reason(s) why not.

E. KEY STAGE REVIEWS

[16] Bundle 8 Scoring & Correspondence Regarding Issues, Item 2, p.11.

47. As I explain in the preceding paragraph, the purpose of KSRs is to provide assurance re readiness (or not) to proceed to the next procurement stage. The intended audience is the Project Sponsor /the Scottish Government/ SRO. I am asked if KSRs are "merely a tick box exercise". They are not and were not designed as such. The assessment contained within a KSR is based on evidence provided by the NHS Board and engagement between the Board (and its advisors) and SFT.

48. KSR's are undertaken at various "key stages" in the procurement process with the final one before Financial Close. The guidance in relation to KSR is found here https://www.scottishfuturestrust.org.uk/files/publications/Key_Stage_Reviews_-_Information_Note_to_Projects_20111212.pdf. The guidance will provide the Inquiry with information relevant to the questions raised at F.(2) (a) & (b) of its section 21 notice dated 14 December 2022.

49. The Inquiry is correct in understanding that SFT "holds the pen" on KSRs. NHSL would be expected to provide information to SFT, however, the report is owned and signed off by SFT. I would have expected engagement with the NHSL Board would have taken place to check for factual accuracy, but cannot confirm whether that occurred in this instance.

50. To the best of my recollection, I was not aware of any "tension" between SFT and NHSL in respect of the content of KSRs.

51. I have been referred to **(A33337163 – Pre-Preferred Bidder Apointment Key Stage Review – 28 February 2014)**[17] **(A33336933 – Pre-Financial Close Key Stage Review – 11 February 2015)**[18]**,** two KSRs in relation to RHCYP/DCN and I am asked if these documents are a fair and accurate reflection of the stages of the project to which they relate. I consider these

[17] Bundle 7 Key Parts of Mosaic's tender and marked up Environmental Matrix, Item 1, p.3.
[18] Bundle 9 Key Stage Review, Item 1, p.3

KSRs to be a reflection of SFT's assessment and them performing their role as set out in the funding conditions guidance issued by SGHD in relation to NPD projects.

F. FULL BUSINESS CASE

52. I am asked if it is usual for the Pre-FC KSR to be finalised before CIG's recommendation for approval of the Full Business Case. As this was the first major NPD health project, I cannot comment on whether it would be "usual" for a Pre-FC KSR to be finalised before CIG recommendation for approval of the Full Business Case. The KSR took place after I left post, so I cannot comment on the reasons why it was sequenced in this way in this instance.

STATEMENT OF TRUTH

51. 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.

Scottish Hospitals Inquiry
Witness Statement of
Paul Cooper

Professional background

1. I am Paul Cooper. My address for the purposes of this inquiry is c/o BTO Solicitors LLP, 48 St Vincent Street Glasgow G2 5HS. I am employed at Wallace Whittle as a director (whilst I am described as a "Director", I am not an officer of the company. The construction industry has an informal practice where individuals are often called "Directors" and "Associate Directors").

2. I have been qualified as an engineer since 2003, following my training through college and on the job experience. I initially started with a company called Buro Happold, an international firm of engineers, consultants, and advisers. I then moved from there to work with Harley Haddow, a company of civil, structural, mechanical, and electrical consulting engineers and then worked with Rybka Engineering. In 2015 I came to Wallace Whittle, where I have now worked for the last 8 years. My engineering experience and skills lie within electrical engineering, and I have been the electrical lead when working within healthcare projects.

3. When I began my career, it was quite a busy time for construction within the education sector with greater use of Private Finance Initiatives (PFI), so I started off in that, but then quickly moved onto healthcare work during my time at Harley Haddow. Since 2003 I have been mostly involved in healthcare, and now find that the majority of my time is spent working within healthcare settings. These have included the new build hospitals in Orkney and the RHCYP and DCN, in Edinburgh. I was also a designer for the various works at Golden Jubilee Hospital, Aberdeen Royal Infirmary and Gartnavel Hospital. Those were a mix of new builds and extensions and upgrades.

4. I joined the RHCYP/DCN project on 19 January 2015 at the OBC stage looking to move to FBC stage by February/March of that year. Brookfield Multiplex had subcontracted Wallace Whittle to work on the mechanical and electrical (M&E)

provision. We were part of the IHSL team and there were a number of project managers across the project. On the M&E side it was Ken Hall from Brookfield Multiplex, who we dealt with as he was the MEP liaison to the wider team and the client, NHS Lothian. We also worked alongside Liane Edwards, Brookfield Multiplex, who dealt more with the architectural side of the project. As we moved into RDD after financial close we started having more individual meetings, face-to-face with Mott MacDonald, who were the client's advisors, but we endeavoured to always do that in the presence of Multiplex staff.

5. At that time, the tender process was approaching financial close, and I had been brought in specifically for my healthcare experience. I was involved in work at the Royal Edinburgh campus at that time, and Wallace Whittle thought it would be a good fit for me to be involved in the electrical design. There was a limited team from Wallace Whittle on the project at that time working up until financial close, and the full design was going to start in February or March of that year. I was there to assist with the design going forward into financial close and onwards and we were split quite clearly into lines of mechanical and electrical, with the mechanical team dealing with the ventilation and the associated services. I was in a lot of the meetings where ventilation was discussed though as these meetings covered multiple issues. I was aware that there was discussion going through the process on ventilation, but I never contributed or made any decisions regarding ventilation as I do not have the expertise or the knowledge to contribute to it. Stewart McKechnie was the lead mechanical engineer at Wallace Whittle dealing with ventilation.

6. From the outset of joining the project, the Environmental Matrix (EM) became a key topic. It was well-used throughout the project and by the time I started it had been handed over to us as a client briefing document as part of the Invitation to Participate in Dialogue (ITPD) pack. My understanding is that it originated from NHSL as the ultimate client but any contact I had with the client came only via IHSL and Multiplex. My understanding through conversations at the time, and I have learned a little bit more since then, was that this project had been ongoing since 2010 and the EM had followed its way through. My assumption was this document was, to use my own expression, "the key document" for the project.. From the client, I took it to be pretty much, "Make sure you apply everything that

is in that document" but no one expressly said that to me. I reviewed the relevant electrical documents with the electrical team and the Wallace Whittle mechanical team would have done the same in relation to their own areas.

7. Following our review, we were then asked to submit the Wallace Whittle/Tuv Sud rebranded EM back to the client, NHSL, which we did in October 2014. There then followed a commenting process, specifically from Mott MacDonald. We addressed the comments and those in the EM update at that time along with the Project Co Proposals (PCPs), which was contained in (**IHSL Comments on the Environmental Matrix Comments w/c 20 October 2014 – A35616759**).[1]

8. The Inquiry has asked me whether the air pressure values and air changes per hour were reviewed by Wallace Whittle for compliance with published guidance such as SHTM 03-
01. I am unable to comment on this, as it is out with my area of expertise.

9. The Inquiry has asked me if I was aware that the EM would form part of the Reviewable Design Data (RDD). I was not aware at the time as we did go through a commenting process, and I was surprised to discover that a document that was presented to us as a briefing document would go through to RDD. Everything that went through the RDD process were our designs that went back to the board for their technical advisors' comments. I do recall seeing the EM coming back with comments after financial close and was involved in addressing those comments but did not realise then that it would form part of the RDD.

10. I believe as we (Tuv Sud Wallace Whittle) moved forward with the project we ended up with about 12 or 13 versions of the EM, which I thought was unusual. I had been involved in projects prior to the RHCYP/DCN and the use of environmental matrices, albeit limited as it was not a common tool at that time in my experience. It would be handed over to you as a brief and the only time you would change it would be if something specific changed, such as a

[1] Bundle 4 – Environmental Matrix – A35616759 IHSL Comments on the Environmental Matrix Comments w/c 20 October 2014, Item 10, p.218

schedule of accommodation update, a room being added or guidance documents changing. It was very unusual to change the figures or environmental parameters within the EM as that went away from the ethos of a signed off briefing document. My experience was that Room Data Sheets (RDS) were commonly used as a briefing tool on more traditionally procured projects, but it was unlikely that they would be available at the early stages of a project. If the RDS were available at an early stage, they would likely be in draft for the purposes of a competitive tender process.

11. On other projects I have worked on I could be involved at the initial stages, what is referred to as RIBA Stage 1, which is at the project's inception. In an ideal world I would be expecting to be handed a client briefing pack at that point and have an EM from them, however often what happened was that the client was not quite there yet with that information and needed a bit of help. My experience was that you would have to get involved and answer any queries they had, such as cost implications from changing environmental parameters, however I would certainly expect to see a briefing document before Stage 2, RIBA Stage 2.

12. At Stage 2, the building services and M&E would become involved looking at how we are going to service a building, based on the client brief that we received at Stage 1. It would involve reviewing if the ceiling voids are big enough? Are the plant rooms big enough? Have we got enough capacity in the local areas to bring in electrical, water, etc.? As we move to RIBA Stage 3 this is when you start seeing the meat on the bones, where you start seeing drawings showing routing, coordination, all the corridor services would start being populated, and plant rooms would start to be built up. From RIBA Stage 4 onwards you get the final design. RIBA Stages 4 and 5 are when you are producing the final design that a contractor will take away and build from. Stages 6 and 7 are for the construction stage, and then into the post construction works at RIBA Stage 7.

13. If I was involved in the technical advisor team, I would be assisting the client to pull that briefing document together. This is something I have done recently on other projects as the client often struggles to pull these documents together. Before going forward though we would still ask the client's clinicians and

Estates team to scrutinise and make sure they were satisfied before signing off. The clinicians would usually be involved early on in any healthcare project and then the Estates and hard Facilities Management (FM) teams would come in at some point, looking at it from, “How can we manage this process? Once it is installed, can we upkeep it? What is the maintenance involved? What are the costs going to be for operating it?”. I would insist on having clinicians and hard FM and Estates teams being involved in that process.

14. The use of the EM as a briefing document was becoming more common in projects. As more projects began to have bespoke needs that needed to be identified, a pragmatic approach sometimes had to be applied to the Scottish Health Technical Memorandums (SHTMs). The previous iteration of the SHTMs, which were the 2045-2055 numbering system, were advisory guidance, and that is what they said within them. As a result, individual health boards sometimes felt it necessary to derogate, by changing elements within those SHTMs. When the new suite of SHTMs guidance came along there was still a belief, at least in relation to the electrical SHTMs that I worked to, that as long as you were complying with the fundamental standards of the SHTM, or improving it, you could still make changes like that. The use of the EM was to nail down a client’s requirements so that there was no ambiguity from any misinterpretation of an SHTM or similar guidance. However, things have now changed, and people are more onerous on their compliance with the SHTMs and now view it as less advisory and more of a fundamental requirement. In my view, this attitude shift has been brought about by the issues which form the focus of this Public Inquiry.

15. My involvement with the EM on the RHCYP/DCN project was on electrical issues, where there was missing information or more information needed to be added and we had to go through process of addressing that. This involved making up a separate document later, highlighting grouping and categorisation from SHTM 06-01 and the BS7671. This SHTM provides guidance for all works on the fixed wiring and integral electrical equipment used for electrical services within healthcare premises. It provides guidance on how to categorise a room from categories 1-5, and it was the seriousness of the electrical resilience you would put within an individual room. I discovered that this did not feature in the

EM, so we started a process of assisting the client to pull that together. This omission came as a surprise as it should have been within the EM in my opinion, however we dealt with that. The EM also needed to be updated to reflect the schedule of accommodation (SoA). It looked like it had been produced at an earlier point in time and had not been updated to incorporate updates to the SoA. As a result of this, I recall that we assisted in updating that EM very early on in the project to include every room within the hospital.

16. The Inquiry has asked me if I had any involvement with the scoring/rating for the project on the Building Research Establishment Environmental Assessment Method (BREEAM). Not specifically with regards to the energy point of view but, as part of the BREEAM scoring, there are a number of electrical items that need to be caught and evidenced. I was involved in collating some of the evidence for the BREEAM scoring later on in the project. There would have been regular BREEAM meetings throughout the project which I would have attended and given updates as to how we were getting on with our work on electrical-specific points.

17. The BREEAM scoring/rating is closely linked to the EM as minor changes to the environmental parameters within the EM can make big differences throughout the project. If a decision is made to change the lighting levels within a room, making them higher, then this would have an impact on energy targets. This would also apply to any increase on air change rates, which would have had a significant impact on energy, but also potentially could have made plant rooms unviable, because we would need more air-handling units. Any changes that somebody might have wanted within the EM would have had to have been discussed to see what impact it might have had on energy targets for the project.

18. The Inquiry has asked me if I was aware of the use of RDS or Activity Database sheets (ADB) on the project. Within my role I would not normally expect to come into contact with the ADB software as we tend to use the finished C-Sheets or RDS. These are essentially a 3D representation of each room. An architect would design from the information they have from an ADB sheet or from the EM. It would show the elevations of the walls, and they would go through a process with the clinical team, where they would review the

suitability of the services and conclude the C-Sheet or RDS. We would then take that sheet and work up the electrical and mechanical design. This C-sheet would stay with you throughout the whole of the job, and would be used for the final construction setting out.

19. I am aware the there is a Chief Executive Letter (CEL), which states RDS should be used for healthcare facilities in Scotland but often people did not have the RDS/ADB sheets at an early enough stage. As part of my involvement, I do not recall any internal discussion within Wallace Whittle regarding compliance with the guidance set out in CEL 19 (2010) (**A37215536 - CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010**)[2]. What I tended to see was that ADB sheets would sometimes come a little bit later in the project, as indeed they did on the RHCYP/DCN project. They came, essentially, to review the information on the project and make sure what had been asked for was actually covered in the RDS and that they reflected the EM. As long as I had something to tell me what they needed from an environmental aspect, such as the EM or an RDS, then I was satisfied.

20. I am not sure I was aware of the CEL at the design and briefing phase given that the production of RDS via ADB is primarily a task performed by other members of the design team i.e. the architects. I was provided with the Board's Construction Requirements (BCR) but the RDS section of the ITPD was empty, so no briefing RDS were received.

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.

[2] Bundle 1 – Published Guidance – A37215536 - CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010, Item 6, p.553

Scottish Hospitals Inquiry

Witness Statement of

Paul Serkis

WITNESS DETAILS

1. My name is Paul Christopher Serkis. I am currently employed as a project director at ISG, which is a construction company. I have worked there for just over one year.

2. I've been involved in construction for approximately 34 years. I started out with John Laing Construction who sponsored me through university whilst I did a quantity surveying degree at Liverpool University. I worked at John Laing for 13 years.

3. My first project was actually the Chelsea and Westminster Hospital in London, which was a management contract. I was working with John Laing during summer placements, whilst being sponsored through university as an apprentice surveyor. I also worked on South End Hospital, which was a design and build contract.

4. I left John Laing in 2001. The reason for this was that I'd been doing a part-time law course, and I got involved in some PFI contracts. This got me interested in the whole model and how PFI worked, and the number of stakeholders involved in that. I got an opportunity to go and work on school PFIs, which were just starting to take off in the early 2000s. I joined a company called Wates and worked with them for just under four years, doing predominantly PFI schools. The starting point was a Merton schools project, which was six schools in a bundle. I then progressed to looking after a number of schools and getting involved in the front-end bids of PFI.

5. I wanted to progress to hospital builds, and in 2005 a lot of UK hospitals were being built under the PFI model. I joined Multiplex that year as a commercial

director for public and private projects. I joined to help Multiplex bid for Peterborough Hospital's PFI, which was a combination of three NHS trusts that were merging together on the existing Edith Cavell Hospital in Peterborough. It was a circa £350 million PFI scheme. I also worked on the Queen Elizabeth University Hospital in Glasgow – which was just under £600 million (this was a capital expenditure ("CapEx") model, not a PFI).

6. I worked at Multiplex for 16 years. My role at Multiplex was to look after all of the healthcare projects to identify what opportunities we, as a business, could add value to and could get involved in to deliver off the back of all the good work we did in Peterborough and Glasgow. I would lead bids, get them set up, bring the teams together, manage teams, make sure that people were clear on the expectations, and trying to create what was a true public-private partnership between a number of organisations. I pride myself in being able to bring people together and work as a team. I would then hand over to others to build the project.

7. It was there that I became conversant with understanding how hospitals operate, understanding the user groups, understanding the clinicians, understanding how you put together a hospital, where you start with the departments and the adjacencies and then you build a wraparound of a building. My understanding is that the starting point is patient pathways and how you treat patients and the routes that they take through the hospital depending on why they are there.

8. This role gave me a real insight into the putting together a hospital from a design point of view, but also, equally, I could use my skills from managing, PFI projects, having delivered PFI projects from start to finish, understanding about availability and how PFI models work, and just having a general acknowledgement of how all these things are put together and the number of stakeholders.

9. The PFI model can be likened to paying for a facility through a mortgage as it spreads payments over a number of years, covering the capital cost, interest)

and on going maintenance for a set duration. It enables a user to have a new or upgraded facility built sooner to carry out providing their services.

10. The consortium is led by an SPV/SPC (Special Purpose Vehicle/Company) which is set up specifically for a project. This SPV will have usually been formed by the Equity Partners (for the RHSC Project, this was Macquarie Bank) who manage the bid process and their supply chain partners. Typically, you will have an SPV, a combination of equity and senior debt funders, a main contractor (for the design & build of the facility) and a facilities management Company (who manage the ongoing maintenance and life cycle replacement works for the duration of the agreement. The main documents are a Project Agreement (between the SPV and the Client,) a Design and Build Contract (between the SPV and the Main Contractor), an Operating Contract (between the SPV and the FM provider and an Interface Agreement (between the Main Contractor and the FM Provider).

11. Each party has differing obligations to comply with:

    a. the SPV – raising equity and securing senior debt funding and leading and maintaining dialogue with the Client at all times;

    b. the Main Contractor: the design and build of the facility; and

    c. the FM Provider: providing on-going maintenance and life cycle replacement to ensure all areas are “available for use” during the agreed period.

12. In 2013 when the PQQ process commenced, I became involved in the Royal Hospital for Young People/Department of Clinical Neurosciences (RHCYP/DCN) Non-Profit Distribution (NPD) build.

13. This project was my first experience of an NPD model. It’s not exactly the same as PFI or PPP, but it had all the same constituent parts - the SPV, the main contractor, the FM provider, the interface agreement, and the various legal advisors, insurers and other stakeholders involved.

RHCYP/DCN PROCUREMENT – MY ROLE

14. To be successful in a bid, you've got to get the money right to start with. That's a combination of capital expenditure for building the actual facility, the Facilities Management side inputting their life cycle and maintenance costs and management costs. The SPV will then carry out stress testing on the financial model to see how it all works, and whether the right numbers are there to make the bid competitive to even be considered to start with. Generally, although Macquarie would be able to speak to the specifics of this project, on a project of this type, equity providers (Macquarie on this project) will invest up to 10% of the funding and then seek senior debt from other funders for the remaining 90%.

15. If a bid is not on the money, then you'll very quickly get reduced to third place. So you've got to get the money right to start with. Then it's about where you can add value and whether you are compliant, by which I mean meeting the criteria set out in the scoring matrix.

16. My involvement in the project began at the point the project was put out to bidders. I was involved in putting the pre-qualification response together. This process was being managed by Macquarie as the shareholder of IHS Lothian ("IHSL") who were the SPV at the Project. Multiplex were one constituent part of the bid, as we were the design and build contractor, but Macquarie were very much in charge.

17. We were part of a team, but it was being managed and led by IHSL. We were one part of the jigsaw, sitting as the D&B contractor, with Bouygues as the FM provider and Macquarie as the owner of IHSL the SPV as the overarching leader. We had previously worked with Macquarie on the Peterborough Hospital, so there was a working relationship there. Macquarie led the bid and were the direct point of contact as IHSL lead. They attended meetings and were driving the process as one would expect typically from a consortium lead.

18. My role was to bring the construction team together, bringing all the different constituent parts of what we would do as the design and build contractor and to be the interface with Bouygues and Macquarie working with my colleague at the time, John Ballantyne.

19. John was based in Scotland, so the intention was for him to take the lead because he was going to stay and manage the project.

20. My role really was doing what I'd been doing on previous projects, which was to have a high level understanding of the overall Board's Construction Requirements, understand the projects, the time scales, who we needed to bring in in terms of our team, what expertise – if any – was required, and to knit that together and be the link between us Bouygues and Macquarie. John would then take over running the project during the design and construction phase.

21. So the challenge for me, which I enjoy, is bringing people together, knowing the subject matter as best I can. I don't claim to know everything about healthcare, but I have an understanding of the process, how the hospitals are built, the main suite of documents – Board Construction Requirements (BCRs), Project Co Proposals (PCPs) and that sort of thing. I won't necessarily know all of the detail and every single thing that's done, but it's more of an awareness and then having people to make sure that we're focused on doing that and delivering the constituent parts, and it wasn't easy on this project. The working relationship with the client was challenging. Many of the client team had been involved in the project for a few years by the time I became involved, and possibly fatigue had set in – they weren't keen to engage with us in manner which in my opinion was to create a high performing combined project team (public/private partnership model).

ENVIRONMENTAL MATRIX AND PRE-PREFERRED BIDDER/COMPETITIVE DIALOGUE STAGES

22. My understanding of an Environmental Matrix (EM) is you'll be set environmental conditions and parameters about how those rooms in a hospital

are going to feel from a temperature and a personal wellbeing feeling when you walk into that room.

23. I've mentioned earlier my understanding of hospitals and how they operate, but equally, I had a basic understanding of how the hospital could be set up: various types of wards, single bed occupancy, four-bed wards, dormitory wards and how those rooms operate. There are also Critical Care units, PICU, high dependence units, consultancy rooms and other separate units that operate differently to a dormitory or a single-bed room, and they've got different condition requirements. What I did gauge is from a personal point of view when you walk into one of those rooms you generally don't really notice that much difference. You wouldn't notice whether it's ten air changes, or six, or four, or two.

24. What I did also find is through a lot of research working with healthcare planners and designers – and we went over to Scandinavia to look at hospitals; we went over to Australia to look at hospitals – there is no right or wrong answer in how services should be delivered. It's how the particular hospital trust or hospital board want to deliver their medical services. They might want single bed occupancy in every room, or a blend of single bed and four-bedded wards. The latter can aid recover for those who do not want to be in a room on their own. I got interested in the healthcare side of it as well, to understand different journeys that patients took.

25. The EM gives you a set of parameters to work with. I have seen EMs used in other hospital builds that I was involved in previously, I suppose it is a mix. I don't think there is a normal approach. In the past you'd have a room datasheet where you do a typical room datasheet one for a ward, one for a single bed occupancy, one for Critical Care, PICU. So I wouldn't say that all the time you'd have an environmental matrix. The room datasheet was far more developed specific for that room and it had everything and it complemented what we call a 1:50 layout drawing with elevations and plans showing exactly where the bedhead units are going to go, what height on the walls where the electrical panels would go and where the sockets would be,

how many sockets you'd need in a room, what the environmental conditions were going to be in that room. So the room datasheet was probably more advanced, as opposed to the environmental matrix would have set parameters.

26. In theory, you should see a correlation between room data sheets and the EM, but the room data sheets may get changed because of how people perceive what the room will be used for or how it will operate allowing for any future proofing. For example, if you've got an overall floor plate on a level, and if during the course of design you might say actually that we want to introduce another couple of single bedrooms in there, you then need to move space from elsewhere, which you might do by changing the room usage or layouts. You then need to change that room datasheet to reflect the fact that you've changed its use. Then you have to reconfigure slightly the overall layout of that of that floor.

27. So the EM, shows the environmental parameters and the room data sheets are the next level down - you develop that design with the clinicians and with the user groups. It's very difficult to finalise those room datasheets until you absolutely have cast iron 100 per cent design freeze for that room. There is no rule for when this will happen, but typically its after financial close.

28. I did not have much detailed involvement with the EM in my role. It was just part of the suite of documents that made up the whole fabric of the hospital, and how it was being designed and delivered. There were technical people looking at the detail of it for me. This would have been Stuart McKechnie of Wallace Whittle and the team at Mercury Engineering. It was a case of, if I go back to what I said at the beginning, there’s so many moving parts and so many different stakeholders. The EM was something I was aware of, and my understanding was that this was what the Board wanted, but I wouldn’t say that I went and looked at it and reviewed it. As I've said above, those involved in the project to date (on the Board side) were pretty fatigued as they had been trying to progress this job for so long. They had a reference

design and we were being told, “Don’t change any of it. Just get on with it and deliver it. We don’t want anything else.” This is my firm recollection of what we were being told by the Board and their advisors Mott MacDonald. They just said “This is what we want. We’ve spent enough time modelling this. We’ve met with the user groups. We’ve met with the clinicians. Please don’t change it, just deliver what we want.” I remember turning to my colleague, John Ballantyne, after one of the competitive dialogue meetings and saying to him something along the lines of “Well, there’s not much scope for us to add any value here. We’ve just got to comply with what they’re asking because they’re not for changing. They don’t want to change anything.” By this, I meant we would need to meet the requirements set out in the briefing documents such as the EM ***(A32623039, Environmental Matrix dated 4 September 2014[1]).***

29. We were attending competitive dialogue meetings at the end of 2013/early 2014. They were very regimented. The Board stuck to a very rigid process, and that’s the right and proper way to do it, but it was very cold and it didn’t feel like a nice environment to work in. The impression from those meetings was just, “This is what we want. Get through it. We’ll make our decision. We want it built.” I can’t remember the exact number of meetings, but there would have been sub-meetings on the different workstreams. There was one for design, one for legal, one for FM, one for the interface between construction and FM. The meetings were around 90 minutes long, and the dialogue was pretty much one way - the Board were telling us what they wanted. I could not go to all of these meetings. I went to some of them, and John Ballantyne went to some because some sub-meetings were going on at the same time. They were not dialogue meetings of the sort that I was used to. Normally, meetings of this type would be a dialogue between two groups of people, “Okay, you’ve said you want this, and we could do that. Here’s some things you might want to consider. Here’s some things that we can work with should we be selected for the next stage.” That was cut down pretty quickly after the first meeting. It was a case of the Board stating, “This is what we want, don’t change it.” These dialogue meetings were formulaic at best. We had the Queen Elizabeth University Hospital Project in Glasgow development behind us, but I

[1] Bundle 4 - Environmental Matrix, Item 1, P4

found, very quickly, that we were not to mention Glasgow. The Board didn't want to hear anything about what we had done there and that was made clear.

30. I said to John that this was going to be a difficult project. I was used to dealing with people where we could build a relationship to work together for the coming years, and it didn't come across like that to start with on this project. Brian Currie was leading from the Board's side and had a team beneath him. I am not saying they were horrible; it was just very cold. This stood out as quite different to what I was used to. I had not come into a project like this where there was already a firm design that had to be followed. You would have what I call the public sector comparison where you would work with the design teams, and you'd work with the clinicians, and you'd have the user group meetings to develop those further. So on Peterborough and on Glasgow there was a very good rapport with the NHS boards, their representatives and the user groups and the clinicians. That didn't exist here – there was no real desire on the Board's part to work in partnership or entertain any suggested changes to the design.

31. In terms of my understanding as to why a reference design was used, it was that they had already had user group meetings, they had sorted out how they were going to deliver the services, and then you had a bolt on with the DCN that had been brought together as part of the overall deal. That was another change the Board had had to deal with, and I just felt that they had made their mind up about what they wanted. That was clear in the documents from my recollection.

32. On Peterborough we built a mock-up of what a ward would look like so that we could take the nurses and the people that were going to be using that to get a sense of spatial awareness, because whilst we could show them 2D drawings at the time, when you take someone into a mock-up in a room they get a much better sense of scale and how that room might look. Whereas here, it seemed like they'd had all those meetings, they'd decided what they wanted, and that was it.

33. Multiplex did not have much contact with clinicians throughout this project. That's unusual for me. If you are involved from the inception of a project, you work very closely with the clinicians. With this project, I did not get that sense of relationship building or even wanting to.

ROLE AT THE PREFERRED BIDDER STAGE TO FINANCIAL CLOSE

34. At preferred bidder stage I indicated to John that we should try and build the relationships, but it just didn't happen. I remember saying to John, you're going to have your work cut out here delivering this job.

35. I am asked about a requirement of the appointment as preferred bidder to provide room datasheets. I didn't get involved in the detail on that, there would have been Mercury Engineering who were our MEP contractor and Wallace Whittle as our MEP advisors. We also had people working in the Multiplex team: Lianne Edwards and Ken Hall. However, my experience is that it is not normal for a client to request or seek 100% of the room data sheets are in place at Financial Close.

36. I cannot speak to ventilation systems. I wouldn't have got involved in the sort of day-to-day detailed understanding because there were people doing all of that and looking at all of that. I was aware of it, and I was aware of the documents and the names, and you get to learn the jargon and the understanding. My appreciation of how a hospital operated and how units operated was very high level, but I couldn't go into the ins and outs and say that particular room has these types of conditions, has these types of air changes, has this type of cooling, has this type of ventilation.

37. Up to preferred bidder stage, I did not have any concerns about the EM or any of the documents around the ventilation requirements. I don't recall the Board raising anything major. Mott MacDonald were in attendance at the dialogue meetings – Richard Cantlay and Graeme Greer. They were there to support Brian Currie and his team – that team included Sorrel Cosens and Janice Mackenzie.

38. At preferred bidder stage we set about a programme as to how we're going to get from preferred bidder to financial close with the Board and their advisors. As part of this, you map out all the different workstreams and who's doing what. You allocate resources to make sure that you meet that programme. This was done by Macquarie as they were the lead from the IHSL side, but we had an input in that process.

39. At the time, I felt that there was enough time from preferred bidder to intended financial close to do what we thought we needed to do but, from recollection, it ended up just dragging on and on and on. There were frustrations on our part which were partly to do with the Board trying to shoehorn more and more information into the documentation. In terms of what we thought we needed to do, you'd have a list of deliverables that you would agree in advance, and you try and stick to that. As part of that you would have a review of the Board's Construction Requirements ***(A33405670, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsections A, B and C Excerpt pages 1 to 149[2], A41179262, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780[3]),*** the provision of some typical details, the provision of some layout drawings and the provision of some specifications. Then you'd have the interface with the FM so that they were aware of what the make-up of the building was, so that they could price their life cycle model and their maintenance regime and the protocols that go around that. Then the SPV company would have their deliverables in terms of the financial model, making sure the interface agreement is done, the legal side, the insurance etc.

40. There are hundreds of documents involved in this process. There are more documents than there would typically be if you're just doing a straightforward CapEx job, but we were used to that and so the timescales at the time didn't seem onerous. I think this is where if you had a team, everyone, whether it's client team or the consortium, working together in harmony, then you get a much better outcome and you are more likely to maintain momentum and keep to the programme. I just didn't feel that there was that approach here. It

[2] Bundle 5 - Contract Documents, Item 3, P192
[3] Bundle 5 - Contract Documents, Item 4, P341

was frosty and hard work.

41. We had a number of individuals on-site, working with the Board and other parties. We were based in an office next to them on Canaan Lane. You try and co-locate to get the best out of everyone and get everyone working together.

42. I did not sit in on any of the user group meetings. However, I had an oversight role and we would meet with Brian Currie and his team. We'd have what we call a "town hall meeting" where everyone was together at the beginning of the day. I don't have the details of these meetings, but I suspect the Board or IHSL might. They were meetings at the beginning of the day when we had a series of meetings. Everyone would meet at the beginning and then everyone would go off to their respective disciplines, go and have their meetings, and then come back at the end of the day or the next day and feed back into how things were progressing, whether that was legal, insurance, construction or FM. I'd sit in on the town hall meetings. They gave a feeling for how things were going, and it was evident that things were not going as well as we wanted. The period to financial close dragged on. At the end of the day, we wanted to build it and get on with it, but it was just hard work.

43. I wasn't attending the workstream meetings. I might dip in and out just to check how things were going. I think that relationships were one of the issues causing matters to drag on. There was a huge amount of scrutiny of the documentation and a lot of what I perceived to be extra that Motts and the client team were wanting from everyone, not just construction, but from FM and the SPV as well. That sort of message was coming back from all parts of the team.

44. On a project like this, you get to financial close, and you pretty much know what you've got to build. However, there's inevitably going to be some detailed design development going on beyond that. There's going to be further meetings as the project goes on because you're working as a team. There's an element of design development that goes on beyond financial close.

45. There's an element of logistics that may or may not change depending on the site and how it's operating and we're putting together those logistics. The FM team are looking at what material selections are being made and then they can base their life cycle and their maintenance regimes. You'll need to establish, for example, what heating and cooling is going to go into those areas, the design of the lights, and making sure that they've got Passive Infra-Red detectors that they switch off. There will be things that need to be done post financial close, which is completely normal.

46. You accept that there's a certain element of flexibility that you still need to have before you get to the eventual point where you are locking down the design freeze with the 1:200 layouts and then you'd move to the 1:50 layouts. If there's a will and a desire from everyone, those things can get sorted or you have provision to say, "Right within X date, we can sort that out post financial close, not a problem." But this was, "We want everything battened down," you cannot so much as do anything without this being written into the Project Company Proposals (PCP). I remember the PCP had been a major bone of contention and my colleague Liane Edwards, being frustrated trying to co-ordinate these things. When you put a draft PCP in, normally you would expect a couple of light touches and a markup and then you agree with the client that document's put in and then you move on. However, from what my recollection was, the Board and their advisors were going through every item, changing it, not only changing words and grammar but also changing the fundamentals of what we said in some instances. This was altering the basis of the bid which they had accepted.

47. I do recall us going through this whole process and there was a massive frustration. I can't remember the exact details, but I just know the PCPs kept coming up as being a source of frustration. I guess that was probably both sides because you've got one side (the Board) wanting to shoehorn everything in and IHSL trying to meet a programme and they're (The Board) sending many iterations of our PCP's. We had a tracker with all of the PCPs listed out. I recall that I actually drafted one of the trackers to help the team and I sent that to the Board thinking "Right, okay, that should be okay," and it

came back and it was like a teacher had marked up my work with red pen. I then got a sense of the frustration our team were feeling. I'm not saying I wrote the best piece of work on this one particular bit, but I wasn't expecting to get a teacher put a red line the whole way through and mark the whole thing up.

48. PCPs were our response to the BCRs, essentially setting out how we would deliver what they had asked for. If I'd had my way, we would have rewritten the BCRs, but they just were not entertaining that at all. The reason for this was that those BCRs were written in 2010, maybe even before that. We could have taken out the aspirations that were held then and replaced that with what had been agreed between the parties. They wanted the PCPs so absolutely respond to every single item in there. That was not normal. I am not used to that. It was going above and beyond, and actually coming to the point where the Board were becoming so controlling about everything that the team were getting really frustrated. I think this fed into the delay in reaching financial close. I'm sure this would have been discussed in meetings at the time. It just didn't feel like there was any trust.

49. There were financial concerns about getting to financial close. The scheme the Board wanted still had to meet the price agreed. You set a plan and we all try and stick to that and the sequences we've gone through – the pre-qual to competitive dialogue – all of that had worked in accordance with the timings.

50. It just didn't seem like that. It was more like the Board were more concerned about making sure they dotted every single "i" and crossed every single "t" and shoehorned in anything they could possibly think of. If we had had a team working collectively, then everyone, both sides working together, we could have reached that original date. But with everything that was going on with some of the issues, the goalposts changing, it just didn't happen. Then, you know what it's like when things get delayed and then people are trying to blame each other for "Why hasn't that happened?"

51. There was an occasion where I was on holiday and my Managing Director, Ross Ballingall, had to go up there to a meeting so I had to brief him. John

and I were feeding information back to him. I rang him from my holiday to ask how the meeting had gone. He said, “We’ve just got to cut through all the white noise and just get to financial close because this is going to drag on and on.” I said, “I know, Ross,” and that’s where the frustration was. I think, because I’ve worked with Ross on a number of projects before, he could see the frustration that I was getting as well.

52. This meeting took place in late August 2014. They called Ross up, I think, because we weren’t collectively going to obtain financial close. So they called Ross and Macquarie’s representatives. Steering Group meetings were attended by senior people, those ranked above us.

53. Regarding the amount of Reviewable Design Data (RDD) at financial close there’s always an element of RDD that will carry on beyond financial close and that’s typical of a project of this size and scale. You would expect that; you’re working to a different time scale, i.e. you’ve got to close things out in order to get it built. So there’s a perceived acceptance maybe from some parties that, well, if financial close slips a bit, then so be it. Whereas when you start building and you’ve got an end date, that’s what’s out in the public domain. That’s when it’s going to get built, you’ve got people moving from different parts of Edinburgh from other hospitals that are being shut so they can move into the new facility. We just wanted to get on and get that deal closed so that we could start building. Then you deal with the RDD elements, and you deal with the day-to-day issues, but you manage your way through it, and you build out and you deliver it, and you have the quality there and that’s it. My experience is that it is more common for final RDD and EM to be agreed after financial close.

GUIDANCE VERSUS CONTRACT

54. In terms of what document takes precedence, most of that would have been dealt with by the legal team. The real devil in the detail of what you want is all in the schedules that sit behind the contract: that's your drawings, your

requirements, your specifications, your technical notes. All those things are basically what we are providing and what the client is buying.

55. We were just part of the jigsaw – there would have been that triangulation between Macquarie, Multiplex and Bouygues. Everyone's feeding into making sure that we are responding to whatever we've been asked to and putting the offer back such that hopefully it's accepted by the client.

Closing Statement

56. 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.

Scottish Hospitals Inquiry
Witness Statement of
Peter Henderson

Witness Details

1. My name is Peter Henderson. I am aged [redacted].

2. I am a retired architect and was employed by NHS National Services Scotland ("NHS NSS") as Principal Architect. I was in this role from 2009 to 2013.

Qualifications

3. I graduated with a BA(Hons) in Architecture from Heriot-Watt University in 1973.

4. I later obtained an LLM in Construction Law from the Universities of Strathclyde and Glasgow in 2005.

5. I was a member of the Royal Institute of British Architects ("RIBA") and Royal Incorporation of Architects in Scotland ("RIAS") from 1974 until my retirement from Health Facilities Scotland ("HFS") in 2013.

Previous Roles and Experience

6. I was Principal Architect for HFS, which is a division of NHS NSS, between 2009 and 2013. My role in this post was to provide expert strategic professional advice to the NHS in Scotland and represent NHS NSS in dealings with other organisations in property and capital planning. Additionally, I was required to identify key initiatives by researching best practice and innovative thinking in the field of design, property, and capital planning which would impact the NHS in Scotland. I was also expected to manage and contribute to the development and dissemination of best practice

guidance through document production, forums, workshops, seminars, and national conferences.

7. I was Technical Director at Capita Symonds Construction Consultants where I worked from 1996 to 2009. At Capita, I worked on major new hospital projects throughout England and Scotland being procured under the Private Finance Initiative ("PFI") initiative. I assembled a team of professionals to carry out due diligence for funding bodies and to certify that projects had been completed in compliance with the Project Agreement.

8. Between 1990 and 1996, I was Director and Co-owner of Blueprint Architects. In addition to building design work, I acted as energy consultant to BAM Construction and assisted them in setting up a unit to be called 'ecostruct' that would provide energy efficient sustainable buildings.

9. I was Director of Architecture at Kaiser Bautechnik between 1988 and 1990. In this role, I prepared development proposals and liaised with clients to explain the benefits of energy efficient sustainable design and in particular the use of passive solar applications.

10. I was at GRM Kennedy and Partners as an Architect and Partner between 1974 and 1988. I designed a range of educational, residential, industrial, and commercial buildings.

Recollection of Events

11. I took up the post of Principal Architect in the Property and Capital Planning section of HFS in January 2009 and retired from that post in June 2013.

12. This written statement is my recollection of events which took place thirteen years ago in relation to the Royal Hospital for Children and Young People ("RHCYP") and Department of Clinical Neurosciences ("DCN") in Edinburgh. As a result of my retirement I have had limited access to files or

correspondence and my personal A4 notebooks relating to the period under investigation. I have been unable to have dialogue with others with whom I worked closely at the time. I do not remember these events at all well. Although I have tried to be accurate, there may be things I have forgotten to mention or that I am misremembering.

Role of HFS in RHCYP/DCN Project

13. As far as I know, the Property and Capital Planning section of HFS had no formal role in this project.

14. At the time of my employment at HFS, the development of the business cases for projects was the responsibility of the Health Boards who were required to follow the detailed procedures for each approval stage of projects set out by the Scottish Government in the Scottish Capital Investment Manual ("SCIM") **(A35299820 - SCIM Supporting Guidance Design Assessment in the Business Case Process)[1].**

15. A Board's management of this process was usually carried out by a specific Project Board set up for each project under the direction of a Project Director selected from Board staff.

16. SCIM did not identify any role for HFS in relation to the development of any of the business case stages. If the Board/Health Finance Directorate had made us aware of the project at its outset HFS may have had a role in carrying out the NHS Scotland Design Assessment Process ("NDAP"). I believe this project was already underway prior to the development of NDAP.

17. The Property and Capital Planning section of HFS did not to my knowledge have any role in the development of the environmental matrix or the reference design.

[1] Bundle 10 – Miscellaneous, Volume 1(of 2), item 9, p.46

18. HFS Property and Capital Planning did not have a role in respect of design assurance for Board construction projects.

19. NDAP is an "assessment" of design quality, that is an "evaluation" of the design, not an "assurance" of compliance with standards. I would expect the professionals who are employed by the Health Board to design and construct NHS buildings to maintain robust quality assurance systems as part of their normal responsibilities for construction developments. The architect's professional obligation is to meet all the requirements of his brief. He does not normally have any external body overseeing his work other than statutory bodies such as the building control authority, planning authority and the like.

20. HFS could have had a supporting role if requested by the Board in relation to the SCIM requirements relating to the Achieving Excellence Design Evaluation Toolkit ("AEDET") **(A39822335 – AEDET Toolkit 01-2008)**[2], achieving the desired BREEAM rating, and the use of ADB ("Activity DataBase").

21. I was asked to comment on an email chain including an email from David Stillie dated 6th February 2012. **(A37318834 - Email from David Stillie at MML to Thomas Brady at Davis Langdon - 6 February 2012)**[3] I have no recollection of the telephone call or the meeting referred to in David Stillie's email.

22. I don't think I met David Stillie, there is no reference in the email to us having met, only reference to a phone call with me. This email was sent eleven years ago and concerned a project that I had very little involvement with. I note David Stillie's quote that I said all present at the meeting referred to "appreciated that RHSC/DCN project had been reviewed to death" but he does not indicate which attendee at the meeting suggested that this was the

[2] Bundle 10 – Miscellaneous, Volume 2 (of 2), item 39, p.991
[3] Bundle 10 – Miscellaneous, Volume 1 (of 2), item 15, p.117

case. I think that there had been a Design Review by an Architecture and Design Scotland panel and a review by Atkins for SFT ("Scottish Futures Trust") that I commented on, but those would be normal reviews to be expected on a project of that size. I don't know why I would have joined in the opinion that it had been "reviewed to death".

23. I have no recollection of having had any meetings with SFT on the subject of whether or not the project should be included in NDAP.

Achieving Excellence Design Evaluation Toolkit (AEDET)

24. In the overview of AEDET (which is available on the SCIM website, Supporting Guidance AEDET guide at https://www.pcpd.scot.nhs.uk/Capital/scimpilot.htm) **(A40190756 - AEDET Refresh Guidance (2017)[4]** it specifically states that *"AEDET is a tool specifically directed towards achieving excellence in design rather than ensuring compliance with legislation, regulation and guidance."* AEDET looks at how people relate to the building and how it works for them. That is why in facilitating an AEDET workshop, it is important to invite a range of participants: the Health Board, clinical staff, maintenance staff, and members of the public such as patient association groups. This gives a cross-section of stakeholders who will be involved in the scoring process. They will not all be experts in the design or construction of NHS buildings.

25. If the Q&A scoring sheets are examined (see Supporting Guidance: AEDET spreadsheet at https://www.pcpd.scot.nhs.uk/Capital/scimpilot.htm) **(A42945853 – AEDET Refresh Spreadsheet)[5]** it can be seen that in general they do not require technical expertise in order to establish a score. For example, even in the section on engineering, the seven questions asked are fairly simple questions such as "are the engineering systems well-designed, flexible, and efficient in use?" The scoring group would look to see if there was someone qualified to assess that and let him/her explain his proposed

[4] Bundle 10 – Miscellaneous, Volume 2 (of 2), item 38, p.958
[5] Bundle 10 – Miscellaneous, Volume 2 (of 2), item 37, p. 939

score then pass on to the next question. If no one can answer they move on to the next question, the system does not require all questions to be scored. AEDET does not go into any level of engineering or construction detail and was never intended to.

26. I have no knowledge of the stage of development of the design at March 2012 so I do not know if the Engineering section could have been scored, but it can be seen from the questions in the spreadsheet that a score would have had no relation to the detailed design of the ventilation (or any other) system.

27. As part of my role in HFS, I would encourage the Health Boards and their design teams to use AEDET at all stages of construction projects as required by SCIM. The AEDET toolkit was developed by Professor Bryan Lawson and Dr Michael Phiri of the University of Sheffield for the NHS in England. It was also adopted for use by the other three National NHS authorities. The purpose of AEDET was to improve the impact of the NHS built environment on patients and staff through evidence based design. The AEDET toolkit can be applied at all stages of the design process from inception to completion by only using sections appropriate to that stage. For instance, where the design development had not yet developed to detailed consideration of the building services that section does not need to be included in the review.

28. Architects can use the toolkit themselves at the earliest stages of their design but as the design develops the review is normally facilitated by someone outwith the design team with the assessment being made by a representative group of stakeholders including patient groups, clinicians, and others.

29. When requested by Health Boards I acted as a facilitator on AEDET reviews as it was preferable to have a facilitator from outwith the project team to maintain an unbiased appraisal of the project.

30. NHS Lothian did not request my assistance in this case.

NHS Scotland Design Assessment Process (NDAP)

31. "A Policy on Design Quality for NHS Scotland" was introduced in 2006 and, what was at that time, the Scottish Executive Health Department entered into a framework agreement with Architecture and Design Scotland ("A&DS") to aid the implementation of the policy.

32. Around 2009, Michael Baxter of the Health Finance Directorate raised some concerns that the policy was not being implemented consistently across all of the Health Boards. Michael Baxter called Heather Chapple of A&DS and myself to a meeting to discuss how this could be improved. One of the areas discussed was that the design guidance documents made available by HFS (including the Scottish Health Planning Notes and Scottish Health Technical Memoranda) were not always being referred to by the Health Board's design teams. The outcome of the meeting was that Heather and I should put forward a proposal to develop a process that would improve compliance with the Policy on Design Quality and the awareness and use of the design guidance Published by the NHS.

33. The outcome of this was the development of the NHS Scotland Design Assessment Process ("NDAP") **(A35299820 - SCIM Supporting Guidance Design Assessment in the Business Case Process)[6].**

34. The process was mapped on to the SCIM business cases and required Health Boards to become involved with NDAP prior to the Initial Agreement stage by preparing a 'Design Statement' which set out in detail the Board's aspirations for the project. After acceptance of the Design Statement by A&DS/HFS, the project would be assessed at each of the three stages of the business case process against the Design Statement, before its submission for business case approval for that stage. Assessment would also include a

[6] Bundle 10 – Miscellaneous, Volume 1(of 2), item 9, p.46

review of the use of the NHS guidance documents and the status of other requirements such as planning permission.

35. The NDAP was later included in the 2011 revision of the SCIM with a section on Supporting Guidance explaining the process.

36. To my recollection, this project did not go through the NDAP. I believe the main reason being that the NDAP process was dependent on the production of a Design Statement at the outset of the project and Scottish Government decided that it was not therefor appropriate for NDAP to be applied to a project that had already passed the Initial Agreement stage. I think that was the case for this project.

37. I do not believe that an NDAP as set out in SCIM could have been carried out for this project as the design was too advanced and as far as I am aware a Design Statement had not been prepared. To realise the benefits of NDAP, it is necessary for it to be initiated at the commencement of the decision to build. That is at or before the Initial Agreement stage of the business case approval process in SCIM. This is necessary in order that the Board can put together their Design Statement against which the project will be assessed. It also means that areas such as the preparation and development of the brief, selection of sites etc can be assessed.

38. Without further investigation and access to files, I am unable to confirm what stage these projects were at in July 2010 but I believe they were past the initial agreement stage and approaching Outline Business Case (“OBC”) in an advanced stage of design development.

39. From my perspective as one of the originators of NDAP, its purpose was to improve overall design quality. It was intended to confirm that the appropriate NHS guidance was being considered by the designers but it was not intended to provide close scrutiny of every detailed element of the design for compliance with every element of the recommended technical standards for construction projects.

40. It should be noted that while use of the SHPNs and SHTMs was a requirement in SCIM all the items of guidance within the documents are not necessarily intended to be mandatory. Many areas put forward as guidance direct the designers towards achieving best practice but may allow them a level of interpretation to suit the particular circumstances of the project involved.

41. I have no knowledge if subsequent Non-Profit Distributing ("NPD") projects were subject to NDAP as I retired in 2013.

42. My recollection is that when we were developing the NDAP process, we assumed a fairly traditional design and procurement model going through the SCIM business case route as the standard for setting it up. We were aware at that stage that adaptation to NDAP might be required to apply it to the PFI or NPD procurement route but we had not progressed that by the time I retired in 2013.

43. I have no recollection of advice being requested or given by the Property and Capital Planning section of HFS to the Scottish Ministers, NHS Lothian, Scottish Futures Trust or any other party with regards to whether an NDAP assessment should take place. There was a programme of work listing projects coming forward. If the development of a project had not started and it had not reached Initial Agreement, then it would automatically be put on the list for an NDAP. (Subject to a minimum capital value of £5 million at that time, I think.)

44. The requirements are now stated in SCIM in relation to whether or not an NDAP should be carried out.

45. By the time I retired, none of the projects that I was involved in were past OBC stage. They were mostly primary care projects and other smaller projects. It was certainly never the intention, as far as I was concerned, for us to carry out detailed checks for compliance with all areas of the technical guidance. Ensuring compliance of the design is the responsibility of the

designer. For an external body to carry out a full check for compliance with all relevant guidance it would require the employment of a full shadow design team. (This level of involvement could potentially diminish the level of liability of the original designer). I did not anticipate that HFS would ever take on that responsibility, but none of the projects that I was involved in had reached the detailed design stage in any event. When the first projects were going through NDAP only two personnel were involved in processing the submissions, me from HFS and Heather Chappell from A&DS.

46. From 2011 when I reached ( ), I reduced my working hours to 30hrs/week or 4 days.

47. In my previous employment, I did carry out the role of Independent Tester on PFI projects for NHS Hospitals in England. In that role I was involved in confirming that the building had been constructed in compliance with the contract. As the employment of shadow construction teams is not practical or affordable we used a team of professionals to check that the contractor had developed robust quality assurance systems and monitored that they were being implemented. We then made targeted inspections in critical areas to verify this. However these procedures were during the construction stage and I have no knowledge of an equivalent process ever being carried out on a professional design team at the pre-construction stage.

Business Case Approval

48. The approval of the business cases was the responsibility of the Scottish Government's Capital Investment Group (CIG) who reviewed and approved the business case at each of the three stages. A senior member of staff from the Property and Capital Planning section of HFS may have attended the CIG board meetings which were chaired by Scottish Government.

49. Prior to the submission of the business case to CIG by the Health Board, HFS in conjunction with A&DS would submit a report to CIG on the current status of the NDAP.

HFS Involvement in Development and Approval of the Business Case for the Project

50. As far as I know, no individuals from the Property and Capital Planning section of HFS were involved in the development of business cases for the project.

51. If there was a representation of HFS on the CIG at that time they may well have taken part in the approvals but I have no knowledge if that was the case or who that would have been.

52. I understand there is an email chain involving Donna Stevenson, Colin Proctor, Andrew Bruce, Heather Chapple, and myself **(A33335953 - Email chain - Donna Stevenson, Colin Proctor, Andrew Bruce, Heather Chapple, Peter Henderson - 27 to 31 January 2012)**[7] in which Heather Chapple states "Pete has suggested that HFS can carry out a high-level check of the reference scheme against guidance at this point if it is not being done by others". The drawings that were sent to Heather were presumably of the reference design and she forwarded them on to me. I do not know their origin. The high-level check that I made involved examining the drawings provided in relation to their compliance with Scottish Health Planning Notes ("SHPNs") guidance, which is generally planning and construction information rather that engineering information. For example, I would be looking at the adjacencies of areas such as A&E to Theatres to wards etc.; movement into and around the building; space requirements, corridor widths and room sizes etc. I would spend a day looking at the drawings to see if there was anything that appeared not to comply with the SHPNs.

[7] Bundle 8 - Scoring & Correspondence Regarding Issues, item 9, p.38

53. I was not talking about doing a technical review in terms of Scottish Health Technical Memorandum **(“**SHTMs”). The SHTMs mainly cover Mechanical and Electrical Engineering (M&E) relating to NHS buildings and these are the responsibility of the Engineering section of HFS, however there is a smaller number of SHTMs relating to the building structure that came under my remit such as, sound insulation between rooms, construction of partitioning, doors and windows, ceilings, sanitary ware, ironmongery etc. The information provided for the “high level review” was simply a set of floor plans with no construction information so a technical review was not possible at that stage. No M&E information was provided.

Scottish Health Technical Memorandum (SHTM)

54. I was asked whether HFS were “experts” with regard to SHTM requirements or whether that would fall to the recipients or users. In my role in the Property and Capital planning section of HFS we normally received documents from the NHS in England and where necessary edited and adapted them for use in Scotland. This required a degree of understanding of the requirements of the document but not to the same level of expertise as the authors. The SHTMs that I was responsible for as an Architect differed from the Engineering SHTMs in their level of technical complexity and I cannot comment on them. The designers and contractors would require a level of expertise sufficient to understand and implement the requirements of the SHTM

Environmental Matrix for the RHCYP/DCN

55. This is a subject for the Engineering Section of HFS as this Matrix is part of an Engineering SHTM. However as a matter of procedure I would not expect the preferred bidder on a current project to contact HFS directly for advice relating to it. Normal practice would be for the bidder to put any queries they had to the Board or to the Board's consultants, who might then pass them on to HFS if they required our advice. At Property and Capital Planning, I would not expect a contractor or a consultant working on a project for a

Health Board to contact me concerning it without obtaining the Boards consent first.

56. I am aware of the requirement to develop Room Data Sheets (RDS) before financial close in PFI projects but I was not involved in the RHSCYP/ DCN project.

Activity Data Base

57. In relation to Activity DataBase ("ADB"): The English Department of Health, who were responsible for writing and publishing the NHS Guidance documents which we would then adapt for use in Scotland, were also responsible for managing ADB from which the Room Data Sheets are developed.

58. Around the time of this project the UK Government were of the opinion that NHS Design Guidance, should be the responsibility of the private sector. As a result of this policy they closed the NHS Estates department responsible for procuring and publishing the guidance documents. The sub-contractor who originated and distributed ADB on behalf of NHS England, was then in an awkward situation as they were still in contract supplying ADB to Architects throughout the UK who paid for use of the software, but they had no contact with the NHS who previously provided the content for the database. This situation, which was not resolved for several years, could have caused designers and contractors to question the reliability of using ADB and perhaps use other equivalent tools.

59. I have not been involved in a Healthcare project which did not use ADB and RDS. That is not to say it was not done. My experience with RDS is mostly in their use during the construction and hand-over stages of projects. Questions on the preparation of RDS would be better addressed to the current Principal Architect at HFS Susan Grant who has direct experience of designing hospitals and preparing RDS.

60. At Property and Capital Planning in HFS we did not review RDS between preferred bidder stage and financial close. The Health Board and/or their professional consultants would fulfil this task. In addition to technical checks it would be normal to also have a clinician checking the RDS.

61. I do not know the detail of the project, so it is difficult for me to imagine how it all worked, but HFS certainly would not be involved unless someone specifically asked us to look at them. HFS was always available to the Health Boards if they needed assistance within an area of our expertise but it would be unusual to ask us to check what is effectively construction information.

Building Research Establishment Environmental Assessment Method ("BREEAM")

62. BREEAM was a part of my role at Property and Capital Planning. I had attended training at BRE (the Building Research Establishment) and I was qualified to carry out BREEAM assessments. I arranged for someone on each Board to go through similar training, not so that they could carry out the assessment themselves, but so that they had a good understanding of how the assessments were made and how compliance could influence the design.

63. In the Inquiry Provisional Paper 1, page 14 at the end of paragraph 3.8 **(A41315349 – Provisional Position Paper 1 – Reference Design – Published Version)**[8] there is a quote from CEL 19 stating that a BREEAM "Excellent" rating is a requirement for new buildings in this category. I think this was a misunderstanding of the BREEAM process by SGHD (Scottish Government Health Directorates). It is not possible to guarantee the attainment of an excellent rating at the Final Business Case (FBC) stage of a construction project as the BREEAM assessment continues past handover and into the period of occupation of the building before an award is confirmed by BRE. I think that is why the earlier requirement stated that Boards should "seek**"** to obtain an "excellent" rating for a project.

[8] Bundle 11 – Provisional Position Papers, item 1, p 3

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

SCOTTISH HOSPITALS INQUIRY
Witness Statement of Peter Reekie
8 November 2022

1. My name is Peter Reekie. I am the Chief Executive Officer (CEO) of the Scottish Futures Trust (SFT). SFT is a company wholly owned by Scottish Government, working with organisations across the public and private sectors to plan infrastructure investment; innovate in the funding, financing, and delivery of social and economic infrastructure; deliver major investment programmes and improve the management and effective use of existing assets.

2. I have previously provided a witness statement dated 28 April 2022 to the Inquiry following a Rule 8 Request dated 01 March 2022.

Overview

3. In this statement I will provide answers to questions relating to SFT's role and/or remit in the following:

- Procurement phase of the Royal Hospital for Children and Young People/ Department of Clinical Neurosciences (RHCYP/DCN)
- Design Development of RHCYP/DCN
- Financial Close
- Key Stage Reviews (KSRs)

Procurement phase of the Royal Hospital for Children and Young People/ Department of Clinical Neurosciences (RHCYP/DCN)

SFT guidance

4. Following the move from a capital funded project to that of a Non-Profit Distributing (NPD) funded project, SFT's guidance and advice on the use of the

NPD model was applicable to NHS Lothian (NHSL). This guidance included the use of Key Stage Reviews (KSR) for validation and value for money assessment. The guidance was in the form of the following documents:

- SFT Value for Money (VfM) Assessment Guidance: Capital Programmes and Projects, October 2011
- SFT Value for Money Supplementary Guidance for projects in £2.5bn Revenue Funded Investment Programme, October 2011
- SFT NPD Guidance Note on Approach to Tender Evaluation, update January 2013
- SFT, Standard Project Agreements (hub DBFM & NPD Model) User's Guide, June 2011
- SFT, Standard Project Agreements (hub DBFM & NPD Model) User's Guide, Version 2: June 2012
- SFT, Standard Form Project Agreement (NPD Model), July 2011
- SFT, Standard Form Project Agreement (NPD Model), Version 2: 2 June 2012
- SFT, Mandatory NPD Articles of Association, July 2011
- SFT, Mandatory NPD Articles of Association, Version 2: June 2012
- SFT, Mandatory NPD Articles of Association, Amendments to standard form NPD articles of association, issued 9 February 2015

5. When referencing the above guidance, it is necessary to look at exactly when it was applied during the project, as a number of the documents were published or iterated during the project preparation and procurement period.

6. SFT has been asked about how integral SFT's input, expertise and influence was to the project overall, and whether in reality SFT partnered NHSL in terms of decision-making and direction. The project was a part of the NPD programme, which was managed on behalf of Scottish Government by SFT. I have included in my evidence (in this and in my first witness statement) reference to the roles that SFT undertook and these could be described as integral to the project. For example, SFT owned the standard form of the NPD Project Agreement contract, and SFT operated the Key Stage Review (KSR)

process with which NHSL had to engage as a condition of funding. SFT has stated (see, for example, paragraphs 4.2, 5.3, 6.3 of SFT's Response to Request for Information Number 1, Paragraph 3, SFTs Role) that in some areas, such as the standard contract derogation process and KSRs, NHSL and its team was required to accept SFT's position as a requirement of funding conditions. In addition, in other areas such as the design and implementation of the funding competition (not of the project itself), SFT worked closely alongside NHSL and its advisors in a role that could be described as a partner in decision-making and direction. In other areas, notably the design and technical development of the project itself, SFT was not integral and did not partner NHSL in terms of decision-making and direction. In these technical areas, and in the conduct of the procurement process, including developing the procurement documents, conducting the competitive dialogue and the various stages of evaluation, NHSL planned and undertook the necessary activities supported by its advisors. SFT had some oversight of this, as did senior NHSL personnel and Scottish Government through the Project Steering Board, and SFT undertook its assurance role through the KSR process.

Tender evaluation

7. Part of the procurement process was the tender evaluation, in preparation for which I understand NHSL determined the elements that would make up the overall quality score, as well as the weightings given to the scored elements of that quality score. During this process I am told that NHSL held a number of workshops involving their broader management team and advisors, however I don't specifically recall SFT being involved in those tender evaluation workshops.

8. During this process there was a 60/40 split, for price and quality. This was as recommended to NHSL in SFT guidance, specifically the SFT NPD Guidance Note on Approach to Tender Evaluation, update January 2013. Paragraph 5 "Price/Quality" contains guidance on creating an evaluation methodology that reflects an appropriate balance between price and quality. It includes the statement that "SFT requires that, in the absence of project-specific factors that

might indicate otherwise, price carries a weighting of at least 60% and, correspondingly, that quality is weighted at no more than 40%." The 60/40 split was therefore not mandatory, but SFT would have taken some convincing, based on project-specific reasons, to move away from it. That was principally because it represented Scottish Government's funding condition that, across the NPD programme, cost was to be minimised within agreed project scopes, as set out in Scottish Government's NPD funding conditions letter to NHSL dated 22 March 2011 at section 6 (pg 386 of doc bundle 9 May 2022). The 60/40 split was thus the firm starting point. My recollection is that the majority of the projects in the NPD programme used the 60/40 split, though one healthcare project used a 10/90 split at interim submission stage subject to an affordability cap (before applying a 60/40 split for the final tender evaluation), and the transport projects used a split of between 70/30 and 85/15. I was aware of a view held by the NHSL team that the 60/40 split on this project potentially undervalued quality. NHSL would have required Scottish Government and SFT agreement to depart from the 60/40 split and were not free to depart from a 60/40 split of their own accord. The SFT NPD Guidance Note on Approach to Tender Evaluation also included a guide on how scoring might be undertaken during the tender process. Within the guidance, at paragraph 4 "Quality", were examples of what a score for quality of zero to ten might look like. The guidance was necessarily generic as to the development of an appropriate tender evaluation strategy, and it was the responsibility of NHSL and their advisors to identify those elements which would be a pass or fail and other elements that would be scored and weighted. I recall that SFT engaged with NHSL on its proposed methodology and scoring mechanisms to reinforce the purpose of the 60/40 split and to suggest to NHSL how it might make more items pass/fail to concentrate on the points that really mattered to them to differentiate between tenders. In this way, for items where compliance / non-compliance such as adherence to standards or mandatory requirements could be made into pass/fail points in the evaluation, scoring could be allocated to areas where a spectrum of quality was possible, differentiating between tenders which were capable of acceptance. It was for NHSL to decide what those were. SFT provided input through that guidance and support, but SFT had no formal role in relation to the specifics of the actual tender evaluation exercise.

Reference design

9. As the RHCYP/DCN was an NPD funded project, a decision was taken by NHSL to adopt a reference design approach, which would include information being issued to tenderers as part of the Invitation to Participate in Dialogue (ITPD) and Invitation to Submit Final Tender (ISFT) process. I have been asked by the Inquiry if the reference design would be superseded at Financial Close by the Preferred Bidder's design solution. An NPD contract contains technical construction matters in Part 6 of the schedule, which includes Board's Construction Requirements (BCR) and project company proposals (PCPs) and other technical information (A33405670- Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsections A, B and C Excerpt pages 1 to 149) (A41179262- Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780) . This forms part of the contract, so any element of the reference design would only form part of the contract if it was included in that Part 6 of the schedule to the Project Agreement. I have been asked how developed, on a percentage basis, the design solution should be at Financial Close for NPD projects. I don't believe that it is really possible to give a percentage. The design at the point of Financial Close needs to be at a point where the procuring Authority is confident that as it is further developed for construction in line with a design development and review process set out in the contract it will continue to meet its requirements, and the bidder is confident that it will be able to deliver it to the necessary time, cost and quality standards.

10. I have also been asked to consider – if it is correct that the technical specification for the ventilation system was not fixed at Financial Close because of the volume of Reviewable Design Data (RDD), which included Room Data Sheets (RDS) and the Environmental Matrix (EM) – whether that would mean that something had gone wrong in the procurement process or whether such issues are to be anticipated in this type of project/ contract. The following views are based on my knowledge of NPD projects generally, and of this project including through my review of the documents produced in this Inquiry rather

than any specific knowledge of healthcare building technical specifications. My understanding is that the performance standards required for ventilation systems of hospitals are set out in Scottish Health Technical Memorandum 03-01 (SHTM 03-01) (A33662233- Scottish Health Technical Memorandum 00, Best practice guidance for healthcare engineering, Policies and Principles dated February 2013) , and the design and construction of systems must also to meet other technical standards including international and European standards etc. I also understand that there are a range of other SHTMs and standards covering other engineering systems in healthcare buildings. I would generally expect these standards to be specified as requirements in the invitation to tender and the contract documents, but I would not expect the ventilation or other engineering systems to be fully designed to the level of detail required for construction at the point of contract award. Other witnesses will be better placed to comment on whether the published performance standards in SHTM 03-01 could have been a sufficient level of performance specification detail for the ventilation systems at the point of Financial Close for NHSL to be confident that its requirements would be met, or whether the more project / room specific (and it seems potentially contradictory) information in the RDS and / or EM was genuinely required. In terms of the volume of RDD, I am unable to comment on that since it is a technical matter though I note that SFT sought, and received, assurance from NHSL that it was resourced to handle the expected volume of RDD in the pre- Financial Close KSR (A33336933- Pre-Financial Close Key Stage Review - 11 February 2015) .

11. SFT has been asked about the potential of bidders to innovate and allow for improved value for money, and scrutiny of what design elements were mandatory and why. The Inquiry has specifically asked whether SFT had concerns that NHSL could undertake these reviews given that the Reference Design team had been dispensed with. SFT’s concern around the bidders’ ability to innovate was in respect of potential architectural and spatial designs. SFT was clear, through the KSR process, that it was keen to see bidders able to innovate in respect of the shape of the building within the constraints imposed by operational functionality. SFT's interest was borne from an understanding that (i) altering the overall layout and massing of a building can

significantly change the necessary floor area of the building, and things like its external wall to floor area ratio (and hence its cost) for the same operational space requirements and (ii) altering the shape of the building (for example changing curved elements to straight lines) can also have an impact on the overall cost. SFT did not express any desire to allow innovation in technical specifications (generally the engineering specifications) as SFT's general understanding was that these would not be well developed in the Reference Design, and the specification would rely principally on standards such as the Scottish Healthcare Technical Memoranda (SHTMs) (A33662233- Scottish Health Technical Memorandum 00, Best practice guidance for healthcare engineering, Policies and Principles dated February 2013) which each bidder would be free to design a solution to comply with.

12. SFT has been asked about SFT's concern with value for money aspects of the project, whether its remit included the inclusion of mandatory elements within the Reference Design, and who at SFT provided guidance and advice. I refer to my previous witness statement (A37605865- Witness statement of Peter Reekie - 28 April 2022) generally in respect of SFT personnel and their responsibilities, and also to paragraphs 123 to 156 (particularly 124 and 136) in respect of the relevance of mandatory elements to value for money.

Procurement timetable

13. During the procurement phase, there were allocated timescales set, particularly during the Competitive Dialogue process where one full day of dialogue for each bidder during each dialogue cycle was the preferred option. The timescales and in particular the decision as to when Competitive Dialogue should be closed, and the contract signed rested with NHSL as the procuring authority, subject to the KSR and Full Business Case assurance processes. In a procurement strategy which does not include a down-selection part way through the competitive dialogue, I would generally expect that any interim phases such as Invitation to Submit Outline Submissions (ISOS) and Invitation to Submit Detailed Solutions (ISDS) would include a high-level review of submissions and direction rather than a full evaluation and scoring of all

elements, however SFT were not involved in evaluations as that was the remit of the procuring authority, NHSL.

14. I have been asked if anyone was pushed by NHSL to extend the timescales for any part of the procurement process. There were discussions about timescales and pressures. The discussions were about making the timescales either shorter or longer at different stages of the project. NHSL were keen to maintain as close as possible to the timescale they originally had in place for opening the new hospital and therefore NHSL were looking to have as short a timescale as possible for the procurement. SFT and Scottish Government were keen that the construction activity that the project entailed was out in the marketplace and was adding to the economy, and so were keen for a procurement period that was as short as reasonably possible. However, all of the parties were keen that the stages had enough time to do the job that was required and to get to a robust contract, which led the project team to indicate at times that they would prefer more time for certain elements of the programme. There were tensions, as there always are on these projects, around whether timescales should be shorter or longer, but agreement was reached on the procurement programme. For some phases of the procurement, notably the competitive dialogue and the preferred bidder period, it became apparent that programme extensions were needed, and these were agreed.

15. On 29th November 2013, a Project Steering Board meeting was held (A32676816- Project Steering Board Action Notes 29 November 2013) , which I attended with representatives from NHSL and Scottish Government. The purpose of the meeting included a discussion about the recommendation that the Competitive Dialogue phase for the bidders should close on 06th December 2013 and the Invitation to Submit Final Tender should be issued on the conclusion of the Key Stage Review. I have been asked whether any of the issues raised at the Project Steering Board meetings caused me concern and have focussed on this Project Steering Board meeting on 29th November 2013 (A32676816- Project Steering Board Action Notes 29 November 2013) . I have reviewed the Project Risk Register, updated to 29th November 2013, that was appended to SFT's copy of these meeting minutes. The Project Risk Register

was part of the papers that were generally circulated to the attendees in advance of the Project Steering Board meetings. Having reviewed that document, I do not see anything that would have caused me concern in being able to close dialogue. That is not to say that I would not have had any concerns at all, but there is a difference between issues causing me concern, and issues causing me sufficient concern that I would not support a decision to close dialogue. I don't recall this meeting specifically, but didn't disagree with the decision to close dialogue and so it must have been the case that I had no overriding concerns about doing that, because I would have raised any such concerns and they would have been recorded.

16. I have been asked why it was deemed appropriate to close the dialogue phase given the outstanding issues. The Board was advised during the meeting, and it was reflected on the Project Risk Register, that there were various controls put in place for the outstanding risks. On the basis that we received assurances from those closer to each of these risks, we were content with the controls that had been put in place to close the outstanding risks. Section 5 of the meeting minute (A32676816- Project Steering Board Action Notes 29 November 2013) ,discusses one risk (29) which members of the Project Steering Board noted as a concern to closing Dialogue. The Board was given reassurance by NHSL (IG) that there was a process in place to achieve the necessary agreement and that this should not delay the close of dialogue. The Board accepted this assurance.

17. On 20th June 2014, a Project Steering Board meeting was held, and minutes taken (A32676819- Project Steering Board Meeting - 20 June 2014) . I attended this meeting along with representatives from NHSL and one of the issues raised, in the context of a report from NHSL on progress and pressure areas with the Preferred Bidder programme to Financial Close, alongside design development and technical schedules, was the extensive payment mechanism discussion with Macquarie, Bouygues and the lender's technical advisers to be shared with SFT the following week. I don't recall this meeting or this specific agenda item. I have reviewed the minutes of the meeting which simply record that these discussions needed to conclude for the funding competition to proceed. I expect this referred to the level of performance by ProjectCo and its

FM sub- contractor that would trigger defaults and warning notices under the payment mechanism, and how that was calibrated.

18. The outcome of these discussions was an agreed position on when warning notices could be issued and defaults triggered through the payment mechanism for poor performance and / or unavailability. This calibration would have needed to be concluded for the funding competition to proceed because funders would be interested in the triggers to understand the level of their risk during the operational phase.

19. On 22nd August 2014, a Special Project Steering Board meeting was held, and minutes taken (A32676824- Action notes RHSC and DCN Special Project Steering Board - 22 August 2014) . I attended this meeting along with representatives from NHSL, Scottish Government and the preferred bidder IHSL. I have reviewed the meeting minutes. The purpose of the meeting was recorded to be to address significant concern that NHSL had about the project programme and their confidence in IHSL in delivering to it. The meeting minutes also record that, as a result of their concern for the Financial Close date, the NHSL Project Team had drafted a revised programme with slippage of 8 weeks, and IHSL had tabled its own programme in response, which was not a comprehensive programme of all activities but highlighted the critical path and challenging milestones. The challenges listed in the meeting minutes included the production of room data sheets and technical adviser due diligence. The meeting minutes (A32676824- Action notes RHSC and DCN Special Project Steering Board - 22 August 2014) state that NHSL had reached agreement with IHSL on the content of room data sheets the day before, and so the production of RDS could begin and was on track for completion by 5 September 2014. I have seen in the meeting minutes Brian Currie saying that NHSL were aware and comfortable that 100% of RDS would not be completed for Financial Close, although the prioritisation of what was definitely required was still to be agreed. I cannot recall if actions were put in place to address NHSL’s concerns.

20. I have been asked if I recall any discussion about why 100% RDS would not be completed by Financial Close. I don't recall being part of any discussion about that. It was a technical matter in any event. I have also been asked why the agreement not to have 100% RDS was acceptable. I can't answer that because it was not something with which SFT was involved, being a technical matter. I understand, though, that whilst the RDS were not 100% complete at Financial Close, they focussed on key and generic rooms, as referenced by Brian Currie at that meeting. I expect that was intended to focus time and resources on the spaces whose design was considered most critical to the operation of the hospital and spaces where through their repetition, as single design specification could cover multiple important rooms throughout the hospital. Acceptability was for NHSL to determine based on technical and commercial advice on the practical implications of rooms having or not having RDS in place at contract award, noting in particular the relevant considerations for Operational Functionality. In considering the validity of that strategy, the Inquiry may be interested in whether the types of rooms in which it has a particular interest were included in the key and generic rooms for which RDSs had been developed at Financial Close.

21. The meeting minutes (A32676824- Action notes RHSC and DCN Special Project Steering Board - 22 August 2014) show that there was extensive discussion about technical adviser due diligence and getting to a point where all parties agree that the design is sufficiently fixed to confirm Operational Functionality. The issues discussed includes engineering drawings not available yet, delayed ceiling and wall drawings, work to be done on PCPs, and sufficiency of resources. The minutes record that Ross Ballingall, Brookfield Multiplex advised those in attendance that there was a genuine mismatch in NHSL's and IHSL's expectations, where IHSL were being asked to deliver much more than on other projects, and considerably more than was required for comfort of operational functionality. I don't recall that specific discussion.

22. There was no requirement for any escalation to Scottish Government, as Mike Baxter was at the meeting and the discussion was part of the process to reach a contract and the parties in that process were discussing and agreeing what

work needed to be done and the timetable for doing that work. NHSL and IHSL clearly had an understanding of what the issues were, they were working through them, and they would only sign the contract when they were both ready to do so.

23. I have been asked whether and how the issues between the parties were resolved pre-contract, including mismatches in terms of expectations of what should be provided. I don't know exactly what went on in either of NHSL's or IHSL's teams to get comfortable with the positions. However, I do not believe that all matters of detail would have been resolved pre-contract as set out in paragraph 9 of this statement.

24. On 31st October 2014, I attended a RHSC/DCN Steering Board Commercial Sub-Group meeting (A32676832- RHSC and DCN Steering Board Commercial Sub-Group minutes - 31 October 2014) . I don't recall and have been unable to find the terms of reference for the Steering Board Commercial Sub-Group. It had been agreed at the Project Steering Board meeting on 22nd August 2014 (A32676824- Action notes RHSC and DCN Special Project Steering Board - 22 August 2014) that having IHSL attend that meeting had been necessary and positive, and that IHSL would be asked to attend subsequent Project Steering Board meetings up to Financial Close. The minutes of that meeting include a post-meeting note confirming that, at the following Project Steering Board meeting, it was suggested that a sub-group (composed of those attending that Special Project Steering Board meeting) meet with IHSL. My broad recollection is that the group was formed for the purpose of this commercial dialogue with IHSL and that I was a member of the group as a commercially focussed member of the Project Steering Board.

25. The 31st October 2014 Sub-Group meeting (A32676832- RHSC and DCN Steering Board Commercial Sub-Group minutes - 31 October 2014) was attended by representatives from NHSL and IHSL. I have reviewed the meeting minutes and the focus was on the programme to achieve Financial Close, which at that time was targeted for 12th December 2014. My recollection of the meeting is that IHSL had a different opinion from NHSL as to what level of

detail in the PCPs should be required. I questioned from a commercial perspective whether IHSL believed that NHSL had changed its requirements on the level of detail of technical information and design development required at the point of Financial Close from that which had been set out in the ITPD (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B) , or whether IHSL had a different opinion as to what level of detail should be required despite what had been set out in the ITPD (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B) . I did not have a detailed understanding of the ITPD requirement on this matter. I was questioning the commercial point as to whether the bidder was seeking to modify a requirement, set out in the ITPD, or whether NHSL was changing its requirements.

26. I was aware that there were concerns raised at the Steering Board Commercial Sub-Group meetings around the pace of progress to meet the programmed dates for Financial Close. I refer to the meeting minutes dated 21st November 2014 which state that Susan Goldsmith noted "in this programme IHSL were presenting their fourth FC target date, giving rise to questions of credibility for all involved." There were commercial tensions, as is often the case in the process of trying to agree a detailed contract of this nature. These tensions are reflected in the comments of George Walker of NHSL at the meeting on 31st October 2014 (A32676832- RHSC and DCN Steering Board Commercial Sub-Group minutes - 31 October 2014) regarding "losing confidence" in IHSL's ability to propose and deliver an honest and realistic programme. I was concerned that the commercial and technical matters comprising the contract were properly agreed in a timely manner. It is normal to have a list of outstanding issues at that stage to be agreed between the parties, and I was keen to see progress made by the teams in resolving them. I advised the Board and IHSL to resolve these issues or ensure they were captured as RDD post financial close. I have been asked whether there were any concerns expressed about the volume of RDD. This is a technical matter and so I was not involved in any discussions between the technical teams regarding the volume and nature of RDD. My awareness of any concerns, and SFT's concern through the KSR process with respect to ensuring NHSL had sufficient resources available to deal with the level of RDD post-Financial Close, is set out at paragraphs 44-

48 and 50-51 of this statement. SFT's concern was that the volume of RDD, whatever it was, could be dealt with.

27. I have been asked why none of the concerns NHSL expressed at the Sub-Group meetings were addressed. I am not in a position to say whether any or all of the concerns NHSL expressed at the Steering Board Commercial Sub-Group were or were not addressed. I can point to NHSL's stated position in Section 3 questions 2 & 3 of the pre-Financial Close KSR (A33336933- Pre-Financial Close Key Stage Review - 11 February 2015) giving its position on what appear on the face of it to be related matters at that time. Question 2 asks if NHSL is satisfied that the Preferred Bidder's solution satisfies its operational and functional requirements and delivers the project objectives, benefits and outcomes. The response is "Yes" with a comment that the detail of the design had been discussed with user groups to ensure clinical support and the Board confirms that it has received appropriate internal sign off. Question 3 asks for confirmation of the status of the technical documentation, and asks if NHSL and its advisers are satisfied that further development is achievable within the current project timetable. The response includes that the Board has confirmed that the technical documentation is at a level of development consistent with the current stage of the programme, that they are content with the documentation subject to further development through RDD following Financial Close and that the construction proposals are of sufficient detail to provide sufficient certainty to the Board as to what is to be provided. The Sub-Group meeting took place on 31st October 2014 (A32676832- RHSC and DCN Steering Board Commercial Sub-Group minutes - 31 October 2014) and the pre- Financial Close KSR (A33336933- Pre-Financial Close Key Stage Review - 11 February 2015) is dated 11th February 2015, some months after NHSL's comments at the meeting. On that basis, the KSR states that the NHSL was satisfied and so I assume the concerns were addressed.

28. SFT has been asked about SFT making the final decision as to when Financial Close should take place. Once the commercial agreement is reached on a project-financed transaction, and all documents are ready for execution, a process known as Financial Close is undertaken whereby the cost of finance is

settled by reference to the financial markets and, through the use of the Financial Model, the unitary charge payable is settled. This role is set out in SFT's letter to NHSL dated 26th May 2011 at page 4. As Scottish Government was responsible for providing funding for the element of the unitary charge which included the financing costs, SFT had a role in agreeing that cost of finance on its behalf. Had there been any unusual activity and pricing spikes in the financial markets at the point that the parties were ready to reach Financial Close, then SFT could have required that process be delayed whilst the markets stabilised. In that way, it could be said that SFT inputted to the final decision on when Financial Close should be reached. It should be noted that this point could only ever come when commercial agreement on all matters had been reached by the parties to the contract, NHSL and IHSL, and when both of those parties had the necessary approvals in place to execute the contract.

Design Development of RHCYP/DCN

29. SFT developed the standard form of NPD contract used for the project and maintained control over the use of elements of that contract which were not project specific by way of a “derogations” process.

30. SFT has been asked about SFT's derogation process. SFT developed and maintained the standard form of NPD contract. In common with practices developed for previous forms of PPP contract, the owner of the standard form (in this case SFT) managed a process of requiring agreement for derogations (or changes) from that standard form. These were generally only accepted by SFT where there was a project-specific reason provided. The reason for the process was to retain the balance of risk and commercial positions established in the standard form which had been developed with lawyers and tested with the marketplace, unless there was a specific reason why a different approach was needed for a particular project. Legal advisors acting for NHSL reviewed the standard form before putting it to bidders in the ITPD (A34697102-Invitation to Participate in Dialogue Vol 1, Revision B) and required to seek SFT’s agreement to any derogations which they and NHSL considered necessary due to the specific circumstances of the project. Any derogations

were either accepted or rejected by SFT. It may also have been the case that different bidders sought bidder-specific derogations during the procurement. Finally, it is possible that preferred bidder negotiations led to further derogations requests. At each stage, these were carefully considered and accepted or rejected by SFT. It should be noted that SFT's derogation process only applied to the elements of the contract included in the standard form. The blank elements were not included in the standard form or the derogations process. It should also be noted that this contractual derogations process was entirely separate to any process for the project, or bidder's proposals, derogating from technical standards which SFT has seen referred to in Inquiry documentation. That technical derogation process was managed by NHSL.

31. The allocation of design risk in the contract is derived from elements of both the standard form drafting, which sets the overall intent for the risk allocation, and the technical parts of the schedule to the contract – in particular Part 6 ("Construction Matters") (A33405670- Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsections A, B and C Excerpt pages 1 to 149) which provides the project specific detail and was completed by NHSL and its technical advisory team.

32. The following paragraphs are a high-level explanation of my understanding and I cannot provide a detailed commentary on the interpretation of the whole of the contract including elements of the project specific drafting in Part 6 of the Schedule, for example the operation of the "Hierarchy of Standards" at paragraph 2.5 of sub-section 3 (General Requirements) of Section 3 (Board's Construction Requirements) of Schedule Part 6 (Construction Matters) (A41179262- Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780) and the "Grounds for Objection" at paragraph 3 of Schedule Part 8 (Review Procedure) (A33405351- Schedule Part 8: Review Procedure Excerpt pages 236 to 248) .

33. From the below, it can be seen that SFT developed and maintained some control over the standard elements of the contract but SFT did not control the overall design risk allocation as we did not have ownership and oversight of the

whole of the contract. The Inquiry may wish to seek a lawyer's analysis of the contract on how it operates in full.

34. The "front end" of the contract is generally taken to mean the clauses of the standard form agreement and the "back end" of the contract is generally taken to mean the various parts to the Schedule. SFT's standard form NPD contract comprised principally the "front end" clauses but also included elements of the "back end" parts to the Schedule which are not project specific. For example, the standard form contract included the Schedule Part 8 "Review Procedure" (A33405351- Schedule Part 8: Review Procedure Excerpt pages 236 to 248) paragraphs with numerous blanks and square brackets for project specific information to be added. Certain parts of the Schedule, including the Board's Construction Requirements (BCR) (A41179262- Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780) , Project Co's Proposals (PCPs) (A41491821- Schedule Part 6: Construction matters, section 4 (Project Co's Proposals) (Disc 1 of 6: Project Co Proposals) , Reviewable Design Data (RDD) and Room Data Sheets (RDS) in Schedule Part 6 "Construction Matters" were blank in the standard form and entirely project specific, to be developed by the Project Team and their advisors.

35. I have been asked how precisely the front end of the contract deals with the transfer of design risk. In the front end:

- Clause 12 "The Design Construction and Commissioning Process."
- Clause 12.1 requires the design and construction to satisfy both the BCR and PCP.
- Clause 12.3 requires Project Co to use a reasonable degree of skill and care in designing the works.
- Clause 12.5 confirms that at the date of the agreement the Board agrees that elements of PCP that it has initialled satisfied its requirements in respect of Operational Functionality.

- Clause 12.6 requires Project Co to finalise the design and specification of the works in accordance with the Agreement and in particular produce RDD.

36. In the back end:

- Operational Functionality is defined within Schedule Part 1 to the Project Agreement and relates to spatial elements of the design as opposed to any environmental or engineering aspects (I would refer the Inquiry to my earlier witness statement at paragraphs 130 – 132) (A37605865- Witness statement of Peter Reekie - 28 April 2022) .

- There is a limited further transfer of design risk at the point the Board returns a piece of RDD as set out in Appendix 1, Table A of Schedule Part 8 (A33405351- Schedule Part 8: Review Procedure Excerpt pages 236 to 248) . Such a response confirms that the Authority is satisfied that the design and other information in the relevant submitted item satisfies Operational Functionality. The effect of the Board's confirmation is to allow Project Co to either proceed to construct or proceed to the next level of design of the part of the works to which the submitted item relates, but other than as set out above, it does not relieve Project Co of its obligation under the agreement, nor acknowledge that Project Co has complied with such obligations (Clause 4.5 of Schedule Part 8) (A33405351- Schedule Part 8: Review Procedure Excerpt pages 236 to 248) .

37. SFT has been asked about who was responsible for ensuring that all of the contractual provisions interacted as intended in the final form of the Project Agreement, and what input SFT had in that regard. NHSL and its advisors were responsible for ensuring that all of the provisions – including the standard form drafting with any agreed project-specific derogations and the parts of the Schedule developed separately for the project – interacted together as intended. SFT also expected that the contract counterparty (IHSL) and its advisors (legal and technical), and the funders and their advisors (legal,

financial and technical), would have reviewed the contract in detail to ensure that it all operated together as intended.

Financial Close

Delay to Financial Close

38. Early programmes suggested that the project was due to reach Financial Close in Summer 2014, however this was not achieved with Financial Close for the project being achieved in February 2015. The Inquiry has asked me why there was a delay and one contributory factor which I was aware of was design development. I was not close enough to the day-to-day activity to be aware of the timeliness and linkages between all of the workstreams and will not speculate on what ended up being the critical path through the programme leading to the eventual date of financial close.

39. I have been asked if there was a need to achieve Financial Close by February 2015 and whether there was pressure from Scottish Government and NHSL. All of the parties involved wanted to reach Financial Close as soon as was reasonably possible. The contractor would have had commercial pressures and it was known before the procurement process that NHSL, SFT and Scottish Government wanted to move things on as quickly as possible. This is often the case. The parties wanted to get to Financial Close as soon as they reasonably could.

40. I have been asked about the impact if the project had failed to proceed to Financial Close in February 2015, including any implications for funding or the NPD model. It would be speculation for me to say what would have happened. The project did not meet its original programme to Financial Close and it still went ahead. The principal potential commercial consequences of any delay to Financial Close would be in relation to the contractor's pricing, and the funding package pricing and potentially availability, along with the status of the preferred bidder depending on the cause of the delay.

41. I can't recall when IHSL's construction sub-contractor's price was held until. With inflation, contractors will not hold their prices forever and so this would be one of the key commercial issues that create the general environment of all parties wanting to reach Financial Close as soon as reasonably possible. The contractor could withdraw from the project at any point in time before the contracts were signed, but that would be unlikely because of the costs incurred in tendering. Alternatively the contractor would seek to change its pricing or other commercial terms. Contractors tends to change price because of inflationary pressures. If the contractor did withdraw, the procurement process would need to be re-visited to find a replacement. If no replacement contractor could be found, the project would not be able to go ahead.

42. I cannot recollect the date as to when the funder's commitment was held until but that would be another key commercial issue in terms of the implications of not reaching Financial Close at a particular date. The funding issues would include pricing, and whether the funder would hold its terms until Financial Close if delayed. The funder could withdraw; as could any party involved in the project before the contracts were signed. Other than funder withdrawal, the funder could change its commercial terms, on pricing or otherwise. Withdrawal might be unlikely because costs would have been incurred during the tender stage. Withdrawal would be the most extreme and least likely consequence of a delay to Financial Completion. A change in pricing would be more likely. Funders tend to change their prices because of market movements. I have been asked about the impact of funder withdrawal. In that situation, the funding competition would need to either be re-run or revisited to find another funder. I don't recall the details of this project's funding competition in terms of unsuccessful parties that could have been re- engaged. Funder withdrawal would of course lead to further delay, the extent of which would depend when in the process it happened. If no replacement funder could be found, the project would not be able to go ahead.

43. Under the terms of the Preferred Bidder letter (A36382455- Preferred bidder letter from NHSL to IHSL - 5 March 2014) , it is possible that a delay to financial close may have led to IHSL losing their Preferred Bidder status. The outcome

would be dependent on the relevant documents and why the delay occurred. The Preferred Bidder letter (A36382455- Preferred bidder letter from NHSL to IHSL - 5 March 2014) permits the Board to terminate the Preferred Bidder Appointment and treat IHSL's Final Tender as withdrawn if it fails to comply with the conditions of the Preferred Bidder Appointment, as set out in the Schedules. Schedule Part 1 (Terms of Preferred Bidder Appointment) at paragraph 1.1 (Programme) (A33405351- Schedule Part 1: Definitions and interpretation Excerpt pages 137 to 188) says that IHSL shall diligently use its best endeavours to diligently progress the Project to Financial Close on 2nd October 2014, that IHSL is to further develop and agree the Preferred Bidder to Financial Close Programme, and that IHSL can amend that programme subject to the Board's approval, which is not to be unreasonably withheld or delated where the amendments are required for reasons out with the control of IHSL.

Risk registers at Financial Close

44. I have been asked about the technical risks that were raised in the "Technical Risks to Financial Close" by Mott MacDonald on 30th January 2015 (A36308810- Technical Risks to the Board at Financial Close - 31 January 2015) , and in particular about the risk that there was more RDD than was expected by the Board. I have no recollection and have seen no evidence suggesting that I saw this document at the time. SFT had general concerns over whether the Board felt it was staffed sufficiently to deal with the amount of RDD within the timescales. At the next stage of a project after Financial Close, Project Co would generally be developing its design rapidly and could be expected to submit a substantial amount of information and documentation to be reviewed. It is normal at this phase of the project for this to be considered as a resourcing risk to Authorities and their technical advisory teams. It was good that this was identified so that the team could resource appropriately within the timeframe. That idea of whether there were sufficient resources to undertake review of RDD was generally covered in the KSRs.

45. The Project Risk Register version 14, updated to 23rd January 2015 was the Risk Register Report that was available to SFT at Project Board level and the

one that we used and referred to when preparing the Pre-Financial Close KSR (A33336933- Pre-Financial Close Key Stage Review - 11 February 2015) . The only red risk noted in that Risk Register Report was insufficient space in RIE to support RHSC/DCN clinical models. There were no RDD risks identified in that Risk Register Report. These were the only risks identified to us at a whole project level.

46. I have reviewed the risk documents provided by the Inquiry (A36308801- Design Risks to the Board to Financial Close) and (A36308810- Technical Risks to the Board at Financial Close - 31 January 2015) of my documents bundle. I have no record of having seen these documents at the time and I don't believe I would have done. Had we been aware of those risks at Project Board level, I expect they would have caused additional questions to be raised.

47. Following Financial Close, it is very common for there to be reviewable design data (RDD) and for the detailed design process to occur in parallel with the construction phase. RDD tends to occur in peaks after Financial Close, and so the resourcing of RDD between NHSL and its advisors is something that I would have expected to be on NHSL's mind and concerning it at that stage.

48. From SFT’s point of view, we were not involved in the technical side of the project on the design side, nor the technical specification for the hospital in the contract at Financial Close. I was aware there was an ongoing RDD process to finalise the design for construction, as is generally the case at this stage in a project of this nature, but I was not directly involved in that.

Full Business Case

49. The Inquiry has asked me if it is usual for the pre-Financial Close KSR (A33336933- Pre-Financial Close Key Stage Review - 11 February 2015) to be finalised before CIG’s recommendation for approval of the full business case, or whether CIG would want sight of this KSR prior to signing off the full business case. The full business case for a project of this nature tends to have an addendum phase associated with it, which can’t be completed until after

Financial Close. It is my understanding that while the dates for the finalised Pre-FC KSR (A33336933- Pre-Financial Close Key Stage Review - 11 February 2015) and CIG's recommendation for approval of the FBC (9 February 2015) are different, the completion of these stages were essentially contemporaneous. I would consider this to be ordinary practice in a project of this nature.

RDD timescale

50. SFT had no involvement in the Board's Construction Requirements. I understand that the Board's Construction Requirements require compliance with both the Room Data Sheets and the Environmental Matrix (paragraphs 3.6.3 and 8 of the BCRs at section 3 of schedule part 6 to the Project Agreement) (A41179262- Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780) . I have been asked by the Inquiry to what extent did I understand these to be an approved basis for construction. I did not have any understanding of this at the time as the reference design and technical review, including matters such as RDS and the Environmental Matrix, were outside of SFT's remit; as was any subsequent review after Financial Close under the procedure which applied to RDD.

51. I am told that the time period allotted to the Board for comment on RDD submitted to it for review was 15 business days. This period was agreed between the parties to the contract, and was left blank to be completed as a project-specific matter in one of the back end parts to the Schedules to SFT's Standard Form Project Agreement NPD contract. I have been asked by the Inquiry if I was aware of consideration being given, either before or after Financial Close, to the sufficiency of that period. I do not recall there being a particular discussion around the sufficiency of the time period, but in the Pre-Financial Close KSR (A33336933- Pre-Financial Close Key Stage Review - 11 February 2015) , at section 7 question 25 (resourcing strategy) it is addressed whether the Board had enough resources and they confirmed that they did.

Key Stage Reviews (KSRs)

52. The KSRs represent a point in time for the Authority to reflect on certain points which SFT considered in designing the document to represent best practice for the relevant stage of the project and confirm them with input from NHSL's experienced advisors as required. The KSR process was not and was never intended to be a detailed audit where SFT staff would seek technical and documentary evidence for every statement made and / or question members of the project team and its advisors to verify the information provided and contributions of the senior team members that SFT generally interacted with.

53. With regards to assurance in respect of the design development, the KSRs conducted during the procurement process included questions that prompted NHSL to reflect on whether it believed the design was sufficiently developed for it to move on to the next stage. That was the purpose of the KSRs. In circumstances where SFT had genuine concerns about the project's readiness to proceed to the next stage, this was discussed as the KSR was completed, and we sought with NHSL to resolve those matters such that we got to a position where SFT felt, following review by a secondary reviewer in SFT, that it could approve the KSR and the project could move onto the next stage. The final KSR document was only completed and signed off when that point had been reached. If there were issues that SFT felt were not material enough to prevent the project from proceeding to the next stage, we recorded recommendations in the KSR document to be considered by the project team as the project progressed.

54. To my knowledge, having been asked about this, I do not believe that the results of a KSR have ever resulted in CIG not signing off on a project, and it not progressing to the next stage as a result. The KSRs ensure that matters are resolved prior to moving to the next stage and prior to (or at least contemporaneous with) any submission to CIG.

55. The Inquiry has asked me when a matter would be escalated for the attention of the Scottish Government and whether would this be done by SFT. This very

much depends on the nature of the matter; however, one example would be around funding. One of the elements that went with the funding conditions was around the construction phase cost cap. If there had been an unresolved issue in relation to the construction phase cost cap for affordability purposes, then that is something that we would have expected to raise with Scottish Government. To resolve this matter would have required the project team making adjustments, so that the cost cap was achieved, or an agreement with the Scottish Government to increase the cost cap if that was necessary. I do not recall material changes to the cost cap on this project.

56. On 25th August 2014, the following items were amongst those considered 'high risk' and 'medium risk' on the register of 'Technical Risks to Close (A36308781-Technical Risks for Financial Close - 25 August 2014).

Issue	**Risk Impact**	**Current Mitigation Measures**	**Final Position**	**Potential Further Mitigation Required post FC.**
Project Co proposals insufficiently developed to required level for FC	High	1. Comments fed back on the PCP structure. 2. Comments fed back on draft 1 of the PCP's. 3. PCP workshop held setting out the Board's expectations. 4. Individual workstreams setting out the Board's expectations.	TBC	Increase the length of the RDD list. Focus on specific design risks. Fast track the legal review
Lack of review time for the PCP strategy documents	High		TBC	
Lack of review time for the PCP drawings	High		TBC	
Due to the current status of the PCPs	Medium	Monitor the development of the PCPs in	TBC	Long list of RDD due to further iterations of

the RDD list could be Extensive		line with the PCP programme		drawings etc. to be made etc. Board requires to both resource the requirements rights of comment they have within the Review Procedure reviewed). This should then (which is where RDD is mitigate risk of Project Co claiming changes

57. The Inquiry has asked me why these risks were not flagged in the KSRs. I cannot answer that question directly as I do not believe that this risk register had been seen at the time by SFT. However, I expect that NHSL was comfortable that, whilst there were risks, these were risks that were reasonable at this stage of the project and it understood how it was going take them forward. The focus for the Board would have been working on reducing those risks before the next KSR – which was signed off in February 2015, some months after the date of this risk register. I have been asked how significant SFT concerns had to be to prevent sign off at KSR. If those reviewing the KSRs felt that, based on the information within a KSR, there would be a detriment to the project outcomes if it progressed to the next stage then either the KSR would not have been approved; or, if the issue appeared to be remediable, a recommendation would be put in the KSR for the next stage. If a risk had been resolved, even if high risk, it would not necessarily appear in the KSRs. Once a concern had been addressed or fixed, I wouldn't expect it to be included in the next KSR. The KSR is a snapshot point in time review, focussing on the current stage of the project.

58. As I stated in my first witness statement (A37605865- Witness statement of Peter Reekie - 28 April 2022) , in the run up to each KSR point, the reviewer considered the status of the project against the relevant pro forma list on the basis of information obtained in his or her day-to-day dealings with the project

team, and sought where required contributions from the project team to allow completion of the KSR document which, once completed, would comprise a written draft KSR report with comments and recommendations. SFT would have been privy to information that was contained in meeting packs for meetings that SFT attended, and derived from discussions in the meetings and otherwise that SFT were part of. However, SFT did not have access to, for example, the project's document management system.

59. As I stated in my first witness statement statement (A37605865- Witness statement of Peter Reekie - 28 April 2022) at the KSR, the primary reviewer prepares a short report and makes recommendations as to whether in his/her view the project is ready to proceed to the next stage of procurement, or what actions were required to achieve the appropriate state of readiness, either to proceed to the next stage or in advance of the next KSR. These were amended as they saw fit by the secondary reviewer as the KSR report was finalised by SFT. The primary reviewer would follow up on any actions and recommendations by including a statement in the next KSR as to how the recommendations of the previous KSRs have been addressed.

60. At the time of the Pre-Close of Dialogue KSR (A33337058- Pre-Close of Dialogue Key Stage Review - 13 December 2013) being completed on 13 December 2013, it was a recommendation (against Section 3, question 2) that the Board received and copied to SFT final copies of the financial, legal and technical advisor letters prior to the Close of Dialogue. We did receive drafts of all of those letters, and we hold signed final copies of the financial and legal advisor letters, but we do not hold a copy of the signed letter from the technical advisor. We have the draft version from Mott MacDonald dated 11 December 2013. I would expect the signed letter to have been received following the KSR. If a signed version cannot be located by the Inquiry, it must either have been mislaid by all of the parties, or SFT became sufficiently comfortable that the draft letter represented the view of Mott MacDonald and, for a reason that I do not know, a signed version was not produced. I have been asked to provide further detail on the letters including what Mott MacDonald were confirming. I

refer the Inquiry to the terms of the letters provided. My understanding of their meaning is based on their terms, on which hopefully the authors can assist the Inquiry by providing any required clarifications.

61. It has been put to me that there were a number of questions asked of NHSL in the KSRs which NHSL answered positively despite there being outstanding issues.

62. I have been asked about the bases for these responses and whether they were fair assessments. It is not for SFT to comment on the basis of a statement/response made by NHSL. As I said in my previous witness statement (A37605865- Witness statement of Peter Reekie - 28 April 2022) (paragraphs 37 – 53, particularly paragraph 44) the Key Stage Reviewer would seek contributions from the Project Team to allow them to consider the status of the Project against the relevant pro forma list and prepare a draft KSR report for comments and recommendations. The Project Team was required to provide the Reviewer with the necessary information or confirmation to allow them to complete the report. The Reviewer would consider the context of discussions at the time and accept NHSL's statements and the views of its project team and advisers.

63. I have also been asked if SFT tested or interrogated any of the information provided by NHSL, or whether it was simply taken at face value and recorded. If any of the information provided by NHSL had seemed obviously inaccurate or had been contrary to either documents that SFT had seen, or meetings that SFT had been party to, SFT would have discussed this with NHSL in order to clarify these points. SFT’s reviewer would ask questions of NHSL who would be required to provide answers. From that, SFT trusted that NHSL would provide full and frank answers and accurate representations of its and its technical advisor’s views.

64. SFT's published guidance "Validation of Revenue Funded Projects: The Key Stage Review Process" provides that:

" No formal submission, as such, will be required from the Procuring Authority, but the project team will be required to provide the Reviewer with information to allow him/her to complete the list and compile his/her report. The Reviewer may also ask the project manager to specifically confirm certain points or that there are no outstanding issues that would impede the progress of the project to the next stage of the procurement process."

and

"Once all relevant information has been made available the Reviewer will complete the list and outline any areas where further action may still be required. Once the Reviewer's report has been scrutinised by a member of the SFT's senior management team, it will then be submitted to the Project Sponsor and/or SG and copied to the Procuring Authority. The Procuring Authority will also be asked to confirm that they are not aware of additional information that would materially change the report or recommendations made therein."

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.

Scottish Hospitals Inquiry
Witness Statement of Richard Cantlay
22 February 2023
In response to Rule 21 Request dated 8 December 2022 (re-issued 13 December 2022)

I am unable to answer some of the questions raised in the section 21 notice because I was not involved in those matters. Those questions have therefore been omitted from this statement.

Role on the Royal Hospital for Children and Young People/Department of Clinical Neuroscience Project ("RHCYP/DCN project"); including particular area of expertise and the period engaged on the project

1. My name is Richard Cantlay. I graduated from Aberdeen University in 1996 with BEng degree in Civil Engineering and upon leaving university began employment with a Civil Engineering contractor in Glasgow, Mowlem plc. In 1998 I left that company and took up employment at Mott MacDonald Ltd, where I have remained ever since. I have been a chartered civil engineer since 2001.

2. On commencing employment at Mott MacDonald, I spent three years working in engineering design and other areas of engineering work. I worked on a whole range of engineering projects such as power stations in Dubai and road surveys in Argyll and Bute.

3. In 2001, I became involved in Public-Private Partnership ("PPP") projects, working in an advisory capacity. I worked on a whole range of projects as a technical advisor for procuring bodies. The main focus of my work ultimately became healthcare PPP projects. I carried out work in England and also on the Forth Valley Royal Hospital, which opened in 2010 under the Private Finance Initiative ("PFI"). When I started working as Lead NPD Procurement Adviser on

the RHCYP/DCN project in 2011, I already had 10 years of experience working on PPP projects as a technical advisor behind me.

Procurement Process – The ITPD

The assessment criteria were based on a mix of price and quality with a 60/40 split in terms of price/ quality. Did you or anyone else from Mott MacDonald express any concern as to the split with a focus on price?

4. The process for deciding the quality evaluation criteria weighting for the ITPD involved a series of discussions and workshops with NHS Lothian ("NHSL"), their advisers, and Scottish Futures Trust ("SFT"). SFT proposed a 60% price and 40% quality weighting split. NHSL challenged whether 40% was enough for quality since this resulted in price having more emphasis than quality. The discussions centred around NHSL suggesting a change to have a 40% price and 60% quality split. There were rounds of conversations that ultimately ended up with NHSL having to accept the 60% price and 40% quality split. We supported NHSL's suggestion of putting more emphasis, and therefore evaluation weighting, on quality.

5. On other projects, commercial and legal components were included within the quality weighting. This therefore reduced the amount of weighting available within the overall quality allocation for the technical components. Following the decision to adopt the 60% price / 40% quality mechanism, Ernst & Young worked with NHSL to develop and agree an approach whereby these components were dealt with outside the 40% quality weighting so that the full 40% for quality could be focussed on the technical proposals. Once this was agreed, Mott MacDonald's focus was on supporting NHSL on how to use the 40% allocated for quality to best effect.

6. Mott MacDonald were involved in working with NHSL to firstly agree the subdivision of the 40% quality weighting across the technical components of the project – this was ultimately agreed with NHSL as 5% for Strategic and Management Approach, 23% for Approach to Design and Construction and

12% for the Approach to Facilities Management. This reflected the complexity of the project and the anticipated duration of the NPD contract. Following the agreement of the overall weighting, we were then involved in working with NHSL to agree the subdivision of the 5%, 23% and 12% weighting across the sub-evaluation criteria sitting under Strategic and Management Approach, Approach to Design and Construction and Approach to Facilities Management. The approach to weighting was discussed at numerous workshops with NHSL. There was obviously a limited amount of weighting available which had to be divided between various competing components in a complex project. As further detailed at paragraph 21 below, mechanical & electrical engineering was not scored as a standalone item and its weighting was split across various criteria.

The assessment criteria were based on a mix of price and quality with a 60/40 split in terms of price/ quality. In your experience was this usual?

7. There have been a whole range of splits between price and quality used in procurement over the years, with various evaluation mechanisms then sitting behind these approaches. I can't recall the precise weighting split on projects procured prior to this project but I would expect that such an approach had been used before, and therefore this approach would represent one of the options used within a range of possible options.

With reference to bundle items 1 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[1] & 3 (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[2] do you believe that the information provided to prospective tenderers in the ITPD was sufficiently clear in relation to the purpose of the Environmental Matrix and whether bidders needed to formulate their tender to comply with the requirements set out in the Environmental Matrix?

[1] Bundle 2 – Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 22, p773
[2] Bundle 2 – Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 23, p942

8. I believe it was clear in terms of the mandatory elements of the reference design. Before setting out why I believe it was clear, it is worth highlighting two fundamental principles. The first key principle is understanding the status of both Volume 1 **(A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)**[3] and Volume 3 of the ITPD **(A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)**[4] . Volume 1 of the ITPD is a procurement document which explains the procurement process (e.g. what bidders are required to do in terms of submitting a bid, arrangements during the bid period, how bids will be evaluated etc) and it becomes redundant at Financial Close. Volume 3 is the Board's Construction Requirements (the output specification for the design and build of the project) and will form part of the Project Agreement at Financial Close. Therefore, at the start of the procurement process, Volume 3 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[5] is drafted (as much as it can be at that stage) in the form it is intended to be when included in the Project Agreement at Financial Close, with the appreciation that it will have clauses amended and sections added to it (e.g. the final agreed environmental matrix) as developed and agreed through the procurement process to reflect the agreement reached between NHSL and the preferred bidder. The second key principle is that the design risk on a PPP contract sits with the private sector (with the exception of Operational Functionality). My first witness statement set out the definition of Operational Functionality at paragraph 46. This relates primarily to the spatial design (e.g. adjacencies of departments, adjacencies of rooms, room layouts etc).

9. Clause 2.5 of Volume 1 of the ITPD (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[6] clearly sets out the Mandatory Reference Design Requirements and states they are "those elements of the Reference Design relating to Operational Functionality". Clause 2.5 also refers to these mandatory

[3] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 23, p942
[4] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents, Item 22, p773
[5] *Ibid*
[6] *Ibid*

requirements being set out in the 1:500 departmental adjacency layouts; 1:200 departmental layouts; and 1:50 Generic and Key Room Layouts. Clause 2.5 then refers to Appendix E for more specific details of the mandatory requirements. Specifically, clause 2.5 of ITPD Volume 1 (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[7] states that "full details of the mandatory reference design requirements are set out in Appendix E (reference design elements). The environmental matrix is not included as a mandatory requirement in either section 2.5, or in Appendix E, meaning that it was not mandatory, and was instead for bidders to develop themselves. This was entirely intentional, and reflected the fact that with the exception of matters relative to Operational Functionality, the design risk was to sit with Project Co. This is how NPD projects are structured, with design risk sitting with the private sector.

10. Furthermore, clause 2.5 of Volume 1 of the ITPD (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[8] also states "Bidders will be fully responsible for all elements of the design and construction of the facilities including being responsible for verifying and satisfying themselves that the Mandatory Reference Design Requirements can be designed, built and operated to meet the Board's Construction Requirements". This meant that even in respect of the mandatory elements of the reference design, the bidders would ultimately be required to verify that their design complied with the Board's Construction Requirements (BCRs), which also required compliance with all of the relevant guidance. Paragraph 2.3 of the BCRs (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[9] states for example that "Project Co shall, in relation to all SHTM [Scottish Health Technical Memoranda] and all HTM [HealthTechnical Memoranda] (except HTM where an SHTM exists with the same number and covering the same subject matter) take fully into account the guidance and advice included within such SHTM and HTM; ensure that the Facilities comply with the requirements of such SHTM and HTM; and adopt as mandatory all recommendations and preferred

[7] *Ibid*
[8] *Ibid*
[9] *Ibid*

solutions contained in such SHTM and HTM". Similar provisions exist in paragraphs 2.3 and 2.4 of the BCRs (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[10] in relation to other relevant guidance and standards, as well as applicable legislation. Where there was any conflict between the applicable standards and guidance, paragraph 2.5 makes it clear that the most onerous, and most up to date, standard must be followed.

11. In relation to the indicative elements of the reference design, clause 2.6 of ITPD Volume 1 (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[11] stipulated that "bidders are advised that the Board's Construction Requirements will always take precedence over the Reference Design for matters which do not define Operational Functionality." In respect of those indicative elements, which as I say included the environmental matrix, clause 2.6 required bidders to "refer to the Board's Construction Requirements for the detailed requirements for all such Indicative Elements of the Reference Design for which they [the bidders or more accurately the successful bidder] will ultimately carry the risk".

12. Clause 2.5.3 of Volume 1 of the ITPD (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[12] explains that Room Data Sheets (RDS) were not prepared by NHSL, and the need for Bidders to develop them through the dialogue process. It also states that anticipated room requirements are set out in a series of documents, one of which is the environmental matrix. ITPD Volume 1(A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[13] contains definitions at clause 1.3.2. This defines the 'environmental matrix' as: "the matrix contained in ITPD Volume 3, Schedule Part 6, Section 3, Appendix C." Appendix A (ii) then sets out the submission requirements, and in C8.3 makes it clear that the environmental matrix provided as part of the overall ITPD documentation (i.e. that included at that point of time in Volume 3 of the ITPD) was a draft, and that the Bidders must highlight proposed changes (for

[10] *Ibid*
[11] *Ibid*
[12] *Ibid*
[13] *Ibid*

ease of evaluation for the evaluation team). Therefore, I consider it to be clear that the environmental matrix included in the ITPD was a draft, and would ultimately be replaced by an environmental matrix reflecting the preferred bidder's own design.

13. ITPD Volume 3 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[14] sets out definitions at Section 3 of The Board's Construction Requirements. At sub-section B, the 'Environmental Matrix' is defined as "the Environmental Matrix, which details the room environmental condition requirements of the Board required within each department / unit / space / area. The title is Reference Design Envisaged Solution – RHSC / DCN Environmental Matrix version third issue as set out in Appendix C of this Section 3 (Board's Construction Requirements) of Schedule Part 6 (Construction Matters) (as varied, amended or supplemented from time to time in accordance with the Project Agreement)". Therefore, given that in Volume 1 of the ITPD (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[15] this environmental matrix is expressed as being a draft, it was anticipated that the final version of the BCRs for inclusion in the Project Agreement at Financial Close would have the environmental matrix reflecting the preferred bidder's design included in it and this definition would be amended accordingly (a drafting change as explained above). It was anticipated that the environmental matrix would be developed by the preferred bidder prior to financial close, and it is this developed version, designed by the preferred bidder, that would be included in the Project Agreement at financial close. There was no intention that the draft environmental matrix which had been provided to bidders with the ITPD would be included in the Project Agreement; the version of the environmental matrix to be included in the Project Agreement was a different document, being the environmental matrix developed by Project Co.

14. Section 8 of the Board's Construction Requirements refers to the 'Mechanical & Electrical Engineering Requirements'. This states "Project Co shall provide the

[14] *Ibid*
[15] *Ibid*

Works to comply with the Environmental Matrix. For the avoidance of doubt the hierarchy of standards and advice detailed in paragraph 2.5 shall apply to this paragraph 8." As I say, the reference to the environmental matrix would be to the preferred bidder's developed environmental matrix. The Inquiry have asked me to comment on the fact that Bidder C marked up the environmental matrix and whether this presented an ambiguity which ought to have led to one bid being rejected. I cannot comment on the content of the environmental matrix as I am not a mechanical or electrical engineer. Bidders were however required to confirm that their proposals complied with the BCRs (as set out in C21 in the Bid Submission Requirements). There might well have been more than one way of demonstrating compliance with the BCRs. If there were three bidders, you would not expect to receive three identical proposals.

15. I believe it was clearly understood amongst bidders and the ultimate Project Co that the environmental matrix was to be developed by them. Indeed, I now understand that Bidder C made changes to the environmental matrix in their final tender submission. Had bidders been instructed that no changes could be made, or had they somehow understood from the ITPD that this was the position, then this would not have been the case. Ultimately, Project Co (IHSL) adopted and amended the environmental matrix after they were appointed as Preferred Bidder. It follows from this that IHSL must have understood that they were required to develop their own environmental matrix, and in fact did so. I do not recall any statements from the Board or any of their advisors to the effect that bidders were not to innovate in developing the environmental matrix. Certainly, I am not aware of any such instructions being issued by Mott MacDonald Limited. I did not participate in all the competitive dialogue meetings, as I say at paragraph 57 below. I would however consider such a statement to be unlikely, given that in Volume 1 of the ITPD the environmental matrix was expressly stated to be a draft and delivering innovation was specified there as one of the most important scoring criteria for bids.

ITPD Volume 2 was the draft contract. The Environmental Matrix is not mentioned in volume 2. Was the intention that the Environmental Matrix would be redundant by this stage?

16. ITPD Volume 3 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[16] (where the Environmental Matrix is referred to as described above) also forms part of the draft contract. This was clear from its title which was "SCHEDULE TO THE PROJECT AGREEMENT PART 6 Section 3: The Board's Construction Requirements." Effectively, Volume 3 of the ITPD gets slotted into the relevant part of the Schedule to the draft contract at Financial Close. At this point, as described above, the draft environmental matrix would have been replaced with the environmental matrix which by then would have been developed by the preferred bidder to reflect their own design. That is because, as is usual in PPP projects, all design risk was to rest with the private-sector contractor. The inclusion of an environmental matrix in the contract alongside individual Room Data Sheets was considered sensible given the existence of an environmental matrix throughout procurement (which as discussed elsewhere was considered to be a more user- friendly way of presenting the environmental information). It would be IHSL's responsibility to make sure environmental information in the environmental matrix and the Room Data Sheets were ultimately the same.

When and why was the Environmental Matrix added into the contract as reviewable design data?

17. The decision to add the environmental matrix to the contract as reviewable design data is something which would have happened just before financial close, towards the end of the preferred bidder stage. I was not involved in the project at this stage. However, I presume this decision required to be taken because Project Co's design proposals were not fully capable of being accepted by NHSL by Financial Close. By this I mean that Project Co's design (part of which was the environmental matrix) must have required further development and therefore would be subject to the reviewable design data procedure post-financial close. I believe that Graeme Greer at Mott MacDonald was involved in advising NHSL on this point.

[16] *Ibid*

The Inquiry understands that it was for NHSL to determine the elements that would make up the overall Quality score during tender evaluation, as well as the weightings given to the scored elements within the Quality score. Workshops were held involving the broader management team within NHSL, and the Project Team including NHSL's advisors. Were you or anyone else from Mott MacDonald involved in these workshops? If so, (a) can you describe what happened during these workshops? (b) Can you describe why M&E engineering was given a lower weighting than other elements.

18. Mott MacDonald employees were involved in the workshops. These workshops typically debated the balance of weightings between criteria with a focus on maximising the use of the 40% (quality) available. As set out in paragraph 6 above, Mott MacDonald were involved in working with NHSL to firstly agree the subdivision of the 40% quality weighting across the technical components of the project (agreed with NHSL as 5% for Strategic and Management Approach, 23% for Approach to Design and Construction and 12% for the Approach to Facilities Management). Following this, we then were involved in working with NHSL to agree the subdivision of the 5%, 23% and 12% weighting across the sub-evaluation criteria sitting under Strategic and Management Approach, Approach to Design and Construction and Approach to Facilities Management.

19. While I was not involved in all of these workshops, the documents listed below relate to the workshops during March and April 2012 and provide insight into the discussions regarding quality scoring:

(i) Internal Technical Advisor Meeting on 28 March 2012 (A42058792- RC Enclosure 1- Internal Techncial Advisor Meeting on 28 March 2012)[17];
(ii) Internal Technical Advisor Meeting on 10 April 2012 (A42058793- RC Enclosure 2 - Internal Technical Advisor Meeting on 10 April 2012)[18];

[17] Bundle 10 Miscellaneous Volume 2 (of 2) Item 22, p.818
[18] Bundle 10 Miscellaneous Volume 2 (of 2) Item 23, p.822

(iii) ITPD Evaluation D&C workshop on 10 April 2012 (A42058794- RC Enclosure 3 - ITPD Evaluation D&C workshop on 10 April 2012)[19];

(iv) Project Management Executive Meeting on 12 April 2012 (A42058791- RC Enclosure 4 - Project Management Executive Meeting on 12 April 2012)[20]; and

(v) Email exchange between Andrew Scott at Mott MacDonald and Denise Kelly at Davis Langdon, from 16 – 20 April 2012 (A42058795- RC Enclosure 5 - Email exchange between Andrew Scott at Mott MacDonald and Denise Kelly at Davis Langdon, from 16 - 20 April 2012)[21].

20. There was a range of evaluation sub-criteria which needed to be taken into account from a technical perspective, and therefore the 40% allocation needed to be split appropriately across them. M&E engineering was not a standalone item and it crossed into other areas. For instance, although M&E had a specific section (C8), M&E was also taken into account in other criteria such as C4 innovation, C5 flexibility, C9 lighting, C10 energy, C15 ICT, C18 utilities and C19 BREEAM. I have been asked to comment specifically on why M&E scored 1.06 while Interior Design scored 2.64. Interior Design was one of several items of particularly high importance to the client as the hospital would clearly be used by both staff and patients confronting often distressing health issues in that environment.

‘Technical Risks for Financial Close’ dated 25 August 2014 (A36308781- Technical Risks for Financial Close - 25 August 2014)[22] . We have been advised by other witnesses this appears to be a Mott MacDonald generated risk register. Is that correct? Do you recognise this as a Mott MacDonald risk register?

21. I was not involved in this part of the project. I would however expect Mott MacDonald to have generated this risk register on behalf of NHSL, or inputted to it, given it is identifying risks associated with the technical components of

[19] Bundle 10 Miscellaneous Volume 2 (of 2) Item 24, p.825
[20] Bundle 10 Miscellaneous Volume 2 (of 2) Item 25, p. 829
[21] Bundle 10 Miscellaneous Volume 2 (of 2) Item 26, p.832
[22] Bundle 10 – Miscellaneous Volume 1 (of 2), Item 10, p75

the project. However, due to not being involved in its development, I am not able to comment more accurately on this point.

'Technical Risks for Financial Close' dated 25 August 2014 (A36308781- Technical Risks for Financial Close - 25 August 2014)[23] . We have been advised by other witnesses this appears to be a Mott MacDonald generated risk register. In relation to the items flagged as high risk how significant did you believe these risks to be? In particular do you have a view on how and where these risks should have been escalated? Do you know how these risks were escalated and resolved?

22. I was not involved in this part of the project. I presume it was produced to help the NHSL Project Team escalate risks through their governance procedures. I am not able to comment on how these risks were escalated and resolved, having not been involved.

'Risk Register' dated 18 November 2014 (A33337268- NHSL RHSC and DCN Risk Register 18 November 2014) [24], records row 8 with a risk status of "red". What were the problems at this point and the actions put in place to address these issues?

23. I was not involved in this part of the project and so am unable to comment accurately on this point.

There seemed to be real tensions between NHSL and IHSL in the last quarter of 2014 with the project not progressing smoothly or as quickly as anticipated. What is your understanding of the root cause of these tensions and when did you become aware of the situation?

24. I was not involved in the project at this stage so do not have a first-hand understanding of the root cause of any tensions. However, I would have

[23] *Ibid*
[24] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 10, p42

conversations with Graeme Greer at Mott MacDonald if he was looking for advice. From these conversations, I understand that the tensions were primarily due to the delay in signing the project agreement because the preferred bidder had not developed the required information for the contract to be signed.

Many issues appeared to remain unresolved into early 2015. However, NHSL proceeded to sign a contract. Can you offer any insight as to why NHSL were comfortable with doing so given the significance of the project and the sums of money that were being committed? Were Mott MacDonald asked to provide input or advice in the period up to financial close in relation to issues with the preferred bidder, for example in relation to the failure to produce 100% of room data sheets by financial close?

25. Given the nature of my involvement at this stage, as described in the preceding paragraph, I cannot offer any accurate insight into why NHSL felt comfortable signing the contract. A request for their reasoning is better directed towards NHSL. I would however anticipate that NHSL looked at the risks at that stage and considered them to be manageable by way of mitigation through inclusion of a process in the contract for outstanding matters to be resolved post financial close. For design components this is the reviewable design data process.

26. At that point in time, Mott MacDonald were working with NHSL in the role of Technical Advisor and members of the Mott MacDonald team were providing input. This would have included support to NHSL on issues such as how to manage any problems arising from matters such as the under-development of the Room Data Sheets by Project Co.

Risk Registers

27. I am unable to comment on many of the questions raised under this heading. I have provided answers to those questions on which I feel able to comment.

What was your role in respect of the AEDET and HAI-Scribe reviews? Whose responsibility was it to arrange the reviews?

28. I was not involved in any AEDET or HAI-Scribe reviews. I understand the Project Director on a project is responsible for making sure these reviews happen, but I envisage this was delegated to others in the team to organise. I was not involved in AEDET or HAI-Scribe reviews however others from Mott MacDonald may have been and may be able to answer this question.

Did the AEDET assessments that took place before financial close include an assessment of engineering aspects? Was RIBA stage E reached before financial close? At what stage of a project would you expect RIBA stage E to be reached?

29. I do not know if RIBA stage E was reached in its entirety before financial close. I do not think it was reached but I was not directly involved.

30. With a Reference Design, RIBA Stages B to C are carried out in advance of procurement. The remainder of the RIBA Stages are completed by Bidders (through the bid process) and then the preferred bidder up to and beyond financial close. In terms of when RIBA stage E would be reached, I would expect a target of around the point of financial close but often projects would deal with any outstanding issues post-financial close during the reviewable design data process.

Can you explain the role of HAI-Scribe in the procurement phase of a project? Is it mandatory before project approval?

31. It is an infection control review that needs to happen. I understand completion of this is required under Implementation Strategy Scottish Health Facilities Note (SHFN) 30: Part B. I am unable to provide any further detail on the HAI-Scribe process as I was not involved in these reviews.

Is AEDET or HAI-Scribe required as part of the business case process? How do they fit into the overall assurance process? Do the results get reported up, or are they simply for design teams to get feedback and make improvements where required?

32. In relation to this question on AEDET, I would refer to my oral evidence to the Inquiry on 20 May 2022 at pages 95 and 96 (Transcript- Richard Cantlay- 20 May 2022).

We note that an NDAP was not required for the project due to transitional arrangements in place. Can you confirm whether equivalent or alternative design assessment took place?

33. I would refer to paragraphs 57, 59 and 61 of my first statement along with pages 89 to 91 of my transcript of evidence provided to the Inquiry on 20 May 2022 (Transcript- Richard Cantlay- 20 May 2022).

34. I am not in a position to provide an opinion on whether an equivalent or alternative design assessment was carried out.

Amongst the requirements for NDAP is "Evidence that Activity Data Base (ADB) is being fully utilised during the preparation of the brief and throughout the design and commissioning process." Was an equivalent design assessment implemented to ensure compliance?

35. I am not aware whether an equivalent design assessment was carried out or indeed whether it is possible to conclude that the designers did not use ADB for this project. The designers of this project might have used ADB. The existence of the environmental matrix for example is not inconsistent with ADB having been used as a briefing/ design tool. Mott MacDonald were not designers, and obviously did not prepare the reference design. ADB may have been used by Hulley & Kirkwood in their preparation of the environmental matrix but this is a question which would have to be put to them. Equally, it would be reasonable to

expect that IHSL made use of ADB when preparing their Room Data Sheets but once again this would be a matter for them as designer.

Was any design assessment done in advance of the Full Business Case? If so, can you explain the format this took?

36. Atkins undertook a design assessment. A copy of their report was contained in appendix 3 of the Outline Business Case. Both Architecture & Design Scotland and Health Facilities Scotland were to review the Atkins report.

One of the points made was that IHSL had a different interpretation of SHTM 03-01. Is this usual for healthcare projects?

37. It is not unusual for there to be different interpretations of guidance in a healthcare project. I recently spoke with a contractor who has spent a year in discussions with an NHS Trust in England regarding different interpretations of standards. The resolution is often to use a derogations schedule to close off any issues arising from differences in interpretation. There are a number of different sources of guidance applicable to NHS capital projects, which means that it is not uncommon for two different sources of guidance to conflict with one another. For this reason, it is now common in any PPP/ NPD project to see a provision inserted into the Project Agreement to the effect that where there are two different competing standards, the most onerous standard will apply. This is exactly what happened here. Paragraph 2.5 of the Board's Construction Requirements (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[25] states that "where contradictory standards / advice are apparent… then (1) the most onerous standard / advice shall take precedence". Where there were two competing standards, Project Co always had to meet the most onerous requirements. There was an over-arching requirement to comply with the SHTMs.

The Environmental Matrix

[25] *Ibid*

The Environmental Matrix was to be used instead of room data sheets at the early stages of the project. See Paragraph 2.5.3 of Volume 1 of the ITPD volume 1 (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[26] which states that standard form room data sheets had not been prepared at that early stage. Guidance Note 1 to the Environmental Matrix issued with the ITPD describes the document/ spreadsheet as an "easier reference tool to replace ADB RDS M&E Sheets". During the competitive dialogue phase, room data sheets were to be prepared by bidders for certain rooms. However, "all remaining rooms" required to have room data sheets completed before financial close. At what point was it expected that the environmental matrix would be superseded/ become obsolete?

38. As stated above, the intention was that the draft environmental matrix provided in the ITPD would be superseded by the environmental matrix developed by the preferred bidder reflecting their design. So, the draft environmental matrix developed as part of the reference design would become superseded at the point the preferred bidder's environmental matrix was fully developed. ITPD Volume 1 (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[27] anticipated Room Data Sheets for the rooms for which 1:50s had been prepared to be developed during the bid period – with the remainder post-preferred bidder appointment. Therefore, the envisaged position at financial close was for there to be included in the contract both (i) the preferred bidder's environmental matrix; and (ii) the Room Data Sheets (and in the event that all Room Data Sheets hadn't been developed and agreed for financial close, then the environmental matrix would provide the baseline for any development post financial close in relation to room environmental requirements). The draft environmental matrix included in the ITPD – i.e., the document prepared by Hulley & Kirkwood – would not be included in the project agreement at financial close, because it had been superseded by Project Co's own design.

[26] *Ibid*
[27] *Ibid*

In abandoning the use of RDS and adopting the Matrix, did Hulley & Kirkwood seek clearance from Mott MacDonald or NHSL?

39. The decision to use an environmental matrix was made before the decision to use the NPD model; i.e. under the BAM contract which was to be capital funded. As such, Mott MacDonald wouldn't have needed to be consulted given our role at that stage. Having not been involved in the project prior to it becoming a NDP project, I am unable to confirm whether NHSL were consulted. A decision might be taken to proceed with an environmental matrix because this is seen as being an easier and more user-friendly format to develop and review environmental data. As stated elsewhere, this is not incompatible with the use of Room Data Sheets and indeed I understand that both an environmental matrix and Room Data Sheets were used on this project. An environmental matrix may be produced using ADB.

Who authorised the use of the environmental matrix?

40. As stated above, its use was agreed prior to the decision to deliver the project using the NPD model and before my involvement.

Was it the intention that the Reference Design – and the environmental matrix in particular – would have fulfilled its purpose by financial close? Was the intention that it would be replaced with the preferred bidder's design solution and a full set of room data sheets? How was this intention (i.e. that the environmental matrix would be redundant at financial close) communicated to prospective tenderers?

41. Yes, the reference design is a starting point for the bidders' designs and ultimately falls away once replaced with the preferred bidder's design. The technical requirements for the design and construction are as set out in the BCRs. This intention is clear in the NPD contract form whereby the technical requirements are set out in an output specification by the procuring authority (the BCRs) and the design is developed by the bidders, further developed by the preferred bidder in the run up to financial close and ultimately included in

the project agreement in a section called “Project Co’s Proposals”. There is no place in the standard form contract for a reference design as it is simply a procurement tool to avoid bidders requiring to start the design from scratch. This responsibility for the design is clearly set out in the NPD project agreement.

42. ITPD Volume 3 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[28] was accordingly drafted in such a way as to allow the preferred bidder’s environmental matrix to be inserted into the contract at Financial Close. Given its continued operation after procurement, the drafting of ITPD Volume 3 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[29] required to be future facing from the outset. Therefore, although Volume 3 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[30] may have been presented to bidders during Competitive Dialogue, its terms were intended to govern the project once the contract was entered into. The practical implication of ITPD Volume 3 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[31] being future facing is that any reference to a document refers exclusively to the final version which had been developed by the preferred bidder at Financial Close, as opposed to the version made available to bidders as part of the ITPD in draft format. In the context of the environmental matrix, this means ITPD Volume 3 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[32] does not refer to the draft version supplied to bidders by NHSL during Competitive Dialogue. ITPD Volume 3 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[33] solely refers to the final environmental matrix to be developed in the future by the preferred bidder to reflect their design. The draft nature of the environmental matrix referred to in ITPD Volume 3 (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[34] was made clear to bidders in ITPD Volume 1, Appendix A(ii) – Submission Requirements C8.3, (A34697102-

[28] *Ibid*
[29] *Ibid*
[30] *Ibid*
[31] *Ibid*
[32] *Ibid*
[33] *Ibid*
[34] *Ibid*

Invitation to Participate in Dialogue Vol 1, Revision B)[35] where bidders were instructed to highlight their proposed changes to the environmental matrix supplied with the ITPD. The purpose of having bidders highlight their changes to a pre-supplied document was to allow the Board to conduct a high-level review of the document rather than a line-by-line analysis of the bidder's developed environmental matrix. The draft environmental matrix supplied in ITPD Volume 1 (A34697102- Invitation to Participate in Dialogue Vol 1, Revision B)[36] was never assumed or portrayed to be definitive by the Board. It was always clearly understood that it would be for the bidders to update and verify the data within it. This is indeed what happened.

43. It should also be noted that bidders' teams are typically led by project finance/PPP experts (not construction professionals) who understand the procurement process and contractual structure and should direct and manage the construction team in the context of the PPP environment within which the project is being delivered.

Was a decision taken to deviate from what was stated in the ITPD and ISFT in order to allow the preferred bidder to refrain from producing a full set of room data sheets? If so, who took this decision? When was the decision taken? Why was the decision taken? Did this prolong the use of the environmental matrix concept? What role/ purpose did the environmental matrix have at financial close?

44. I was not involved at this stage and therefore cannot comment accurately on this point. However, it would seem that due to the preferred bidder not producing a full set of room data sheets for financial close, a decision was made to allow them to be finalised after financial close. This would not necessarily be irregular or cause an issue for the project. The submission of room data sheets after financial close can be done successfully as long as the contract includes a methodology and baseline for the finalisation of the room

[35] *Ibid*
[36] *Ibid*

data sheets (e.g. the reviewable design data process). A full set of Room Data Sheets was still required prior to construction.

The environmental matrix was included in the final contract as reviewable design data. It is not mentioned in the draft contract in volume 2 of the ITPD as reviewable design data. When was a decision taken to include the environmental matrix as reviewable design data?

45. I was not involved in this stage so cannot confirm when this decision was taken other than an anticipation that this took place in the run up to financial close.

What practical implications did this have for the project and the design process in particular?

46. Again, I was not involved at this stage, however, based on my experience, this would mean Project Co are required to finalise their design data as reviewable design data for approval after financial close as opposed to pre-financial close.

Why did prospective tenderers need M&E engineering information if it was up to tenderers (and ultimately the preferred bidder) to develop the design of M&E building services?

47. They didn't necessarily need it. It had been produced as part of the reference design when the project was still to be capitally funded so this information was shared as indicative information to bidders. It is up to bidders to decide whether this indicative information shared is helpful or not.

Given that the environmental matrix became "reviewable design data", was there an agreed technical specification for the ventilation system (ie air changes per hour, pressure regimes, etc) as at Financial Close?

48. I was not involved in the project at that stage, but NHSL would always have had the NHS design guidance as specified in the Board's Construction Requirements to rely on. That is the output specification which sets out the technical requirements of NHSL. By its very nature and the risk allocation in a

PPP project (where design risk sits with the private sector), it is an output specification. Bidders are to develop their own specific design proposals to meet the output specification.

A decision was taken by NHSL to use an Environmental Matrix instead of Room Data Sheets produced using ADB as a briefing tool for prospective tenderers. It is not clear who took this decision, when the decision was taken or why the decision was taken. To your knowledge was this addressed at any meetings either of the project team, the Project Board or the Board of NHSL?

49. The initial decision to produce an environmental matrix was made at the stage when the project was to be capitally funded and therefore precedes my involvement. There was at one stage a plan to provide Room Data Sheets as well as the environmental matrix along with the ITPD. There was however a change of plan and a decision made not to produce the Room Data Sheets and instead the room data would be presented to Bidders using different documents (including the clinical output specifications, the schedule of accommodation, the adjacency matrix, the environmental matrix, the equipment list, the schedule of operational/design notes and the operational functionality elements of the reference design). . I would not have been involved in the decision not to produce room data sheets as this fell within the remit of the reference design team and I was not party to discussions of the reference design team because there was an ethical barrier in place due to the possibility that members of the reference design team could eventually join bidding consortia. The record of this decision was set out in an email from David Stillie to NHSL dated 15/8/2012. I would however have been involved in reflecting this decision in the procurement documents, specifically paragraph 2.5.3 of the ITPD.

Why was the Environmental Matrix deemed to be of equal quality to room data sheets produced using the ADB system?

50. While I was not involved in the capital funded BAM project or in the NPD reference design team and therefore was not party to the discussions about the use of an environmental matrix, I would be of the view that presenting the

environmental data in an environmental matrix rather than within a set of Room Data Sheets would be of an equivalent standard given it is just two different formats of presenting the same information. The format in which the design data is chosen to be presented shouldn't change the design data in itself. My understanding is that ADB could be used to generate design data in either format.

Did Mott MacDonald advise NHSL how to demonstrate this?

51. I was not involved in the capital funded BAM project or in the NPD reference design team and therefore was not party to the discussions about the use of an environmental matrix . I am not aware of Mott MacDonald advising NHSL how to demonstrate that the environmental matrix was of equal quality to ADB.

Would you consider that the decision to use the concept of an environmental matrix was the cause – or part of the cause - of the errors with the ventilation system for the new hospital (in critical care rooms)?

52. No. An environmental matrix is just one way of presenting the room environmental criteria – whether that is done in Room Data Sheets, an environmental matrix or any other format, it should not change the technical specification – it is just a different way of presenting the same information. The design (including the environmental matrix / environmental parameters) was to be developed by the preferred bidder / Project Co in a way that ensured compliance with the output specification (including SHTMs and other design guidance).

What are your thoughts on EM replacing room data sheets?

53. From my experience, the environmental matrix is a commonly used tool. It is viewed as a user-friendly way of presenting the data. The purpose of the environmental matrix was not to replace or supplant room data sheets. It was always anticipated that room data sheets would be developed by the preferred bidder as set out in Volume 1 of the ITPD.

Do you accept that there was an ambiguity in the environmental matrix itself?

54. I am unable to form a view from my own knowledge and experience on whether there was an ambiguity in the environmental matrix. I am not a mechanical or electrical engineer. I would therefore always defer to colleagues qualified in that area on the interpretation of an environmental matrix. Mott MacDonald asked Hulley & Kirkwood for confirmation that the Reference Design was compliant with published guidance and they provided that assurance. Mott MacDonald accordingly proceeded on the basis that the environmental matrix issued to bidders complied with published guidance. That said, design risk would ultimately rest with the preferred bidder / Project Co given that they were required to develop their own environmental matrix, which complied with the relevant guidance, which as far as ventilation was concerned would be SHTM 03-01.

Did any of the bidders raise this ambiguity during competitive dialogue?

55. I did not participate in all of the competitive dialogue meetings. I was involved in dialogue meetings 1 and 2 before Graeme Greer became involved on behalf of Mott MacDonald. I do not recall bidders raising any ambiguity with the environmental matrix during the competitive dialogue meetings I attended.

In both the ITPD and the ISFT there was a requirement to comply with CEL 19 (2010) (A37215536- CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010)[37]. It is not clear how a bidder could do so without utilising room data sheets for the design and planning of their solution for the ventilation system for the new hospital (ie as part of the tender bid). All that bidders were required to produce at the tender stage was selected room data sheets for key rooms and generic rooms. How did the successful tenderer demonstrate that CEL 19 would be

[37] Bundle 1 – Published Guidance – Item 6, p.553

complied with when the briefing tool used (both by NHSL at the ITPD and ISFT stage and by lHSL at financial close) was an "environmental matrix" with only a selection of room data sheets being produced?

56. CEL 19 **(A37215536- CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010)** [38]required the use of ADB. My understanding is that Room Data Sheets can be generated from ADB. However, my understanding is that ADB can also be used in the process of developing an environmental matrix. In any event there was a contractual obligation for Project Co to develop Room Data Sheets as part of the design process and before constructing the hospital. Therefore the intention was always for Room Data Sheets to be developed whether that be through the bid period, the period from appointment up to financial close, or after financial close. Use of an environmental matrix would not necessarily be incompatible with CEL 19 (A37215536- CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010)[39] because ADB could also be used in preparing the matrix. While I don't know whether Hulley & Kirkwood used the ADB in drafting their environmental matrix, it would seem to be a sensible place to start. There is a requirement in the BCRs (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[40] at paragraphs 2.2 and 2.4 to comply with CEL19 (A37215536- CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010)[41]. The successful bidder therefore had an obligation to ensure they complied with it.

57. One further point to clarify is that, by final tender stage, the bidders were not expected to have produced a fully worked up design for the hospital. They are bidding to be appointed to prepare the design, carry out the construction and then deliver facilities management services throughout the project term. What we would be looking for at final tender stage is an indication of whether the

[38] Bundle 1 Published Guidance, Item 6, p553
[39] *Ibid*
[40] *Ibid*
[41] *Ibid*

bidders were agreeing to produce a design which ultimately, when finalised, would comply with the requirements of the BCRs (A34225364- Invitation to Participate in Dialogue Vol 3 - August 2013)[42].

Reference Design

To your knowledge, who within NHSL determined how much detail would be included within the reference design?

58. The project was changed from a capitally funded project to an NPD project after a design had been developed for the capitally funded delivery model. Therefore, it wasn't a case of deciding to what level of detail to develop a reference design, but rather deciding how the already developed design under the BAM contract could be used as a reference design under a NPD procurement process (recognising that the design risk on a NPD project sits with the private sector bidders) and therefore which components of the reference design could be mandated and which components were provided for information only. This was set out in my first witness statement (Witness Statement Richard Cantlay) in paragraphs 17, 20, 25, 30, 36, 41, 43 and 45.

Was that decision taken by the Project Director, Project Board or Board of NHSL decision?

59. As set out in the paragraph above, the design which was used as a reference design was the design developed under the BAM contract. It wasn't developed at the outset to be used as a reference design. Therefore, the decision was how to use the already developed design as a reference design in the NPD procurement process. Our reference design advisory papers referred to in my first witness statement were used to help NHSL make this decision, and were discussed and debated with SFT.

[42] *Ibid*

Where is this recorded?

60. Please refer to my two previous paragraphs.

Were NHSL and Mott MacDonald briefed on the Reference design prior to the departure of Reference Design Team?

61. My recollection was that there was a briefing and handover process which amongst other things required the reference design team to confirm compliance with the NHS guidance and key legislation. I previously addressed this at paragraphs 53 to 56 of my first statement (Witness Statement Richard Cantlay) in relation to the requirement of the reference design team to confirm compliance during March 2012.

"Include the requirements contained in the Clinical Output Specification …" What is meant by "the Clinical Output Specification"? Is it a reference to the Clinical Output Based Specifications contained in Sub-Section D (Specific Clinical Requirements) of Section 3 (Board's Construction Requirements) of Schedule Part 6 (Construction Matters) (A41179262- Schedule Part 6 Construction Matters, Section 3 (Board's construction requirements)[43]?

62. Yes. These are the clinical requirements setting out how a space will be used to deliver services so that an engineer or architect can design that space accordingly.

If so, are any of the contents of these specifications pertinent to the ventilation issues which later arose?

63. The Clinical Output Based Specifications inform a designer how departments and rooms will be used. Therefore designers will look at clinical output

[43] Bundle 5 – Contract – Part 4, p.341

specification and the design guidance (e.g. SHTMs) to develop their design proposals.

Section 7 of Schedule Part 6 of the Project Agreement (A41179262 - Appendix P, Thermal and Energy Model Parameters Excerpt pages 353 to 537) [44]concerns Thermal and Energy Efficiency Testing Procedure. Do you consider this to bear upon in the Inquiry's Terms of Reference? If so, please briefly explain why.

64. My understanding is that the testing procedure involves a process where you demonstrate that the facility you have built is energy efficient and complies with guidance. I do not think it is related or pertinent to the Inquiry's terms of reference but I will defer to M&E engineers to comment further.

65. In answer to the Inquiry's supplementary questions on Mott Macdonald's role in the technical evaluation of tenders, it was not our role to check the design on a line-by-line basis. Our role was to review the bids in accordance with an agreed evaluation methodology, which was contained in documents such as the Final Tender Evaluation Manual and Supplementary Guide to Final Tender Evaluation. We also attended workshops with the client team in order to agree scoring of bids.

66. Bids would be reviewed on an individual basis against the scoring criteria and not compared to each other, in accordance with usual procurement practice as well as the Public Contacts (Scotland) Regulations 2012 and underlying European Directives. I have been asked to explain why both IHSL and Bidder C were assessed as a "PASS" despite offering different technical solutions. There was nothing to prevent bidders from preparing different solutions, so long as each bidder confirmed at final tender stage that their bid, when developed, would be compliant with the Board's Construction Requirements. Quality evaluation criterion C21 explicitly stated that "Bidders must confirm their

[44] Bundle 5 – Contract Documents, item 5, p.762

compliance with the Board's Construction Requirements". Given the relatively high-level role I had in the project at that point, I was not aware of the detail of how Bidder B and Bidder C had taken differing approaches to the environmental data at the time the bids were being evaluated. My focus would have been on whether the evaluation methodology agreed with NHSL was followed. This methodology was set out in the Evaluation Manual. I am unable to confirm the extent to which the Room Data Sheets produced by IHSL were reviewed at this stage and Graeme Greer might be better placed to comment on this point. Before I issued the letter to the effect that there had been a robust technical assessment of the tenders, I would have consulted with colleagues such as Graeme Greer and others involved in the evaluation of the bids to check that they were content that the process had been followed correctly.

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.

Signed: 

Date: 22 February 2023

Scottish Hospitals Inquiry
Witness Statement of
Stewart McKechnie

Professional background

1. I am Stewart McKechnie. My address for the purposes of this inquiry is c/o BTO Solicitors LLP, 48 St Vincent Street Glasgow G2 5HS. I am employed at TÜV SÜD Ltd as a principal engineer. I previously had the title of "director," which is an engineering title within TÜV SÜD Wallace Whittle. The term "director," just to make clear, was used more as a seniority term, rather than inferring that I was a full director and registered in Companies House. The company Wallace Whittle, at the time of the RHCYP/DCN project, were owned by TÜV SÜD, but they have since had a management buyout. At the point of where TÜV SÜD and Wallace Whittle parted company, I elected to remain with TÜV SÜD to assist them with various legacy engineering issues that were ongoing at that time. Although TÜV SÜD are a huge company they do not really have the same type of engineering expertise as Wallace Whittle, who were the only building services engineers that they had.

2. I have been qualified as an engineer now for about 40 plus years, working within mechanical and electrical engineering, however my specialism lies more towards the mechanical side. I had my first spell with Wallace Whittle a number of years ago before I then did a brief spell with another company called Donald Smith. I was invited to re- join Wallace Whittle, where I remained and progressed up the ladder to director. During that time, I have worked on a vast range of different types of projects as Wallace Whittle cover quite a broad spectrum, from commercial buildings, offices, data centres, to more government work where I worked on schools and universities, also a number of shopping/retail centres such as Buchanan Galleries and Princes Square, Glasgow and St. James, Edinburgh. My work within healthcare settings has been varied as well, working on Orkney Hospital; Craig Dunain Hospital, Inverness; Aberdeen Royal; Queen Elizabeth University Hospital, Glasgow; Golden Jubilee Hospital, Clydebank, and Ailsa Hospital in Ayr. There will be

others but I cannot recollect them at this time. I have covered a wide range, not specialising in one particular area, so gaining a wide range of experience across construction sectors.

Overview

3. In this statement I will address the undernoted themes:

The Environmental Matrix
(EM) The Procurement
Process
EM within Reviewable Design Data
(RDD) Room Data Sheets
Air Movement Report for Single Bedrooms

The Environmental Matrix

4. I joined the RHCYP/DCN project in or around November 2012 when Wallace Whittle were subcontracted by Multiplex to work on the mechanical and electrical (M&E) provision. My involvement began at the pre-qualifying stage, as soon as Multiplex invited Wallace Whittle to join their bid team. As part of the bid process, in around March 2013, we received, via Multiplex, the Invitation to Participate in Dialogue (ITPD) volumes of information. Included within the Board Construction Requirements (BCRs) ***(A33405670, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsections A, B and C Excerpt pages 1 to 149[1], A41179262, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780[2])*** was the Environmental Matrix (EM). My interpretation of the inclusion of the EM at that time was that it was mandated conditions the client was providing to us and formed part of their brief and would replace the Activity Database Sheets (ADB). In essence, the EM was to replace the ADB process as the briefing tool for the project. We were familiar with the use of EMs and this decision did not strike me as a surprising one. The idea of having all the building services

[1] Bundle 5 - Contract Documents, Item 3, P192
[2] Bundle 5 - Contract Documents, Item 4, P341

engineering information in one document makes sense from a practical point of view, in that it brings everything we need into the one place and saves having to extract it from, or cross refer to, other documents.

5. My understanding was that if the EM had been duly developed along with the client then that specified their desired performances for the building services at the hospital. If changes needed to be made to the EM, then it was my expectation that you would have to re-engage with the client and whatever department the relevant section of the EM covered before you would be able to make any change. I did not see it as a document that could be changed based upon my own interpretation of the ITPD documents[3] and BCRs ***(A33405670, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsections A, B and C Excerpt pages 1 to 149[4], A41179262, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780[5])***. The ITPD documents state that they need to be complied with (e.g. at paras 5.3 and 6.14) and that the BCRs ***(A33405670, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsections A, B and C Excerpt pages 1 to 149[6], A41179262, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780[7])*** are mandatory (e.g. at para 2.5) and the EM is listed as part of the BCRs ***(A33405670, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsections A, B and C Excerpt pages 1 to 149[8], A41179262, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780[9])***.

6. The Inquiry has asked whether I was aware of the Chief Executive Letter 19 (2010) ***(A37215536, CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHS Scotland 2010 Revision' (2) dated 2 June***

[3] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents
[4] Bundle 5 - Contract Documents, Item 3, P192
[5] Bundle 5 - Contract Documents, Item 4, P341
[6] Bundle 5 - Contract Documents, Item 3, P192
[7] Bundle 5 - Contract Documents, Item 4, P341
[8] Bundle 5 - Contract Documents, Item 3, P192
[9] Bundle 5 - Contract Documents, Item 4, P341

2010[10]). I was not aware of the published guidance at that time. However, the ADB process would normally be led by the architect as lead designer and supported by the building services engineers. We adopted the client briefed EM as it was stated as being part of the BCRs ***(A33405670, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsections A, B and C Excerpt pages 1 to 149[11], A41179262, Schedule Part 6: Construction matters, section 3 (Board's Construction Requirements), Subsection D Excerpt pages 360 to 780[12])*** and any subsequent revision would have been driven by client comment.

7. The RHCYP/DCN project was slightly different from other hospital projects that I have worked on as a number of years had been spent working on its reference design, which was provided to tenderers. I was more familiar in engaging directly with end users from inception rather than being brought in when this process had already taken place. The other hospital projects I had been involved in would have been more along the lines of being involved in the various dialogue sessions with clinicians, engineering, and Facilities Management representatives. This concept of working as a subcontractor for Multiplex was a slightly different way of working, although we had experience of it in Glasgow because we had been involved in there, our involvement was more peripheral. Understanding a bit more about what happened in Edinburgh, I think it was probably reasonably unique. They had a design team in place for quite a lengthy period and had progressed the design to a much more advanced stage than you would normally have when you were starting off an initial tender.

8. I was quite surprised at the level of queries that arose on the EM, because, if you view it as a client's brief, we felt we had interpreted the ITPD documents[13] in that way. The resultant review process seemed out of kilter with a client's brief, because we were put in a position of trying to answer questions on their own briefing, which seemed a bit odd at the time. This became the main focus of our attention on the EM, the contractual lifespan of it was not really a

[10] Bundle 1 - Published Guidance, Item 6, P553
[11] Bundle 5 - Contract Documents, Item 3, P192
[12] Bundle 5 - Contract Documents, Item 4, P341
[13] Bundle 2 - Reference Design and Invitation to Participate in Dialogue (ITPD) Documents

concern, as we kept it going for as long as the client wanted to keep it going. It was never a conscious thing that said, “Oh this will be over,” or, “This will drop off at a particular stage.”

9. Once the bidder IHSL and Multiplex had ownership of the EM then we were instructed to take it on board, not to revamp it. We had no involvement with the EM prior to the appointment of the preferred bidder. There is some subtlety, because you would not normally take a client's brief on as your own document, so I saw it as a duty, if you like, to add to it. As the architectural design progressed, we discovered that some of the rooms on the EM were not listed, although they did appear on the initial Schedule of Accommodation (SoA), which meant augmenting the EM to cover the entire building. Any further revising or updates should have been done at the preferred bidder stage when the architects would feed in on things that may not have been already included: that would have been where any changes should have taken place. This, for instance, would allow for new previously unbriefed rooms to be introduced into the EM and we could then include building services design criteria for approval by the NHSL and their Technical Advisors. However, I would not expect given values for accommodation included in the original briefing to subsequently be altered. The EM as issued included a table of comments, which we took on board, some of which were tidying up and some were criticisms, which I felt should have been tidied up in the Hulley & Kirkwood version of the EM before being passed to us. It should have been a definitive document in my opinion. I do not recall any specific request for us to review any iteration of the EM for compliance with published guidance. From memory, we and the rest of the design team were asked to send an e-mail confirming that the solutions proposed complied with the client’s brief.

10. The Inquiry has asked me why the term HDU was removed from the EM. The EM covers approximately 2500 plus rooms, and it also has a supplement called the Room Function Reference sheet (RFRS) ***(A32623039, Environmental Matrix dated 4 September 2014[14]),*** which has about 50 entries on it. The RFRS listed all the common room types and the environmental conditions for each of those rooms, which allowed the population of most of the 2500 plus rooms. I do not

[14] Bundle 4 - Environmental Matrix, Item 1, P4

think that the term Room Function is a good phrase because it does not provide a description of what is actually happening within that room, it is purely environmental, providing the air changes, lighting levels, sound levels and that kind of information. There was no reference whatsoever to whatever clinical procedure was being conducted in that room. Hulley & Kirkwood prepared the original RFRS as part of the EM and the room functions came from their initial documents which were presumably agreed with NHSL.

11. Within the EM table the first column had the RFRS code, so for example, if we were looking at a toilet it could get picked up and put into each of the individual ward areas so that each toilet in that building was engineered to the same standard. By doing this you reduce the chances of someone making an error, where having to start off from scratch with 2,500 rooms and populate them all individually, carries more risk. That concept was picked up from the initial Hulley & Kirkwood EM, which we then applied.

12. There was a line on the RFRS with “HDU” and it gave 10 air changes, I cannot recall if it gave 10 pascals, but it gave it a definition. Once we got the architectural plans, we did a cross-reference of every room to ensure that every room had been covered on that SoA. I have a chronology report where the term “HDU” was used with a description. In my experience the term HDU denotes “High Dependency Unit,” and this could be a unit or a room, not necessarily a global description of a department. When we reviewed the EM and RFRS, there was only one room that had the term HDU on it, so I believe it got caught as part of the tidying up exercise and removed as it then made the RFRS a bit more manageable. I am uncomfortable about the way it is being depicted as if we were trying to do something underhand, however there is no engineering benefit in reducing the level of servicing in any building. If a member of my team puts in the wrong amount of air and it needs addressed then that could cost me. The onus is on us to go a bit further or to make sure that we have complied with the client’s brief as much as we can. There is not a formal review of key areas against the briefing parameters but all of our designs were subject to RDD which involved review by NHSL and their technical advisors. There was also a further specific review of all four bed ward areas, again with NHSL and their advisors, during the construction phase.

13. Prior to commencing work on the RHCYP/DCN I was familiar with environmental matrices being used as a development briefing tool but do not recall there being many used on projects on which I had worked. My own experience, prior to that, was of projects which adopted the ADB and Room Data Sheet (RDS) style briefing tools. Environmental matrices have since become a more common tool and Wallace Whittle have assisted in preparing them for example in the Golden Jubilee Hospital and for some of the newer hospitals in Aberdeen. It was a practical tool, because in the old days, prior to environmental matrices, you would use the RDS or ADB sheets; the two terms seem to get intertwined now. As an engineer, you would have to go through and extract from each RDS the environmental conditions, essentially making up your own EM for you to progress the design, because obviously you do not design a hospital one room at a time. During design you have to link the rooms, you have to link the systems, so the EM provides a summary of the room requirements for environmental conditions. The ADB process is normally architect led, however, my understanding is that the ADB product is not necessarily up to date with current guidance, so it acts as a starting template but requires client specific input to arrive at a bespoke solution.

14. During the procurement phase it was noted on the general notes from the Hulley and Kirkwood version of the EM that it would be replacing ADB sheets, it specifically states that the EM was produced in lieu of ADB sheets. This was the first version of the EM we saw. Wallace Whittle adopted this as it was a useful tool with all of the information gathered in one place, which allowed the engineering designs to develop quicker than they would have if you had been given a whole pile of ADB sheets.

15. The Inquiry has asked me if I noticed discrepancies in the EM in relation to air change rates within critical care areas. It is an interesting question, because I am aware that there has been a lot of commentary and people expressing opinions on the air change rates that have been listed, however I am not necessarily convinced that all those opinions have interpreted it correctly. My position is that the EM produced by TUV SUD captured the applicable requirements from the Guidance section in the EM. There were particular rooms in the Critical Care area that required the 10 air changes and 10Pa

pressure, which were given 10 air changes and 10 Pa and they were given 10 air changes and 10 Pa on the EM. Some of the other areas did not have the 10 and I believe there are some questions to be asked on the interpretation there. As best I can recall, the guidance specified 10 air changes and 10 Pa pressure for the isolation rooms in the Critical Care area and these were designed accordingly.

16. I would also say that whilst I keep reading about specific air changes, which relates to the part of SHTM 03-01 ***(A33662259, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A v2.0 - Design and validation dated February 2014[15])*** that is being referenced, it is not simply about air changes, it is also about air pressure, which appears to be missing from a lot of the previous reviews. The air pressure is a huge part of the servicing of an area because it affects the structure, the ceilings, lighting, it affects a lot of other aspects. I honestly do not think it is quite correct to simplify the issue and say that it is just about air changes and believe that would need a bit more investigation.

17. Within the EM dated 31 October 2014 the Inquiry have queried the air change rates of HDU, which were listed not as recommended 10 air changes per hour but four air changes per hour. My take on this was that within the PICU area there was only one room which had the HDU prefix, which asked for and received 10 air changes. I am obviously aware that as we go through the commentary on the most recent EM, there are comments about RFRS and that at a point in time the term HDU was removed. This was done as part of a tidying up exercise. Wallace Whittle have produced a separate report with a chronology of the information we received and the information which we issued, which included environmental matrices, along with comments on that.

18. Up to financial close, the only area I can recall being discussed in detail within the EM was the four air changes for the single-bed rooms. Following on from financial close there was detailed discussion late in the day about the four-bedded bays. There was a huge amount of work done on the four-bedded

[15] Bundle 1 Published Guidance, Item 3, P149

bays, including the four-bedded bays within the Critical Care area, at the point where the hospital decided not to open, and there was criticism of the 10 air changes and 10 Pa pressure on the Critical Care areas in general. We had dialogue with NHSL, HFS and produced a detailed report of our understanding of what the briefing was for the Critical Care areas, which was subsequently released quite early on to the Inquiry. The purpose of this Report was that it was requested by HFS to be issued to them along with a similar Report requested from NHSL, both to set out our opinions: the intent being to allow HFS to then reach a conclusion on what if anything required rectification. We duly issued our Report but have never seen sight of NHSL's version nor commentary from HFS. We have also prepared a further Report on this subject in which we list a review of all relevant documentation which may be of assistance to the Inquiry and which we would append along with our earlier Report to this statement.

19. During the period up until the financial close, there was some commentary raised on the question of the four air changes and, more importantly, it was on the resulting pressure within the bedrooms. We prepared an Air Movement report ***(A34225453, Wallace Whittle - Air movement Report for Single Bedrooms (draft) - 12 January 2015[16]),*** and I gave a presentation to NHSL and explained what the end result was going to be if we kept with the four air changes supply and the ten air changes in the en-suite. I was trying to help the client understand what the pressure was going to be with their briefed ventilation rates. I explained to them that when you open a window, you then have variable conditions depending on the circumstances, air pressure can come in, you can get a draught in through the window, or air can spill out if it is a still day, which then becomes a variable. Their concerns were only relayed back to us after financial close, where they wanted the air pressures to be negative or balanced. The engineering solution to that was to increase the bathroom extraction, so that the amount of air that was getting supplied in was equal to the amount of air that was getting extracted.

20. I believe that NHSL were going to internally review what we had explained to

[16] Bundle 8 - Scoring & Correspondence Regarding Issues, Item 15, P66

them and make a decision as to what they wanted or that they were going to come back and revise their brief. Some people were talking about the possibility of patients with an infectious disease walking along the corridor, which could flow into the single bed areas. From an engineering perspective, the whole question of vulnerable or infectious people is generally viewed as those who should be accommodated within the isolation rooms. With isolation rooms, you protect not only the people on the corridor, but you protect the person in the isolation room, because you create this air lock where air cannot spill from the patient out into the corridor and cannot, conversely, flow from the corridor to the patient. Logically if you have a particularly vulnerable person, you want to keep them in an environment that is in as steady a state as it can possibly be, and you do that by an isolation room and having that pressure. The same could be applied to neutropenic patients, as they have a low immune system then my understanding would be that they would be placed within isolation rooms.

21. In my opinion it should have fallen to NHSL's technical advisor to explain what the implications of what they were asking for were, but that was not the way the process rolled out, so we did the presentation and got their comments back. They told us that they wanted a balanced system within the rooms, so that it was neither positive nor negative going to the corridors and we gave them that. We increased the extract rate in the bathrooms to balance the same amount of four air changes that were put in by the supply and gave them that balance.

22. As we moved closer to financial close the EM was included as Reviewable Design Data (RDD) ***(A32435789, Schedule Part 6: Construction matters, section 5 Reviewable Design Data[17]).*** In my view, the environmental parameters could not be regarded as agreed at financial close given that the EM was classified as RDD. The EM was basically the client's brief so, in my opinion, this would not normally be a post appointment negotiation factor. My own opinion of that was that I could not see how you could put a client's brief in as RDD, the implications of leaving that unresolved could be quite significant in

[17] Bundle 5 - Contract Documents, Item 7, P767

a building and I certainly had no experience of that happening before. The one item that ran right through was the attention to the pressure in the rooms, and following quite quickly after financial close, my memory is that HAI-SCRIBE came back with their concerns over the low level of pressure in the rooms. The purpose of HAI-SCRIBE is to review the potential risks of airborne infections within the hospital and give advice on how to avoid them. Wallace Whittle had no other involvement with them other than to discuss the air pressure on ward ventilation.

23. The whole issue of the four air changes to the single bedrooms seemed to go away after our presentation. It was the air pressure that then became the issue not the air changes. With NHSL apparently choosing to keep some of the design issues going over the line, we did not see a conclusion on them until quite later on.

24. If we had noted discrepancies in the EM, which did not accord with the SHTM, we would have flagged them up. I was aware of the need to comply with SHTM03-01 ***(A33662259, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A v2.0 - Design and validation dated February 2014[18])***. In my view, the EM did accord with SHTM03-01 ***(A33662259, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A v2.0 - Design and validation dated February 2014[19])*** and the rationale for this is included within my report of 15 July 2019 (Review of Ventilation Provisions for (B1) PICU and HDU Departments). In my opinion, the way in which we designed the Critical Care Unit was in compliance with the requirements of the EM in terms of the isolation areas. My interpretation of the guidance was that the requirement for 10 air changes and 10 Pa

[18] Bundle 1 Published Guidance, Item 3, P149
[19] Bundle 1 Published Guidance, Item 3, P149

applied to the isolation areas only. As such, any apparent inconsistency between the EM and SHTM03-01 ***(A33662259, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A v2.0 - Design and validation dated February 2014[20])*** can be reconciled and the two are not setting different environmental parameters. The key issue that we did notice was in the four air changes and the mixed- mode solution using openable windows, plus the four air changes. This was prior to the discussions with HAI-SCRIBE about the air pressures. The whole concept of the four air changes did not really feel discordant to us, particularly on wards, as the SHTM is a guidance document. They are not mandatory, and there are various notes on the SHTM where, for example, they state their preference is natural ventilation. There is a detailed description of mixed-mode ventilation, and they have a requirement for a minimum fresh air load of 10 litres per second per person. The four air changes in the wards, within a single bedroom, equates to about 50 litres per second which is the equivalent of the recommended air flow supply for five people.

25. If we are looking at a single bedroom, you are then thinking that allowing for five people seems more than sufficient to cover that fresh air load. The only area we did note, but which came out in later discussion, was the ensuites, where the SHTM-03-01 ***(A33662259, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A v2.0 - Design and validation dated February 2014[21])*** stipulates three air changes for bathrooms, yet Hulley and Kirkwood had gone for 10. In discussion with NHSL, we suggested to them that 10 for a single bedroom was probably a sensible allowance for the purposes of people's dignity. If you are in a single bedroom and unwell three air changes are a particularly low turnover rate, so it could be quite unpleasant. However, 10 air changes is more akin to commercial hotel-type levels, so we could see the logic in what they were saying.

26. There was also a lot of energy consumption information where Hulley and Kirkwood had based a lot of their energy predictions on four air changes. In retrospect I think there should have been derogations included in the briefing

[20] Bundle 1 Published Guidance, Item 3, P149
[21] Bundle 1 Published Guidance, Item 3, P149

pack to us, which would have explained the choice. However, at that point, our interpretation was that this was an engineering brief we were being given and we could not fault the four air changes on an engineering level. It is not unusual for air changes to be taken at a reduced rate particularly if you have to take energy consumption into consideration as I know that this has happened in other hospitals as well. It was not seen by Wallace Whittle as an unusual step and it did not appear to be a mistake, in as much as the rest of the documentation provided for the reference design supported and reiterated that four air changes were to be used.

27. The inclusion of the four air changes in the EM by Hulley and Kirkwood was not an issue as they had also provided their own predictions on the energy uses for the hospital, and in those predictions, they had reiterated the use of four air changes. The process requires you to compute how much energy the hospital would utilise on heating the air, or cooling the air, and it was my understanding that four air changes would work as part of mixed-mode ventilation, which is what the client wanted from review of the brief.

28. If you are using SHTM as the reference for a bedroom, then it allows for 100 per cent natural ventilation, however natural ventilation, from an engineering perspective, can never give you a guaranteed air change rate. There are far too many variables such as temperature, wind direction, wind strength. The concept of natural ventilation and its limitations for the prescribed air change rates is all detailed in the SHTM. The guidance documentation points you in the direction if you wish to go down the natural ventilation route, however it is quite difficult to do 100 per cent in a bedroom because you have to provide an openable area of I think one-thirtieth of the floor area. In hospitals, for security reasons, you have a restriction on the opening size of a window, which I believe is 100 millimetres, so to get one-thirtieth of the floor area room with windows, where you may only have one external wall, will require a lot of windows, although some people have used openable ventilators as opposed to openable windows, using a louver- type device. However, despite these restrictions it is not unusual for bedrooms within a hospital to be naturally ventilated, just like a room within a house.

29. I am aware that there were latterly concerns raised in regard to the four-

bedded rooms within the Critical Care Unit (CCU), we referred to these rooms as wards. The layout of one of these rooms has a corridor running through it with double doors either side of it. I did not see anything special on the Critical Care four-bed wards in terms of the layouts, or architectural solutions, which would have suggested to me as an engineer that these were technically different from the other four-bed wards. This decision was not one made in isolation and we, as engineers, would be not be qualified to make any decision on a clinical matter. Service provisions for critical care four bed wards were reviewed by the client both during the RDD process and as part of a further review of that specific aspect. In this ward you had to walk through a corridor to get to the other side of it, so you had two doors, and I remember saying, when the solution was being reviewed at the end of the contract "Look, if we pressurise this, how do you stop the pressure getting lost every time somebody opens a door? And what happens if both doors are open? The pressure goes away. at what point does this pressure become dispensable?" There followed various discussions on it, and I do recall someone suggesting that we could fit lights saying enter or do not enter, and I distinctly remember questioning the practicality of that. If an alarm goes off and the crash team runs in, they are not going to stop because there is a red light over the top of the door. I felt the ward was set up to me as it should have been, allowing staff to keep observations on the patients and the four-bed wards allowed for that.

30. I believe there is disconnect in the way that the Inquiry is looking at the ventilation issues within Critical Care, as I think they appear to have dropped the 10 pascals requirement, and I think that should get reviewed. As an engineer, if it were only 10 air changes, we would just increase the air volume, but you have to query that and ask why you would put in 10 air changes. The SHTM guidance ***(A33662259, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A v2.0 - Design and validation dated February 2014[22])*** is that you ventilate for two main reasons, with ventilation primarily, there to reduce body odours and to provide air for people to breathe, which is where the 10 litres per second per person comes in. However, when we start as engineers looking at air pressures, you realise that you have to put a significant amount of air into the room. For example, a large

[22] Bundle 1 Published Guidance, Item 3, P149

amount of air is put into operating theatres, about 25 air changes, and that is because we heavily pressurize that room, and we let the air flow from there into other areas.

31. From my recollection the four-bed areas did come under scrutiny but not until well after financial close and Wallace Whittle produced a report on every single four-bed ward and what the air balance was within them, whether it was positive or negative, The difference with the four-bed wards to single wards is that generally they had less extraction, as they would have a common bathroom area. So, again, there was a discussion about what the air balance was in terms of pressure, not of air changes, but of pressure and what we could do to balance these areas again.

32. These concerns over the four bed wards were raised by NHSL, however not really after financial close but during Construction, when there was a full review of all the four- bedded areas carried out by Wallace Whittle and NHSL. During this review we were looking at the pressure regime within the rooms, however when I say pressure, it is not a defined pressure rather a notional pressure. As a hospital engineer providing pressure you are putting more air into a room than you extract out, so there's notionally a bit more pressure within the room, or vice versa, you extract a more, so there's more of a nominal air flow into the room, with the exception of specific critical areas, such as isolation rooms, theatre areas etc, where there will be a defined pressure requirement, and we design the systems to that defined level, In order to achieve that, the architecture needs to reflect that need as well, so you would need air locks or lobbies and different finishes so that you retain that pressure. There are specific, numerated pressures and the 10 pascals within CCU, in my opinion, expresses that as a defined pressure that you should achieve, which we have in the isolation rooms. We did not note any discrepancies but during the design we had referred certain aspects back to NHSL where we felt the guidance had to be clarified. The pressure aspect is absolutely critical when looking at rooms as you have to have a solid box to maintain pressure. Every building leaks, but to maintain specific pressure you usually have to go a bit further sealing your finishes.

33. One issue I recall was over a small room within the CCU, where they had an

air lobby with a gowning area where we provided 10 air changes. There was a similar room, but it did not have the gowning lobby and it did not seem to fit the criteria of an isolation room, but we felt that it should be an isolation room, so we referred this back to NHSL for clarification. They advised us that our interpretation of it was correct, and we duly put in 10 air changes and 10 pascals. During our involvement in the project if we saw something which did not really accord with our understanding, we certainly queried it, and of course all of our designs were put through RDD. Everything that we did, be it water, drainage, ventilation, heating, all of those were up for comment and were commented on by NHSL and their technical advisers. We received comments and we also addressed those comments until we got to a level of approval that the design was aligned with what they were looking for. We were providing the engineering solutions and if there was some other clinical need or whatever that was outside of our terms of reference or experience, then we would raise that with Multiplex.

34. During the project Wallace Whittle were sub-contracted by Multiplex, we were working directly for them and in that relationship, we relied on Multiplex for direction. I am aware that there were meetings with IHSL and NHSL, but there were very few of them that Wallace Whittle would have been involved in, any outcomes would be fed back to ourselves. Our direct route, if looking to raise any issues was through the RDD process, where after financial close, we would be speaking with Mott MacDonald and NHSL on our designs. There were no communication lines with clinicians and Wallace Whittle and if there were any discussion with them then it likely happened through NHSL or IHSL meetings.

The Procurement Process

35. The BCRs state that there must be compliance with the EM, however it also states that there must be compliance with guidance, which included the SHTM 03-01 ***(A33662259, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A v2.0 - Design and validation dated February 2014[23])***. The Inquiry has asked me if I saw any issues for

[23] Bundle 1 Published Guidance, Item 3, P149

conflict with this. The SHTM is not always definitive, it is guidance and can provide you with different solutions. At no time did I feel there was any particular aspect where any of the solutions being applied did not fall within the guidance framework. No one within the team was coming up with their own bespoke solution and to the best of my knowledge we were complying with the SHTM guidance ***(A33662259, Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A v2.0 - Design and validation dated February 2014[24])***.

36. There was a lot of collaborative working during the project, but I can only speak for Wallace Whittle's relationship with the architects, structural engineers and other team members, within which everyone worked together well. We were not involved with NHSL/IHSL but had regular dealings with NHSL's advisors Mott MacDonald, as they were leading the RDD process. Occasionally it would get a bit fraught with them, particularly on the EM, where I felt they were unfamiliar as they had not prepared the documents. We had no dialogue with the EM authors, Hulley & Kirkwood, so it became a bit frustrating when the client had been apparently asking for something and then wanted it changed.

37. It was apparent that the date for financial close would slip and at the time we just accepted it. I think all of us were assuming that it was going to happen, and it was just a case of when it was going to happen. I do not recall it being a huge concern to us at the time because the actual detail of getting down to the detailed design follows on afterwards, and that is where our remit begins, when various engineers know what is required and we can begin doing the detailed design works.

EM within Reviewable Design Data (RDD)

38. As highlighted in para 15 above I felt the inclusion of the EM within the RDD ***(A32435789, Schedule Part 6: Construction matters, section 5 Reviewable Design Data[25])*** was an unusual step as this was part of the client's brief. With Multiplex or IHSL accepting that this was now a variable, I saw potentially a lot of implications from that. If, for example, it was decided that NHSL wanted to

[24] Bundle 1 Published Guidance, Item 3, P149
[25] Bundle 5 - Contract Documents, Item 7, P767

double the amount of air change rates for any particular area, it would have design and commercial implications. Wallace Whittle did not have any commercial incentive to provide people with a cut-to-the-bone solution, but if someone is looking to put six air changes into bedrooms for example, then the implications of that are that the supply air systems increase by 50 per cent. This results in the distribution system for that air increasing by circa 50 per cent, the main plant which is providing that air increasing by 50 per cent and the energy consumption increasing by 50 per cent. We also then have to look at the extraction side and how you then extract that air, so potentially you have to install another extraction system. From an engineering perspective, I am quite happy to do that as long as I have clarity on what is required, but there is a commercial angle to that, which will see greater spend and a substantial increase in your operational energy, which is going to be for the lifetime of the building. As an engineer it is apparent that is not a logical solution, but if that was what the client wanted then fine, but they would need to understand the implications.

39. As we reached financial close, I did not realise that the EM had been included within the RDD ***(A32435789, Schedule Part 6: Construction matters, section 5 Reviewable Design Data[26])*** package, I thought it was just our detail design solutions. This meant that the design solutions would be sitting in limbo, because until you have got the design brief sorted, there was only so far we could go with the actual design of the systems themselves, so it was not a good thing for us as designers. I thought it was unusual, however might have missed the discussions somewhere in amongst all the dialogue, and maybe if I had spotted it thought, “We’ll just go with the flow here.” I was not really bothered about any financial implications, more concerned over the engineering requirements, as I needed to brief my engineers on how they progressed the solutions, and prepare the drawings so we could get to the point of installation.

40. I recall being told by Multiplex that they had made the decision to put the building services all as RDD ***(A32435789, Schedule Part 6: Construction matters, section 5 Reviewable Design Data[27])***. That was not an unusual circumstance, given that engineering had only been progressed to a particular

[26] Bundle 5 - Contract Documents, Item 7, P767
[27] Bundle 5 - Contract Documents, Item 7, P767

point and it still had to be detailed and finalised, so having the client involved in that was a positive. It would allow us to get to a point where we could get the client to buy-in to proposed solutions and if there are issues, have meaningful discussion and reach an agreement on those going forward, as opposed to spending an lot of time going down the wrong path. However, with the EM that seemed to have v there to be fundamental changes to a client's brief during the course of the contract as the contract has to have a defined baseline. If that baseline has to alter post award, my experience is that normal practice would be that the client would have to instruct an alteration, because that alteration could have impact on a number of things, such as time, cost, and energy.

41. The environmental matrix now appears to have been in its infancy, but there was an expectation that it would become defined at financial close and form part of the client's brief. It is no different from a commercial application or any other building, as it is not unusual in other commercial developments to have a guiding engineer on the client side helping the client express what their intentions are. To have the EM added to the RDD ***(A32435789, Schedule Part 6: Construction matters, section 5 Reviewable Design Data[28])*** was not a decision we made and looking back I think it was potentially a dangerous thing to do, from a commercial aspect, bearing in mind that all the energy calculations were a big part of the tendering and the development of the building. Whilst environmental parameters were important, we could not lose sight that sitting parallel with that was energy efficiency and ensuring that the building ran as efficiently as it possibly could. The client would not be satisfied with a building that was going to be overly expensive to run, so it is all linked.

Room Data Sheets

42. The responsibility for the production of the RDS ***(A32505840, Schedule Part 6: Construction matters, section 6 (Room Data Sheets), Appendix 1 RDS Pack[29]),*** fell to the Architects, HML, working for IHSL as this process does not tend to be engineering led. The architect would normally lead the production of the sheets, they would only come and ask us for information to help them input data on the RDS ***(A32505840, Schedule Part 6: Construction matters,***

[28] Bundle 5 - Contract Documents, Item 7, P767
[29] Bundle 5 - Contract Documents, Item 8, P882

section 6 (Room Data Sheets), Appendix 1 RDS Pack[30]). In circumstances such as these, where there existed an EM, I would expect the architect to take the information from the EM directly and there would not be a specific requirement for an engineer to review. If the RDS sheets ***(A32505840, Schedule Part 6: Construction matters, section 6 (Room Data Sheets), Appendix 1 RDS Pack[31])*** had been produced by NHSL as part of the ITPD/BCRs, I would have expected the environmental conditions section of the RDS ***(A32623049, Schedule Part 6: Construction matters, section 6 (Room Data Sheets), Appendix 2 Environmental Matrix[32])*** to align with the EM. The EM only covers a portion of what's required to prepare a full RDS ***(A32505840, Schedule Part 6: Construction matters, section 6 (Room Data Sheets), Appendix 1 RDS Pack[33])***. I note that there is a focus on the environmental conditions portion of RDS but my understanding is that RDS ***(A32623049, Schedule Part 6: Construction matters, section 6 (Room Data Sheets), Appendix 2 Environmental Matrix[34])*** should also be providing a briefing to other designers and contractors, supplying additional construction information not included within the EM.

43. On other hospital contracts, I am aware that we have assisted in helping the client produce RDS sheets ***(A32505840, Schedule Part 6: Construction matters, section 6 (Room Data Sheets), Appendix 1 RDS Pack[35])*** along with the architect, however, did not see an absence of the RDS as unusual on the RHCYP/DCN project as we already had the EM. We needed the information for all the rooms to be able to compile the engineering solutions and to be able to size them up properly and do all design activities that we do. That information was absolutely key for us and the cornerstone of our designs. In the event that there were any obvious inconsistencies between RDS ***(A32623049, Schedule Part 6: Construction matters, section 6 (Room Data Sheets), Appendix 2 Environmental Matrix[36])*** and the EM, the process would have been to escalate the matter to Multiplex. We would not have made a judgement call on

[30] Bundle 5 - Contract Documents, Item 8, P882
[31] Bundle 5 - Contract Documents, Item 8, P882
[32] Bundle 5 - Contract Documents, Item 9, P1454
[33] Bundle 5 - Contract Documents, Item 8, P882
[34] Bundle 5 - Contract Documents, Item 9, P1454
[35] Bundle 5 - Contract Documents, Item 8, P882
[36] Bundle 5 - Contract Documents, Item 9, P1454

which took precedent but would seek clarification from our client.

44. I know from hindsight and from reading some of the information that there was a desire to have 100 per cent of RDS, but I believe there was an agreement reached that this would be for particular rooms. As above, our involvement in relation to RDS was limited to advising the Architect if it seemed to us there was any relevant information missing. We are able to assist with the ADB process, but we did not lead it, so it would only be if someone came to me or the team about a room datasheet, we would have an input at that point.

45. 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.

Scottish Hospitals Inquiry
Witness Statement of Susan Goldsmith
27 February 2023

Introduction

1. My name is Susan Anne Goldsmith. I was previously employed by NHS Lothian as Director of Finance, but I am now retired.

2. I provided a written statement to the Scottish Hospitals Inquiry ("the Inquiry") for the purposes of the May 2022 Hearing relating to the Royal Hospital for Children and Young People ("RHCYP") and Department of Clinical Neurosciences ("DCN") in Edinburgh. That statement outlines my roles with NHS Lothian, qualifications, and employment history.

3. The Inquiry has asked me to provide another written statement, this time relating to the procurement stages which took place in the period 2012 to 2015 of the RHCYP/DCN Project (the "Project"). This statement seeks to provide that information to the best of my recollection. It has been provided in response to specific questions I was asked at interviews by the Scottish Hospitals Inquiry on 22 November and 12 December 2022.

Role as Senior Responsible Officer

4. From July 2012 to February 2015 I was Senior Responsible Officer ("SRO") for the Project. I set out my role as SRO at paragraph 3 of my first witness statement and in oral evidence at the SHI Hearing on 17 May 2022. Brian Currie was the Project Director. As a direct report to me I would have routine monthly one-to-ones with Brian. I also established a weekly meeting with Brian Currie, Iain Graham as Director of Capital Planning and Projects, and other key individuals. The purpose of these meetings was to review progress, to consider risks, and to provide us all with a detailed oversight of some of the key issues the Project was facing. We used the meeting to consider if anything required to

be escalated, either to the Executive team and/or the Finance and Resources Committee. We also considered the content of routine updates to be provided to the Committee.

5. I chaired the Project Steering Board with Brian Currie and the Project team providing detailed support. The Project Steering Board included attendees from SFT and Scottish Government. Brian and I would agree the agenda and ensure that the appropriate papers/presentations were prepared for circulation to members. Updates would subsequently be prepared for the Finance and Resources Committee, including some which required a decision by the Committee.

Environmental Matrix

6. I can't recall if Brian raised the issue of the decision to use the Environmental Matrix (the "EM") at one of our one-to-one meetings. The EM would not be something that the Board was sighted on. The key issue for the Board at this time was the decision, through the Finance and Resources Committee, to utilise the reference design. It is important to note that at the point the Board entered into a contract with the preferred bidder, the preferred bidder took on responsibility for developing the design. This contractual responsibility would occur at the time of Financial Close, at which point the Board and the Preferred bidder (IHSL) entered into a contract (the Project Agreement). Through the signing of the Project Agreement, the Board passed responsibility for designing, constructing and maintaining the facility to Project Co (IHSL).

7. The decision to use the EM as a briefing tool would be taken by the Project team supported by advisors. This was a management decision and as such would not be something that the NHS Lothian Board (the "Board") would be asked to approve. As a Board of governance the Board has a responsibility to satisfy itself that the Project Board has oversight of appropriate systems of control, including identification and the management of risks in relation to the Project. The Board also has to be assured that the Project is being delivered in line with the agreed Board Strategy. The Board would rely on the scrutiny of the

Finance and Resources Committee, which was the committee responsible for overseeing the delivery of capital projects, including review of the risks (and their management) and the systems of control in relation to the Project.

8. The EM was one of multiple documents provided to bidders as part of the procurement process. As a Board of governance, Board members are not expected to have the relevant expertise/knowledge in relation to the delivery of complex capital projects. They rely on the expertise/knowledge of the Project team and supporting advisors. And as referred to above the scrutiny by the Finance and Resources Committee provided assurance to the Board on the delivery of the Project.

9. The Board could not possibly satisfy themselves that the EM was deemed to be of equal quality to room data sheets ("RDS") from the activity database ("ADB") because of the point I have made above. It would be management who would make a decision on that, with input from technical advisors.

10. I am aware that there was not a requirement for NHS Lothian to provide an EM as part of the procurement process. It was only because we were developing the design solution for the Children's hospital when it was to be funded from public sector capital in 2010 that an EM was available. When we produced all the documentation for bidders, the EM was provided for information. It was disclosed data. I do not have the technical knowledge to comment on whether the use of an EM could have led to misunderstanding.

11. My understanding is that the Project team (on behalf of the Board) was aiming to make the best use of the significant time and investment in design that had already been undertaken before the capital funding was withdrawn. The Board had invested £2 million of public money in developing a design supported by an EM for the capital project. All the deliberations were about how we ensured that the work either completed or in progress to date was not lost, in particular the clinical time required to input to the design, and to ensure £2 million of public money, taxpayers' money, was not wasted.

12. We understood that the 2 procurement routes (NPD v Capital) were different and that the Board's contractual responsibility was different for both. The Board's view was that we could not waste that public money. Therefore, we tried to utilise what we could from the crossover between the capital-funded project and the NPD. It would be difficult for me to say, "The inclusion of the EM was misleading," or, "It was the wrong thing to do," because the intention was the right intention.

13. There was an error in the EM but this was not known by NHSL until after the build. Once this was identified the Board undertook a detailed audit, the Grant Thornton audit, and accepted that there was an error in EM. The conclusion of the Grant Thornton was that every party involved in the development of this Project missed the error in the EM.

The Reference Design

14. The reference design was developed from the original design development in progress for the capital funded project. After the change in funding to NPD, the design had to be developed further to include the DCN element of the Project (which had also commenced as a separate capital funded project). The reference design team were managed by our Technical Advisors, Motts, who sub-contracted the project management of the reference design to Davis Langdon. The reference design team included the same design team that had been progressing the design under the capital phase, including the same mechanical and electrical ("M&E") engineers (Hulley & Kirkwood) and architects (Nightingale Associates and BMJ). This continuity in the design team was considered to be of huge benefit in terms of salvaging design work to date and making significant time and cost savings.

15. Oversight of the reference design was undertaken by Brian Currie as Project Director and the day to day running by the Project team, including Capital Project Managers, a Clinical Director and Motts as our Technical Advisors. The reference design development required the input of multiple user groups, largely clinical but also facilities staff, over a long period of time with the

reference design team. The purpose of engaging with these multiple user groups was for the designers to understand the clinical and operational requirements of running, in this case, a children's hospital and then this combined with a DCN department. From that user engagement, the reference design team translated the clinical and operational needs into a reference design. This was a very significant piece of work and I recall it taking circa a year or so to complete.

16. The decision to use a reference design instead of an exemplar design was discussed at the Project Steering Board on 11 May 2012. Brian Currie prepared a paper dated 9 May 2012 recommending the use of a Reference Design which was approved. The Paper was based on Mott MacDonald's advice in the report: RHSC + DCN – Approach to Reference Design".

ITPD

17. As SRO I had responsibility to oversee the ITPD process, but I was not involved in the detail of it. The purpose of providing the reference design (as well as the reasons set out above) was to give bidders an indication of operational functionality. This means setting out how the hospital needed to function including the relationship between wards and departments as advised by clinical and other user input as referenced above. The tenderers also had a responsibility to comply with national guidance, including SHTMs.

18. I have been asked if the fact that the draft EM was not mentioned in the draft contract in volume 2 of the ITPD as reviewable design data had any practical implications for the Project or the design. It should not have had any practical implications because the design had to be developed and the Project Agreement was yet to be finalised.

19. I have been asked whether NHS Lothian needed to provide bidders with an EM. Prospective tenderers did not need M&E engineering information because it was up to tenderers to develop the design of M&E building services. If we had started on an NPD project initially, then all of that would have been developed

by IHSL from the word go. However, it was because we had invested £2 million on the development of a design during the capital phase, which was supported by an EM, that we reached the decision to make it available. I cannot answer how useful the draft EM was expected to be to engineers. Only in the sense that we had done a lot of work, so why would we not make it available to the engineers? The provision of the draft EM did not mean that prospective tenderers or preferred bidders would not then need to refer to SHTMs or use the ADB. SHTMs should have been their starting point.

20. In retrospect, due to what I know now, I wish we had not included the EM because we didn't have to include it. However, I believe we provided it for the right reason. But it ought not to have contributed in any way because the Project Agreement with IHSL included a requirement to comply with SHTM 03-01 or to at least flag any inconsistency in standards. It was IHSL's responsibility to deliver on that. When the Inquiry look further on in the Project, it will be seen that NHSL wrote to IHSL in January 2019 for reassurance that that guidance had been complied with. IHSL confirmed it had been. IHSL entered into a contract accepting that they had responsibility to deliver against SHTM 03-01 and gave us reassurance that that was the case. It later transpired they had not complied with SHTM 03-01 in critical care.

Competitive Dialogue

21. I was not involved in the detail of the competitive dialogue workshops, assessment of tenders or scoring of bids. As SRO, I had to be a step removed from the process. I was part of the Board making the decision as to which bidder should be appointed so I had to be truly independent. Therefore, I did not assess submissions, evaluate or score the bids. My prime responsibility was to make sure that there was a process in place so that anything that needed to be escalated was escalated to the appropriate Executive Director or to the Finance and Resource Committee or to the Board if necessary.

22. As Project Director, Brian Currie was responsible for the procurement process with support from Mott MacDonald. The competitive dialogue phase, and the

subsequent evaluation of tenders, was managed through three workstreams: Design and Construction, Facilities Management and Strategic Management. The different workstreams were populated by key individuals from the Project team and were supported by the appropriate advisors (Motts for technical, Macroberts LLP for legal and Ernst & Young for commercial). This process was agreed by the Project Steering Board. SFT completed a pre ITPD Key Stage Review which included a review of our evaluation process. That would have been signed off by the Project Steering Board.

Project Steering Board Meeting - 29 November 2013

23. I have been asked to look at the minutes of the Project Steering Board meeting 29 November 2013 (A32676816 – Project Steering Board Action Notes 29 November 2013) . I have been asked what points were outstanding from this meeting and why the Project Steering Board was content to proceed with close of competitive dialogue.

24. As noted in the minutes, there were key outstanding issues discussed. The first point is about the payment mechanism. The contract warning was in a contract termination threshold. That is in relation to the payment mechanism that would be a part of the Project Agreement. The point being made is that none of the bidders were that comfortable with what was proposed in the payment mechanism. They all advised that the funder would be unlikely to accept that element because of the risk of termination. The threshold for termination was possibly too low from a funder perspective. However, all the bidders had accepted that that was SFT's position on the payment mechanism. At this point we were noting that there might be a risk, when we got to funders' agreements, that the payment mechanism would not be acceptable and changes may be required. There wasn't anything else we could do because it was an SFT requirement.

25. The second point was about the third-party contamination but Iain Graham or Brian Currie would be better placed to discuss this. I don't know whether that relates to the petrol station or the hospital. I cannot recall. By way of

background, we had acquired the petrol station to give us better access and more land in support of the Project.

26. The third point was about tax requirements and again related to the position with the funding of the Project and was discussed within SFT. Our financial advisor was aware of the issue but the ownership of any aspects of the PA/payment mechanism primarily rested with SFT and Government. We had responsibility for the accounting implications within our Annual Accounts but not the tax implications.

27. The fourth point related to the petrol station again. It there was any decontamination issues outstanding, that would be our risk. When we issued the ITPD, that land would not have been in the original documentation. However, once we had acquired it, we changed what was going to made available to be used for the Project.

28. The Project Steering Board was content to proceed to recommend close of dialogue at this stage because these issues were all understood and had been agreed or had solutions. Peter Reekie of SFT commented that while the points discussed were outstanding, he saw no reason for them not to be completed in the next week to achieve close.

Pre Close of Dialogue Key Stage Review – December 2013

29. I have been asked to look at the Pre- Close of Dialogue key stage review December 2013 (A33337058 – Pre-Close of Dialogue Key Stage Review – 13 December 2013) . I cannot answer specifically what information was supplied by NHS Lothian to SFT for the purposes of the key stage review. What I can say is that the Board would not have concluded the dialogue without SFT agreeing that we had met all the criteria to do so.

30. SFT were fully engaged in the decision-making process. Donna Stevenson of SFT attended multiple meetings with the Project Team and Peter Reekie of SFT was on the Project Steering Board. SFT owned the NPD process and

oversaw every single stage of it. The Board were the procuring authority but we could not have secured the funding for the Project if SFT had not signed off at each stage. The Board certainly could not have reached a decision to close competitive dialogue without SFT being satisfied that we were ready.

31. I have been asked what is meant by the word “challenging” in this document (page 56). The Board’s original programme was that there would be nine months from the appointment of preferred bidder to financial close. SFT wanted to shorten that to six months. I understand that there was a concern about uncertainty in the market for funders in relation to the Independence referendum. SFT were also managing a pipeline of Projects and the associated timing of the likely funding requirement for those Projects.

32. Brian Currie and Iain Graham were very concerned about shortening the period to six months because of the work involved in reaching financial close, and their initial assessment was that this work could not be satisfactorily concluded in 6 months. They highlighted these concerns to me as SRO and to SFT. However, my recollection is that this 6 month period became an SFT requirement.

Evaluation Criteria

33. The procurement evaluation was based on a weighting of price 60 percent, and quality 40 percent of the overall evaluation score. I did have concerns about this split. Normally, under a capital build, the Board would have considered giving a higher weighting to quality in support of the Board’s responsibility to deliver patient care safely. The Project team, with my support as SRO, made representations to SFT in relation to their concerns. However, the Board also has a responsibility to deliver government policy and at that time government policy was the utilisation of NPD programme to deliver some key capital projects. Oversight of the delivery of this policy rested with SFT. SFT worked with colleagues in the Health finance in relation to the use of or access to NPD funding. This included SFT’s requirement for the 60/40 price/quality evaluation. As a Project team we tried to mitigate this by utilising a pass/fail for certain criteria. We worked with our financial advisor to make sure that where there

were certain aspects of the evaluation that did not meet an appropriate benchmark, we would evaluate it as a fail. I can't remember the detail, but I do recall that there was a lot of discussion about how we mitigated what we considered was an imbalance in the weighting.

Assessment of Tenders

34. I have been asked what procedures were put in place by the Board to ensure that there was suitable expertise at the assessment stage, given that Hulley and Kirkwood had been released from the Project. Mott MacDonald, the Board's technical advisors, had been involved from the outset of the Project, even when it was capital funded. Motts were content with the reference design that was included as part of the ITPD package they pulled together for the Board. Motts then assisted during the competitive dialogue and assessment process and were the Board's Technical Advisors for the duration of the Project. The Board were reassured that Motts had the relevant expertise in the absence of Hulley & Kirkwood.

35. There was a formal process to appoint specialist advisors. Iain Graham led this process. This took account of the skills of the key individuals being proposed by all advisors. Iain would have also secured professional input to this appointment process from other members of the wider Project team. I am satisfied that there was a process in place to ensure that each of the advisors we ultimately appointed were the right advisors for the Board.

36. As noted, I was not involved in the assessment of tenders or evaluation of them. I understand that one of the tenderers did amend the EM in their final tender but I was not aware of that at the time. The Board would not have been told about the detail of the submissions, including any amendments to the EM by bidder C, Mosaic.

37. The Board received a Paper that Finance & Resources received setting out the high- level scoring and evaluation. They received the scores, but they did not see the detail of how those scores were arrived at. So they would have seen

how Mosaic scored comparatively to the other bidders, but not the underlying submissions. The three bidders were very close. There was little between them and it was IHSL who scored the highest overall.

Appointment of Preferred Bidder

38. I have been asked to refer to the Preferred Bidder Letter from 5 March 2014 (A36382455 – Preferred bidder letter from NHSL to IHSL – 5 March 2014) . This was on the same day as a Finance & Resources committee meeting which I attended (A33887882 – Minutes of the Lothian NHS Board, Finance and Performance Review Committee Meeting dated 13 February 2008) .

39. The formal appointment was considered by Committee members following consideration of reports from all advisors providing assurance that the Board's requirements had been met. In particular, I note paragraph 61.10 in which Motts confirmed "from a technical perspective that the technical evaluation had been carried out in a manner consistent with the evaluation methodology. From their involvement in this process, the considered scores awarded for the technical evaluation criteria seemed to be correct and it appeared appropriate for the Board to conclude the evaluation process and appoint the bidder". It is stated at paragraph 61.20 by Motts that they were *"happy with the evaluation and satisfied that the preferred bidders was in full accordance with the requirements"*. Similar assurances were obtained from our commercial and legal advisors.

Project Steering Board – 22 August 2014 - Room Data Sheets

40. I have been asked when the decision was taken to depart from the requirements within ITPD requiring a bidder to provide a full set of room data sheets. I have been shown a minute of a special Project Steering Board dated 22 August 2014 in which it is recorded that NHS Lothian are comfortable that 100% of RDS will not be required for financial close, although the prioritisation of what was required was still to be agreed. The Board did not simply abandon having the room data sheets. Room data sheets were provided at Financial

Close for the key and generic rooms, which represented 52% of the hospital. The remainder were produced during the construction period and subject to the Reviewable Design Data (RDD) process, providing for a contractual mechanism in place in relation to the RDS. At preferred bidder stage it was difficult for the requirement for 100% RDS to be enforced. We re-profiled the requirements into a different period where there was an enforceable contractual right.

41. By way of background, our contract was with IHSL, but there was a considerable level of engagement with their supply chain, namely the building contractor, Multiplex. Multiplex would ultimately enter in to a building contract with IHSL to design and build the hospital. It was clear to the Project team that Multiplex were not making the design progress that we would have expected them to make. Although our dialogue should have been with IHSL and IHSL should have been having a discussion with Multiplex, IHSL stepped back and we had to engage directly with Multiplex, who were on the ground developing the design. Multiplex got to a point where they said that they had essentially spent as much money as they were going to and were not going to progress the design any further until they had a formal contract, with IHSL, which could only be in place at Financial Close.

42. I was aware of these issues because Brian Currie escalated his concerns about them to me. I escalated his concerns to George Walker, Non-Executive Director for NHS Lothian, and this resulted in the meeting of a “Special Steering Board” on 22 August 2014 and subsequent meetings of the “Commercial Sub-Group of the Steering Board” on 26 September, 31 October and 22 November 2014. These meetings were specifically set up to address issues leading to delays in reaching FC. The meetings included representation from the NHS Lothian Board, SFT, Scottish Government, Multiplex and Macquarie Capital, who were equity of IHSL.

43. We were seeing increasing evidence of a concern in the Multiplex senior team of the level of investment they had expended to date in getting to this stage without having a contract in place with IHSL. The meeting in August was not

the first time this issue in relation to RDS arose. I cannot remember exactly how a compromise was reached but given the passage of time we recognised that some kind of compromise would be required. We concluded that in order to reach Financial Close we would have to agree a pragmatic way forward with Multiplex and IHSL.

44. The context and the point I made in the last set of hearings was that this hospital was due to be originally completed in 2012/2013. Here we were in 2014 without a contract for the hospital to be built. The clinical services were operating out of the old Sick Kids hospital which was no longer fit for purpose. The same was true for DCN. Therefore, at some point over that summer we concluded that, in order to get to Financial Close, the Board would have to compromise. We only reached that conclusion with active engagement with SFT, Scottish Government and discussion at Finance & Resources Committee. It was an iterative process over that summer and beyond when we realised that progress was slower than we would have liked.

45. These were not easy meetings. They were difficult and tense, despite the initial relationship with both IHSL and Multiplex being very positive. The pressure to accept a compromise was really driven by the commercial position of Multiplex. They used the commercial leverage they had, knowing that the hospital required to be delivered and that we had limited options without compromising the programme even further.

46. I don’t recall if approaching another bidder was ever considered. I don’t think so. All the discussion was in the context of making the Project work. We were already concerned about the facilities at the children's services and DCN. The Board's prime responsibility is the delivery of safe patient care and delivery of the Project to meet that obligation was agreed as part of the Board’s strategy some years previously.

Project Management Group Meeting – 27 August 2014

47. I have been asked to refer to the Project Management Group Meeting on 27 August 2014 (A34225367 – Project Management Group Meeting Minute – 27 August 2014) . I did not attend PMG meetings. It is stated, “Lianne Edwards advised that, during a review of the EM, a number of discrepancies had been uncovered, impacting on room data sheet production and requested input from NHS Lothian, IHSL to raise request for information.” I have been asked if the Board were made aware of these issues. They would not be, as I have previously stated this would be one of a number of issues and part of the management of the Project. The EM did not feature at all in any discussions. It was a document to support the design development.

Email Chain Brian Currie to Susan Goldsmith - 23 September 2014

48. I have been asked to refer to an email chain ‘Brian Currie to Susan Goldsmith and Iain Graham to B Currie and S Goldsmith re Progress to FC - Areas of Concern, 23 September 2014’ (A35616638 - Email chain Brian Currie to Susan Goldsmith and Iain Graham to B Currie and S Goldsmith re Progress to FC - Areas of Concern, 23 September 2014) . I have been asked about the heading “Derogations, Operational Functionality and Room Data Sheets.” These issues may have been discussed in private at the Finance and Resources Committee but I cannot recall. We did not have a formal paper updating on progress of the Project at every single meeting of the Finance and Resources Committee but we would brief Committee members. I would also brief George Walker as chair of Finance and Resources Committee if there were issues.

49. I was already aware that there were issues with the progress that Multiplex were making with the design, as were SFT and Scottish Government. Brian Currie first made me aware of it by way of email in August 2014, at which point I escalated it to George Walker, non-Executive Director, resulting in the special project steering board meetings in August, September, October and November 2014. Multiplex adopted a very commercial position that they were not prepared to spend any more money on design development. We put them under

significant pressure with those special Project Steering Board / commercial sub-group meetings. George Walker attended at least one of the meetings because of his commercial experience.

50. Issues would be discussed at Board level; they would also be discussed at the Finance and Resources Committee. This is not necessarily always evident through the minutes because these were clearly very commercial discussions and issues that would not have helped the Board's negotiating position if they were in the public domain at that time. Therefore, the minutes might capture that there was a discussion about the progress being made on the Project, but not provide the detail. But they would certainly be actively discussed with Finance & Resources Committee members.

51. I was the Executive Director lead for the Finance & Resources committee. I would, with George Walker as chair of Finance and Resources Committee, agree what needed to be escalated to the Board but, because of the commercial sensitivities around the Project, that would often mean that it was a presentation to the Board in private or a formal private meeting.

52. I would have decided with George Walker what needed to be discussed at the Board, but would also have discussions/phone calls with Mike Baxter and/or Peter Reekie about key issues/challenges. We were all working together to ensure the Project was delivered and successful. I would brief Mike Baxter or John Matheson who was Director of Finance at SG Health Department or Peter would brief them. Peter and Mike would be aware of issues because they sat on the Project Steering Board, and they would either brief finance in the Scottish Government or the Health Department. Therefore, just because items were not discussed at an NHS Board, does not mean they are not briefed. The Board were kept informed throughout about issues surrounding the preferred bidder.

53. We had multiple discussions about all the issues with Consort and the delivery of SA6 and SA7 with the Board. Without those legal and commercial agreements being completed there was no Project. In terms of the Board level

discussion on the issues with the preferred bidder, this was certainly discussed at the Finance and Resources Committee. This is the reason it was agreed that George Walker, as Chair of the Committee, would support discussions with Multiplex and IHSL The chairs of the committees would meet with the Board chair informally on a regular basis. George would no doubt, at that point, brief the Board chair about the issues that the Finance & Resources committee were discussing in relation to this Project, other issues as well of course.

54. I have been asked whether the Board took any confidence from Multiplex because of the QEUH hospital in Glasgow. IHSL were appointed because they scored the highest. However, there would have been a confidence that Multiplex could deliver the RHCYP + DCN as they had delivered, at the time, the Glasgow hospital. I wouldn't want to overplay that, but it certainly gave a confidence that the same team – they were literally finishing in Glasgow – would transfer to the Edinburgh Project and be led by the same individual from Multiplex. With the benefit of hindsight, if we had known about the difficulties Glasgow encountered with their building, then the conversation might have been completely different. However, at that time that project had delivered a huge hospital on time to budget and was deemed a success and everyone was very happy with that. So yes, I think the Board did take some comfort and confidence from Multiplex's experience and success.

Project Steering Board Commercial Subgroup – 31 October 2014

55. I have been asked to look at the minutes of the Steering Board Commercial Subgroup dated 21 October 2014 (A33044797 – Steering Board Sub-group – 31 October 2014) . I sent my apologies for this meeting so I was not in attendance. However, at this point, there was ongoing concern and tension about our collective ability to achieve financial close by Christmas. I would have had multiple discussions outside of these meetings and with Peter Reekie in particular.

56. The fact that SFT and Scottish Government attended the meetings was an indication that this was being escalated to the senior players. There was quite a

bit of frustration on the Board's side that we were being drawn into issues with Multiplex directly that really should have been the responsibility of IHSL and Multiplex to deliver. However, in the interests of delivering this Project we had to engage with Multiplex directly to solve the problems that had arisen. As referenced earlier in my statement, the prolonged timescale for the delivery of this Project was a major concern for the Board. All parties wished to achieve financial close.

57. I have been asked to comment on a detail of the minute in which Mr Ballantyne, of Multiplex, states (A33044797 – Steering Board Sub-group – 31 October 2014) that "there was a difference in opinion over the level of detail expected in Project Co's Proposals (PCPs), but the open-ended requirement that "the Board had to be satisfied" was difficult to achieve." As I understood it, there were two aspects to this problem. Principally, that Multiplex had been very slow on the overall design development. The reason for that was, as referred to above, they had taken a commercial decision that they were not going to invest any more money in design development until they had a formal contract so as to avoid abortive costs. They would have had a budget for the design development, but my understanding of it was that they had come to a point where they commercially said, "We're not going to spend any more money on this. We've done enough to demonstrate that we can build this hospital". Multiplex considered they'd done enough to satisfy our operational functionality requirements and did not need to do any more.

58. The engagement of senior players from all the parties, including SFT and Scottish Government gives an indication of the commitment there was to deliver this Project. We accepted that each party was carrying risk. It was just whether that risk was evenly distributed. I certainly felt that everyone was doing their very best to keep the Project moving on. We managed this risk for the Board by utilising the RDD process.

Risk Register - 18 November 2014

59. I have been asked to refer to the Risk Register dated 18 November 2014 (A33337268 – NHSL RHSC and DCN Risk Register – 18 November 2014) which highlights a risk of the programme being delayed in reaching financial close. The controls to minimise the risk refer to the "close management of progress, including at the most senior level by IHSL by Steering Board Commercial sub-group – next meeting on 21/11/2014." This supports what I've said about escalation of the issues we were encountering via the special steering sub-group, which was attended by senior players in SFT and SG.

60. At this point in November 2014, relations, at a principal level between NHS Lothian and IHSL were professional and respectful. At a Project team level there was more tension because everyone was working really hard to try and deliver the Project within a tight timescale. There was a frustration within the Project team that Multiplex were not providing the information that the Board required to reach financial close. It is fair to say that it wasn't the easiest of times, but everyone was engaged and trying to move the Project forward.

61. Getting to financial close was a significant milestone. The Board and Finance and Resources Committee were aware of the issues, but also recognised that this was a really complex Project. I would be signing a contract on behalf of the Board for a capital build of £154 million and an ongoing revenue cost over 25 years. Despite the concern of the Board to reach financial close, there was also recognition that achieving financial close was challenging. From my perspective, although a target completion date is set, completion would only take place once there was confidence that all parties were satisfied with the contract, including that risks had been adequately mitigated. This included the agreement of SFT.

62. There was a significant amount of reviewable design data, more than originally anticipated, which is also flagged in this risk register. These risks were deemed acceptable but the Board recognised that it meant there would be an increased

amount of work for our team, more than was originally anticipated, via the RDD process. Comfort was taken in the fact issues had been picked up and were able to be solved as part of the contract.

January 2015

63. I have been asked to look at the TUV SUD/Wallace Whittle Air Movement Report (A34225453 – Wallace Whittle – Air Movement Report for Single Bedrooms (draft) – 12 January 2015) I was not aware of this report until around 2016 when the issue in relation to air pressure was discussed at the Finance and Resource Committee.

64. I have been asked to look at an email chain in relation to air pressure between Ian Stewart and Janette Richards on 14 January 2015 (A35614504 – Email from David Stillie to Janette Richards – 13 to 14 January 2015) . I was not and would not expect to be aware of this particular issue unless it was escalated to project steering board.

65. I have been asked to look at the document entitled RFI Summary (A34813021 - IHSL RHSC+ DCN RFI Summary - 20/01/2015) . It is a Multiplex document. I was not aware of this RFI at the time and would not expect to be.

Pre Financial Close Key Stage Review 11 February 2015

66. I have been shown the Pre Financial Close KSR (A33336933 - Pre-Financial Close Key Stage Review - 11 February 2015) . Question 3 (page 82) seeks confirmation re the status of the technical documentation and asks whether the Procuring Authority, and its advisors, are satisfied that the further development / document production is achievable. This question is answered by SFT noting that the Board is content with the documentation subject to further development through RDD following Financial Close and that the construction proposals are of sufficient detail to provide sufficient certainty to the Board as to what is to be provided. So here you see the resolution – the level of detail is deemed sufficient to go to financial close and there is a contractual mechanism in place

to deal with further design development. This was of course after the issues had been escalated and discussed at these special Project Steering Board meetings where SFT were present so they were fully aware of the issues when they prepared this KSR.

67. This whole section 3 of the KSR is title “Project Requirements”. Question 2 asks whether the Board is satisfied that the preferred bidders’ solution satisfies its operational and functional requirements. The is a key aspect in that it is testing whether the hospital could be built so that it would function effectively as a children’s hospital and a department of clinical neurosciences. The important aspect of that is things like the layout of the building and the relationship between different services. That is why the comments on that question refer to the fact that the detail of the design had been discussed with user groups to ensure clinical support and the Board confirms that it had received appropriate internal sign off. Obviously, this is SFT’s document, but my understanding is that that was really the prime element of this part of the assessment, that the relationship between the departments and the facilities was effective for the Board because this was the element of design, operational functionality, that the Board retained risk for.

68. We were all funded by taxpayers – SFT, Scottish Government, the Board – and of course we’ve all got different roles and responsibilities but, from my perspective, we were all part of the same time. It is difficult because the KSR could be read as though the Board was entirely separate from SFT and the Scottish Government but, in practise, we worked together with them to deliver this Project.

Financial Close

69. One of the other aspects of financial close, other than finalising and signing project documents, is the terms secured for the financing of the Project. SFT owned that element of the Project. Andrew Bruce of SFT provided the relevant financial advice on whether the market conditions/price of finance represented best value/was affordable for the Project. We would have not been able to

reach financial close until SFT were satisfied that the cost of finance was affordable for the Project (and the overall NPD pipeline). Our financial advisor was responsible for providing the Board with independent professional advice on the financial terms available and was able to verify SFTs conclusion that the cost of funding was affordable and represented best value.

70. Ultimately, even if everything had been ready but there was a change in market conditions that impacted the cost of finance and hence affordability then I believe financial close would have been deferred. SFT owned the process so we could not have signed until they had secured the appropriate financing. By the time we collectively agreed that the contractual documentation was ready to go and we were all satisfied that our risks had been mitigated, it was then over to SFT who determined when we would sign from a financing perspective.

71. 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.

Scottish Hospitals Inquiry
Witness Statement of
Susan Grant

1. My Name is Susan Grace Grant.

2. I work for NHS Scotland National Services Scotland ("NHS NSS"). Within NHS NSS, I work for NHS Scotland (“NHSS”) Assure and, within that, Health Facilities Scotland (“HFS”). I am a Principal Architect.

3. NHS Scotland Assure was created in 2021 by the Scottish Government bringing together two existing NHS NSS divisions, HFS and Antimicrobial Resistance & Healthcare Associated Infection (“ARHAI”). It builds on the strength of both organisations and formalises their prior collaboration and processes to provide greater assurance that the Healthcare Built Environment (“HBE”) is safe, fit for purpose, cost effective and capable of delivering sustainable services over the long term.

4. The creation of NHSS Assure provided additional resource to develop and augment key HBE work streams, processes and support, under a single point of accountability. These include HBE research and development, subject matter expertise, guidance production and critically, assurance processes such as the existing NHSS Design Assessment Process (“NDAP”) and the new Key Stage Assurance Review (“KSAR”) to holistically review capital projects. Together, these combine to support NHSS Boards to demonstrate HBE quality and compliance at key stages in procurement and lifecycle.

5. In 2021, following prior HFS and ARHAI reviews of key engineering elements of the Royal Hospital for Children and Young People (“RHCYP”) / Department of Clinical Neurosciences (“DCN”) and Queen Elizabeth University Hospital (“QEUH”) projects, it was deemed necessary to have more rigorous joint HFS and ARHAI reviews for HBE engineering and infection control elements. The new KSAR was introduced to focus on construction elements where prior reviews had demonstrated potential patient safety concerns, concentrating on water, ventilation, electrical, plumbing, medical gases installations, fire, and

associated Infection Prevention and Control ("IPC") guidance. Reviews take place at multiple points during a project, from development, through construction to hand-over and the building in-use. At the end of each review, the KSAR team draft an assurance report, to which NHSS Boards respond with an action, then the report and action plan, plus confirmation of whether the KSAR team 'support' the project are submitted to Scottish Government.

6. Introduced in 2010, NDAP provides a multi-stage HBE design review process, from Initial Agreement ("IA") through to the Full Business Case ("FBC") for any NHSS capital project. NHSS Assure partner with Architecture and Design Scotland ("AD&S") to support NHSS Boards in the development of their HBE brief, facilitate stakeholder engagement, quality benchmarking, self-assessments and other activities to enable their project quality assurance. Prior to their business stage submission to Scottish Government, their project evidence to date is also independently reviewed and reported on by multi-discipline HBE experts from NHSS Assure and AD&S. NDAP provides project specific 'Essential' and 'Advisory' recommendations together with a 'unsupported' or 'supported' status. 'Essential' relate to compliance with health & safety, technical standards, NHS Guidance and project's agreed HBE quality benchmarks. 'Advisory' relate to best value or peer / good practice recommendations. NDAP 'verification' is provided by NHSS Board's letter of commitment and timescales to implement the NDAP recommendations.

7. If designed today, the QEUH and RHCYP / DCN projects would both be subject to the parallel, complimentary processes of NDAP CEL(2010)19[1] and KSAR DL(2021)14. Scottish Government business case approval to proceed would therefore be predicated on a receipt of both NDAP and KSAR 'supported' status reports, plus Board 'verification' / 'action plans'. Together these processes provide holistic, independent reviews, commitments by Boards, and ensure a golden thread of information and accountability throughout briefing, design, construction, handover and potentially in-use. (In

[1] [1] Bundle 1 – Published Guidance – A37215536 - CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010 – No.6, pg.553

future, these two processes will continue to develop, and may ultimately lead to a seamless single HBE quality and safety review process.)

CAREER HISTORY

8. I started working as an architect in 1989 with a London firm specialising in two sectors – retail and healthcare. I did healthcare, and since then I have been hooked on healthcare design for the 30 years I have practiced architecture. In 1992, I joined the NHS in Scotland for the CSA ("Common Services Agency") Building Division and did about two to three years there. We were then part of a TUPE transfer to a private design practice firm, primarily to deliver healthcare projects. I spent 17 years there, designing largely NHSS work but also on healthcare projects across the UK NHS, Ireland, Middle East and Canada. I spent 2012-13 as a client lead/ project manager at Glasgow University, where I delivered several joint University and NHS projects. My current role as HFS Principal Architect, began in September 2013.

9. As a member of the Architects Registration Board ("ARB"), Royal Incorporation of Architects in Scotland ("RIAS") and Royal Institute of British Architects ("RIBA"), I am a fully qualified chartered architect. There are no specific qualifications for a healthcare architect. However, as an Architect, for 30 years the healthcare sector has been my primary focus. Healthcare design is uniquely technically complex, but its core aim is the active promotion of health and wellbeing outcomes for all users, and particularly those most vulnerable. I have designed for a diverse range of projects, from strategic planning for health boards, on major regional strategies- such as where they want future clinical services to be in 25 years' time; through to design lead for +200-bed new build hospitals. I have also worked on many specialist clinical refurbishments and extensions of health centres. For 20 years, I was a regular user of NHS Guidance, whilst in private design practice and/ or within the NHS/ University in a role directly delivering healthcare facilities.

10. Since 2013, my HFS Principal Architect role is to support NHSS Boards and Scottish Government to deliver quality healthcare facilities. In this role, I

administer the NHSS NDAP, which involves reviewing NHSS capital projects as they are developed. It also involves acting as ‘custodian’ for our NHSS Guidance publications related to NHS property and design (see Paragraph 13. below). Our NHS Guidance covers everything in HBE, from how to design a general hospital; through to what does a cancer unit need to function, down to the door ironmongery specification.

11. This witness statement is based on my Inquiry interview of 15 November 2022, and my answers are in relation to specific themes for discussion which were provided by the Inquiry in their email of 9 November 2022 in the Paragraphs A – D referenced as headings below. Some themes and questions predominantly relate to specific NHS Guidance ventilation series from my HFS engineering colleagues. I therefore caveat my answers below, that any detail related to SHTM 03-01 series should be directed to my HFS engineering colleagues. My responses relate to my experience and roles as HFS Principal Architect, and prior to this my healthcare architect, design lead, project manager roles, and regular user of of NHS Guidance and ADB system.

PARAGRAPH B – SUMMARY OF GUIDANCE FROM HFS

12. NHS Guidance publications setting national healthcare built environment quality standards for a general hospital has a history almost as old as the NHS itself. They emerge from a need to set standards for Government investment in the NHS, and ultimately are the responsibility of the Government. In 1955, Nuffield Provincial Hospitals Trust published ‘Studies in the Functions and Design of Hospitals’. Ministry of Health in 1961 first published Hospital/ Health building notes (“HBNs”) 1 to 4. The first topics were, Building for Hospital Service, their cost, the District General Hospital and the Ward. HBNs still continue today, from HBN 00 up to 57, to give best practice guidance to support the briefing, design and planning of new healthcare buildings and on the adaptation or extension of existing facilties. Since 1970s Health Technical Memoranda (“HTMs”) series have given comprehensive advice and guidance on the design, installation and operation

of specialised building and engineering technology used in the delivery of healthcare. NHS Guidance topics evolved and expanded over many decades, adding to both the number of HBNs and HTMs, and to other miscellaneous series of NHS Guidance publications, e.g. Health Facilities Notes ("HFNs"), Fire Practice Notes ("FPNs"). HFNs dealt with a variety of topics out with HBN/ HTM traditional scopes, such as Disability access audits, Energy efficiency, Case Studies, or Infection Control. NHS Guidance, typically HBNs, often had schedules of accommodation, room layouts, details etc, at the rear of the hardcopy, sometimes in loose sheets for copying Since 1990s Guidance these elements became collated in a digital 'Design Briefing System' called NHS Activity DataBase ("ADB"); which is described later in this Statement.

13. In England, www.england.nhs.uk/estates/health-building-notes/ provides their complete list of NHS England estates related guidance past and present.

14. In Wales, current and archived NHS Guidance are all on a dedicated website: nwssp.nhs.wales/ourservices/specialist-estates-services/publications-info/

15. In Scotland, www.nss.nhs.scot/publications holds current, and some archived Guidance, including our HFS Guidance Index, which provides a history. Historically Scotland typically used existing English NHS Guidance, plus also re-published some with 'kilted' Scottish amendments, or created its own NHS Scotland specific guidance.

16. The blend of each of these changes with the times. To enable continuity across NHS UK, the unique code is retained and an "S" prefix identifies 'kilted' or specific Scottish Guidance. By the 1970s, Scottish Home & Health Department issued Guidance for NHS Scotland such new health centres or cost allowances. By 1990s CSA Building Division (fore-runner of NSS HFS), was responsible for listing and publishing Guidance. In the last two decades, HFS was created by Scottish Government to be the NHS Scotland Guidance custodian and has 'kilted' or created an increasing number of solely Scottish publications. Some are now used by England or Wales as NHS Guidance.

17. I use the term ‘custodian’ of NHS Guidance, to denote HFS and my responsibility for not only a few new or updated individual documents during our tenure, but to ensure a continuity of NHS Guidance as a whole. That is, to ensure a new document works with every NHS Guidance series, thus enabling the whole to provide fit-for-purpose, best practice for the HBE and NHS facilities. NHS Guidance has undergone continuous development since 1961, and I believe this will continue, for as long as healthcare facilities continue to be developed and are funded by Government.

18. Regarding ‘Paragraph B’ on the NHS Guidance, I agree this is a fair summary of the technical guidance made available by NHS, which is relevant when a new Scottish hospital is being planned and implemented. It covers the vast majority, but not every document series. I address this in further detail in my Statement below.

19. HFS is responsible as custodian for all of our Guidance for NHSS facilities. It would be our NHSS Assure Director, then three HFS deputy directors, then the relevant technical topic HBE expert, or what we call the subject matter expert, that are responsible for those publications that fall under their expertise. For example, there are Scottish Health Technical Memorandum (“SHTMs”) series. These include about 60 engineering topic SHTMs, but there are also 14 building component SHTMs as well. Plus several SHTMs that are on fire safety or decontamination topics, e.g. General Fire Precautions and Training (SHTM 83); Central Decontamination Unit for medical devices (SHTM 01-01)

20. The Principal Architect is the subject matter expert responsible for the building component SHTMs, and my colleagues, Bill Connolly and Andrew Tweedie are responsible for the fire safety and decontamination SHTMs respectively. The engineering team are responsible for the bulk of the rest, i.e. engineering topic SHTMs. Scottish Health Facilities Notes (“SHFNs”) are miscellaneous topics; therefore typically require a mix of different expertise, usually with an agreed lead on each document, similarly the Scottish Health Technical Notes (“SHTNs”). Scottish Health Planning Notes (“SHPNs”) all belong to HFS

Principal Architect and are typically Scottish equivalent NHS England Health Building Note ("HBN") series.

ADDITIONAL GUIDANCE ISSUED BY NHS RELEVANT TO VENTILATION SYSTEMS IN HOSPITALS

21. NHS Guidance infrequent users have suggested it would be easier for them, if we produced a single large NHS Guidance document, rather than the multiple series that our guidance system has aggregated over six decades. NHS Guidance series are a piecemeal product of ever changing policies, directors, technologies and resource inputs across those decades. (Note: in 2010s NHS UK wide 'Space for Health' initiative, tried and failed to deliver a single, digital approach to host all NHS Guidance. I believe the pilot collapsed and funding ended prior to its formal launch.)

22. As a regular user of NHS Guidance, I know the majority of the key principles of the ventilation would largely be within, the SHTMs and specifically SHTM 03-01. However, ventilation overlaps and is covered in many of the other Guidance publications the Inquiry have listed here under Paragraph B, including all SHPNs. (bundle ref). For example, SHTM 55 Windows, SHPN 4 Supp1 Isolation, and SHPN 04-01 Adult inpatients:
2.84 Windows in single-bed rooms should be openable. Where ward accommodation requires mechanically cooling to prevent the summer ambient temperature exceeding the prescribed limit, a regime of closing windows when the cooling is in operation needs to be employed. Opening windows above ground floor will require safety restrictors.
www.nss.nhs.scot/publications/adult-in-patient-facilities-shpn-04-01/ (2010 -)

23. There are two other guidance series that I would refer to not listed in Paragraph B, but potentially relevant to ventilation design, dependant on the project. Firstly, the "GUIDs", are NHSS specific detailed Guidance related to specialist decontamination, including design, construction and operation of central or local sterilisation units. These cover a wide range of technical requirements specific to decontamination of, for example, endoscopes. The

GUIDs series, similar to many SHPNs / HBNs etc, will provide any specific detail on ventilation airflows as part of the overall health and safety requirements of their specialist facilities.

24. The second suite of publications that I would refer is the suite of safety alert publications that HFS colleagues publish. Our Incident Reporting Investigation Centre ("IRIC") produce a series of safety alerts and messages that relate to NHS facilities. These generally relate to equipment failures or immediate safety issues, but this includes ventilation, water systems etc, e.g. ventilator equipment, oxygen, Covid. To ensure completeness, I recommend the Inquiry confirm whether any IRIC publications that provide guidance to NHSS Boards, are relevant to your Inquiry scope.

PARAGRAPH C - SUMMARY

25. It seems reasonable that Paragraph C fairly summaries the basis on why HFS produced or maintains the SHTM series of guidance, including SHTM 00 and SHTM 03-01.

26. Regarding Paragraph D and whether it is a fair overview of the guidance, I would defer to my engineering colleagues. It is specific to SHTM 03-01 and its relationship to what it is trying to do. Therefore, I would defer to HFS engineering team who would be able to confirm all of that but, none of it seems unreasonable as a user of guidance. I would add, and this is not specific to SHTM 03-01, this is generic and applicable to all Guidance, is probably best summed up in the last section of Paragraph D, quoted below:

" Departures from the recommendations and the guidance may be justified in some circumstances, but this would have to be a matter of professional judgement based on the prevailing circumstances and be acceptable to whoever are ultimate responsibility for the hospital."

27. I believe the above statement is true, but would elaborate on the use of the term "may be justified". I have had examples of some circumstances in which

"may" would not always be applicable, i.e. "would" or "should" is more applicable. I reiterate earlier statements that NHS Guidance describes the aim, and then provides a series of generic recommendations to meet an aim. e.g. the underlying legal obligation or duty of care. Therefore, the legal duty always remains the aim, and similar to a Code of Practice, e.g. Highway Code, whenever NHS Guidance does not describe the exact or correct recommendation for a particular given circumstance, then it "would" or "should" be user duty to adapt guidance, and thus evidence, to ensure they meet its underlying aims or their legal duty of care. Given our ever developing clinical practice and technology, it is not practicable for NHS Guidance to describe every circumstance or scenario.

ACTIVITY DATABASE

28. Paragraph 2.60 of SHTM 03-01 Part A (2014)[2] refers to NHS Activity DataBase ("ADB") digital system, providing a library of specific environmental requirements for individual NHS spaces and departments. I would refer you to a 10 June 2019 freedom of information (FOI) release on ADB from NHS England (also called NHS Improvement, and previously Department of Health ("DoH") or "DHSC"), This FOI provides background to the Inquiry on what ADB was and is; and refers to their 2017 NHS letter in which they unilaterally decided ADB was no longer to be a tool NHS would retain in-house www.england.nhs.uk/publication/foi-activity-database/

29. ADB is a digital system, developed in 1990s as a database, or library of inter-related NHS departments, rooms, assemblies, components and equipment, each with relevant graphical 3D spatial data and technical text information. It can be used for healthcare built environment briefing, design, commissioning and operations, though is predominantly used for briefing only. It was developed in-house by the NHS and works in conjunction with NHS Guidance

[2] Bundle 1 Published Guidance – A33662259 - Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A v2.0 - Design and validation dated February 2014, No. 3, pg.149

as a world-leading, innovative digital design briefing solution to healthcare environment in the 1990s.

30. Before the 1990s we had hard copy guidance, in some cases these books had a set of loose-leaf tracing paper drawings at the back, for key space or equipment layouts of a particular room or a department. There was also paper pull-outs for details, areas and schedules of accommodation. ADB is of interest to the Inquiry, as it provides digitally, just as the old paper system within older Guidance provided, the initial briefing starting point for the client, on everything from schedules of accommodation, to the equipment list, plus 3D room drawings. In addition, as the SHTM 03-01 refers to, the ventilation requirements, the air pressurisation regime, and the finishes on the walls and the floors for each room type are listed in ADB.

31. From 1990s – 2010s, NHS Guidance and ADB were developed and updated together, with a view to make data more accessible for users and reduce risk of inconsistency errors. This was achieved by keeping strategic data and descriptions only in the Guidance document, with as much of the detail data as practical kept digitally in ADB. NHS ADB digital system had an annual software licence, providing regular updates to suite Guidance releases. Since 2017, NHS England made the unilateral decision that ADB was no longer an in-house tool, but would still be available for NHS use via commercial licence route. The direct link with each Guidance and ADB automatic update was broken in 2017. ADB still updates regularly, but only following their owner reviews after NHS Guidance is publicly available.

32. In NHS Scotland, our extant 2010 policy, the Chief Executive Letter CEL(2010) 19 for quality design in healthcare mandates NHS ADB use: www.sehd.scot.nhs.uk/mels/CEL2010_19.

33. Mandate 7 states: "*All NHS Scotland bodies…must use and properly utilise the English Department of Health's Activity DataBase (ADB) as an appropriate tool for briefing, design and commissioning*." The query for the Inquiry relates to definition of 'properly utilise' and 'appropriate' above. In my

view, the author deliberately allows for a project bespoke solution and inevitable development in ADB since 2010.

34. ADB is currently the only briefing tool for NHS, but has many limitations some relating to dis-investment by NHS England, meaning 'appropriate' for recent NHS Scotland & NHS UK projects is limited to initial briefing only, and then other software tools are better placed to further develop the project, through briefing, design, commissioning and into operations. Unfortunately, this has impacted potential automatic feedback loops originally envisioned by CEL, to improve ADB and the next project brief. Note, ADB mandate originated in 2006 www.scot.nhs.uk/sehd/mels/HDL2006_58. This policy letter was replaced by CEL(2010)19, but the ADB mandate was replicated. Both letters placed ADB under the policy contents title of: '*Project brief'*.

35. Over the years HFS have continued to work to develop and improve both NHS Guidance, including its intrinsic links with and reliance on ADB. Recently this has involved dialogue with ADB owner/ developer and support for delivery of a set of standard repeatable rooms, with the ADB graphical room layout sheet (RLS), and textual content room data sheet (RDS) related to each: www.nss.nhs.scot/publications/report-on-repeatable-rooms/ . This ongoing development of repeatable rooms will be part of this overall ADB database and software update, making them available to NHS UK briefing and mandated for NHSS briefing use. Since 2017, ADB is now licensed to a private company called Talon Solutions Ltd, who were technical partners with NHS England from 1990s onwards, and HFS continue to work with them to keep links to emerging NHS Guidance, including NHSS Guidance up to date.

36. Originally developed in-house by NHS England together with their Guidance, ADB system's textual content room data sheet ("RDS") refers to NHS England Guidance not NHS Scotland's. Largely, that is not material for vast majority of ADB initial briefing content e.g. department schedules, rooms, functions, areas, relationships, layouts, components, equipment and finishes etc, plus all the ADB graphics content are the exact same for NHS Scotland use. But, as the caveat on both policy letters HDL(2006)58 & CEL(2010)19 states, there is

a duty of care to check for Scottish Guidance. In essence, this is relevant particularly if and where quality or standard is higher in Scotland than in England. The health boards and their design team should review and flag up any conflicts or differences or changes between initial ADB outputs and NHS Scotland Guidance. For example for the current SHPNs a typical NHS England ward would have 50% single bedrooms, whereas SHPN 04-01 states 100% singles is starting point for briefing; but the ADB outputs for rooms themselves are the same. For example, ADB finishes refer to old HTM building component series, which has a direct, extant Scottish SHTM. NHS England retired these and recently replaced some only with HBN 00-10 series.

37. Please refer to my HFS engineering colleagues for all SHTM engineering series references, including for any relevant ADB Scottish variations to HTM. However as a regular user, I believe the only one difference in the respective 2021/ 2022 updates of HTM / SHTM 03-01 Appendix A1 table for room air changes impacting ADB RDS, is for the ensuite toilet.

38. Risks of errors is reduced wherever practicable, by ensuring a consistency in NHS Guidance across UK, and also ensuring ADB kept up to date. Both of these aims HFS continues to work on, in our ongoing NHS Guidance development. For example, our next ADB updates for our repeatable rooms initiative should refer to Scottish Guidance as these dozen will be Scottish specific repeatable rooms. However, we are also working with our colleagues in NHS England, who have developed a larger suite of repeatable rooms, with the aim that where practicable, we can adopt or use those ones too in NHS Scotland, and vice versa.

DOCUMENTS

SHPN 04-01 Adult Inpatient Facilities
www.nss.nhs.scot/publications/adult-in-patient-facilities-shpn-04-01/ (2010 -)

SHPN 04 v1 (2000 – 2010) - available as PDF[3]

39. The SHPN 04-01 Adult Inpatient Facilities is to provide best practice guidance on the planning and design of in-patient facilities for adults. For health boards it supports the development of their brief and to boards and their supply chains, the development of their design standards and design proposals. It also can support the operation of and any potential need for refurbishments, by providing an HBE quality standard that can be used by boards as a basis for making an investment business case. For example, to say their current Victorian hospital ward does not come up to this current inpatient quality standard, and identifying elements investment to improve, or meet SHPN's qualities.

SHFN 30 INFECTION CONTROL

www.nss.nhs.scot/publications/hai-scribe-shfn-30/ (2014 -)
www.nss.nhs.scot/publications/hai-scribe-shfn-30-archived/ (2002 – 2014)

40. SHFN 30 Infection Control Guidance, commonly called HAI SCRIBE (Healthcare Acquired Infection – System to Control or Reduce Infection in the Built Environment), is a suite of documents. There are currently three documents in our SHFN 30 series. This series has grown over the decades and the current suite published Oct 2014 – Jan 2015. Prior versions of this suite range from original single document in 2002 to two documents in 2007. SHFN 30 mandated in 2007 by: www.sehd.scot.nhs.uk/mels/CEL2007_18.pdf

41. SHFN 30 suite of documents give a framework for a discussion on Infection Control related to the Healthcare Built Environment (HBE), and include details for who should be in the room for that discussion, and at what project stages those discussions should happen. SHFN 30 Part C document provides a series of question sets to facilitate discussions at key stages of project

[3] Bundle 1 Published Guidance – A33662184 - Scottish Health Planning Note 04, In-patient Accommodation Options for Choice Supplement 1 Isolation Facilities in Acute Settings dated September 2008, No.5, pg.518

development. Its questions cross-reference to a relevant Guidance series and/ or paragraph clauses to support that discussion.

42. HFS colleagues and I run SHFN 30 regular training sessions with the health boards around Scotland. We emphasise it is a risk management process, not a tick box exercise, in which all key stakeholders require to contribute, and record their '3Cs' of Communication, Collaboration and Compromise; is best means for boards to ensure optimal decision-making in complex challenges.

43. SHFN 30 is a key tool in our arsenal to support appropriate HBE briefing and solutions. Part of that is to know and select relevant elements from the various series of NHS Guidance. Therefore, key to success is projects need a series of stakeholders and disciplines, with expert knowledge of HBE to best understand how to interpret generic, occasionally conflicting Guidance for their particular clinical circumstances. Then achieving and recording a consensus on the optimal solution that delivers the key aims of Policy, Guidance, Regulations and NHS legal duties for their given circumstance.

HBN 23 HOSPITAL ACCOMMODATION FOR CHILDREN AND YOUNG PEOPLE

www.nss.nhs.scot/publications/hospital-accommodation-for-children-and-young-people-hbn-23/ (2004 -)

44. HBN 23 Hospital Accommodation for Children and Young people, published 2004 is one of our oldest extant NHS Guidance documents, not yet updated. As far as practicable, we try and work with NHS colleagues across the UK to prioritise NHS Guidance updates, HBN 23 has not yet risen to the top-ten next updates, but is hoped to update it in next few years. NHS clinical protocols and safety risks are predominantly consistent across the UK, and NHS supply chains deliver across the UK, e.g. builders, designers, specialist equipment. Therefore, HFS aim is to ensure there is consistency of NHS UK Guidance, unless a very unusual/ good safety reason, plus the difference is highly publicised / transparent; then this difference may itself lead to clinical or human errors, e.g. single figure of difference, which is un-highlighted and

mostly looks the same, may impact a clinician assuming a level of extra accessibility or safety which is not actually realised in treatment rooms located on either side of a UK border.

45. HFS work closely with the rest of NHS UK colleagues and we have good relationships that shares the load of developing HBE best practice, continuity and NHS Guidance across all 4 nations, see 5. above for details. However, HFS within our own resources and priorities will deliver NHS Scotland specific Guidance e.g. Mortuary (SHPN 16-01); Fire safety (SHTM 83); HAI SCRIBE (SHFN 30). Recent NHS Scotland Assure investment is likely to accelerate this trend, particularly where key NHS UK Guidance are gaps identified.

46. The SHFN 30 suite is good example of NHS Scotland taking initiative on NHS Guidance. The equivalent HBN 00-09 in NHS England is one single and older document; it is not as detailed nor gives the valuable support tools to aid the Boards' delivery.

47. The custodian and policies for NHS Guidance in England has changed multiple times in the last two decades. As the largest NHS nation, England had historically taken the lead, but particularly 2010 - 2017 saw a vacuum in UK wide NHS Guidance, In 2017, England arranged a meeting across the UK NHS Guidance custodians, HFS, Wales and Northern Ireland, worked with England to create a top-10 and next 25 NHS guidance priority list to work together on. The pandemic stalled this collaboration, but to date we have jointly published 3 updates, another 5 are imminent, with progress made on a further 13 NHS Guidance new documents. England's prioritisation for the next tranche for future NHS UK wide Guidance has also commenced.

48. NHS Guidance colleagues across our 4 nations do not want to work in a vacuum because it can create a risk in its own right but, equally, sometimes we cannot wait for our colleagues in different nations to catch up. NHS Scotland Assure are developing our own Decontamination, Fire safety and Engineering priorities for NHS Guidance.

HBN 04-02, SHPN 27 AND HBN 57 CRITICAL CARE UNITS

www.nss.nhs.scot/publications/critical-care-units-hbn-04-02/ (2014 -)

www.nss.nhs.scot/publications/critical-care-units-shpn-27-archived/ (2000 - 2014)

HBN 57 Facilities for Critical Care (2003 -2013) - available as PDF

49. Applicability of NHS Guidance comes down to the timing of the Scottish SHPN 27 and the English HBN 57 Facilities for Critical Care publications; plus the key decision making dates for the project. Before I joined HFS, historically, in Scotland a designer would request client clarification on applicability of recent English versus older Scottish NHS Guidance if both potentially relevant. However, there was a consensus by everyone, if there was no Scottish Guidance option on a specific HBE topic, then you should use the English equivalent where available.

50. Ultimately, the decision on detailed applicability of NHS Guidance within their specific circumstance is up to the Boards. As it is role of the client, to set their own brief and to make very clear statements on the quality standards required to be delivered, and ultimately fulfil their legal and public sector duty of care. The NDAP gives Boards support and guidance to assist in doing that, i.e. provide an applicability list of the current guidance at a particular point in a brief, or review a design at key decision-making point. For example, CEL(2007)18 mandates SHFN 30 use, but key decisions of Guidance clause applicability are taken by key stakeholders, reflecting between X, Y, and Z options, for any given infection control scenario through design development.

51. A key challenge we raise in SHFN 30 training is there are multiple names and acronyms for things, and people often assume they know a definition, or use them interchangeably as if they were the same thing, when they are not necessarily. For example, going back to Critical Care facilities, ITU sometimes is referred to as an Intensive Treatment Unit, Intensive Therapy Unit or CCU is Critical Care unit but may be a Coronary or Cardiac Care unit; HDU is High or Higher Dependency Unit, but the required clinical level of patient care, and therefore the specific Board requirement in HBE brief can vary significantly.

52. The 2011-13 Scottish version of SHTM 03-01 Part A & B were based on an older 2007 English HTM, which HFS 'kilted' i.e. updated for use in NHS Scotland'. Both publications predate my HFS role; however, in 2013-14, I supported the HFS Principal Engineer publishing an SHTM 03-01 addendum, which clarified for all users the key differences between it and the HTM. As a user of Guidance myself, I recall only one technical difference, Scotland wanted to retain the HTM 2025 requirement not to mix clean and dirty extract ventilation systems. Note, this SHTM system requirement difference, would have no direct relevance/ impact for ADB data outputs.

53. HBN 57 was extant NHS England Guidance between 2003 – 2013. SHPN 27 was extant NHS Scotland Guidance between 2000-2014). These early 2000s publications predate my HFS role. SHPN 27 remained extant on HFS website throughout the publication of HBN 57 in England. However from my 20-year healthcare architecture and design lead career as a HBE specialist, it was often unclear as a Guidance user, what circumstances, if any, a newer NHS England publication may be used in lieu of an older NHS Scotland equivalent.

54. When I joined HFS we agreed a simple and swift process in which NHS England Guidance that HFS review and deem technically appropriate for use, i.e. best practice status in Scotland, adding a Scottish front cover to confirm its applicability. Any specific caveats for Scottish use are attached to this new cover. This was based on an extant NHS Wales process. In 2014, we published circa 18 to 20 English documents on our current website, thus clarifying their applicability. We further reinforced a clear applicability status recently by creating a HFS Guidance Index that lists all NHS Guidance current in Scotland, and their prior version history, back to 2002. The first column of this Index, allows Boards to easily pre-select the 'applicability' of each Guidance to project: www.nss.nhs.scot/publications/hfs-guidance-index/

55. In 2014, following the above process for NHS England Guidance, we placed their new 2013 HBN 04-02 for Critical Care on HFS website with our NHS Scotland status cover, We also archived the superseded SHPN 27 at same time. NHS Guidance is an iterative process that has gone on for 6 decades. It

will likely continue to develop and improve, I see HFS job as ensuring both the documents and the process are competent and as transparent as possible.

OTHER SIMILAR RESOURCES POSSIBLY RELEVANT TO THE INQUIRY

56. I believe of key relevance to the Inquiry, would be to seek a programme or a timeline of when the project key decision-making points and/or sign-offs were done. Only then can this be matched to HFS Guidance Index to establish which publications were even available. Specifics on project 'applicability' could then be debated.

57. www.nss.nhs.scot/publications/hfs-guidance-index/ provides a very clear list of what the extant Guidance was available at a specific point. Having done a number of project reviews over the years, it is often easy in hindsight to assume now familiar guidance, regulations, standards etc as considered 'applicable' at the time of the project. Note, a typical NHS project gestation period from inception to doors-open is 5 – 10 years. Therefore the opening day should not be the date to judge applicable Guidance, or other standards.

58. The day we publish a new NHS Guidance document, in theory is the first day that it will slowly begin to be out-dated. As each cross-refers a vast array of other NHS Guidance, technical standards, British standards, European standards, research and clinical practice extant on that publication date, it risks any of those cross references becoming out-of-date by the next day. Note, the gestation period of a typical NHS Guidance production is 1-3 years; and lifespan prior to potential obsolescence typically varies 5-20 years.

59. Many of our NHS Guidance documents, particularly newer ones, begin with a statement to the effect of: "*In reading this guidance, please make sure that you are using and cross-referencing to the most current versions of the standards referred to in this document*." (SHPN 16-01). Therefore, the Inquiry should follow similar process, but in reverse.

60. In my experience of review, the key challenge, is to determine the dates that the project key decisions were made. However, once those dates are agreed, then it is often relatively easy to determine applicable standards or Guidance.

SHTM 03-01 INTERACTIONS AND POTENTIAL ARISING OF CONFLICTS

61. I have been asked how the guidance I have just spoken about interacts with SHTM 03-01[4]. If conflicts arise, how are they resolved and is one has greater authority that the other?

62. In construction and procurement contracts, they typically write a clause to state the authority hierarchy of various briefing data sources. Legal duties are given highest status, and then any mandated elements, then briefing bespoke or closely aligned with the project needs, then any wider briefing or generic data. Typically, each project and client customise a recent 'similar' hierarchy, to ensure suitability for their specific risks, circumstances or scenario.

63. For example, the clinicians involved in doing a new treatment in Treatment room A, may have a very different set of risks and need a very different hierarchy; to the work done say last year in Treatment room B. Even though a room is named a treatment room, in NHS Guidance and/or closest ADB, it may be used for an entirely different clinical purpose in another facility or project. Therefore to brief Treatment room A , client would reference NHS Guidance, but as treatment rooms do not have their own specific Guidance, this will involve individual clauses in multiple documents, e.g. HBN 00-03, plus one or more depending on clinical service / location of, e.g. SHPN 04-01 adult acute ward, or HBN 03-01 adult mental health, HBN 02-01 cancer service, or SHPN 36 community services, Also nearly every SHTM will likely have some applicability. The initial starting point for detail briefing is to check ADB library of 100s departments and 1000s room types, then select the nearest from say a 100 ADB Treatment rooms, to the specific clinical need of new treatment planned for Treatment room A. As an example, ADB lists 3 different

[4] Bundle 1 Published Guidance – A33662259 - Scottish Health Technical Memorandum 03-01, Ventilation for healthcare premises, Part A v2.0 - Design and validation dated February 2014, No.3, pg.149

Treatment room types for ophthalmic treatment alone. Given client has only one ADB licence, they download the initial brief/ starter-for-ten ADB outputs of the selected: X0267: Treatment room: ophthalmic laser at 12sqm. Typically, they will export their graphical room layout sheet (RLS) to both AutoCAD and a PDF; plus their textual content room data sheet (RDS) as msWord and a PDF, the ADB accommodation schedule and any other schedules e.g. equipment, finishes, potentially engineering, are typically exported as msExcel and a PDF. The PDFs keep a record of the original un-altered ADB starting point, and are easiest to share with many stakeholders.

64. Exporting ADB to commonly available software is typically a necessary requirement to ensure wide engagement and commentary to enable an appropriate clinical brief. If for example, the clinic's new laser equipment requires an room area increase, wider door, enhanced ventilation due to heat gains, and additional power or other key briefing requirements, these can be updated, reviewed and agreed / signed-off, using any software. From this point, keeping the developing data for the bespoke clinical brief within ADB software typically adds little value, and be detrimental to stakeholder engagement. Easier stakeholder engagement is also reason that NHS projects may opt to use an Environmental Matrix, i.e. a room schedule with key engineering services. Note, environmenal data is not the only ADB data export typically formatted in a schedule or matrix, this list also includes accommodation area schedules, finishes schedules and equipment matrix. For example, using an msWord RDS, with its 4-6 individual data sheets per room, to retain all engineering, finishes or area data is an option; but this typically becomes increasingly challenging for the stakeholders review of 100s of rooms in a project. Whichever eventual digital formats are chosen for the project briefing textual data, e.g. ADB, msWord, msExcel; or graphical data e.g. AutoCAD, CodeBook; the project's quality management processes for communication and in particular document control, is key to any successful briefing, i.e. reducing risk of potential human errors.

65. In my role and experience, I am aware of a range of international healthcare briefing systems, I reviewed some of these in 2018 as potential alternatives

to ADB, but none were considered to be comparable, e.g. Middle East, US, Australia and Norway. I am not aware of any project in NHSS (or NHS UK) that use these as alternatives to ADB as a source for initial briefing. Therefore, I believe it unlikely any Board would require to assess the equivalency or otherwise to ADB, as mandated by HDL(2006)58 & CEL(2010)19.

66. As an ADB user and NDAP administrator, I do not recognise the incompatibility use of an Environmental Matrix, or any other schedule or matrix for data, and the HDL(2006)58 & CEL(2010)19's mandate of 'appropriate' ADB use. Typically, a Matrix, is simply a logical export following the production of initial data from ADB, to better enable ongoing stakeholder communication. Even if this step, was via another project or software, typically NHS room data since the 1990s all originated or was under licence from NHS ADB. For example, CodeBook is sold as commercial software for NHS use, but I understand its database originated from ADB. In my experience, if the proposed project Environmental Matrix has undergone many iterations from originating from ADB, I would request / recommend a review to ensure any updates in ADB are caught. This could be undertaken at same time as review to confirm any NHSS differences from NHS UK / England Guidance are also caught.

67. Regarding 2014 Part A of SHTM 03-01, table 1A this provides users with an aide-memoire but should not be considered as a sole source of data for briefing or design. I am not responsible for this document, therefore my engineering technical expert colleagues who are, should be consulted on all SHTM 03-01 details. I would only reiterate, given my experience as a regular user, table A1 should be read in conjunction, not only with that whole SHTM 03-01, but also with the rest of the NHS Guidance relevant to each project. Unfortunately in my experience of NDAP reviews and HAI SCRIBE training, table A1 is often seen as the easy go-to place to find information; with elements taken out of context. For example, SHPNs, HBNs GUIDs for each particular clinical service contain details related to the specific patient comfort

or safety, including ventilation see 10. above, e.g. SHPN 04-01 Adult inpatients "*2.84 Windows in single-bed rooms should be openable…"*; and HBN 26's theatre clauses, tables and diagrams e.g. *"7.45 The following tables suggest an outline ventilation strategy for each room."*
www.nss.nhs.scot/publications/adult-in-patient-facilities-shpn-04-01/ (2010 -)
www.nss.nhs.scot/publications/facilities- surgical-procedures-hbn-26/ (2004 -)

SELECTION OF VENTILATION PARAMETERS AND VALUES

68. How Table A1 ventilation parameters and the values are selected, I would again defer to HFS engineering colleagues; as they are responsible for upkeep and details of Part A of SHTM 03-01. This has recently been updated in Scotland - February 2022, and was based on NHS England's HTM 03-01 Jun 2021 update. HFS engineering plan a further update in 2023. My comments are not specific to SHTM 03-01, but generic to all NHS Guidance production. New or updates utilise the limited HBE research evidence available at time of production, but the bottom line is we need more and better HBE research to justify both our parameter and value selection across all NHS Guidance. HBE evidence quality to date is typically of lowest level, may be taken out of context, or used with unintended bias to justify a particular pre-selected value. I would reiterate my earlier comments on SHFN 30 consensus decision-making on complex issues in 24. above, i.e. for NHS Guidance production we gather key stakeholders from NHS, covering all the relevant clinical and HBE expertise, to scope, draft and review these documents for best practice, parameters and values input.

69. My HFS Principal Architect role to date includes production of dozens of new or updated NHS Guidance documents. NHS Guidance, by its very complex multi-factorial nature, is predominantly produced through a consensus process with technical authors and wide stakeholder engagement. Some are led by architects, others by engineers or facility managers, but all are multi-disciplinary in scope and impact. Recent production is increasingly emphasising the importance of good quality research evidence as foundation

for NHS Guidance and support. This includes new HFS research scientist roles and commissioning of Literature Reviews and new research with academic partners. New documents will be more transparent, in terms of what the evidence tells us and what the consensus has agreed. This will reduce risks and prior burden on users applying generic or conflicting Guidance to the challenges of a unique new clinical treatment or service.

70. I would emphasise to the Inquiry, that patient safety and care is not guaranteed by a number on a table, any more so than any single element e.g. architectural image, contained in any one of our 170 NHS Guidance documents. NHS Briefing, Design and Delivery is a whole process, with a series of documents that requires multi-disciplinary clinical and HBE experts to support. This process starts with questions, e.g. what do we need to do clinically in that room?, what are the risks?, what quality standards are applicable?, how will outcomes be measured/ met?, and what are the key components from a variety of guidance and ADB inputs, that will allow us to meet the NHS's overarching legal duty of care? Success is not, a blind application of individual sections of NHS Guidance, as out of context, an individual element could breach a legal duty of care.

71. In my experience, NHS Guidance could be taken out of context or alternative interpretations placed on a specific clause, table, parameter or value. For specific projects, the appropriate application requires each element of Guidance to be read as part of the key aims of the whole Guidance and ADB system, and also relies on the appropriate experience and skills of the project team involved.

72. NHSS Assure including HFS engineering colleagues, will provide clarification on interpretations / applicability of all NHS Guidance via each project's NDAP and KSAR processes dependant on specific clinical function/ risks etc. e.g. mental health single bedrooms are typically predominantly natural ventilated with extract via ensuite, per above alternative interpretation of SHTM 03-01 table A1, and in conjunction with HBN 03-02: "*4.14 …fresh air – access to*

outdoor spaces is essential, as are natural light and ventilation for interior spaces."
www.nss.nhs.scot/publications/mental-health-facilities-for-children-and-adolescents-hbn-03-02/ (2018 -)

GENERAL WARD

73. SHTM 03-1 Table A1 does not define what is meant by its first row 'General ward', e.g. how many beds should be present in a general ward, or what impact / risks that greater patient and staff/ visitor numbers may have on ventilation parameters?. The table shows two differences between its first and third rows. The 'General ward' has removed the 'Single room's requirement for both 'E' (extract) and '-' relative air pressure as ventilation parameters. I will defer to my HFS engineering colleagues to explain the rationale for these differences. However in my role, I am unaware of any recent NHS 4-bed ward (HBN 00-03) not requiring extract ventilation, due to their relative area/ volume to adjacent spaces. Again I reiterate my deference to HFS engineering colleagues on the details for each of these parameters.

74. SHPN 04-01 (2010) & HBN 00-03 (2014) give details for a 4-bed ward. SHPN 04-01 includes the percentage mix of multi-bed and single rooms, i.e. a minimum 50% singles, but as close as clinically practicable to 100%; and refers to the CEL policy letters, on "Provision of single rooms."; CEL(2008)48 and CEL(2010)27. These state there should be a clinical and agreed justification for a departure from new build recommendation of 100% single rooms. It is not a black and white compliance, to ensure a balanced clinical and technical risk consideration. In recent years applicable % of single rooms is typically evidenced and agreed as 'supported' via our NHSScotland Design Assessment Process (NDAP) review at a key briefing/ design stage.
www.sehd.scot.nhs.uk/mels/CEL2008_48.pdf
www.sehd.scot.nhs.uk/mels/CEL2010_27.pdf

75. I would repeat the same concerns above for SHTM 03-1 A1 table for both neutropenic and critical care patient facilities. Both are challenging to define

clinically and their resultant designs, to be safe and healthy require very careful clinical considerations and HBE expert support in briefing and delivery. For example, A1 table refers to the SHPN 4 Supplement 1 for the general isolation rooms, yet 2008's SHPN 4 has an opening paragraph that explains when the document was written, stating it did not cover highly infectious diseases units, nor severely immunocompromised / neutropenic patients. Since then, there has been some further research, but this was not available mid 2000s when the document originally written. www.nss.nhs.scot/publications/in-patient-isolation-shpn-4-sup-1/ (2008 -)

76. I am involved in NHS England update to SHPN 4 Sup 1, which is out for technical consultation now. New HBE research evidence, should result in clearer guidance about the range of clinical isolation types, hierarchy of bedroom suite types and the ventilation details related to each space. A1 table, would subsequently require further update, following our SHPN 4 Sup 1 update. As much as I may occasionally wish all of NHS Guidance could be magically updated, cross-reference and coordinate with each other, across UK all at one time, this is unrealistic. Not least due to time and resource required for intensive stakeholder involvement including with all appropriate Royal Colleges, clinicians and HBE technical experts, plus need to commission HBE research. It is inevitable therefore, that NHS continue to develop and update guidance on a regular basis, plus to meet specific clinical or economic priorities, plus for emerging clinical and HBE research evidence.

77. In relation to the detailed requirements that SHTM imposes or recommends in terms of ventilation and why, I would have to defer to my engineering colleagues, especially for the details, overall rationale and research evidence. In relation to all NHS Guidance, I reiterate above Statements that our overall aim is for safe and health promoting facilities for all NHS users. There is a pipeline of NHS capital projects based on Government funding priorities, which since 1961 in turn influences priorities and the process for NHS Guidance development. In addition, in NHS Scotland, we uniquely provide HBE expert support to Boards on all major projects, including reviews through the NDAP (2010 -) and KSAR (2021 -) processes. These provide

independent reports, including ‘supported’ status and a Board ‘verification’/ ‘action plan’ for each project key stage, as mandated by Scottish Government for their business case approval. It is also worth noting that the learning from our NDAP and KSAR process, in-turn benefits prioritisation and feedback into our next round of NHS Guidance development. .

78. Regarding my view on how guidance was to be applied to, the multi bedrooms or the critical care areas: it should be Guidance and ADB as a whole system approach that is part of a quality controlled briefing process with an “informed client” and benefiting from both good stakeholder involvement and HBE expert support.to enable successful decision-making. NDAP & KSAR processes will also support this.

79. In the event of ambiguity or uncertainty over the Guidance and/ or ADB, which arises in the briefing or design of parts of the hospital, how may this have been resolved or addressed.

80. This is a repeat of my answer above, as ambiguity and uncertainties are typical challenges in complex NHS projects, To elaborate on NDAP, this process gives a framework and ongoing support with NHS Guidance interpretation by our subject matter experts who are custodians of this Guidance. NDAP asks for a priority list of the relevant guidance to a particular project at inception stage. It also asks the client for any specific derogations/ variations that they may know of ahead of even the design team being appointed. For example, with HBN 02-01 cancer care, certain parts apply but other parts do not. NDAP engages with client on their Guidance / ADB clarification process is part of the briefing stage, and then it is further detailed and expanded upon as the project goes through and the design solution develops. For a major Guidance question or clarification, NHSS Assure have developed a multi- disciplinary, ‘SBAR’ (Situation Background Assessment Recommendations), process to enable a clear and rapid response to Boards.

81. NHS Scotland Assure and our NHS England colleagues are currently working to develop a derogation / variation tracker process and tool to better support

for health boards and enable a consistent approach including definitions for derogation, variation/ clarification and non-compliance. We would not anticipate derogations in a new build without strong clinical/ technical justification. However a unique and complex NHS project is liable to have multiple HBE variation/ clarifications that they require to review, agree/ sign-off, and where required escalate to their Board and / or an NHSS Assure SBAR process.

82. Updates to the Guidance I can comment on whether there have been any changes to the various sources on which the guidance is based.

83. NHS Guidance production is a continuous and iterative process to meet ever-changing demands of the NHS. Review and production rarely stops, though may slow down, or accelerate dependent on demand, resource and priorities. Some demands relate to NHS Policy developments, others are clinical or technological change, plus in near future we hope more demand will be from emerging HBE research evidence. For example, sustainability and net zero has recently been a big driver, and has resulted in new policy and NHSS Guidance e.g. SHTN 02-01 (2021 -). Our Equality legal duties, shifting care expectations, demographics and Covid/ HBE research have strengthened NHS single rooms policy. Keeping people safe and healthy in an NHS facility has multiple, inter-related factors, including environment psychological support for both patients and staff. Infection control is key for safety, but it is not the only consideration, especially with growth of vulnerable NHS users e.g. HBN 08-02 Dementia. www.nss.nhs.scot/publications/dementia-friendly-health-and-social-care-environments-hbn-08-02/ (2016-).

84. In my experience, each project interpretation of NHS Guidance can be iterative and dependant on single disciplines or viewpoints. The SBAR process introduced by NHSS Assure and discussed above will enable a concensus and consolidated statement of recommendations to health boards, from our range of clinical experts and HBE experts, who are also the custodians of NHSS Guidance, so are best placed to apply its intent to a

specific scenario. This SBAR service is available to all health boards, but may also be a recommendation in NDAP or KSAR review of a project.

85. In my role as Principal Architect I have studied NHS Guidance history from first 1960s publications, see Paragraph 15. above for summary. These were created for Bevan's newly formed NHS, and initially based on 1955 Nuffield Trust time and motion ward studies. The evidence gathered was for a typical ward procedures, layout and treatment rooms of the era, i.e. 12-15 sqm room directly off an open plan multi-bed 'Nightingale-type' ward. The Nuffield study stated each morning the patient throughput of their treatment room was circa six patients an hour, with shortest turnover period for a single patient as 6 minutes for a wound dressing change. NHS generic treatment room's ventilation parameters and value e.g. 10 air changes per hour (ACH), will flush room air every six minutes. In my 30-years as a user of NHS Guidance, a generic treatment room has remained as 10 ACH. Yet over past 60 years, or even 30 years, NHS clinical services, functions and facility designs for both treatment rooms and single bedrooms have significantly transformed, and would likely be unrecognisable to the 1955 staff and findings of the original Nuffield study and subsequent 1960s NHS Guidance.

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

SCOTTISH HOSPITALS INQUIRY
Royal Hospital for Children and Young People/ Department for Clinical Neurosciences ("RHCYP/DCN")
Witness Statement of
WILLIAM STEVENSON

I have not been approached by the Inquiry under a section 21 notice to provide a statement however there are a number of questions which have been put to my former colleague Colin Macrae which I may be better placed to answer. This reflects the fact that I had a more senior role on the project than Colin and so might have had more insight into certain strategic matters.

1. I am William Stevenson. I am the Technical Principal of building services for Mott MacDonald Limited. I am based in Mott MacDonald's office in Glasgow. I work across a number of sectors including rail, defence, and energy projects. I oversee the building services team for Mott MacDonald in Scotland which includes teams based in the Edinburgh, Glasgow, and Aberdeen offices. In terms of people reporting to me, in Glasgow there is a team of 11 people, 4 in Edinburgh and 8 in Aberdeen.

Background and experience

2. I have worked for Mott MacDonald Limited since 2002. I started as a senior engineer, then was promoted to associate, then technical director, then technical principal. Prior to working for Mott MacDonald, I worked with RMJM in Glasgow for about 18 months and before that I was with Ove Arup from 1989 to 2001 in London, Edinburgh, and New York. I have a BEng Hons in Electrical and Electronic Engineering from Trent Polytechnical in Nottingham and I am a member of MIET (The Institution of Engineering and Technology).

3. I have worked on a number of large healthcare projects. In my first year at Mott MacDonald Limited I worked on the Freeman Hospital in Newcastle. This was a PFI project. I was also involved in Forth Valley Royal Hospital, and Dumfries and Galloway Hospital.

Mechanical and electrical engineering

4. It might be helpful if I explain the difference between a mechanical engineer and an electrical engineer. While people have a tendency to refer to "mechanical and electrical engineering" this generally encompasses two entirely separate disciplines. With the exception of a Building Services related degree (which covers mechanical and electrical) these roles are generally filled with staff who have completely separate qualifications at degree level and so it is very rare to find someone who is a mechanical and electrical engineer. Even with a building services degree staff tend to specialise in either mechanical or electrical engineering. An electrical engineer would be concerned with, for example, lighting, power, fire alarm, security amongst other things. A mechanical engineer would on the other hand be focussed on, for example, water, heating, and ventilation.

5. I am an electrical engineer and so there was no mechanical engineering involved in my degree. Colin Macrae is a building services engineer specialising in mechanical. Paul Kelly is also a mechanical engineer and had some involvement in the project, particularly when Colin Macrae was absent for a time due to planned surgery. There were also various graduates that assisted us on the project on a rolling basis.

Role in project

6. I first became involved in the project back when it was still due to be capital funded. This might have been as long ago as 2009. I recall that BAM were involved as main contractor. Then we were told that the project would not be proceeding, at least along the lines of the initial model. The Scottish government took the decision to proceed with the NPD model instead.

7. When I became involved again, a decision had been taken to proceed with a reference design. The reference design is just a very basic concept for the hospital. In terms of building services, it is like a jig saw puzzle and the bidders have a relatively free hand to play around with the pieces of it, to

prepare what is ultimately their design. The only areas where they are tied to the reference design requirements is in relation to operational functionality, and compliance with SHTMs, CIBSE Guides and British Standards. Other than how they configure these points; the designers have a relatively free hand. Mott MacDonald Limited did not prepare the reference design. I recall that the designers from a mechanical and electrical perspective were Hulley & Kirkwood. Certainly Hulley & Kirkwood prepared the environmental matrix, but they may have had an involvement in other aspects of the reference design too.

The Environmental Matrix (EM)

8. The EM was produced in draft form along with the ITPD. It required to be developed by the bidders, with its purpose being to give an indication to the bidders as to what was required in their tender submissions. The EM is a fluid document and will continue being developed until a very late stage in design development. Certainly, bidders are not expected to have a fully developed design by final tender stage. Primarily this is because the design has not been completed by that point. The EM will continue to develop as the design evolves as it could be affected by the adjacencies of particular rooms / spaces and the inclusion of additional rooms as the design matures.

9. The use of an EM was not unusual. Most of the healthcare projects in which I have been involved have used environmental matrices. An EM was definitely used in Forth Valley Royal Hospital and Dumfries and Galloway Royal Infirmary. They are very common. There is a perceived benefit to the use of environmental matrices as they present the room and environmental data in a relatively user-friendly way. Rather than working through potentially thousands of room data sheets, it might be easier for someone working on the project to refer to an EM instead. It would provide a user-friendly guide to the room requirements which would be helpful for example at the commissioning stage, as a means of referencing the conditions necessary in each room.

10. I am not familiar with CEL 19 (2010) (**A37215536 - CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010**

Revision' (2) dated 2 June 2010)[1] and am unable to comment on whether the use of an EM as opposed to room data sheets contradicts CEL 19 (2010). This is not my area of expertise. Within MML possibly either Graeme Greer or Richard Cantlay may have been aware of any issues arising from guidance of this nature. That said I would expect that NHS Lothian would have been aware of the content of this document if it was an NHS publication

11. The bidders were required to develop their own EM. The draft which was produced with the ITPD was given to bidders as a "starter for 10". The onus was then on the bidders to develop their own design. It was clear that this was required. There are always changes to building layouts that require to be developed. It is sometimes a small tweak and sometimes it is a significant change. That means that development of the EM will inevitably be required as progress is made with the overall design for the hospital.

12. I understand that it has come to light, that there was data relevant to ventilation in the EM which was incompatible with SHTM 03-01. I have been asked to explain the significance of the guidance notes on the front of the EM, which I understand did not match some of the air change requirements in the body of the spreadsheet. I would expect any designer, or reviewer, to have regard first and foremost to the guidance notes. A bidder reviewing the EM and adopting their own design from this would be expected to refer to the guidance notes as these provide a set of instructions as to what is required. If the guidance notes said that 10 air changes were required in critical care, then that is what I would expect a bidder to follow. I would expect any designer to have regard to the requirements of the SHTMs in relation to the overall design of the EM. Any reviewer would also have regard to the guidance notes and would take a degree of comfort from the fact that the guidance notes complied with the SHTMs. If there was any inconsistency between the guidance notes and the main body of the spreadsheet, the guidance notes would override the spreadsheet.

Tender evaluation

13. I was involved in the evaluation of tenders. It is possible that I would have

[1] Bundle 1 Published Guidance - A37215536 - CEL 2010 - Letter to Chief Executives, 'A Policy on Design Assurance for NHSScotland 2010 Revision' (2) dated 2 June 2010, Item 6, p.553

been involved in the workshops to discuss weightings for evaluations, but I am unable to recall the specifics given the passage of time, and the number of other projects in which I have been involved since then. My role was to review aspects of the tenders relevant to building services and to score them. Once again, I only reviewed the electrical side of things. One of my colleagues who specialised in mechanical engineering would have reviewed the mechanical aspects, which would have included the ventilation. Generally, that would have been done by Colin Macrae, who was a building services engineer specialising in mechanical in my team. Colin was absent from work though from around 22 January 2014 until 31 March 2014, which was around the time when the final tenders were reviewed. This was pre-planned time off due to an operation and recovery time which he was scheduled to undergo. I believe he carried out the majority of his evaluations of the final tenders received from bidders in advance of this time off. My recollection is that Paul Kelly was involved in providing further comments and input during Colin Macrae's absence.

14. The review that would be carried out for the EM would be a sample review with a few spot checks. A line-by-line review would not be carried out. That was not part of our remit. As an electrical engineer I would be looking at things like lighting levels. A mechanical engineer would be looking at things like air change rates and room temperatures. If we came across any areas of non-compliance with the BCRs and guidance such as SHTM 03-01 then we would highlight them.

15. The key thing to remember though is that at the point at which the final tenders are being assessed, the hospital has not yet been designed. The final tender, which is produced by each bidder, is not their final design. The designs all need to be developed. What you are looking for at final tender stage, is an indication that the bidders are agreeing that what they are going to design, will be compliant with the Board's Construction Requirements and all of the relevant guidance. The final tender is an indication of what is going to be designed, not the final solution.

16. I have been asked whether it would cause me concern that one of the bidders had produced a mark-up of the EM, while the others did not. This would not of itself cause me any concern. It is expected that the EM will be developed. It has to be developed as the design progresses and it is normal for the services design to be developed up to quite a late stage of the project – even right up to the installation of services on site. I don't immediately recall the specifics of this project now, as I have been involved in so many relatively similar projects since then. If one bidder had produced a mark-up of the EM, and another had not produced an EM, but said that they were going to comply with the reference design EM, then that would not of itself have caused me any concern. Mott MacDonald did not design the draft EM issued with the ITPD; it was Hulley & Kirkwood who produced that document. We understood from Hulley & Kirkwood however that their design complied with the SHTMs, as they had certified compliance and told us that their design complied. We would have had no reason to suspect at final tender stage, that the reference design EM contained any data which might not have complied with the SHTMs.

17. I have been asked if a tender should be regarded as compliant if some aspects of the EM produced at final tender stage did not comply with the published guidance such as SHTM 03-01. My understanding is that the reference design EM was not a mandatory document and therefore this would not have impacted whether the tender was compliant. It was up to the preferred bidder to design the EM and to ensure that it was compliant. The tender would be compliant if it complied with the Board Construction Requirements. Ultimately it did not matter whether the environmental matrices produced by the bidders matched each other or the draft matrix produced with the ITPD. the important thing was that they complied with the guidance and the SHTMs. Where the EM did not comply with the design guidance and any anomalies were observed then it would be up to the preferred bidder to address this while developing their design.

18. The Inquiry has asked how a bidder could comply with both the EM and SHTM 03-01. Bidders were not required to comply with the ITPD issue environmental matrix. This was not how it worked. They were required to

develop their own EM by developing it, in a way which would bring it into compliance with the guidance. Fundamentally the design risk sits with the preferred bidder, so it is up to them to ensure that their solution is compliant.

19. In terms of my own reviews at final tender stage, I would have been looking at the electrical distribution requirements and reading through their submissions, to consider whether the bidders had understood the BCRs and what the Board was looking for. For example, I would be thinking have they allowed space for services distribution and checking that against SHTMs for compliance. I would be looking at it practically and the buildability.

20. We would have followed a process for evaluation of the tenders. There would be certain categories to be assessed and we would provide a score and every other workstream would provide a score, which would be weighted and pulled together. An evaluation proforma was completed which formed part of the Appendices to the evaluation Manual. In particular this was sheet Proforma C8 on the Appendix D spreadsheet. Generally, in an NPD project, very little would be ascribed to mechanical and electrical engineering as part of the overall score. Clinical functionality is king. People are not really too interested as long as the building gets services. M&E is behind the scenes. The end users don't really think about M&E as it is not as important to them as other factors such as how the hospital looks, the lay outs, the interior design. That said, things like how hot or cold the room is or how bright or dark the lighting is can make a very big difference to patients and staff. It is normal though in this type of project that the weighting for M&E is not very high. I am told that the weighting was 1.06% which does not surprise me.

21. From my experience I have noted that the preferred bidder does not always have the highest overall M&E score, which is what I understand happened here. The winning bids tend to be those which are focussed on clinical functionality, and how the hospital looks. The bids which produce a clinically efficient hospital tend to win over those with the best servicing strategy. It just comes down to what is important to the staff and the patients who use the space. People tend to take building services for granted and they care more about how things look.

Preferred bidder to financial close

22. After their appointment as preferred bidder, Project Co had to develop their own design. One of the things they required to do as part of that was to develop their own EM. They produced a number of different drafts of the matrix. I was involved in undertaking reviews. Once again, my reviews would only have involved looking at the electrical side of things though, as the mechanical side would have been done by Colin. The electrical reviews would mainly have involved looking at the lighting.

23. I believe the Project Management Team would pass documents to Colin Macrae and to me for review. Our role would then be to undertake a sample review or spot check of the documents, to check for any areas of non-compliance with the BCRs. We were not engaged to undertake a line-by-line check, or audit of Project Co's design. That was not part of the services we were to undertake in the preferred bidder to financial close stage. It would not have been practical to do this in any event, as we would only ever have a limited time to turn the reviews around. Generally speaking, we would only ever have ten days to turn around each review. We would provide comments on any areas of concern to the project management team at Mott MacDonald, who would then feed them in to NHSL, and either the Mott MacDonald project management team or NHSL would then escalate any issues to Project Co if that was appropriate.

24. I do recall some examples of comments I raised on the EM. It would be things like highlighting that there should not be occupancy sensors for lighting control in the plant room, that there should be manual switch control, that kind of thing. We were not the designer for the project, and we had to take care not to make any suggestions or to provide any input which might lead us to become the designer of any aspect of the project by default. Our role was to provide technical advice to NHS Lothian. With the exception of operational functionality, the design risk for the project all sat in the private sector. This is the whole basis of the NPD structure, which is designed to transfer the risk allocation to the private sector.

25. The Inquiry has asked whether I am aware of anyone on the Board whose role was to give design advice to Project Co. IHSL were the designers and were responsible for undertaking their own design. As the design risk sat with the private sector, specifically with IHSL, NHSL we would not have played any role in advising ProjectCo on their design. It was up to ProjectCo to ensure that they themselves complied with the BCRs. In my experience, it is possible for designers to have differing opinions on guidance as there is always more than one way of doing things. IHSL had the responsibility for ensuring that their design complied so it would not have been up to the board to advise them on this issue.

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.

Signed

22 February 2023

Scottish Hospitals Inquiry
Witness Statement of
Jackie Sansbury

WITNESS DETAILS

1. My name is Jackie Sansbury My address is care of NHS Lothian.

OVERVIEW

2. I have previously provided a statement to the Scottish Hospitals Inquiry and can confirm that I am still retired from NHS Lothian.

3. I moved into the project in 2012 to lead the commissioning process to provide a new hospital, the Royal Hospital for Children and Young People. I led Facilities Management ("FM"), commissioning, workforce and equipment. Soft FM was being kept in house, which refers to things like domestics, porters and cleaners. Hard FM, which relates to how the building works, was going to the invitation to participate in dialogue("ITPD") to become the responsibility of the SPD.

4. One of my areas of responsibility was to review all the method statements for soft FM. We had external technical advice and we also had Lothian technical people for the hard FM. I was responsible for the workforce which was looking at the increase in staffing required across the hospital, because it was a bigger facility than before. I also led the negotiations with the South East of Scotland and Tayside planning group, which was all the other health boards who would be sending patients to the RHCYP and who would have a view on the staffing levels. I also led the equipment group, which is equipment required for individual rooms. So Group 1 equipment was provided by Project Co Group 2, who specified with us, and when Project Co Group 3 and 4 was built by us and installed by us.

5. I was also responsible for clinical enabling works inside the Royal Infirmary. It was a very big piece of work. We had several projects to deliver inside the new high dependency unit ("HDU"), new wards and moving people around.

6. I cannot comment on the environmental matrix and ADB sheets or whether they were deemed by NHS Lothian to be of equally quality to room datasheets produced using the ADB system. That did not fall within my remit. The environmental matrix and room datasheets were dealt with by technical advisers.

7. Whilst I did not have any involvement with the environmental matrix I have seen it of course. The very first environmental matrix was produced for the standalone children's hospital, before the decision was made to include the Department of Clinical Neuroscience in the project, which I was the executive for at the time. In terms of reviewing the environmental matrix I wasn't technically qualified to do that. Nor did I use the environmental matrix in my role.

8. It is my understanding that the ITPD was put together by Mott MacDonald. I have no doubt at all that we would review sections but to be perfectly honest I can't remember. I imagine that each project team would review the sections that related to our work, just in case there was information we may want to add.

9. My understanding of what the environmental matrix was used for is that it took information from all the room datasheets and put it together in one place. To offer an easier way of checking rather than flicking through hundreds of pages. Some of the room datasheets might be three, four, five pages long. Rather than looking at each one individually, it extracted the information. I understood it was put together as a kind of easy check.

10. I am asked how the environmental matrix was intended to be used throughout the project. My understanding was that the environmental matrix was put in the tranche of documentation as a helpful aid, but it wasn't validated by NHSL.

It was provided so as not to lose the work that previously been done in relation to the standalone children's hospital. So rather that throw that away and start again, the paperwork and the documentation produced was provided to bidders in a "If you want to have a look at this, you are very welcome," kind of way. But it wasn't deemed to be all correct. It was just a helpful document.

11. In my role as executive lead in the initial project to build a children's hospital I was aware of the environmental matrix, but it would not be accurate to say I was familiar with it. I am not technically qualified to do so.Clinical input would not have been sought to the environmental matrix. It was pulled together from other things and it's technical, the clinical staff wouldn't input to technical data. Although I can't speak for doctors. I don't know if the environmental matrix had become something different to that which was intended by the time we reached financial close.

12. In terms of the procurement process, there were two areas of the documentation that I would review: Strategic and Management, and FM. I was responsible for being in those groups and sat in at the procurement meetings. As a result I was involved in discussions around how the tenders were going to be marked and how they were marked for FM and Strategic Management. Strategic Management was a work stream where they had to respond to strategic questions. It was one of the project work streams which was split into Design, Strategic and Management, FM, etc. Each work stream marked their own area.

13. I am asked if I had any concerns around the 60/40 split, 60% being allocated to price and 40% to quality. My colleagues and I had discussions about it with Scottish Futures Trust ("SFT") . We were concerned initially about the shift away from 40/60 to 60/40, and that's why we had the mandatory elements. We felt that by having some mandatory elements it would compensate for that shift from 60 to 40 on quality. From memory I think that SFT said that the 60/40 price/quality split had to stay, which was why we moved to the mandatory and non-mandatory to try to compensate for it. In relation to the decision as to what should be mandatory I really can't remember.

14. I am asked how bidders were supposed to comply with the information provided in the four volumes of the ITPD documentation, and whether there was potentially a lack of clarity in relation to the purpose of the environmental matrix. I don't think we did think there was a problem because we had statements in the documentation that said bidders had to comply with SHTMs and HTMs. We also added a statement that the most onerous standard should be applied. If there was ever a conflict in relation to two competing bits of information, the most onerous standard should be the one that was followed. There was also a requirement to flag issues to us if there was a problem.

15. I don't think that stating bidders have to comply with the environmental matrix and SHTM could be deemed confusing because the most onerous standard must be the one that's adhered to. I think that's why it was there because we knew that some documentation and guidance would contradict each other. So there has to be some way to work out the hierarchy of what should happen. Therefore, if faced with an environmental matrix entry versus requirements on SHTM 03-01, and I should say that I don't know the details of them all, the most onerous should stand. I don't think somebody sat and looked at the two standards and went, "It's that one or that one." I think from our perspective the technical advisers, Mott MacDonald, were there to make sure that technically what was coming back was appropriate. Mott MacDonald would feed back any issues that were reported to them to the board.

16. I can't remember looking at the environmental matrix in any detail. As I understand it there are two environmental matrices. The one that we had that was put in the ITPD for information, and the one that ISHL had to prepare. The environmental matrix that was put in as part of the procurement documentation wasn't intended to be taken forward all the way through to the end of the project because that was our document. IHSL had a requirement to produce their own one.

17. The environmental matrix put in to the procurement documentation would have been updated by Mott MacDonald for the project team and I wouldn't

have had anything to do with that. IHSL would then produce an environmental matrix for the project. Whether that would be something they needed to keep revising, I can't comment.

18. I am asked about infection control but that is not within my area and I cannot comment other than to say that we had an infection control nurse and microbiologists advising the project. That would be their remit.

19. I was at the Project Steering board meeting, which took place on 29 November 2013, when the decision was taken to close competitive dialogue [**A32676816 - Project Steering Board Action Notes, 29 November 2013**][1]. In terms of FM and Strategic Management for the three different bids that I was looking at, although I can't remember the exact details there weren't any red flags otherwise I would have raised them. I was only concerned with reviewing bids from a FM and Strategic and Management point of view, I didn't review the other parts. We were split into groups with advisers and NHS personnel. We reviewed and scored our own relevant section, not the whole thing. The other teams included Design, Commercial and Legal. We just did our own work scheme. There was too much for only one work stream to review.

20. Design would be reviewed by Brian Currie and Janice MacKenzie. The mechanical and electrical design would be with be Mott MacDonald and I expect there would be interest from Ernie Bain, in our Estates team. But that wouldn't be my work stream. Each work stream would mark tenders for their relevant area. Although I went on holiday before the end of the process so I would not have been party to any discussion after that point.

21. In relation to the Pre-close of dialogue Key Stage Review, [**A33337058 - Pre-close of dialogue Key Stage Review – 11 February 2015**][2] I am asked if it was the correct decision to close dialogue. Peter Reekie, of SFT, sat in on

[1] Bundle 8 – Scoring & Correspondence Regarding Issues, item 1, p.5
[2] Bundle 9 – Key Stage Reviews, item 2, p.50

that Project Steering board and SFT were always getting reports. SFT were aware of everything as it was going on. My recollection is not great but clearly there were no issues from FM and Strategic and Management or I would have raised those. And I assume that other colleagues would have done the same in their work schemes. SFT would also have had opportunities to raise red flags. This Key Stage Review was written by SFT following discussions with us. If there were any issues around FM and Strategic Management we, as in my work stream, would have raised them.

22. I am asked about operational functionality but I cannot comment on that as it was not part of my remit.

23. Whilst I had a general awareness that the environmental matrix existed I was not familiar with the table within it or any specific technical information in relation to ventilation. I wouldn't have been qualified to do anything with it. I am well aware that there are standards to follow and that is what these documents are. But in relation to the detail of any paragraph or table, I could not comment.

24. Any meetings about ventilation would have been held with the people who are qualified to have the conversation, and even if I was there I would not have been qualified to comment. If the project team were alerted to an issue the appropriate people would go and look at it, which would not be me. I can't recall the specific details but I do recall there were issues with opening windows at one point. But again, I would not be present at those meetings. I simply can't comment because I don't know what went on.

25. I am asked my opinion about whether Hulley & Kirkwood leaving the project adversely impacted the technical expertise available to the board. I don't have an opinion on that and cannot comment.

26. I am asked about the decision to appoint IHSL as preferred bidder [**A33337163 - Pre-Preferred Bidder Appointment Key Stage Review dated**

28 February 2014][3] [**A36382455 - Preferred bidder letter from NHSL to IHSL - 5 March 2014**][4] and if I had any concerns about IHSL being appointed when they were. I had no concerns. The financial close deadline had to be extended. I don't think the process was rushed, I think there was a lot of material to get through. We, NHS Lothian, hadn't got to a stage we were comfortable being at with the project as a whole. I can't provide specifics on the project as a whole but I was comfortable that FM, Strategic and Management, my area, was on track.

27. Once IHSL were appointed as preferred bidder my role remained exactly the same. However, at that time I was probably heavily involved in finalising works at the Royal Infirmary because it wasn't finished at that point. That is to say finishing off the clinical and enabling works inside the Royal Infirmary; FM, equipment, workforce and commissioning. We had to create a brand new HDU in the Royal Infirmary and then we had to extend the current critical care in the Royal Infirmary to account for the DCN patients who would need critical care. We were moving groups of people around, decanting work with the building work going on.

28. The contractual discussions with Consort had concluded by that point. But there was the day to day running of the Royal Infirmary to be considered given the works to join the Royal Infirmary to the RHCYP and the DCN. We broke through theatres into the theatre suite in the Royal Infirmary, with the corridor coming from the new building. There was quite a lot of disturbance to services in the Royal Infirmary and we had to do our best to keep that disturbance to a minimum. There was a lot of work going on. Strategically there was a lot to consider with theatres being out of operation. We had to work very closely with the teams in the Royal Infirmary to minimise the impact on patients. We had discussions with the renal team about what they needed in their ward. We had discussions with the critical care team about what they needed in their facilities which had been extended into the old renal HDU,

[3] Bundle 7 – Key Parts of Mosaic's tender marked up Environmental Matrix, item 1, p.3
[4] Bundle 10 – Miscellaneous volume 1 of 1, item 13, p.87

what changes were needed and how we did that when they were actively looking after patients. Janette Richards would have been involved in the infection control aspect of that. But the clinical and the managerial teams in the Royal Infirmary were heavily involved in their section of it. Dealing with a functioning hospital is a different ball game to building the new building, because you're dealing with a hospital which already has patients. I have a lot of experience of strategic management but given there was a lot to manage I didn't review things I didn't need to, because I simply had enough to do. Mine was a very key role but not in relation to M&E ventilation.

29. Once IHSL were appointed I attended weekly meetings with Consort (the company managing the Royal Infirmary works) and the design teams. Clinical people were involved to represent their own area. I tended to deal with managers in the Royal Infirmary and clinical management teams around workforce requirements and would then report back to the Project board. In relation to the period immediately after the preferred bidder was appointed I would have to get access to my emails and diary to tell you exactly what I was doing at which point.

30. I am asked to refer to Board Commentary on the Technical Information Requested by the Board and Technical Information issued by IHSL [**A33044733 - Board Commentary on the Technical Information Requested by the Board and Technical Information issued by IHSL - 19 November 2014**][5]. That was a Special Project Steering Group that took place in August 2014 which I did not attend. I don't know if I was on holiday and I could not say whether I would have been required to attend had I not been on leave. I would have been aware at the time there was some issues but again, design wasn't my portfolio. In attending meetings, unless there were key issues of concern to my area I would not have taken an active role in those discussions. It was a massive project and everybody has their own areas to manage but with a general awareness of the wider project.

[5] Bundle 8 – Scoring & Correspondence Regarding Issues, item 5, p.23

31. I do not recall any issues around ventilation impacting upon my role, if they had I would have been anxious about them and I would actively be involved in discussions and the appropriate groups.

32. I do not recall being asked to provide input to the decision to relax the requirement for provision of 100% of room datasheets prior to financial close. If I was upset about that I would have spoken up. I had a familiarity with room datasheets in so far as I was responsible for reviewing the equipment lists on them, but the rest of them wouldn't fall within my remit.

33. To clarify IHSL would produce the room data sheets and the appropriate sections would then be distributed for review to different teams. So I would review equipment. Janice MacKenzie would be reviewing based on her discussions in relation to room requirements i.e. what type of room is it and how many people should it hold to make sure that matched up with what we had sent in and matched it up with our equipment list. The clinical teams described what the room needed to do and that would be translated by advisers into a room datasheet, and there would be various bits of information which amongst the various teams would review the sections appropriate to us. It was the responsibility of IHSL to produce the Room datasheets and to pull all that together. Mott MacDonald would then check the M&E requirements.

34. I am asked if I had sight of the environmental matrix again after it was taken over by IHSL. It will have been among the suite of documents provided but did I print it out and see it? No, I didn't. The environmental matrix did not contain any information about equipment so I would have no need to review that.

35. I am asked if I have a view on how the decision not to insist upon 100% of room data sheets prior to financial close would affect reviewable design data. I think we felt that there was a process for reviewable design data and that it would be picked up through that process. We just accepted that was what we needed to do during that process to keep the project moving. I don't think I would describe it as a large amount of reviewable design data compared to what would normally be seen. I'm not sure there is a comparison of a project

of this type, that is the difficulty we had. This was a very different project to anything we had dealt with before. So I'm not sure that we had a direct comparison, and I don't think we ever found one that was a direct comparison. So we were pragmatic about what needed to be done and we would get on and do it.

36. Part of the reason for convening these special steering boards was to get senior people together, the likes of Mike Baxter and Peter Reekie, to move things forward. The NPD (non-profit distribution) model that was being used was owned by SFT. Not only was the model a new beast but we were also putting a lot on a current PSI with a different provider with six enabling works outside the Royal Infirmary, and 35 enabling works inside the Royal Infirmary. It was an absolutely huge project. There wasn't a comparable project, in terms of healthcare or a hospital setting, so we had to be pragmatic in relation to what needed to be done.

37. From my recollection I am not sure I had any concerns about IHSL's performance. My work stream was progressing. However, it is clear that Brian Currie and Janice MacKenzie had different issues.

38. I am asked to review a risk register dated 25 August 2014 titled "Technical Risks to Close", [**A36308781 - Technical Risks for Financial Close - 25 August 2014**][6]. I don't think that this is an NHS Lothian risk register. I don't think I have seen this before or in the course of the project. It looks to me like a Mott MacDonald risk register. Our risk register was orientated differently. We would input our concerns to the Lothian Risk Register– I think Sorrel Cosens may have been the keeper of the risk register and maintained it up to date for us - and we would all feed in when we were anxious and we needed a risk escalated, or where litigation was raised for example. But, as I say, I think Sorrel probably managed the actual register.

[6] Bundle 10 – Miscellaneous volume 1 of 2, item 10, p.75

39. In completing Key Stage reviews I think that the Lothians register would be used to complete that. But in relation to the Mott MacDonald register I can't speak for that at all because I don't think that was a register that was shared with the project team on a regular basis. I don't really recognise that and can't comment on individual entries. However, this register is dated six months before financial close so of course the project wouldn't be developed by that stage, and that's the thing. You have to take that into account that there were risks that by the time you got to the financial close would be mitigated or resolved, for example by the reviewable design data process.

40. I am asked to refer to an email dated 24 September 2014 [**A35616470 - E-mail from Brian Currie to Susan Goldsmith - Progress to Financial Close - Areas of Concern - 23 September 2014**][7] in particular para.1. I was not party to this email. I am aware that there had been occasions during the project when relations were frosty. Although dates wise I can't tell you exactly when they were. I suspect those discussions were between the principals rather than the project team. By that I mean Brian Currie, Susan Goldsmith, Ian Graham and the principals of ISHL. That is not a project team discussion. That is a principals' discussion and I was not involved. The project team were certainly aware, we would discuss problems and challenges in the project. Any discussion around not retaining IHSL would be for the principals' not the project team.

41. I would say that, generally, we worked very hard to try to make the project process work. Against the back drop of having had to switch from a capital funded project it was a long, long road to get to this point. It was extremely disappointing to be told in 2010 that our project had moved from being capitally funded to NDP funded. I don't think anyone in the Scottish Government, when they made that decision, truly understood the complexity of putting a PSI on a PSI, or an NPD on a PSI, and how long it would take us before we could even begin to get off the mark. By the time we got to 2014 we

[7] Bundle 8 – Scoring & Correspondence Regarding Issues, item 22, p.89

were eight years into the project. The whole point was we needed a new children's hospital. That is what we were working to deliver.

42. I am asked about the Steering Board Commercial Subgroup. I think I was called into that on a couple of occasions to discuss sessions, which in a hospital setting is a four hour time period. In terms of the general remit of this commercial subgroup I cannot recall. I would have to have a look through my old papers. I cannot comment on whether any latitude was granted to IHSL by the board to enable financial close to happen.

43. I am asked whether the detailed proposals that had to be put forward by IHSL prior to financial close were more detailed than I would ordinarily have expected in any hospital build of this type. I would say that I honestly have no opinion on that and cannot comment.

44. I am asked if I recall any conversations taking place prior to financial close about ventilation issues in critical in relation to single bedrooms and multi bedrooms. I knew there were discussions but I wasn't involved in the discussions or the detail. Looking back over the project I was aware that there were ventilation issues in single bedrooms and issues around opening windows, but I couldn't tell you at what point in the project that came up. I would have to go back and look because it wasn't my area. I am probably thinking of it more towards the certification end of things because that was a big feature later but that was 2017.

45. I am asked to refer to the Wallace Whittle - Air movement Report for Single Bedrooms **[A34225453 - Wallace Whittle - Air movement Report for Single Bedrooms (draft) - 12 January 2015]**[8] which is an air movement report drafted by TUV SUD Wallace Whittle. I don't know if I have seen this before. I have seen a lot of documents that look like that, whether it was that one I don't know as I would not have been involved in the detail.

[8] Bundle 8 – Scoring & Correspondence Regarding Issues, item 15, p.66

46. I am asked about the sequencing of approvals for the full business case and the pre-financial close key stage review [**A33336933 - Pre-Financial Close Key Stage Review - 11 February 2015**][9] and whether it is unusual for the pre-financial close key stage review to be finalised before the Capital Investments Group's recommendation for approval of the full business case. I don't know that we, NHS Lothian, would know the answer to that because SFT didn't exist with previous projects. NPD was a new process so I don't know what the norm was. I would have to look at the Capital Investment manual and see what the order was. That is the trouble we had with this project, it was new, it was different, and SFT didn't use to be involved. We used to have a gateway review which was a different thing to key stage reviews. So I honestly couldn't tell you. With gateway reviews I think it probably was that you did the gateway first and then you would check everything was covered off. I can't really remember but logically you would have that gateway before you submitted your final business key stage so that you would say that the gateway or the key stage review was fine and good to go. Logically that would stack up to me.

47. In relation to whether there was a specific need to achieve financial close by February 2015, I actually think I was on holiday at financial close as we went away every January February. I think my understanding is that there were pressures for IHSL, monetarily I would have thought. The extent to which, I am not party to. As far as financial implications for other parties to the project, including the board, I am not sure and cannot comment.

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

[9] Bundle 9 – Key Stage Reviews, item 1, p.3

SCOTTISH HOSPITALS INQUIRY

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Hearing Commencing
24 April 2023
Bundle 13 – Witness Statements