THE SCOTTISH HOSPITALS INQUIRY

**Interim Written Submissions**

on behalf of

**Multiplex Construction (Europe) Limited ("Multiplex")**

relative to the Royal Hospital for Children and Young People and Department of Clinical Neurosciences in Edinburgh

## 1. Introduction

1.1 These submissions supplement Multiplex's responses to the Inquiry's Provisional Position Papers 1, 2, 3 and 4. Those responses (including the schedules to the responses to PPPs 1, 2 and 3, which are marked-up versions of the relevant PPPs) are referred to and their terms are incorporated herein for the sake of brevity. They are to be found in Bundle 12, pages 8 – 366. On that basis, these submissions do not seek to address general matters of background and chronology. Instead, they seek to focus primarily on particular matters canvassed in the evidential hearings before the Inquiry.

1.2 The submissions are presented in the following chapters:

- Executive Summary
- Preliminary Matters
- SHTM-03-01
- The evidence of Stewart McKechnie
- The period up to Submission of Final Tenders on 13 January 2014
- Assessment of tenders and identification of Preferred Bidder

- Preferred Bidder Stage: 5 March 2014 to 12/13 February 2015
- Financial Close
- Comment on the draft submissions of Counsel to the Inquiry
- Comment on the draft closing statement of Mott MacDonald
- Provisional Conclusions

1.3 In these submissions, references to the transcripts of evidence are given in the following format: TD1,C45,p. 25 = Transcript Day 1, Column 45, pdf page 25. All such references are to the transcripts of the hearings commencing on 25 April 2023, unless expressly stated otherwise.

1.4 In these submissions, 4AC means 4 air changes per hour, 10AC means 10 air changes per hour, and so on.

**2. Executive Summary**

Multiplex's position can be summarised as follows:

2.1 SHTM 03-01 is guidance. A requirement to comply with SHTM 03-01 can, however, be contractually imposed.

2.2 In the present case, bidders were advised in both the draft Project Agreement and the Board's Construction Requirements in the ITPD that the works were to comply with SHTM 03-01, except to the extent the Board had stated otherwise.

2.3 The documents provided to bidders also included an Environmental Matrix which was defined as being: "*the Environmental Matrix, which details the room environmental condition requirements of the Board required within each department / unit / space / area"* and were advised that the Works were to *"comply with the*

*Environmental Matrix*". Bidders were told that changes to this Environmental Matrix were only to be proposed on an exception basis.

2.4 The Environmental Matrix provided was also expressly defined as being part of the "*Room Information*" to be used to produce Room Data Sheets, with the Environmental Matrix being identified on its face as replacing the ADB RDS M&E Sheets for the Environmental Criteria.

2.5 Multiplex's understanding was accordingly that the Environmental Matrix contained the Board's desired environmental requirements. This understanding accords with the wider desire by NHSL not to waste the c£2mill of public funds and extensive clinical time which had been spent developing the design prior to the change to the funding model. Multiplex's understanding of what was required was confirmed in the response received to the IHSL tender. IHSL had not provided their own Environmental Matrix but had instead advised that: "*The mechanical and electrical services shall be provided in accordance with the reference design environmental matrix…"* to which they received the response: "*Good Response"* and the IHSL bid was said to be "*in full accordance with the requirements"*.

2.6 In contrast, one of the other bidders, Mosaic (Bidder C), proposed to change the number of air changes in the single bedrooms and multi-bed wards in Critical Care from 4AC to 10AC, but their bid was unsuccessful.

2.7 During the preferred bidder period the Environmental Matrix was then reviewed and discussed in detail with NHSL and their technical advisors Mott MacDonald. Despite Bidder C having highlighted what is now being referred to as an "error" in the AC rate for Critical Care to Mott MacDonald (and other detailed comments being received from Mott MacDonald in relation to the

ventilation requirements), the provision of 4AC in critical care areas was not questioned.

2.8 If there was an 'error' in the EM in relation to air change rates in Critical Care bedrooms such that the EM did not reflect NHSL's intentions, it is difficult to understand why it was not identified by NHSL or its advisers during the Preferred Bidder period. Instead, Multiplex's design team were permitted to produced designs and RDS sheets for Financial Close which proceeded on their understanding that the Board's requirements for the environmental conditions were those set out in the Environmental Matrix, and so that 4AC was required in the multi-bed and single bedrooms in Critical Care.

2.9 As had been foreshadowed in the ITPD documentation, the parties then entered into the Project Agreement which again (together with the Board's Construction Requirements at Financial Close) advised that the works were to comply with SHTM 03-01, except to the extent the Board had stated otherwise. The Project Agreement and Board's Construction Requirements then again included and referenced an Environmental Matrix, was which defined as being: *"the Environmental Matrix, which details the room environmental condition requirements of the Board required within each department / unit / space / area"* and contained express provisions requiring the works to comply, and be built and commissioned in accordance with, the Environmental Matrix which was incorporated as part of the Board's Construction Requirements and Project Agreement at Financial Close.

2.10 At no point was IHSL or Multiplex advised that the Environmental Matrix provided by NHSL could not be relied upon or contained an "error".

2.11 Indeed, is not clear from the evidence currently available to the Inquiry how the position now advanced by NHSL and Mott MacDonald could have been the intention at the time. In particular, if the Environmental Matrix was not to be intended to provide the NHSL's environmental briefing requirements, what document did?

2.12 The Board had taken the decision not to produce Room Data Sheets for the project and so, if the Environmental Matrix was not the alternative tool being used by Board for briefing purposes, then the logical conclusion of NHSL and Mott MacDonald's position is that there was no environmental briefing information provided to bidders. Such an approach goes against CEL 19(2010) and does not accord with the known desire on the part of NHSL to use the design information which had already been produced, nor the shortened tender and preferred bidder period where access to clinicians was limited. If bidders could not rely on the Environmental Matrix and were to design the environmental requirements for the hospital, extensive time and clinical input would have been required – neither were afforded to bidders, because this was not what was expected of them. Instead, NHSL had already spent £2mill and extensive clinical time developing the design and IHSL were awarded preferred bidder, and Financial Close was reached, on the basis the Environmental Matrix reflected NHSL's environmental requirements for each space.

## 3. Preliminary Matters

Interim nature of submissions

3.1 The Inquiry has not yet exhausted its Remit and Terms of Reference in so far as they relate to the Royal Hospital for Children and Young People and Department of Clinical Neurosciences in Edinburgh. It would be premature for any firm conclusions to be drawn, at least in relation to certain matters, on the basis of the evidence heard by the Inquiry thus far. That is because evidence yet to be heard by the Inquiry, in relation to later stages of the project, may impact (materially) on the matters in respect of which evidence has been heard thus far and cast new light upon them. For that reason, these submissions are interim in nature and Multiplex reserves the right to revisit them in future.

3.2 By way of example, Multiplex anticipates that at future hearings, the Inquiry will hear evidence to the effect that, after Financial Close:

(a) Ken Hall and Graeme Greer corresponded by email on 26 May, 15 June and 22 July 2015 in terms indicating that both parties (through Multiplex and Mott MacDonald) were proceeding on the understanding that the EM was only RDD to the extent of NHSL's 7 comments from the meeting of 11 November 2014, which were subsequently included in section 5 of Schedule Part 6 to the Project Agreement (Bundle 6, pdf page 80).

(b) the design of the ventilation system (including not only the number of AC but also the ductwork, air handling units and plant space necessary to supply the number of AC) was reviewed by NHSL and Mott MacDonald, including (i) during the RDD process, where NHSL's requirement for 4AC in Critical Care bedrooms was confirmed; (ii) during discussions in relation

to the pressure regime for the multi bed wards, where in an email of 18 April 2018 NHSL stated that they were "*seeking a design for 4AC for all 14 rooms*" – which included the multi-bed wards in Critical Care, and (iii) in the Settlement Agreement between NHSL and IHSL dated 22 February 2019;

(c) after the agreed approach to the number of air changes per hour in Critical Care (HDUs) was questioned by IOM in IOM's first issues log, circulated by email by Brian Currie on 25 June 2019, NHSL approached IHSL to undertake additional work to achieve 10AC in Critical Care on the basis that this would be a Change in accordance with Schedule Part 16 (Change Protocol) to the Project Agreement; and

(d) Multiplex did not undertake the additional works mentioned above, but understands that they were undertaken by IHSL and were the subject of Supplemental Agreement 2 dated 5 August 2020, the purpose of which appears to have been to amend and supplement the original Project Agreement: reference is made to paragraphs 95-109 of the Inquiry's PPP4.

3.3 All of the foregoing is inconsistent with the notion that NHSL and/or Mott MacDonald ever understood or believed or expected that 10AC would be provided in Critical Care.

3.4 Furthermore, Stewart McKechnie of TUV-SUD/Wallace Whittle referred in his evidence to having clarified that the rooms treated with 10AC and 10 pascals of pressure was a correct interpretation, albeit this was a "wee bit away" from the Inquiry's timeline (TD7,C33,pdf p. 19). It is anticipated that the Inquiry will wish to hear further detailed evidence in relation to that matter in due course.

3.5 It is also anticipated that the Inquiry may wish to hear evidence relating to the post Financial Close documents which Mott MacDonald sought (unsuccessfully) to be allowed to put to witnesses at the hearings in May 2023. Despite that, in its draft closing statement Mott MacDonald seeks to rely on such documents. It is submitted that the Inquiry should disregard such documents unless and until they are the subject of evidence at a future hearing and submissions dealing with the post Financial Close period. Only then can the documents be considered in their proper contexts and with the benefit of witness evidence relating to them.

Hindsight

3.6 In its response to the Inquiry's Provisional Position Papers, NHSL makes a number of observations in relation to the approach taken by the Inquiry and the use of hindsight, which Multiplex is content to adopt for present purposes. The relevant passages are paragraphs 2.1 – 2.3 (Bundle 12, volume 1, pdf pages 8-9):

"*2.1. Each PPP views the Project through a particular lens, be it Reference Design, the Environmental Matrix or the Procurement Process. There is a risk, however, that, in viewing the Project through distinct lenses, the overall context in which decisions were made may not be fully appreciated. This possibility becomes more acute when the Inquiry is reviewing how various issues developed with the full benefit of hindsight.*

*2.2. In fulfilling the Terms of Reference, the Inquiry will scrutinise actions, events and decisions in order to have a full understanding of what occurred. In doing so, the Inquiry will have two overarching tasks: (i) to identify why certain things went wrong and how such mistakes can be avoided in the future, and (ii) to make comment, possibly adverse, on the conduct of the individuals or organisations involved. In undertaking*

*these two very different tasks, there is a danger, faced by all public inquiries, of assessing "real time" decisions with the benefit of hindsight rather than in the context in which they were made. This can lead to a misinterpretation of cause-effect relations and an underestimation of the difficulty of taking decisions during periods of uncertainty or where there is pressure to act.*

*2.3. Hindsight obviously has an important role to play as the Inquiry traces back events from a known endpoint. However, when it comes to ascribing responsibility to individuals or organisations, it is submitted that the Inquiry's role should be different. For that task, the Inquiry should consider the factual and commercial context in which decisions were made in order to fully understand why they were made and whether or not, in the circumstances, they were reasonable. Part of that context is the scale of the Project. The procurement and construction of the RYCYP/DCN, through its various phases, was an enormous job. A focus exclusively on one aspect, e.g. ventilation, may mean that decisions that were taken are not seen in their proper context."*

3.7 For present purposes, another part of the context is that up until the Project Agreement was actually entered into at Financial Close, NHSL and IHSL were not bound by the contractual obligations of the Project Agreement. Up to Financial Close, NHSL and IHSL were still in a period of negotiation.

4. **SHTM-03-01**

4.1 SHTM-03-01 is guidance. SHTM-03-01 comes with a 'disclaimer' in red text near the beginning of each version (see Bundle 1, pages 6, 106, 153 and 337). Amongst other things, the disclaimer states: "*The contents of this document are provided by way of general guidance only at the time of its publication.*" SHTM-03-01 does not have the force of law. Compliance with it is not mandatory in that sense.

4.2 In the early stages of procurement of the Project, SHTM-03-01 was a new standard, first published in 2011. Version 1 (October 2011) posed the question *"Who should use this guidance?"* and stated, in answer to that question, that it was aimed at healthcare management, estates managers and operations managers: see Bundle 1, pdf page 111. Notably, by the time of the Project Agreement, the Clinical Output Specification for Critical Care still referred to SHTM-2025 in relation to ventilation, not to SHTM-03-01 (see Bundle 5, pdf page 390). SHTM-2025 does not, however, provide air change rates for various room types in healthcare facilities other than operating space (see the evidence of Mr O'Donnell of Hulley & Kirkwood at TD1, C32,p. 18).

4.3 It is acknowledged that, on any particular project, a requirement to comply with SHTM-03-01 may be imposed contractually. In the present case, however, the situation was that bidders were advised through the ITPD that the design for the ventilation system was required to comply with SHTM-03-01 – but only to the extent that NHSL had not stated an express contrary requirement. Bidders were required to confirm acceptance of the Reference Design EM, and were free to highlight proposed changes, but only on an exception basis. This remained the position in the Project Agreement and the Board's Construction Requirements (BCRs) which formed part of the Project Agreement. Reference is made to Multiplex's responses to the PPPs and, in particular, section 3 of Multiplex's response to PPP 1.

4.4 Without prejudice to the generality of the foregoing, clause 5.2.4 of the Project Agreement provided as follows (See Bundle 5, page 11 – emphasis in bold added):

*"5.2 Project Co shall at its own cost be solely responsible for procuring that the Project Operations are at all times performed:*

…

*5.2.4* ***except to the extent expressly stated to the contrary in the Board's Construction Requirements*** *or the Service Level Specification, in compliance with all applicable NHS Requirements.*

…"

4.5 Clause 5.2.4 has its genesis in the Scottish Futures Trust's standard form of NPD Contract. The purpose of the clause is to enable a procuring authority, here an NHS Board, to take a different approach from the approach set out in NHS Requirements in order to suit the particular needs of a particular project: see the evidence of Peter Reekie of Scottish Futures Trust: TD8,C36-39,pdf pp. 20-22.

4.6 This indicates that, at the time, it was not considered inherently 'wrong' for an NHS Board to have a different approach from the approach set out in NHS Requirements such as SHTM-03-01.

4.7 For completeness, paragraph 2.3 of the BCRs is to the same effect (emphasis in bold added): "***unless the Board has expressed elsewhere in the Board's Construction Requirements, a specific and different requirement****, the Facilities shall comply with but not be limited to the provisions of the NHS Requirements as the same may be amended from time to time: … (h) HTM and SHTM …*" (Bundle 5, pdf page 212/3.)

5. **<u>The evidence of Stewart McKechnie in relation to SHTM-03-01</u>**

5.1 Mr McKechnie is plainly a very experienced mechanical engineer, with significant experience as the designer of healthcare ventilation systems and familiarity with SHTM-03-01: see his evidence at TD7,C3-5,pdf p.4-5.

5.2 In his evidence, Mr McKechnie explained his understanding of the requirements of Appendix 1 of SHTM-03-01 and the reasons for his understanding, from an engineering perspective. He explained that 10AC and 10 pascals of positive pressure are only required in relation to isolation rooms within Critical Care areas, and not to other areas within Critical Care (including other patient areas as well as nurse spaces, interview rooms and so on). See TD7,C23-34,pdf p. 14-19. He went on to explain how that understanding informed his approach to the EM. In particular, he explained that he saw no conflict between what was said in the EM and the statement that *"the ventilation systems to the Hospital are designed in accordance with SHTM-03-01"*.

5.3 On the face of it, Mr McKechnie's understanding of SHTM-03-01 is impossible to reconcile with the evidence of Mr O'Donnell of Hulley & Kirkwood, who expressed the view that a multi-bed ward within a Critical Care area should have 10AC rather than 4AC, and said that including 4AC in the EM in respect of multi-bed wards within Critical Care was an error: (TD1,C76-77, pdf p. 40-41).

5.4 If Mr McKechnie's understanding of the requirements of Appendix 1 of SHTM-03-01 is accepted as being correct, then there was never any 'error' as between the EM and the requirements of SHTM-03-01 as regards Critical Care areas.

5.5 If Mr McKechnie's understanding of the requirements of Appendix 1 of SHTM-03-01 is not accepted as being correct, the Inquiry may wish to focus on what part Mr McKechnie's understanding may have played in why an 'error' as between the EM and the requirements of SHTM-03-01 in relation to Critical Care bedrooms was not identified until long after Financial Close. In that regard, however, as noted in paragraph 2.4 above, Mr McKechnie referred in his evidence to having clarified that the rooms treated with 10AC and 10 pascals of pressure [i.e. the isolation rooms] was a correct interpretation, albeit this was a "wee bit away" from the Inquiry's timeline (TD7,C33,pdf p. 19).

## 6. The period up to Submission of Final Tenders on 13 January 2014

6.1 As initially conceived, the project to design and construct a new Royal Hospital for Sick Children in Edinburgh was to be capital funded and was to be delivered using the Framework Scotland procurement programme and the NEC standard form contract. A great deal of time, in particular clinical time, and money was spent preparing a design on that basis.

6.2 In around December 2009, a decision was taken that Hulley & Kirkwood would develop a bespoke Environmental Matrix, to take over from the (generic) environmental information contained in ADB files from NHSL: see the witness statement of Mr O'Donnell of Hulley & Kirkwood at Bundle 13, page 275, and the evidence of Mr O'Donnell at TD1,C16-17,pdf pp. 10-11.

6.3 In an email from Michael O'Donnell to David Muir of BAM Construction dated 15 February 2010, Mr O'Donnell sought to formalise that instruction:

*"… With regards to environmental issues, rather than employ ADB M&E sheets, HK will produce Environmental Spreadsheet for each room type for easy reference as a user sign off tool. …"*

6.4 By "user sign off tool", what Mr O'Donnell envisaged was ultimately getting to a point where the client, NHSL, would have gone through an engagement process and be in agreement that the environmental approaches in the matrix did represent what they needed. The aim was to get to a point wherever there were discrepancies or misunderstandings or misinterpretations in relation to room types, the room functions or the air change treatment, these would go through a discussion, review, purification process to get to the point where everyone agrees it is correct and is what should be provided. See the evidence of Mr O'Donnell: TD1,C19-22,pdf p. 12-13 and TD1,C24-25, pdf p. 14-15.

6.5 In the meantime, the use and proper utilisation of the ADB database "*as an appropriate tool for briefing, design and commissioning*" was mandated for all NHS Scotland Bodies by the Scottish Government via CEL 19 (2010) dated 2 June 2010: see Annex A, Mandatory Point 7 (Bundle 1, pdf page 567). CEL 19 (2010) allowed for the use of an alternative tool or approach to be used if the use of ADB was deemed inappropriate for a particular project, in which case the NHS Scotland Body had a responsibility to demonstrate that the alternative was of equal quality and value in its application.

6.6 Hulley & Kirkwood produced the first version of their EM in September 2010: Mr O'Donnell at TD1,C17,pdf p.11; TD1,C28, pdf p. 16. Guidance Note 1 at the front of the EM stated: "*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.*" (Bundle 4, page 43.) SHTM-03-01 had not yet been published, so Hulley & Kirkwood

had regard to the English HTM-03-01 in compiling this version of the EM (as identified in Guidance Note 14).

6.7 In November 2010 the funding structure for the project changed to a non-profit distributing (NPD) model. It was also decided that the project would be expanded to include the Department of Clinical Neurosciences.

6.8 Version 2 of Hulley & Kirkwood's EM was issued on 22 December 2010: Bundle 4, page 60. It contained the same text at Guidance Note 1 as the September 2010 version. Again, Guidance Note 14 identified that the design criteria for Critical Care Areas were HTM-03-01.

6.9 Following the decision to change to an NPD model, a key consideration for NHSL was the desire not to lose all of the work that had gone into preparation of the design up to that point, which included a lot of valuable clinical time. Approximately £2million had been spent on developing the capital project at that point, which NHSL did not want to see go to waste. See the evidence of Susan Goldsmith TD9,C16-19,pdf pp. 10-12.

6.10 NHSL and its advisers spent a long time, perhaps as much as a year, in dealing with the change to an NPD project. One of the issues considered at length in that time was the use of a Reference Design, as a means of utilising the design work which had already been undertaken, so that it would not go to waste.

6.11 During this time Mott MacDonald produced a paper entitled "*Approach to Reference Design*" to assist the Board in its deliberations. The final version, revision J, was dated 28 August 2012 (Bundle 2, pdf page 605). Section 4 (Bundle 2 page 620 at page 622) outlined that the Reference Design would include 1:50 layout drawings for Generic and Key Rooms and that the "*requirements*" for the remaining room would be detailed in a combination of

documents, including *"The Environmental Matrix (appendix B to the BCRs)"*. Likewise, paragraph 4.3 (Bundle 2, pdf page 625), outlined the specific room requirements ("Room Information"), as including the Environmental Matrix and then stated (Bundle 2, pdf page 626 – emphasis in bold added):

"*The Room Information provided to bidders is generally a mix of specific and generic information for instance architectural requirements are specified in terms of compliance with particularly NHS Guidance such as Health Technical Memorandum with Bidders ultimately being required to specify compliant material/components.* ***Similarly, the Environmental Matrix specifies parameters and criteria which need to be met and for which bidders will be required to advice the levels that will be achieved in their particular design****. … Previously in PFI and PPP projects, draft or indicative Room Data Sheets could be issued with an Invitation to Negotiate (ITN) with the responsibility for completion resting with the Preferred Bidder to be carried out in conjunction with the NHS Board. In NPD projects with a Reference Design there is a requirement for a more complete set of Room Information to be available to Bidders*."

6.12 Appendix B to the Approach to Reference Design, August 2012 paper is titled *"Matrix of Reference Design Deliverables*". In relation to "*Room Data Sheets*" the Status describes Sheet 3 for all rooms (environmental parameters) as being mandatory (Bundle 2, page 642).

6.13 The main driver for the decision to provide the EM to bidders was *"there had already been extensive work on the design, and so the Board did not want that work and that input, which was time-heavy, of our clinical teams, and also resource-heavy, to be lost"*. See the evidence of Susan Goldsmith at TD9,C16-17, pdf p. 10.

6.14 The impression created was that NHSL did not want to consider changes; they had done the design and they just wanted it delivered: see the

evidence of Paul Serkis TD6,C22-23,pdf pp13-14. The Reference Design and EM was also seen as a way for NHSL to retain control through the brief, in contrast to a previous project where the Board had not got what they wanted: see the evidence of John Ballantyne TD6,C25-26,pdf p. 15. The existence of a Reference Design was a method of allowing or ensuring that certain quality standards could be achieved: see the evidence of Peter Reekie TD8,C13,pdf p. 9.

6.15 The Reference Design EM was developed by Hulley & Kirkwood in conjunction with NHSL and Mott Macdonald. As can be seen from the front sheet of the Third Issue dated 19 September 2012 (the "Reference Design EM"[1]) (Bundle 4, page 131) the Second Issue dated 13 March 2012 had been revised to suit NHSL comments. Mr O'Donnell notes at paragraph 27 of his witness statement that the First Issue was also reviewed by NHSL with comments being received via email on 7 March 2012 (Bundle 13, pdf page 285). This, then, was a document that had not been prepared by Hulley & Kirkwood in isolation.

6.16 Guidance Note 1 to the Reference Design EM states: "*This workbook is prepared for the Reference Design as an easier reference tool to replace ADB RDS M&E Sheets for the Environmental Criteria elements described on these sheets.*" (Bundle 4, pdf page 132.)

6.17 As already noted, CEL 19 (2010) required NHSL to use either ADB or an alternative tool of equal quality and value in its application in order to brief bidders (see para 5.5 above). Plainly bidders could not brief themselves. NHSL had, however, taken a decision in July 2012 not to produce ADB Room Data Sheets to bidders. That decision appears to have been taken on grounds of cost: the cost of the necessary subscription to gain the requisite access to the

[1] The Third Issue EM is described on Page 1 as: "*Reference Design Envisaged Solution – RHSC/DCN RDS Environmental Matrix*".

database. Mr Stillie's understanding of matters was that it was intended that the EM would be a brief, in place of the environmental pages of the room data sheets. Had NHSL provided ADB RDSs to bidders it would not have been necessary to provide the Reference Design EM to bidders. On these matters, see the evidence of David Stillie at TD3,C10-16,pdf pp.7-9 under reference to his email to Neil McLennan of NHSL dated 15 August 2012 in relation to Room Data Sheets (Bundle 10, Volume 2, page 944) and at TD3,C17-18,pdf p. 11.

6.18 Against that clear background, the approach taken in the ITPD documents to the Reference Design EM is both logical and readily understandable. That approach is captured in the following excerpts:

- The Environmental Matrix was defined as follows in the Board's Construction Requirements (Bundle 2, pdf page 781 - emphasis in bold added):

  "*Means 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."*

- ITPD Volume 3, section 8 of the Board's Construction Requirements (Bundle 2, pdf page 873) required that:

  "*Project Co shall provide the Works to comply with the Environmental Matrix."*

- Bid submission requirement C8.3 of the ITPD Volume 1 (see Bundle 2, pdf page 1054 – emphasis in bold added) stated:

  "*Whilst bidders are required to undertake their own design, the Board has provided a draft Environmental Matrix as part of the ITPD documentation.* ***Bidders must confirm acceptance of the Board's Environmental Matrix, highlighting any proposed changes on an exception basis****."*

- ITPD Volume 1, paragraph 2.5.3 (Bundle 2, pdf page 965) explained to bidders that standard Room Data Sheets had not been prepared by the Board for the Project and that the specific room requirements (the "Room Information") was detailed in a number of documents, including the Environmental Matrix. It also explained that during dialogue, bidders would be required to develop Room Data Sheets "**incorporating the Room Information**" for certain rooms, including all Key Rooms and Generic Rooms. That was a clear instruction to bidders to use the Environmental Matrix (as defined) to develop the Room Data Sheets. This approach had its genesis in the "*Approach to Reference Design"* paper, as described above in paragraphs 5.11-5.12.

6.19 As can be seen from the foregoing, the ITPD proceeded on the basis that bidders should use the Reference Design Environmental Matrix as the basis for their bids. The Reference Design Environmental Matrix formed Appendix C to the BCRs (see Bundle 2, pdf page 774 at page 931). In that way, NHSL was able to avoid the time, including valuable clinical time, and money spent in preparing the Reference Design – including the Environmental Matrix – going to waste. Bidders were, however, free to **propose** changes to the Environmental Matrix, but only on an exception basis.

6.20 In the draft closing statement for Mott MacDonald it is observed that clause 2.6 of Volume 1 of the ITPD (Bundle 2, page 965) expressly stated that *"Building services engineering solutions*" were included as part of the "*Indicative Elements of the Reference Design"*. It is asserted in the Mott MacDonald closing statement that "*Building services engineering solutions*" would include the EM. However, clause 2.6 reads as follows (emphasis in bold added):

"*During the preparation of the Mandatory Reference Design Requirements,* ***other information*** *has been generated both as a by-product of preparing the Reference Design itself and as a general Project requirement as follows:*

*…*
*(iii) Building services engineering solutions;*
*…"*

The words "other information" in clause 2.6 serve to draw a distinction between the specific room requirements (the "Room Information") in the immediately preceding clause 2.5.3 which, as noted above, includes the Environmental Matrix. Given that the EM is one of the documents which details the Room Information for the purposes of clause 2.5.3, it can hardly fall within the clause 2.6 description of being "*other information*" generated as a "*by-product*" of preparing the Reference Design itself or as a "*general Project requirement*".

6.21 If the Reference Design EM was, in effect, to be ignored by bidders, how would that prevent the time and money invested in it from being wasted? That problem formed the basis of a question put to Iain Graham in his evidence: TD1,C19-20,pdf p. 12. His answer was revealing (emphasis in bold added):

*"**Yeah, very good point.** I think that earlier section that you highlighted was "These are the areas that we will expect to see the bidders coming back with to respond to explain what their proposals are for the various departments and the various engineering criteria on that basis.""*

The latter part of the answer was a reference back to the Mott MacDonald Approach to Reference Design Paper and the passage highlighted in bold at paragraph 5.11 above (see TD1,C18,pdf p. 11). As that passage made clear, however, "… ***the Environmental Matrix specifies parameters and criteria that need to be met*** …".

6.22 Unsurprisingly, there was a considerable body of evidence to the effect that the Reference Design EM was understood to be NHSL's briefing document for environmental parameters. Reference is made to the following:

- Evidence of David Stillie, TD3 C29,pdf p. 17 – the EM from NHSL had their design intent.

- Evidence of David Stillie, TD3,C19,pdf p.12 – NHSL were satisfied the suite of documents provided (including the EM) were equivalent to RDS for briefing purposes.

- Evidence of Stewart McKechnie, TD7,C55,pdf p. 30 – the EM was provided and defined as being the alternative to ADB.

- Evidence of Stewart McKechnie, TD7, C56, pdf p.30 – his understanding was that the EM contained the Board's mandated requirements as part of the BCRs.

- Evidence of Richard Cantlay, TD9,C44, pdf p. 24-25 – they have captured the data you would put in a RDS in the EM.

- Evidence of Stewart McKechnie, TD7,C14 and C70, pdf p. 37 – the matrix was taken as the client's brief.

- Evidence of Ken Hall, TD4,C39 – the EM gave the M&E information required.

- Evidence of Ken Hall, TD4,C91,pdf p.48 – his understanding was that the EM was the client briefing document and SHTM were to be complied with unless the Board had specified something different.

- Evidence of Ken Hall, TD4,C136/137,pdf p.70-71 – where the client [NHSL] was telling you they wanted something different to SHTM that's what was provided because that was what they wanted.

- Evidence of Paul Serkis, TD6,C24,pdf p. 14 – the EM set the parameters of what the brief was, it was what the Board were looking to be delivered.

- Evidence of Paul Serkis, TD6,C23,pdf p. 14 – there was a fixed brief.

- Evidence of John Ballantyne, TD6,C12-13,pdf p.8-9 – there wasn't debate about the EM, it was just *"this is what we want and that's the definition of it"*.

- Evidence of John Ballantyne, TD6,C19,pdf p. 12 – his impression was that if they were to move away from the EM, then they would need express approval.

- Evidence of Paul Cooper, TD7,C4-5,pdf p. 4-5 – EM was a client briefing document.

- Evidence of Willie Stevenson (MM) – TD2,C17-18,pdf p. 11 – in his experience the initial EM is produced by the procuring authority for the purpose of briefing the bidders, "*to give them an indication of what the Health Board is after and then give them a start to go off…".*

6.23 As identified at paragraphs 126 and 181 of the submissions of Counsel to the Inquiry, if NHSL's position that the EM was not to be relied upon and so cannot be taken as a brief is correct, what was the brief? It is difficult to understand how a tenderer could be expected to know, or create, the "requirements of the Board".

6.24 It is submitted on the basis of all of the foregoing that there is little (if any) room for doubt about the status of the Reference Design EM at least at bid stage, as contemporaneously intended by NHSL and Mott MacDonald and as contemporaneously understood by Multiplex and TuvSud/Wallace Whittle. The Reference Design EM was NHSL's briefing document in respect of environmental room criteria. Bidders were required to comply with it, but could propose changes on an exception basis.

6.25 That is the proper starting point for consideration of matters at Preferred Bidder stage and subsequently.

6.26 When considering these matters, the Inquiry is invited to bear in mind the commercial context in which they sit. The difference between providing for 4AC in critical care areas and 10AC in critical care areas involved much more than simply changing a number on a spreadsheet.

6.27 The AC rate determines the design for many other critical aspects of the ventilation system, including the duct sizing, the number and/or sizing of air handling units and plant room sizing. Any post-bid increase from 4AC to 10AC in critical care areas would have given rise to increased construction and increased maintenance costs.

6.28 Further, any post-bid increase in the number of air changes per hour would increase energy consumption and, therefore, energy costs. It would also impact the BREEAM scoring/rating, which was linked to the funding criteria.

6.29 In relation to the foregoing matters, see the witness statement of Colin Macrae at paragraph 113 (Bundle 13, pdf page 52) and the evidence of Colin Macrae at TD5,C39,pdf p.22; the witness statement of Stewart McKechnie at paragraph 26 (Bundle 13, page 420-421); paragraph 17 of Paul Cooper's witness statement (Bundle 13, pdf page 317); paragraphs 40 and 43-48 of Michael O'Donnell's witness statement (Bundle 13, pdf pages 291-294); the witness statement of Ken Hall at paragraphs 44-47 (Bundle 13, pdf pages 248-249) and the evidence of Ken Hall at TD4,C69-70,pdf p. 37; and the evidence of Peter Reekie at TD8,C39-40, pdf p. 22.

6.30 If, as NHSL and Mott MacDonald appear to suggest, bidders were not supposed to regard the EM as mandatory for the purposes of their bids, on the basis that it was being provided for information only, then (as well as not preventing waste of all of the time and money that had gone into preparing it) the practical implications for procurement of the Project would have been profound.

6.31 IHSL would have had to prepare its own version of an Environmental Matrix, or equivalent, from scratch. This would have required access to the clinicians, in order to understand the use and briefing of each room. It would

also have required a considerable period of time. Neither was available. Reference is made to the following summaries of passages in the evidence:

- Evidence of Iain Graham (NHSL) – TD1,C12,pdf p. 8 Day 1: EM was a "*starting place*", the "*plus point for us was to save engaging with a lot of clinical time, reviewing lots of information. It gave us something to work from*".

- Ken Hall, TD4,C24,pdf p.14 – application of SHTM to any particular healthcare project requires a process of discussion, judgement and decision making: it is not just a matter for engineers but requires clinical involvement.

- Ken Hall, TD4,C76-77,pdf p. 40-41: To unravel the EM you would need to go through all the user groups, the medical review, the clinical review. There wasn't the time to do that. This was a period of six months, and my experience of trying to get clinical people together and Estates and Infection Control, there just wasn't the time.

- Michael O'Donnell – TD1,C34,pdf p.19 – producing the matrix requires clinical input.

- Ken Hall, TD4,C39,pdf p.22: the EM gave the M&E information required, if he had not had it, then there would have required to be a process in place to achieve this but it appeared the work had already been done.

- Ken Hall, TD4,C139-140,pdf p.72: if the EM was Disclosable Data, it would not have been possible for IHSL to carry out a review of the EM to confirm its accuracy and fitness for purpose, as IHSL were not party to the people who

created it and the decisions and reasons for what is contained in it, it would have involved clinicians, user groups, Estates etc.

- Liane Edwards, TD5,C20-21,pdf p. 12-13: if the brief is clear, then there is no need for direct contact with clinicians.

- Paul Serkis, TD6,C22,pdf p.13: little clinical input, got the impression *"Just go and build what we have designed and move on"*

6.32 On the basis of the foregoing, bidders would simply have been unable to put together a meaningful Environmental Matrix of their own (or equivalent) for the purposes of their bids (never mind during Preferred Bidder stage). This point supports Multiplex's understanding of the clear terms of the ITPD documents.

6.33 If NHSL and Mott MacDonald are to be understood as suggesting that bidders were supposed to accept the EM as mandatory for the purposes of their bids, but not supposed to regard the EM as mandatory during the Preferred Bidder stage, that makes even less sense. It would be bizarre to expect bidders to bid on a particular basis, only for that basis to change as soon as a Preferred Bidder was appointed. It might, for example, significantly undermine the integrity of the procurement process.

6.34 For each and all of the foregoing reasons, the Inquiry is invited to find that, contemporaneously, the intention of NHSL and its advisers at bid stage was the same as IHSL and Multiplex's understanding at bid stage: compliance with the Reference Design EM was intended to be mandatory, although bidders were free to propose changes to the EM on an exception basis.

## 7. Assessment of tenders and identification of Preferred Bidder

7.1 IHSL's understanding in relation to the EM was reflected in their tender. In their response to bid submission C8.3 (see Bundle 6, page 305) they stated:

"*As indicated above no changes proposed at this time nor envisaged in the future but we will continue to review and advise back. …"*

7.2 The reference '*as indicated above'* in that response was to IHSL's response to bid submission 8.2(x), which stated:

"*The mechanical and electrical services shall be provided in accordance with the reference design environmental matrix and we shall provide an addendum matrix for any rooms on any exception basis highlighting any changes at preferred bid stage."*

7.3 The comment back from the bid reviewer in relation to the response to bid submission C8.3 was "*Good response*" (see Bundle 8, page 93).

7.4 Moreover, the technical assessment of IHSL's tender confirmed, and the Finance and Resource committee were advised that, "… *the preferred bidder was in full accordance with the requirements."* (Bundle 10, Volume 1, page 7, item 61.20).

7.5 In contrast, one of the other bidders, Mosaic (Bidder C), proposed to change the number of air changes in the single bedrooms and multi-bed wards in Critical Care from 4AC to 10AC (see Mosaic's altered version of the EM at Bundle 7, page 56 with the proposed changes in red). There is no evidence before the Inquiry as to precisely why Mosaic proposed this particular change. Mosaic explained the basis of some of its proposed changes to the reference design, for

example the proposed use of chilled beams combined with fresh supply rates based on occupancy (see Bundle 7, page 88 and also 158), but not this one.

7.6 Against that background, we may turn to Mr Macrae's explanation in his oral evidence that the fact that Bidder C (Mosaic) had marked up the EM did not ring any alarm bells. The reason being that he considered that Bidder C was being proactive and carrying out work in advance of anyone being identified as Preferred Bidder. It was, he suggested, something that the other bidders would have to do later on. See TD2,C20-22,pdf pp12-13.

7.7 The implication is that, at bid stage, Mosaic went beyond what they were required to do in terms of developing the ventilation design whereas IHSL simply did what they were required to do. That is consistent with bidders being required to confirm acceptance of the EM, and to propose any changes on an exception basis. It is not consistent with the view that it was incumbent on bidders to form their own view on air change rates in Critical Care bedrooms, notwithstanding the rates set out in the EM.

7.8 In any event, Mosaic's change from 4AC to 10AC in Critical Care bedrooms did not ring any alarm bells with NHSL's technical advisers, Mott MacDonald. If the change involved the correction of an 'error' in the EM, namely a discrepancy between the EM and SHTM-03-01, it is very difficult to understand why it did not ring alarm bells with Mott MacDonald and why this error was not identified to NHSL and/or other bidders.

7.9 Mott MacDonald did not, however, raise with IHSL any concern about the number of air changes in Critical Care bedrooms at any point prior to IHSL being appointed Preferred Bidder, or at any point after that. It was raised for the first time by IOM after Practical Completion.

## 8. Preferred Bidder Stage: 5 March 2014 to 12/13 February 2015

8.1 The purpose of the Preferred Bidder period was to enable IHSL to spend time understanding NHSL's requirements and NHSL to spend time understanding the IHSL's proposals for meeting those requirements, with a view to getting to a point where agreement was reached and a Project Agreement could be entered into. During that period, however, the obligations of the Project Agreement were not in place. There is no sense in which, during that period, IHSL became contractually responsible for the EM and its contents. Responsibility for the EM and its contents still lay with NHSL, just as it had at bid stage.

8.2 Against that background, Mr Hall and Mr McKechnie were clear that they would not have wished to propose changes to the parameters set out in the EM (as opposed to making changes needed to reflect changes to the Schedule of Accommodation: See Mr Hall at TD4,C76-77,pdf p.40-41; TD4,C103-104,pdf p.54 and Mr McKechnie at TD7,C66,pdf p.35; TD7,C109,pdf p.57).

8.3 During this period, the EM was updated by Wallace Whittle on 29 September 2014 and 31 October 2014 in response to comments from NHSL/Mott MacDonald. It was then incorporated into the Project Agreement, as discussed further below.

8.4 NHSL, through Mott MacDonald, engaged in close collaboration in relation to both the production of RDS and also in relation to the EM during this period. Reference is made to section 4 of Multiplex's response to PPP2 (beginning at Bundle 12, page 8) and section 6 of Multiplex's response to PPP 2 (beginning at Bundle 12, page 83), which detail numerous examples of this.

8.5 The following summaries of passages in the evidence illustrate the same point:

- Graeme Greer, Day 8 Column 36 PDF 20 – the RDD process began informally during PB and they reviewed the EM with NHSL and provided comment and feedback on it

- Ken Hall, Day 4, Column 109 PDF 57 – there was no indication that the review of the EM being carried out by and on behalf of the Board was a sample review and did not extend to all elements of the EM.

- Ken Hall, Day 4, Column 110 PDF 57 and 58 – explanation of MM role, they had senior people in each discipline reviewing and inputting to the work done.

- Liane Edwards, Day 5 Column 22, 23 and 24 PDF 13 and 14 – comments received via Motts were very detailed and documents re-drafted several times. It was not a light touch from MM. MM had a representative for every discipline.

- Paul Serkis, Day 6 Column 42 PDF 23 – MM involvement was more intense than used to on other projects.

8.6 Despite all of this scrutiny by Mott MacDonald, no comments were raised in relation to 4AC rather than 10AC in bedrooms in Critical Care (notwithstanding that Mosaic had proposed this change in its bid).

8.7 Mott MacDonald did undertake a review of the EM in early October 2014. It was discussed internally whether any "non-compliances" identified by Mott MacDonald might previously have been agreed by NHS Lothian directly in the reference design or competitive dialogue phase. Mott MacDonald decided to raise any concerns with NHSL and, if NHSL agreed, flag the concerns to IHSL.

That is what they proceeded to do. (See paragraph 84 of the witness statement of Graeme Greer, Bundle 13, pdf page 158.)

8.8 NHSL's comments were provided, in a table of 12 points, dated 13 October 2014 (see Bundle 4, page 218). The comments are detailed, in relation to aspects of AC/ventilation, at points 7, 8, 9 and 10. None of the comments relate to 4AC rather than 10AC being used in respect of Critical Care bedrooms.

8.9 The first item of point 7 (Bundle 4, page 219) is however "*Bedrooms 4ac/hr, SHTM says 6 ac/hr*". That item was resolved at a meeting at the end of October, on the basis that the 4AC reflected the Reference Design and NHSL's requirements. The EM was, accordingly, not updated in relation to this point. (See the evidence of Ken Hall, TD4,C119-122,pdf pp. 62-63.) In that context, NHSL's/Mott MacDonald's failure to make a similar observation in relation to the difference between 4AC and 10AC in Critical Care, if it was their intention that bedrooms in Critical Care areas would have 10AC as per SHTM-03-01, is extremely difficult to understand.

8.10 The main issue was the issue of the pressure regime in single bedrooms, which was also raised in point 7 of the 13 October 2014 comments. The Reference Design EM indicated the pressure should be positive, whereas in the comments a desire to change the pressure to balanced or negative was being indicated. According to Mr McKechnie, this issue related to all single bedrooms in the hospital, including those in Critical Care (TD7,C122,pdf p. 63).

8.11 The change having been required, the EM was updated on 31 October 2014 by Wallace Whittle (see Bundle 4, page 220 at page 226). The pressure in all single bedrooms was changed from 'positive' to 'balanced'.

8.12 A specific meeting was then held with NHSL and its advisers to discuss the EM on 11 November 2014. The output from that meeting was a list of 7 bullet points which eventually were included in Section 5 of Schedule Part 6 of the Project Agreement (Bundle 4, page 245 at 247). One of these was "*Detailed proposal awaited on bedroom ventilation to achieve balanced/negative pressure relative to corridor.*" On 12 November 2014 Mott MacDonald prepared a summary of Project Co's ventilation strategy for a single bedroom (Bundle 8, pdf page 71). This stated the concern that the room would be at a slight positive pressure relative to the corridor which would allow infection such as MRSA or Norovirus to spread. On 13 November 2014 a copy of that summary was forwarded by Graeme Greer to Brian Currie (Bundle 8, pdf page 69). The email stated that at the Environmental Matrix meeting on 11 November 2014, the following comment on the EM had been added: "*Detailed proposal awaited on bedroom ventilation to achieve balanced/negative pressure relative to corridor.*" It went on to say:

"*However this may come down to an [sic] dispute over the SHTM requirement/Infection Control requirements. Might be worth raising this again at the RDD meeting?"*

8.13 The foregoing is the background to a HAI-SCRIBE meeting that took place on 19 November 2014.

8.14 At the HAI-SCRIBE meeting on 19 November 2014 NHSL was **not** told that the ventilation system design was not fit for purpose (see section 2.2 of the risk assessment form at Bundle 10, page 286). Rather, what the meeting was told was that a concern had been raised in relation to a "*potential*" issue with regard to negative/balanced pressure in single bedrooms, and that drawings and further information were awaited in order to fully understand if there was

a risk. In those circumstances, NHSL took the view that the 'yes' box could not be ticked, because they could not be sure that the concern had been addressed, and so the 'no' box had to be ticked. See the evidence of Liane Edwards at TD5, C42-43,pdf p. 23-24; and see also the evidence of Susan Goldsmith, who confirmed that she would not have expected this type of issue to be escalated to her as Senior Responsible Officer before signing the contract unless it was a very significant concern. As she put it *"… it looks as if they're still trying to resolve the issue, and so I would expect the project team to attempt to resolve the issue first."* See Susan Goldsmith at TD9, C84-85,pdf p.44-45.

8.15 This is far removed from NHSL being told that the ventilation design was not fit for purpose, not least because at this stage of the project the design was not finalised.

8.16 Ultimately, NHSL's requirement for the pressure regime in single bedrooms to be balanced rather than positive was confirmed. Reference is made to section 5 of Multiplex's responses to PPP1 (Bundle 12, beginning at pdf page 12) and PPP2 (Bundle 12, beginning at pdf page 81).

8.17 The key point here is that the change to the EM on 31 October 2014 and the continued scrutiny thereafter was brought about by NHSL/Mott MacDonald identifying a change they wished to make to the EM, not by IHSL/Multiplex/Wallace Whittle's development of the design.

8.18 If there was an 'error' in the EM in relation to air change rates in Critical Care bedrooms such that the EM did not reflect NHSL's intentions, it is difficult to understand why it was not identified by NHSL or its advisers during the Preferred Bidder period.

## 9. Financial Close

9.1 As noted above (see paragraphs 3.4 – 3.8), the obligation to comply with NHS Requirements is qualified in the final Project Agreement and the final BCRs. For the reasons set out herein, Multiplex's position is that the EM stated a specific and different requirement of the Board in relation to the number of air changes per hour in Critical Care bedrooms. IHSL's obligation was to comply with the EM in that regard.

RDS Sheets

9.2 In relation to the requirement to produce RDS sheets, IHSL produced RDS sheets for 100% of room types prior to Financial Close, albeit there was not time for 100% of RDS sheets for all rooms to be produced (see Liane Edwards at TD5,C27,pdf p.16). The RDS sheets that were produced showed 4AC would be provided in Critical Care rooms (see Bundle 5, pages 1010, 1030 and 1004 and the evidence of Janice Mackenzie at TD2,C37-40,pdf p. 21-22).

9.3 The RDS sheets for Financial Close were provided to Mott MacDonald for review, including on 19 September 2014 – 5 months prior to Financial Close (see Bundle 12 page 1856).

9.4 Janice Mackenzie thought that Mott MacDonald would be reviewing the RDS sheets (TD2,C36,pdf p.20) but Colin Macrae could not recall RDS sheets being made available for him to review prior to Financial Close and was surprised to be told that such sheets, including for Critical Care, had been produced prior to Financial Close (TD5,C41-42,pdf p. 23).

9.5 It may be that if the RDS sheets had been reviewed by Mott MacDonald prior to Financial Close, that would have been an opportunity for the alleged 'error' to be spotted.

RDD

9.6 One issue which was explored at the Inquiry hearings was how the EM could be mandatory, and yet also be RDD and therefore subject to change. Multiplex's position is that it was not the whole EM that was subject to RDD, but only the 7 points which had been identified at the meeting on 11 November 2014 and which were included in Section 5 of Schedule Part 6 of the Project Agreement (Bundle 5, pdf page 80). It is important to bear in mind the commercial implications if indeed the whole of the EM was RDD and subject to change. As mentioned above, the parameters in the EM affect air handling units, ductwork, plant room sizing etc. If all of those parameters were RDD there could be no certainty of price at Financial Close. It is inherently unlikely that that would be acceptable, especially given the competitive procurement process involved. As Mr O'Donnell explained in his evidence, the AC rates in the environmental matrix inform other aspects of the design and so the aim by Financial Close is to get to an agreed position. By Financial Close the environmental matrix should be 80-90% complete and it would be unusual for a full matrix to be reviewable design data (TD1,C24-27,pdf p.14-15).

9.7 The EM forms a separate part of the Project Agreement, sitting outside the PCPs. "Room Data Sheets" are defined in the Project Agreement as having "the meaning given in Section 6 (Room Data Sheets) of Schedule Part 6 (Construction Matters)". Section 6 then states:

"*The Room Data Sheets are the Room Data Sheets as set out on the disc in the Agreed Form identified and executed as Appendix 1 (RDS Pack) and Appendix 2 (Environmental Matrix) of Section 6 (Room Data Sheets) of Schedule Part 6 (Construction Matters) of this Agreement referred to in and forming part of this Agreement.*"

9.8 The Room Data Sheets are accordingly formed of two parts: (1) the Room Data Sheets themselves, which are provided as Appendix 1 to Section 6, which we will refer to as "RDS"; and (2) the Environmental Matrix which is Appendix 2.

9.9 Appendix 2, is titled "Environmental Matrix" and states:

"*The Environmental Matrix is the Environmental Matrix as set out on the disc in the Agreed Form identified and executed as Appendix 1 (RDS Pack) and Appendix 2 (Environmental Matrix) of Section 6 (Room Data Sheet) of Schedule Part 6 (Construction Matters) of this Agreement, referred to in and forming part of this Agreement.*"

9.10 The reference to "Agreed Form" is reference to a defined term in the interpretation section of the Project Agreement:

"*Reference to a document being in the Agreed Form is a reference to the form of the relevant document (or where appropriate, the form of relevant document on disc) agreed between the parties and for the purpose of identification initialled by each of them or on their behalf.*"

9.11 Environmental Matrix is then also defined in the Project Agreement BCRs (see Bundle 5, pdf page 194 at page 199) as being:

"*Means the Environmental Matrix, which details the room environmental condition requirements of the Board required within each department / unit / space / area as set out in Section 6 (Room Data Sheets) of Schedule Part 6 (Construction Matters) (**as varied, amended or supplemented from time to time in accordance with the Project Agreement**)*"

9.12 There would be no need for the wording in bold, if the EM was not fixed at FC, subject to the 7 points in the RDD Schedule.

9.13 The EM had been moved from section 3 of Schedule Part 6 to the Project Agreement (where, in the ITPD documents, it was to be found as Appendix C) to section 6 of Schedule Part 6 (Room Data Sheets). But Section 3 of Schedule Part 6 to the Project Agreement (the BCRs) required IHSL to provide Facilities that met all the requirements specified in the Room Data Sheets. As noted, the EM formed part of the "Room Data Sheets" as defined. The BCRs at Financial Close (as they had at ITPD stage) also continued to require that: " *Project Co shall provide the Works to comply with the Environmental Matrix"* and (as above) the BCRS at Financial Close continued to define the EM as being: " *the Environmental Matrix, which details the room environmental condition requirements of the Board required within each department / unit / space / area"*.

9.14 In relation to these matters, see the evidence of Iain Graham at TD1,C31-32,pdf p.18 – in reference to Section 8 of the BCRS, "*Project Co shall comply with the EM"*, the intention is that it would be the EM at FC which has been "*signed off by us at that point".*

9.15 See also the evidence of Graeme Greer at TD8,C29,pdf p.17 and TD8,C78,pdf p.78: the EM had been part of the BCRs at bid stage, but by

Financial Close it was part of the Project Agreement Schedule Part 6 because from a contractual perspective that was where it was appropriate.

9.16 Finally, for completeness it should be noted that Schedule Part 10, Appendix B – Completion Criteria of the Project Agreement requires commissioning to demonstrate compliance with the Environmental Matrix (see Bundle 5, pdf page 1512):

"*2.1.32. Project Co shall provide Environmental Matrix including Commissioning data test sheets as commissioned in accordance with CIBSE Commissioning Code C and demonstrating compliance with the Environmental Matrix*."

**10. <u>Comment on the submissions of Counsel to the Inquiry</u>**

10.1 At paragraph 2 of the submissions of Counsel to the Inquiry the Chair is invited, subject to the issues set out in Appendix 1 to the submissions, to make the findings set out in the provisional conclusions sections of the PPPs. Multiplex respectfully submits that the provisional conclusions of the PPPs ought to be qualified as indicated in Multiplex's responses to the PPPs, including as indicated in the marked-up versions of PPP1, PPP2 and PPP3 which are appended to Multiplex's responses.

10.2 At paragraphs 205-206 of the submissions, it is suggested that the contractual provisions on "Hierarchy of Standards" in Volume 1, paragraph 2.5 (see Bundle 5, pdf page 216) may be relevant in two ways.

10.3 First, it is said that if there was a disconnect between the EM and SHTMs, with the latter setting a more onerous standard, the values in the SHTM's should 'arguably' take precedence. Multiplex submits that in truth no such argument can arise, because the obligation to comply with NHS Requirements

(including SHTMs) is qualified in the manner outlined above. On that basis, there is no inconsistency or contradiction which falls to be resolved by the "Hierarchy of Standards" provision.

10.4 Second, it is said that the "Hierarchy of Standards" provision may apply to internal inconsistencies in the EM itself e.g. as between the Guidance Notes and the individual values within Critical Care areas. Multiplex submits that the language of the "Hierarchy of Standards" provision is simply not apt to apply to any such internal inconsistency. Any such internal inconsistency does not arise from contradictory standards or advice within the terms of the Board's Construction Requirements and the Appendices. Any such internal inconsistency (which is of course controversial as between Mr O'Donnell and Mr McKechnie) arises in the interpretation and application of a single standard, namely SHTM-03-01. The standards and advice referred to in paragraph 2.5 of Volume 1 are those referred to in paragraphs 2.3 and 2.4 of Volume 1.

10.5 At paragraph 20 of the submissions, it is stated that "*there was no derogation from NHSL's requirement for compliance with SHTMs*". It is not clear precisely what is meant by a 'derogation' in this context. In any event, Multiplex's position, as outlined above, is that IHSL's obligation to comply with NHS Requirements (which includes SHTM-03-01) was qualified, because through the EM, the Board expressly stated a specific and different requirement in relation to the number of air changes per hour in Critical Care bedrooms.

10.6 At paragraph 253 of the submissions, it is said that IHSL's obligation to comply with the EM was the subject of an express derogation. A similar point is made in Mott MacDonald's draft closing statement. This matter was not covered in the oral evidence to the Inquiry, although Liane Edwards gave evidence and, as the author of the document concerned (Bundle 5, Paper Apart

pdf page 3861), could have been asked about it. It is understood that the document was drafted precisely **because** the EM was NHSL's brief, but NHSL had outstanding comments (the 7 comments from the 11 November 2014 meeting) which were RDD and, from a contractual perspective, required to be dealt with in the context of the obligation to comply with the EM.

10.7 It is to be noted, however, that the underlying premise in relation to the 'derogation', whatever its scope, is that IHSL was obliged to comply with the EM. If the EM was not mandatory, as NHSL and Mott MacDonald now suggest, there would have been no need for this derogation.

10.8 Further, if the 'derogation' had released IHSL from the obligation to comply with the EM entirely, that would have been a hugely significant change to the risk profile of the project from both parties' perspectives. There is no evidence before the Inquiry that that was what was intended, or what was brought about. Such an interpretation would also be entirely inconsistent with the parties' decision to include and reference the EM in the Project Agreement and BCRS at Financial Close.

## 11. **Comment on the draft Closing Statement by Mott MacDonald**

11.1 The draft closing statement by Mott MacDonald contains what is plainly an unwarranted attack on the evidence of Multiplex and Wallace Whittle witnesses in relation to the status of the Reference Design EM at bid stage: "*The approach taken by these witnesses relied on erroneous assumptions about the terms of the documentation and wishful thinking.*" For all the reasons set out in Counsel to the Inquiry's draft closing submissions, and for the reasons discussed herein, there is more than ample scope in the documents before the Inquiry to support the evidence they gave as to their understanding of the status of the EM at bid

stage. Insofar as their evidence is attacked on the basis of lack of precision on matters of recollection, it is hardly surprising if recollections of interactions with other people which took place a decade ago were not crystal clear. Furthermore, when one properly takes account of context, namely the background to the ITPD and the commercial implications of Mott MacDonald's interpretation, all as discussed above, it is clear that the position argued for by Mott MacDonald as to the status of the EM at bid stage (i.e., that it was not mandatory) is simply an unrealistic *ex post facto* analysis of the situation.

11.2 It is, however, not surprising that Mott MacDonald advances the line it does, given that Mott MacDonald was responsible for the preparation of the ITPD documentation, including preparing the Reference Design documentation, as appropriate, for inclusion in the ITPD. It should be noted that Mott MacDonald was also responsible for (i) checking the Reference Design (which includes the Reference Design EM) for compliance with all appropriate NHSL and legislative guidelines and requirements and identifying any 'derogations', and (ii) evaluation of all design & construction and facilities management elements of Final Tenders, in particular for compliance with bid documents. Reference is made to Mott MacDonald's appointment, Bundle 2 page 28 at page 86, and the evidence of Mr Cantlay at TD9,C52-56,pdf p. 28-30. Mr Cantlay attempted to play down the content of those obligations, but NHSL's Janice MacKenzie was clear in her understanding that Mott MacDonald were advising the Board on all technical issues, by which she meant that, in relation to anything related to mechanical engineering or architectural matters, Mott MacDonald were providing advice to NHSL around whether or not drawings or proposals were meeting NHSL's brief (see the evidence of Janice MacKenzie, TD2,C18-19,pdf pp.11-12).

11.3 A further difficulty for Mott MacDonald is that Mott MacDonald was proceeding on the basis that the Reference Design EM complied with SHTM-03-01. Hulley & Kirkwood had provided confirmation to that effect in relation to an earlier version of the EM in March 2012 (Bundle 4, pdf page 324 at page 325 and the evidence of Mr Cantlay at TD9,C56-59, pdf pp.30 – 32) and, while Hulley & Kirkwood had not been asked to refresh that confirmation for the Reference Design EM, Mott MacDonald assumed no refresh was required because there had been no changes to Mott MacDonald's derogation paper. In these circumstances, any change to the environmental parameters in the Reference Design EM proposed by the bidders ought to have been flagged by Mott MacDonald as - potentially at least - involving a departure from the parameters set out in SHTM-03-01 ***whether or not Mott MacDonald understood the Reference Design EM to be mandatory***. This begs the question why Bidder C's changes to the Reference Design EM in relation to critical care areas in its bid was not queried by Mott MacDonald during its evaluation of the bids. In this regard, it is also to be noted that because Bidder C's changes related to the environmental **parameters** to be applied to particular room types, Mr Macrae's purported explanation (see TD5,C19-22,pdf p. 12-13) that Bidder C's changes to the Reference Design EM could be put down to proactive design development work by Bidder C, which other bidders would have to do later on, does not hold water. No amount of design development could or would affect the applicable parameters set out in Appendix 1 to SHTM-03-01: design development work will certainly determine how in practice those parameters are to be satisfied and implemented, but the parameters themselves remain the same. Moreover, involving as they did an increase in the number of air changes per hour in Critical Care areas, Bidder C's changes to the Reference Design EM would have involved increased construction and ongoing maintenance costs, as well as increased energy consumption and energy costs: all of this would have been unnecessary if the number of air changes in the Reference Design

EM complied with SHTM-03-01, as Mott MacDonald say they understood to be the case.

11.4 NHSL's Susan Goldsmith was clear that the assurances provided by Mott MacDonald in relation to the technical assessment of the bids were "*incredibly important*" to the Board, and that Mott MacDonald had not highlighted any risks or problems that had been encountered in relation to the bids, and the bid of IHSL in particular (see the evidence of Susan Goldsmith TD9,C50-51,pdf pp.28 -29).

11.5 Mott MacDonald's draft closing statement also contains an assertion that a review carried out by IHSL, or one of its contractors, of the EM, which identified certain 'discrepancies' within the EM, is inconsistent with Multiplex's position that the EM was a fixed, mandatory document. It was, however, precisely ***because*** the EM was a mandatory document that the discrepancies were noticed. Because of its mandatory nature, the EM was being used by the architect, HLM, to populate the environmental criteria in the Room Data Sheets and it was in the course of that process that certain internal inconsistencies were noted. See the witness statement of Liane Edwards (Bundle 13, pdf pages 270-272) and the evidence of Liane Edwards (TD5,C28-33,pdf pp.16-19).

11.6 In Mott MacDonald's draft closing statement it is said that, as Graeme Greer explained in evidence, the first RDS were produced eight weeks from the projected Financial Close date and that, given the time involved, they were not reviewed prior to Financial Close. The RDS were produced to Mott MacDonald for review on 19 September 2014 (see Bundle 12, page 1856). Financial Close did not in fact occur until 12/13 February 2015, almost five months later. It is

unclear why Mott MacDonald did not review them at any point in that five-month period.

## 12. Provisional Conclusions

12.1 On the evidence presently before the Inquiry, it is submitted the following provisional conclusions may properly be drawn:

(i) the Reference Design EM was NHSL's briefing document to bidders, setting out room environmental parameters;

(ii) bidders were required to accept the EM, but were free to propose changes to it on an exception basis;

(iii) providing the EM to bidders "for information only" would have made no sense in the context of NHSL's desire not to see the time, including clinical time, and money spent in preparing the Reference Design go to waste;

(iv) IHSL was entitled to - and did - bid on the basis that compliance with the Reference Design EM was mandatory: that is the proper contextual starting point for consideration of everything that followed;

(v) Mr McKechnie's approach to the EM throughout was that Critical Care Areas in Appendix 1 to SHTM-03-01 referred to isolation rooms within Critical Care only;

(vi) if the use of 4AC rather than 10AC in respect of Critical Care bedrooms in the Reference Design EM was an 'error', the difference between

Mosaic's bid and IHSL's bid provided an opportunity for that error to be detected, but it was not;

(vii) at no point, until long after practical completion, did NHSL or its advisers identify an issue as regards the compliance of the ventilation design with Appendix 1 of SHTM-03-01 as regards the number of air changes in Critical Care bedrooms;

(viii) changes to the EM in relation to ventilation were however made at Mott MacDonald's instigation, during the Preferred Bidder period;

(ix) the Preferred Bidder period provided another opportunity for the alleged 'error' to be detected, but it was not;

(x) the EM did not form part of Project Co's Proposals in the Project Agreement: it formed part of the Room Data Sheets;

(xi) the EM did not become Reviewable Design Data in its entirety: it was only Reviewable Design Data to the extent of the 7 bullet point comments included in Section 5 of Schedule Part 6 of the Project Agreement.

Alasdair McKenzie KC, Senior Counsel for Multiplex

30 June 2023