SCOTTISH HOSPITALS INQUIRY

Hearing commencing 24 April 2023 - Bundle 12 - Substantive Core Participant responses to Provisional Position Papers and Supporting Documents (External Version) - Volume 1 (of 2)

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GENERAL RESPONSE PAPER ON BEHALF OF NHS LOTHIAN TO THE PROVISIONAL POSITION PAPERS ISSUED BY THE SCOTTISH HOSPITALS INQUIRY

(Submitted 3 February 2023)

1. Introduction

1.1. The Inquiry Team has produced four Provisional Position Papers (the PPPs). These focus on three issues that are of particular interest to the Inquiry and relate to the period from the early stages of the Project up to Financial Close (FC). The three issues are: (i) the Reference Design (RD), (ii) the Environmental Matrix (EM), and (iii) the Procurement Process.

1.2. NHSL has produced tabulated responses to the PPPs which are produced at Appendix 1 (Reference Design), Appendix 2 (Environmental Matrix) and Appendix 3 (Procurement Process).

1.3. Those responses should be read in conjunction with this General Response Paper. The purpose of this Paper is to make some more general observations about various themes that are relevant to, or emerge out of, the PPPs.

1.4. The Inquiry has made it clear in the PPPs that there are several outstanding matters what will be explored in evidence. NHSL looks forward to considering that evidence before finalising its position on various issues.

2. Role of hindsight

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 a 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 on exclusively on one aspect, e.g. ventilation, may mean that decisions that were taken are not seen in their proper context.

2.4. By way of example, there is no basis for any inference – if that indeed is what is intended – that an AEDET review would or should have identified errors in the draft environmental matrix simply because an AEDET review includes an engineering category. Such an inference both misinterprets the function of an AEDET review and is driven by hindsight. Similarly, PPP1 (Reference Design) appears to place considerable weight on the Approach to Reference Design paper. However, the Approach to Reference Design paper was an iterative tool which was used internally to develop NHSL's and the relevant consultant's thinking in relation to design, prior to the ITPD. It should be viewed in that context. Furthermore, since it was never produced to tenderers, it is difficult to understand the emphasis that PPP1 gives to it at paragraphs 3.68 and 3.69.

2.5. Further examples can be found in the approach taken to the procurement process. The PPPs place considerable emphasis on the fact that one of the bidders made changes to the draft environmental matrix. No doubt the Inquiry will want to hear evidence about that change; but it should be recalled that, at the time, this was a small change amid a very large number of documents. It would not have been feasible for NHSL and its advisors to undertake a line-by-line consideration of all the tenders to confirm that they complied in all respects with statutory design guidance (particularly where design risk would lie with the tenderers). Similarly, the PPPs appear to accord significance to the fact that certain tenders were assessed as "compliant". Compliance has a very specific meaning in this context – see section 5 of the ITPD (vol. 1). Assessing a tender as compliant did not mean, and was not understood to mean, that NHSL and its advisors had reviewed the tenders and confirmed *inter alia* that the tenderers' technical specifications complied with all statutory guidance (e.g. SHTMs). The implication underlying paragraph 13.1.28 of PPP2 (EM) is that two tenders with different technical requirements in terms of the environmental matrices should not both have been assessed as compliant. It is submitted that this view, if that is what underlies paragraph 13.1.28, is both the product of hindsight and proceeds on an incorrect understanding of what constituted compliance so far as tenders were concerned. At the time, both tenderers confirmed that they were aware of the requirement to adhere to SHTMs and intended to do so or to notify NHSL if they did not. In the circumstances, there was no requirement for NHSL to check every detail of the bids to assess whether those claims were correct prior to the tenderers carrying out their own detailed design.

3. The Project Agreement

3.1. From NHSL's perspective, the ultimate objective of the various matters discussed in the PPPs was to enable NHSL to enter into a design and build contract that would deliver what was required. This did not require NHSL to design out the new hospital in minute detail. To expend resource in doing so would have been financially irresponsible. What NHSL was required to do, with the assistance throughout of professional advisors, was to advance matters sufficiently so that it could enter into a project agreement that:

(i) identified NHLS's overall requirements (which are usually called "Employers' Requirements" in design and build contracts);

(ii) identified any elements that were mandatory;

(iii) other than in relation to Operational Functionality, transferred all design risk to the contractor; and

(iv) provided a mechanism to allow NHSL to approve any elements designed by the contractor during the course of the Project which had not been approved at FC.

3.2. The Project Agreement achieved this. The Employers' Requirements, including a requirement to comply with statutory guidance, were provided in the BCRs. The mandatory elements were those that fell within the scope of Operational Functionality. The Project Agreement transferred all design risk to the contractor other than in relation to Operational Functionality. And the RDD process allowed NHSL to approve ongoing design without accepting risk.

3.3. The development of the reference design and the draft environmental matrix and the wider procurement process were all dynamic parts of a process that was intended to secure a satisfactory Project Agreement. The reference design and the draft environmental matrix were themselves subject to revisal and reassessment as their intended use developed over time to address matters on the ground. But they were a means to an end, or a tool, rather than end in themselves. This is illustrated comparing the ITPD and the Project Agreement. In the ITPD, "Reference Design" is defined as, "*the preliminary designs prepared by the Board and their advisers and contained in the Data Room*" (emphasis added). By the time of the Project Agreement, there is no reference to "Reference Design" at all. Instead, there is "Disclosed Data" (see below), being information which NHSL provided to IHSL but with no warranty as to it accuracy.

3.4. The intense focus that has been placed on the development of the environmental matrix and the reference design should not obscure the fact that these were two elements of an extremely large project. Time and cost would have been a factor in relation to how both developed over time and, no doubt, the Inquiry will have regard to those factors. But the key point is that it was always the case that, other than in relation to matters relating to Operational Functionality, all design risk was transferred

to the contractor. That is precisely the point of design and build contracts. If, as is suggested at paragraph 5.1.34 of PPP1 (Reference Design), there was a "lack of clarity" in the procurement documents, that is precisely what the procurement process is there to address. The fact that further explanation of terms such as "Operational Functionality" was given during the procurement process shows that this dynamic process was working; it does not show that the original specification was deficient. The product of the procurement process was the Project Agreement. By that stage, there was no doubt about the status of the IHSL EM.

4. **Room Data Sheets (RDS) and the Activity Database (ADB)**

4.1. Another example where viewing particular issues in isolation, and with the benefit of hindsight, may be problematic is the relevance that the Inquiry is potentially ascribing to the role that was, or should have been, played by RDS and the ADB.

4.2. In response to the PPPs, NHSL has identified new information about the use of the ADB and the development of RDS during the Project. This information is directly relevant to the Inquiry's provisional assessment of matters, as set out in the PPPs (e.g. paragraphs 5.1.16 and 5.1.17 of PPP1 (Reference Design)). To assist the Inquiry, NHSL has produced a document entitled "**NARRATIVE ON THE ACTIVITY DATABASE (ADB) AND ROOM DATA SHEETS (RDS)**". This has been produced as a separate paper.

4.3. In summary, the Narrative sets out how NHSL used the ADB to produce RDS for BAM during the capital funded phase of the Project. These RDS addressed *inter alia* clinical activities, equipment lists and environmental data. The RDS were presumably provided by BAM to BAM's design team, including Hulley & Kirkwood (H&K). In February 2010, H&K emailed BAM and the design team to say that, rather than employing the ADB M&E data sheets, they would produce an "*Environmental Matrix spreadsheet for each room type for easy reference as a user sign off tool*." In June 2010, BAM was made aware of CEL 19 (2010). At a design meeting on 22 June 2010, the process for reviewing ADB sheets was discussed. At that meeting Nightingale Associates (NA) agreed that it would manage the review of the relevant information by "*generating excel reports from the codebook database"* and that *"this could potentially save a huge amount of time & resource during the review process.*" Once the review process was complete, NA were to generate a full set of ADB information which would form part of the stage 4 contract. Accordingly, the terms of CEL 19 (2010) had been considered and an informed decision was made, as recorded in the email from NA noting the outcome of the meeting.

4.4. Following the switch to NPD, the design team remained the same with Mott Macdonald (MML), Davis Langdon, H&K and NA all remaining involved. The environmental data for the rooms continued to be developed by HK in the form of the draft EM. Given the terms of the recent 22 June 2010 meeting and the retention of the design team, there was no obvious reason for a reappraisal of the utility of using the draft environmental matrix.

4.5. In any event, in December NHSL sought clarification from Davis Langdon as to how H&K would feed in environmental data into the RDS process. On 4 January 2012, Davis Langdon confirmed by email that a document called the RDS Environmental Matrix would be produced which would take the place of ADB RDS sheets for environmental data "*to make for a simple and easy reference tool which relates back to current SHTM/HTM/HBN guidance*". The data to be captured in the draft environmental matrix was identified in the email. It should be noted that the data to be captured is more comprehensive than the data that would have been provided via the ADB. This email from Davis Langdon provided comfort to NHS Lothian that the draft environmental matrix was continuing to be developed by the M&E engineers to comply with relevant Scottish design guidance as required to meet the terms of CEL 19 (2010).

4.6. The reasons why NA and then Hiltron were instructed not to produce RDS as part of the ITPD is a matter the Inquiry may wish to explore in the hearing in April 2023. As set out in an email from MML to NHSL dated 15 August 2012, the view had been taken that sufficient room information was available to tenderers in various documents, particularly when it would be clear to tenderers that they were required "to comply with NHS Scotland design guidance".

4.7. The PPPs address the production of RDS during the tender process. It should be noted that IHSL did produce RDS at FC. Although they appear to have been prepared using the ADB, they did not reflect the requirements of SHTM 03-01, the ADB template as at 2014 or guidance note 15 on the draft EM. The fact that IHSL would have had to manually change the figures for air changes per hour for multi-bed rooms in critical care (from 10 ac/hr to 4 ac/hr) should have been a red flag for IHSL's designers. Nothing was said. In any event, the RDS and the environmental matrix produced by IHSL were not approved by NHSL at FC and therefore became subject to the RDD process.

5. **Programme Slippage to FC; Reviewable Design Data (RDD); and Disclosable Data (DD)**

5.1. The Project Director had concerns that IHSL's programme (or lack thereof) to FC was slipping and highlighted those concerns to the Finance Director, who escalated it to the NHSL Non-Executive Director. This escalation resulted in a meeting of a "Special Steering Board" on 22 August 2014 and a "Commercial Sub-Group of the Steering Board" on 31 October 2014 and 21 November 2014. The meetings included representation from NHSL, IHSL, SFT and the Scottish Government (other than the 31 October meeting where SG made apologies). These meetings were set up to address the issues leading to delays in reaching FC. One of the issues discussed was the lack of design development in relation to technical information (including the RDS). This was not solely a programme issue because IHSL considered that they had done sufficient design to satisfy the Board's operational functionality requirements and effectively "downed tools" on further detailed design work. Ultimately, it was agreed that IHSL had done enough to satisfy the Board's operational functionality requirements and that the RDD process was an appropriate contractual mechanism by which NHSL could approve IHSL's ongoing design without accepting risk.

5.2. Finally, the distinction between RDD and DD should be borne in mind. RDD required to be submitted for approval to the Board for its approval, which approval was only relevant in relation to Operational Functionality.

5.3. As the Inquiry has already heard, due to switch from capital funding to NPD, NHSL had a considerable amount of material available to it relating to the design and build of the new hospital. Some of this was provided to IHSL as "Disclosed Data". This is defined in the Project Agreement as "*any Design Data and any other written information, data and documents made available or issued to Project Co or any Project Co Party in connection with the Project by or on behalf of the Board (or any Board Party) whether on, before or after the execution of this Agreement*".

5.4. The Project Agreement makes it clear that Project Co must have "*conducted its own analysis of the Disclosed Data and has, before the execution of this Agreement, satisfied itself as to the accuracy, completeness and fitness for purpose of any such Disclosed Data upon which it places reliance*" (clause 7.3.1 of the Project Agreement). The draft environmental matrix produced by NHSL was Disclosed Data and the IHSL EM was RDD. But either as Disclosed Data or RDD, NHSL had no design liability in relation to the draft environmental matrix or the IHSL EM except to the extent that the latter fell within the scope of Operational Functionality. Air changes per hour did not.

6. **Conclusion**

6.1. NHSL acknowledges that the observations in this General Response Paper are made in advance of further evidence being heard. Nevertheless, NHSL has identified certain themes that emerge in the PPPs which, it is thought, can usefully be addressed at this stage by way of this Paper.

Appendix 1 – Reference Design

The SHI have issued a Provisional Position Paper 1: "The Reference Design utilised for the Royal Hospital for Children and Young People and Department for Clinical Neurosciences" (PPP1).

There are aspects of PPP1 that NHS Lothian does not accept. The table below provides NHS Lothian's comments on PPP1. The table should be read in conjunction with the following documents and is subject to witness statements and oral evidence.

- NHS Lothian's General Response to the PPPs paper
- NHS Lothian's response to the draft Scottish Hospitals Inquiry (SHI) paper: "Narrative concerning the Reference Design of the Royal Hospital for Sick Children and Department for Clinical Neurosciences".
- NHS Lothian's response to the questions contained within the draft Research Paper: Narrative concerning the Reference Design of the Royal Hospital for Sick Children and Department for Clinical Neurosciences".
- NHS Lothian's Paper Apart: Mott MacDonald Ltd Appointment as Technical Advisors to NHS Lothian (19 August 2022)
- NHS Lothian's response to the SHI List flagging gaps in paperwork and ambiguity surrounding final version identified in the Reference Design paper
- NHS Lothian's narrative on the ADB and RDS.
- NHS Lothian's narrative on Operational Functionality
- NHS Lothian's response to RFI 2
- NHS Lothian's Chronological Table of Clinical Input in to the Design

Para number	Text	Comment/Clarification/Suggested Revisal
Throughout	"Adoption" of the reference design.	PPP1 refers to the adoption of the reference design throughout. This misconstrues the purpose of the reference design. The reference design should not have been "adopted" by the successful bidder other than in relation to the operational functionality elements. The whole purpose of the procurement process and the NPD style contract, and in particular the use of the reference design, was that the full design risk transferred to the Private Sector. It was not for the bidder to "adopt" the reference design. The only elements of the reference design which were mandatory were those relating to operational functionality, e.g. room layouts and adjacencies. Otherwise, the design was to be developed by the successful bidder in line with NHS Lothian's requirements, including SHTM 03-01. This is point is clearly demonstrated by the fact that the

		term "Reference Design" does not feature in the Project Agreement; instead, the Project Agreement uses the concept of the Board's Construct Requirements (BCRs) and Operational Functionality to define the design obligations incumbent on IHSL.
Section 1	**Introduction**	
1.4	Section 2 of this paper narrates the Inquiry Team's understanding of the principal steps whereby NHSL, with the advice of Mott MacDonald Limited(MML), adopted the concept of a Reference Design as a component with the procurement process for the RHCYP.	Suggest inclusion of underlined words: "Section 2 of this paper narrates the Inquiry Team's understanding of the principal steps whereby NHSL, with the advice of Mott MacDonald Limited(MML) and the guidance of Scottish Futures Trust (SFT), adopted the concept of a Reference Design as a component within the procurement process for the RHCYP."
Section 2	**Purpose of the Reference Design**	
2.3	With the change infunding, it was also decided that the Department of Clinical Neurosciences (DCN) would be co-located with the RHSC and form part of the same project.	Suggest inclusion of the underlined words: "With the change infunding, it was also decided and announced by the Scottish Government that the Department of Clinical Neurosciences (DCN) would be co-located with the RHSC and form part of the same project."
2.6	The Reference Design Team was constituted of the same design team set out at paragraph 2.2 of this paper	This continuity offered comfort to NHS Lothian since the knowledge, information and design generated up to that point would be carried forward. That included design team discussions in relation to the review of the RHSC ADB database and the use of an Environmental Matrix to capture the environmental data (see NHS Lothian ADB and RDS Narrative).
2.7	… " the level of this 'had yet to be determined.'	Suggest inclusion of the underlined words: "…. The level of detail had yet to be determined, and NHS Lothian accordingly sought MML's advice on this, which gave rise to the MML Advisory Paper."
2.9	In the absence of formal guidance, the Board of NHSL required to decide the extent of the development and precisely how a Reference Design would be used.	Suggest inclusion of the underlined words: "In the absence of formal guidance, the Board of NHSLrequired to decide the extent of the development and precisely how a Reference Design would be used, and relied on advice from MML and guidance from SFT in reaching that decision."

2.10 & 2.12	General comment	It is suggested that the following paragraph currently at the end of paragraph 2.12 would be better placed at the end of para 2.10, where the "level of prescription and fixity" is discussed: "In responding to an earlier draft of this paper, NHSL have told the Inquiry that there had to be a greater level of prescription and fixity beyond an exemplar design because the RHCYP/DCN had to adjoin the existing RIE at Little France. The RIE was an existing Private Finance Initiative (PFI) site runby Consort Healthcare Ltd (Consort). NHSL and Consort had to agree and resolve issues such as (i) the interface between RHCYP/DCN with the RIE, and (ii) access/egress to RIE. NHSL's reference design provided bidders with an architectural representation of one possible concept design but which critically illustrated the mandatory requirements imposed on the Board of NHSL as a result of the pre-existing arrangements with Consort."
2.13	Donna Stevenson of SFT suggested…	It is NHS Lothian's understanding that this discussion was promoted in particular by Mike Baxter, but that SFT may have joined in.
2.14	An Approach to Reference Design paper produced by MML in 2012 and discussed more fully in Section 3 …	Suggest inclusion of the following words: "An Approach to Reference Design paper produced by MML in 2012 and discussed more fully in Section 3 of this paper summarised the perceived benefits offered by the use of a Reference Design in NPD projects. This paper was an evolving document prepared by MML to advise the Board and was not issued to bidders. The paperconsidered that a Reference Design would reduce procurement costs and timescales, reduce the amount of clinical user consultation required during the Competitive Dialogue phase, provide greater cost certainty at OBC, andprovide greater certainty over the eventual design solution. This would be achieved via the reference design by conveying in graphical terms (i) NHS Lothian's "operational functionality" requirements, (ii) Planning In Principle constraints as granted by The City of Edinburgh Council, and (iii) many of the agreed elements with Consort in relation to SA6."
2.16	General comment	These clinical functionality elements reflect the later operational functionality elements in the RHCYP/DCN project. The use of the word "operational" instead of "clinical" was decided on because some of the mandatory areas of the

		reference design (e.g. re planning issues) would cover non-clinical functions. It was therefore felt the word "operational functionality" was more appropriate. It is NHS Lothian's understanding that the Environment Matrix was issued as part of the ITPD package prepared by MML "for information only" and was not a mandatory requirement in terms of operational functionality. The ITPD EM is Disclosed Data as defined within the Project Agreement. In accordance with clause 7 of the Project Agreement the Board is not liable for Project Co's adoption, use or application of Disclosed Data. Further, no warranty or undertaking of whatever nature is provided by the Board in relation to the Disclosed Data and specifically the Board is not liable to Project Co in respect of any error, omission or defect in the Disclosed Data.
2.17	Appendix B of the draft Advisory Paper …	The draft Advisory Paper by MML in general, was only a snapshot in time and reflects the thinking at particular points in time behind the Reference Design, which developed over time and in advance of the ITPD being issued to bidders. What preceded the ITPD and Project Agreement was a work in progress. The draft Advisory Paper by MML was not issued to bidders.
2.18	"defining things too rigidly may compromise design quality"	It is suggested the full quotation be given for context: "defining things too rigidly may compromise design quality, <u>on the basis that it was for the appointed Preferred Bidder to develop their own design and take on that risk</u>" (per Brian Currie in a Project Working Group minute: SHI bundle 3, page 396).
2.23	Option D was to develop an Exemplar Design – referred to as the: "approach typically used in previous health PPP/PFI projects". This was noted to be lesscostly than Options A, B and C and would transfer full design risk to the private sector (excluding Clinical Functionality) – however intensive clinical input throughout the bid period was anticipated, requiring the longest period for competitive dialogue	The risk profile for Option A (mandate the design for clinical functionality) and Option D (exemplar design) was the same, i.e. in both options the full design risk transferred to the Private Sector with exception of clinical functionality in line with standard project agreement risk allocation.
2.26	In response to an earlier draft of this paper,	Suggest inclusion of the underlined words: "In response to an earlier draft of

	NHSL have told the Inquiry that ….	this paper, NHSL have told the Inquiry that, as set out in MML's Procurement Options Paper dated June 2011, it was agreed at the Working Group meeting on 2 June 2011, it agreed to proceed on the basis of Option A …"
Section 3	**Key Documents Relating to the Reference Design**	
3.1 – 3.28	CEL 19 2010 and ADB	These paragraphs are disputed. Please see (i) NHSL narrative on RDS and ADB and (ii) NHSL response to PPP2 re the EM.
3.31 & 3.35	Suggest delete 3.31 and 3.35 and replace as follows.	There appears to be significant confusion as between 3.31 and 3.35. These deal with the same process. It is suggested they are deleted and combined as follows: "Provision was also made in the OBC for Clinical Management Teams (CMT), who had operational management responsibility for children's services and DCN, to sign-off the Reference Design at all stages prior to final approval by NHSL. This was done by way of "design task groups" (also known as "user groups") who met to discuss the developing 1:500; 1:200 and 1:50 drawings. The design task group was made up of a lead clinician for each department, an NHSL project manager (a senior nurse), NHSL Senior Capital Planning Managers, an NHSL infection control nurse; and members of the design team, including Davis Langdon, Nightingale Associate and MML, who would meet to discuss and review the design. NHSL has provided to the Inquiry a document called "Roles and Responsibilities of the Design Sub-Task Group". This was an internal document prepared to provide guidance to clinicians attending the user groups as to what was expected of them. It states that the purpose of the design sub task groups was to produce, with the project and design team, proposed 1:200 designs for their department and any required detailed 1:50 designs. The 1:200 designs involved planning internal room adjacencies with the clinical user groups whilst the 1:50 designs involved input from the clinical user groups on the specific equipment requirements of specific generic and key rooms (from coat hooks to large scanners). In advance of any design task group / user group meeting, the lead clinician obtained comments from colleagues on the latest set of Nightingale Associates' drawings and fed the comments back to NA at the meeting to incorporate in the next drawing. This was the process by which the clinical

		management teams would feedback (via the lead clinician and NHSL project managers) to the reference design team what their operational functionality requirements were and how those requirements should be incorporated in the design for their department. Once the lead clinician was satisfied that the design met the operational functionality requirement of their department, they physically signed the drawing. In response to an earlier draft of this paper, NHSL have provided documentation to the Inquiry which indicates that these sign-offs related to departmental drawings and Clinical Output Specifications (which were subject to a separate sign off process including review by MML and Tribal on relation to the technical aspects) as opposed to specific m&e environmental information because they were considering the reference design in terms of operational functionality. NHSL have told the Inquiry: "The clinicians reviewed the design in relation to operational functionality, i.e. space and content, the layout, adjacencies, clinical activities and equipment required. The clinicians are not M&E engineers…NHS Lothian appointed Technical Advisors, MML, to manage the specialist M&E aspects of the project." NHS Lothian has produced a chronological table which details all of the design task group / user group meetings in relation to critical care and demonstrates the significant level of user/clinical engagement with the reference design team in relation to operational functionality. NHS Lothian have also provided a record of user group sign off on the reference design, being the (i) Agreed 1:200 Issue Log and sign off register dated 9 March 2012 and (ii) Agreed 1:50 Key rooms sign off register dated 16 March 2012."
3.35	Suggest deleting 3.31 and 3.35 and replace as per comments at 3.31 above.	
3.37	"… I think it now falls to NHSL, probably Brian, to move this forward with SFT. I imagine he is reluctant to raise the issue in case it prompts a further round of review meetings."	NHSL comment: the meetings in January 2012 as between SFT/HFS/A+DS/SG to discuss the review procedure and whether it is a requirement for NPD projects is at page 879 of bundle 3. (vol.2) for the May 2022 Hearings. This was a relatively new tripartite relationship as between A+DS, HFS and SFT. This was the first time an NPD project was used in healthcare. The roles of A+DS, HFS and SFT in terms of design review were evolving. The way in which the design reviews in Framework / capital funded projects (such as Gateway Reviews, AEDETs and NDAP) were to apply in an

		NPD project was not clear. The Guidance was also evolving. In CEL 2010 (19), the section on procurement ("selection criteria during the bidding stage") was also superseded by the SFT guidance produced for the NPD programme. The result was that NHS Lothian was working through multiple conflicting (or at least not fully aligned) guidance and requirements. The guidance from SFT was being developed during the course of the Project.
3.39	Given that the OBC was approved in 2008, the transitional provisions in relation to NDAP reviews applied. There was no absolute requirement for anNDAP to be completed. The Inquiry has not been provided with an NDAP review by any CP. The Inquiry Team therefore proceeds on the basis that no such review was undertaken for the project.	It is of note that in April 2013 (over a year after the meeting between A+DS, SFT and HFS to determine whether an NDAP was required and the subsequent emails between MML and the reference design team), there are emails between NHSL and the Scottish Government which suggest that there had been some discussion or agreement to the extent that an NDAP would not take place. Mike Baxter confirms to Brian Currie that: *"I would not expect our position on NDAP to change on this project going forward and therefore I would expect HFS [sic – suggest should be AD+S] to contribute via the planning process. With regard to the type of review that would have been conducted by HFS as part of the Design Assessment Process I would expect to challenge this as part of the questioning around the FBC. I will also pursue these issue through my role in the Programme Board."*
3.43 & 3.44	The remainder of the Atkins review into the Reference Design was limited to the choice of site and ability to expand the development, access points, links to the RIE, orientation of patient bedrooms for sunlight, traffic flows within the building, and clinical adjacencies.	The Atkins report was shared with the HFS team who provided feedback and recommendations on the basis of the report.
3.45	A later AEDET Review was undertaken on 8 March 2012. The author of this review is given as 'DH Estates and Facilities'.	The "DH Estates and Facilities" is the Department of Health (DoH or DH). An AEDET template is downloaded from the Department of Health and it is subject to their priorities, terms and conditions etc. NHS Scotland linked into DoH through Health Facilities Scotland who managed the access, subscriptions or similar on behalf of Boards. Boards tended to have one or two people who were

		trained in AEDET, but as a generality each project's AEDET reviews would be facilitated by one of the design team, such as the lead architect. See the AEDET template here: Appendix-4.5.13-ASPECT_questionnaire_PPDP.pdf (bsuh.nhs.uk) Note that Brian Coapes of Design and Costing (GREFD) is named on the AEDET template as the contact. Aspect, referred to in the template, is a development of AEDET. This software was heavily promoted in NHS Scotland / Health Facilities Scotland by Denis O'Keefe as it was the subject of his doctorate thesis.
3.53	The Approach to Reference Design paper was designed to be used as a basis for accurately conveying NHSL's intentions to bidders in relation to mandatory and non-mandatory elements of the Reference Design. MML werethe lead authors, with collaboration from NHSL and SFT. In response to an earlier draft of this paper, MML have told the Inquiry that the paper was an internal document which was not issued to bidders.	The first sentence here is lifted from Brian Currie's statement for the hearing in May 2022 at paragraph 31 in reference to a Paper he prepared for the Project Steering Board Meeting on 11 May 2012. It has been taken out of context and creates the impression that that the Approach to Reference Design Paper was issued to bidders, which it was not. Brian Currie intends to clarify the position in his next witness statement to the Inquiry. It is suggested that the paragraph is amended as follows: ~~"The Approach to Reference Design paper was designed to be used as a basis for accurately conveying NHSL's intentions to bidders in relation to mandatory and non-mandatory elements of the Reference Design.~~ "MML werethe lead authors, with collaboration from NHSL and SFT, of the Approach to Reference Design paper. In response to an earlier draft of this paper, MML and NHSL have told the Inquiry that the paper was an internal document which was not issued to bidders."
3.54	General comment	The description for Revision J is: "*issued following comments from SFT and removal of references to RDS."* It is important to note this because it indicates that SFT reviewed the final version of the Approach to Reference Design Paper and were aware that bidders were to use the suite of room information available to prepare their own RDS.

3.58	Revision J	This paper was not issued to bidders. It was an evolving document. If the implication of this statement is that those developing the Reference Design did not know or understand what "Operational Functionality" meant, this is not accepted. The draft Advisory Paper by MML explains that: "*The Operational Functionality requirements for the RHSC + DCN will be outlined in the Clinical Output Specification, Schedule of Accommodation and the Adjacency Matrix.* *The ITPD will state that it is mandatory that Bidders develop proposals that comply with the Operational Functionality solution as detailed in the Reference Design.* *The Operational Functionality will be defined in the following constituents of the Reference Design:* • *1:500 Interdepartmental Layouts;* • *1:200 Layouts; and* • *1:50 Generic and Key Room layouts*" Reference is also made to section 7.3 of the MML Approach to Reference Design Paper, which confirms that the mandatory elements of the Reference Design "*comprises the information that defines Operational Functionality and is indicated in Interdepartmental Layouts (1:500), Departmental Layouts (1:200) and Room Layouts (1:50) for Key and Generic Rooms."* This came to be reflected in the ITPD (volume 1) which stated that: "*The mandatory elements of the Reference Design are those elements of the Reference Design relating to Operational Functionality. The definition used in the NPD Project Agreements is being applied to define the agreed operational functionality and in the Reference Design and is generally set out in the following constituents of the Reference Design:* - *1:500 Departmentally adjacency Layouts;* - *1:200 Departmental Layouts; and* - *1:50 Generic and Key Room layouts.*

		Other areas of Operational Functionality are contained in other components within the Reference Design. Full details of the Mandatory Reference Design Requirements are set out in Appendix E (Reference Design Elements).” The Environmental Matrix was not included in Appendix E as a mandatory reference design requirement. In addition, on 17 April 2013, in Rev B of the ITPD vol 1, a definition of Operational Functionality was included by way of amendment and issued to bidders. The change in language to “operational functionality” was in line with the SFT Standard Form Project Agreement (NPD Model), version 1, dated 16 June 2011, where the reference is to “Operational Functionality” (see Appendix A). Further note that Operational Functionality is not defined in the Standard Form.
3.61	Revision J …. “constrained only by the requirements of the Board’s Construction Requirements” (BCRs). These were set out at Section 3 of Volume 3 of the ITPD.	Suggest inclusion of the underlined words: “These were set out at Section 3 of Volume 3 of the ITPD and included SHTM 03-01 re ventilation requirements.”
3.61	General Comment	Revision J stated that: “*The evaluation criteria will also be outlined in the ITPD. Generally where a requirement of the Reference Design is deemed to mandatory, Bidders will be evaluated on a pass / fail basis. The quality criteria marked as part of the evaluation will be concentrated on the non-mandatory elements of submissions”.* C8.3 of the ITPD related to the submission of the bidders’ Environmental Matrix and was evaluated on a pass/fail basis and having passed was then scored (i.e. it was considered a non-mandatory requirement in terms of the evaluation process). However, C.21 related to compliance with the Board’s Construction Requirements and was evaluated only a pass / fail basis. Please see response to PPP3 for further explanation of the evaluation process.

3.66	The Inquiry understands that the removal of references to Room Data Sheets was done to reflect the fact that NHSL instructed Nightingales to ceaseproduction of Room Data Sheets by a CCO dated 17 May 2012.	Suggest inclusion and deletion of words as follows: "The Inquiry understands that the removal of references to Room Data Sheets was done to reflect the fact that NHSL, in conjunction with and on the advice of MML, considered that there was sufficient room information available for the bidders to prepare the RDS as part of their developing design." ~~instructed Nightingales to cease production of Room Data Sheets by a CCO dated 17 May 2012."~~ See NHSL ADB/RDS narrative.
3.68	… the language used in this paragraph of Revision J, together with Appendix B, indicates that the environmental information contained within the Environmental Matrix, and therefore the document itself, was intended to be mandatory for bidders.	This is not accepted. A room requirement is not the same as a mandatory element of the Reference Design. It is an error to conflate the two. The approach paper was not issued to bidders. The ITPD was issued to bidders. In any event it is clear from the paragraph quoted that each bidder will "be required to advise the levels that will be achieved in their particular design". This indicates each bidder was to develop their own m&e design, which is what transpired. The absence of the Environmental Matrix from Appendix E is not inconsistent. The Environmental Matrix did not identify mandatory elements of the Reference Design. This is confirmed when one considers the terms of the BCRs, as contained in vol. 3 of the ITPD. Section 8.7 (Mechanical Service) of Sub-Section C (General Requirements) of Section 3 to Schedule Part 6 (as included in vol 3 of the ITPD) provides that: "*The Project Co shall design, supply, install, test, commission, operate and maintain all mechanical building services necessary to support the Clinical Services at the Facilities. The following systems are indicative of those anticipated by the Board but are not exhaustive and sole responsibility shall be Project Co's to determine all necessary systems are included.* *Systems shall be design, supplied, installed, tested, commissioned, operated and maintained all in accordance with the regulations and standards.*"

3.83	BREEAM standards	Requiring a particular standard to be achieved (e.g. a BREEAM rating of "Very Good") is not the same as identifying mandatory elements of reference design. A particular standard can be achieved via a variety of design solutions.
3.86 – 3.88	Submission Requirements	Section C.21 could also usefully be included here given its relevance: "Section C21 provided: Compliance with Board's Construction Requirements". Prior to the issue of the ISFT, NHS Lothian held a meeting in October 2013 during competitive dialogue which was titled "Draft Final Tender Review – C12 and C21". C12 related to proposals for how bidders' design complied with Mandatory Reference Design Requirements. C21 related to confirmation that the bidders had complied with the Board's Construction Requirements. In addition, at Final Tender, as part of submission C.21, IHSL confirmed compliance with the BCRs subject to any derogations scheduled in submission C.30. No derogations were identified in C.30 in relation to SHTM 03-01.
3.91	General comment	The point made simply reflects the fact that, so far as design was concerned, the "mandatory" and "non-mandatory/indicative" language did not feature in the Project Agreement. Instead, the focus is on design risk transfer with retained design risk for matters falling within the scope of Operational Functionality. However, as between the ITPD and the Project Agreement, there was never any doubt that compliance with SG guidance, including SHTM 03-01, was mandatory.
3.93	"Project co must provide the Works to comply with the Environmental Matrix"	This sentence of paragraph 8, M&E Requirements, should not be read in isolation. The EM referred to here is the EM that was to be produced by Project Co as Financial Close. However, as noted below (para 3.94), IHSL's EM was not accepted at FC and became subject to the RDD process. Furthermore, the M&E Requirements went on to provide in paragraph 8 that: - "Project co shall in carrying out the Works comply with the following non-exhaustive list of mechanical & engineering requirements"

		- "For the avoidance of doubt the hierarchy of standards and advice detailed in paragraph 2.5 shall apply to this paragraph 8)." The hierarchy of standards provide that where there was inconsistency between standards, the most onerous (being SHTM 03-01) would apply.
3.94	In ITPD Volume 3, the terms of the Environmental Matrix are framed as the Board's Construction Requirements, as opposed to being 'indicative'.	This is not accepted by the Board (see comments above re para 3.93 in relation to paragraph 8, M&E requirements). Reference to the EM within volume 3 of the ITPD and the subsequent PA refers to the EM that was to be developed in the future by the PB. IHSL' EM at FC was unapproved by the Board and subject to the RDD process. The draft EM provided by the Board at ITPD was different to IHSL's EM by the end of the Project.
3.103	In their final tender submission, one of the two unsuccessful bidders flagged air changes per hour and pressure regime data in the Environmental Matrixthat was inconsistent with healthcare guidance.	The use of the word "flagged" could be misinterpreted and it is suggested that "highlighted in red" would be more accurate. Mosaic was the only bidder to provide their own EM at the close of competitive dialogue. Within their EM, Mosaic changed ventilation data in critical care and changed the black text to red. However, other than making the change in red, Mosaic did not flag this change to NHS Lothian. There is no recorded discussion or recollection of such a discussion regarding this change within NHS Lothian. See NHS Lothian response to the SHI List flagging gaps in paperwork and ambiguity surrounding final versions identified in the Reference Design paper. It should also be noted that Mosaic's EM introduced some corrections but still contained errors.
4	**Practical Implications for the RHCYP/DCN Project arising from the adoption of the Reference Design Approach**	See NHSL Chronological Table of Clinical Input into the Reference Design
4.10	It was proposed in Revision J that the Technical Advisory Team would need to take ownership of the design as if it was its own work. This would entail the two teams meeting regularly and the Technical Advisory Team undertaking a thorough and detailed review of the Reference	This included MML ensuring that the BCRs were in line with the reference design. NHSL has already provided the Inquiry with a paper detailing MML's obligations as their Technical Advisors. In relation to the reference design sign off, in particular the engineering elements, it was entirely reasonable for NHSL to rely on the fact that their TA had reviewed the reference design to ensure

	Design.	compliance with the BCRs (which mandated SHTM 03-01) and to be reassured by that.
4.13	The Inquiry Team understands that this was the only occasion where environmental information within the Reference Design was officially reviewed and signed-off for compliance with healthcare guidance.	See previous comment. MML had ongoing obligations in relation to design review during the preferred bidder to financial close period, and the construction period, to check for compliance as between the design and healthcare guidance. It was reasonable for NHS Lothian to rely on its Technical Advisor in that regard. Furthermore, it is not understood what is meant by "officially reviewed" (in PPP2 the language is formally reviewed"). Compliance with healthcare guidance was part of the BCRs and was a matter for Project Co. There was no contractual, regulatory, statutory or other "official" need for there to have been any review or sign-off of the environmental information.
4.17	The update stated: "Through Dialogue Meeting 1 it became evident that the understanding of Operational Functionality required further clarification. Feedback was given to Bidders on their specific proposals."	Re Dialogue Meeting 1, feedback was given to bidders via a Reference Design Bulletin[1]: "Reference Design - update on requirements for Operational Functionality". The issues arising in relation to operational functionality related to the room and departmental adjacencies. The Bulletin noted that the Board was prepared to relax the requirements in relation to a limited number of departments whose location within the RHSC and DCN was less critical, i.e. where it did not impact on the ability of the Board to deliver its clinical and non-clinical services, e.g. Classrooms and the Restaurant. ITPD Volume 1 and the Board's Construction Requirements, along with adjustments to the relevant Specific Non-Clinical Requirements documents, were updated accordingly. It was emphasised that, in relation to all other areas, the requirements of Operational Functionality apply in full. It was confirmed, for the avoidance of doubt, this meant that all departmental adjacencies and room adjacencies within each department, as drawn in the Reference Design, needed to be maintained. Competitive dialogue meetings were held between May 2012 and November 2013. Issues in relation to engineering, critical care, operational functionality,

[1] The Reference Design Bulletin has been submitted to the Inquiry this table, RD_0079

		compliance and the need for IHSL to produce a complete derogation register were discussed at meetings 1, 2, 4A, 4B, 4C, 4D, 5, 5A and 6. There was ongoing discussion to the extent that IHSL should not assume that reference design related derogations were already accepted. NHS Lothian do not accept that the EM was mandatory and, as such, do not accept it was a "derogation". However, even if the EM was perceived to be mandatory and/or a derogation, it was clearly communicated by NHSL to IHSL throughout competitive dialogue that the onus was on them to flag any derogations within the appropriate Schedule of Derogations in C30. No derogation in relation to critical care ventilation, specifically the requirements of SHTM 03-01, was ever sought by IHSL. Please see NHSL Chronological Table of clinical input into the Reference Design, in particular pages 7 – 13 which detail relevant discussions with IHSL during competitive dialogue.
4.21	The Board of NHSL commented on this in October 2014	Suggest the inclusion and deletion of the following words: "MML, on behalf of ~~the Board of~~ NHSL commented on this in October 2014".
4.23	In January 2015, the Board of NHSL confirmed to MML that: "the design solution should not rely in any way with the opening windows".	It was MML, on behalf of NHSL, who confirmed to Ken Hall of IHSL that the design solution for single rooms should not rely in any way with the opening windows.
4.25	Despite the decision of the Board in January 2015 regarding single bedroom ventilation, and the categorisation of the Environmental Matrix as Reviewable Design Data in February 2015, the single bedroom ACH figures reliant on supplementary natural ventilation were not amended by IHSL in a later Environmental Matrix of 26 November 2015.	Indeed, Project Co did not submit a formal derogation from the requirements of SHTM 03-01 until May 2018. NHS Lothian considered a retrospective derogation which was incorporated into Settlement Agreement 1 (SA1) as *Disputed Works Schedule Appendix 1 Item 13 (formally Project Co Change 051).* There was an associated risk assessment confirming that there was no clinical risk to patients associated with the air change rate of 4 ACH mechanical. Project Co never flagged (and nor did MML) the inconsistencies within their EM and between their EM and SHTM 03-01 as regards the required ACH for critical care, despite their contractual obligations to do so. Project Co did not submit a formal derogation in relation to critical care ventilation rates in either single rooms or multi-bedded rooms in critical care at any stage during the Project. Unfortunately, 4 of the multi-bedded rooms in critical care (but none of the single

		rooms) were inadvertently included in item 13 of SA1. This was the only occasion on which NHSL (inadvertently) agreed to any departure from SHTM 03-01 for critical care.
5	**Provisional Conclusions**	
5.1.6	NHSL determined that a 'Reference Design' should be utilised for the RHCYP/DCN project. This was intended to be shared with prospective tenderers in the procurement process and used as a springboard for bidders to develop their own designs.	A key aspect of the reference design which NHSL submits should be included in the provisional conclusions (possibly after 5.1.6) is that the RIE was an existing Private Finance Initiative (PFI) site runby Consort Healthcare Ltd (Consort). NHSL and Consort had to agree and resolve issues such as (i) the interface between RHCYP/DCN with the RIE, and (ii) access/egress to RIE. NHSL's reference design provided bidders withan architectural representation of one possible concept design but which critically illustrated the mandatory requirements imposed on the Board of NHSL as a result of the pre-existing arrangements with Consort.
5.1.11	NHSL had responsibility for determining the detail to be included withinthe Reference Design and, in particular, the elements with which compliance was mandatory.	Suggest inclusion of the underlined wording: "NHSL, on the advice of its Technical Advisors MML, had responsibility for determining the detail to be included withinthe Reference Design and, in particular, the elements with which compliance was mandatory. The only elements of the design that were mandatory for the bidders to adopt were in relation to (i) the requirements imposed on the Board of NHSL as a result of the pre-existing arrangement with Consort and (ii) in relation to operational functionality as defined in the Project Agreement.
5.1.12 – 5.1.17	Re CEL 19 2010	See NHSL ADB/RDS narrative
5.1.18	The original Reference Design Team, in place when the project was to be capital funded, was retained by NHSL for the NPD project.	Suggest change as follows: BAM's original design team, ~~The original Reference Design Team,~~ in place when the project was to be capital funded, was retained by NHSL for the NPD project and became the Reference Design Team.
5.1.22	Responsibility for the Reference Design was passed to the Technical Advisory Team when the Reference Design Team left the project.	Suggest inclusion of the following: "Responsibility for the Reference Design was passed to the Technical Advisory Team when the Reference Design Team left the project. MML stated in the Approach to Reference Design paper that The Technical Advisory Team "must be in a position to adopt full ownership of

		the Reference Design prior to the departure of the Reference Design Team." MML also had obligations to ensure compliance as between the reference design and the BCRs.
5.1.25	This was the only occasion, prior to the conclusion of the contract with the preferred bidder, where 'environmental information' set out in the Reference Design concerning the proposed ventilation system for the hospital – including air changes per hour and pressure regimes - was formally reviewed and signed-off for compliance with healthcare guidance.	See comment for paragraph 4.13.
5.1.26 – 5.1.28	Re the EM and ADB	These paragraphs are not accepted. See the NHSL ADB / RDS Narrative.
5.1.30	The Environmental Matrix of 19 September 2012 was provided to prospective tenderers as part of the ITPD.	The Environment Matrix was issued as part of the ITPD package prepared by MML "for information only" and was not a mandatory requirement in terms of operational functionality. The ITPD EM is Disclosed Data as defined within the Project Agreement. In accordance with clause 7 of the Project Agreement the Board is not liable to Project Co and Project Co shall not seek to recover from the Board from the adoption, use or application of the Disclosed Data by or on behalf of Project Co. Further, no warranty or undertaking of whatever nature is provided by the Board in relation to the Disclosed Data and specifically the Board is not liable to Project Co in respect of any error, omission or defect in the Disclosed Data.
5.1.31	Inparticular, values inserted in the Environmental Matrix for certain critical care areas did not comply with the guidance in SHTM 03-01.	However, the Guidance Note to the EM required that areas in HDU and Critical Care should comply with SHTM 03-01, appendix 2, being 10 ACH. NHSL submit that, whenever reference is made to values in the EM being non-compliant with the guidance in SHTM 03-01, it should be made clear that such values were inconsistent with the Guidance Notes to the EM (which expressly stated 10ACH were required for all HDU and Critical care areas}. Otherwise, the impression is that the whole of the EM was incorrect, rather than

		inconsistent. This is important because IHSL should have flagged this inconsistency and checked with NHSL whether they required to seek a derogation to SHTM 03-01.
5.1.34	There was a lack of clarity in the procurement documents in relation to: (i) the purpose of the Environmental Matrix; and (ii) whether compliance withthe Environmental Matrix was mandatory.	This is not accepted. It is submitted that the alleged inconsistency flows from a misunderstanding of the status and function of the ITPD EM and the subsequent IHSL EM, each of which fulfilled distinct functions. The ITPD EM was Disclosed Data and provided "for information only". There is no assumption, or warranty, under the Project Agreement that Disclosed Data is accurate. The IHSL EM became subject to the RDD procedure. In any event, MML drafted the ITPD documentation so any perceived lack of clarity should be discussed with them.
5.1.43	NHSL entered into a contract with IHSL which stipulated that the Environmental Matrix would be 'Reviewable Design Data' under the contract. Therefore, the precise parameters for the ventilation system would be worked out after the contract was concluded.	Suggest the inclusion of the underlined words: "NHSL entered into a contract with IHSL which stipulated that (i) IHSL would design and build a hospital that was compliant with SHTM 03-01, subject to any agreed derogations and (ii) the Environmental Matrix would be 'Reviewable Design Data' under the contract. Therefore, the precise parameters for the ventilation system would be worked out after the contract, including the consideration of any derogations from SHTM 03-01. Project Co did not submit a formal derogation from the requirements of SHTM 03-01 in relation to the single rooms (not in critical care) until May 2018. This retrospective derogation was incorporated into Settlement Agreement 1 (SA1) as *Disputed Works Schedule Appendix 1 Item 13 (formally Project Co Change 051).* There was an associated risk assessment confirming that there was no clinical risk to patients associated with the air change rate of 4 ACH mechanical in single rooms (not in critical care). Project Co did not submit a derogation in relation to critical care ventilation rates in either single rooms or multi-bedded rooms in critical care at any stage during the Project."

Appendix 2 – Environmental Matrix

The SHI have issued a Provisional Position Paper 2: "The Environmental Matrix for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences" (PPP2).

There are aspects of PPP2 that NHS Lothian does not accept. The table below provides NHS Lothian's comments on PPP2. The table should be read in conjunction with the following documents and is subject to witness statements and oral evidence.

- NHSL's General Response to the PPPs Paper
- NHSL's response to the draft Research Paper: "Comparison across versions of the Environmental Matrix in relation to SHTM 03-01 up to Financial Close".
- NHS Lothian's Paper Apart: Mott MacDonald Ltd Appointment as Technical Advisors to NHS Lothian (19 August 2022)
- NHS Lothian's response to the questions contained within the draft Research Paper: "Comparison across versions of the Environmental Matrix in relation to SHTM 03-01 up to Financial Close".
- NHS Lothian's narrative on the ADB and RDS.
- NHS Lothian's narrative on Operational Functionality
- NHS Lothian's response to RFI 2
- NHS Lothian's Chronological Table of clinical input in to the design

Para Number	**Text**	**Comment/Clarification/<u>Suggested Revisal</u>**
1.1	NHSL, with the assistance of its advisers, required to specify the technical requirements for the new hospital.	Suggest inclusion of the underlined words: "NHSL, with the assistance of its <u>technical</u> advisers <u>(MML)</u>, required to specify the technical requirements for the new hospital. <u>During the capital phase of the project</u>, this included briefing prospective tenders on the technical requirements for key systems within the new hospital, including the ventilation system. <u>During the NPD phase of the project, NHSL specified compliance with certain Scottish Standards and Guidance (including SHTM 03-01) to be met by the SPV, being IHSL. Under the terms of the NPD contract model, the design risk transferred to IHSL, who had to design the & build the facility to meet the Standards and Guidance specified. NHSL retained design responsibility in relation to operational functionality only. Operational functionality was very narrowly defined in the contract and did not include m&e ventilation works. "</u>

1.2	NHSL issued a document called an Environmental Matrix …	Suggest inclusion of the underlined words: "NHSL issued a draft document prepared by m&e engineers, Hulley & Kirkwood, called an Environmental Matrix. The EM was "Disclosed Data" as defined in clause 7 of the Project Agreement (PA), which provides that the Board has no liability to IHSL in respect of any error, omission or defect in the Disclosed Data."
2.5	A room data sheet produced using ADB would comply with the requirements of HTMs because the room data sheet would automatically be populated with environmental parameters – including air changes per hour and pressure requirements - from the database. The database includes detailed informationfor various types of room required for a hospital. As long as the correct room type is selected, the room data sheet will be populated with the parameters set out in HTMs.	Suggest inclusion of the underlined words: "A room data sheet produced using ADB would likely comply with most of the requirements of HTMs in England because the room data sheet would automatically be populated withenvironmental parameters – including air changes per hour and pressure requirements - from the database. The database includes detailed informationfor various types of room required for a hospital. As long as the correct room type is selected, the room data sheet will be populated with the parameters set out in HTMs. However, not all and every room type is provided for on the ADB. For example, there was and is no room type for a single room in critical care on the ADB. NHS Lothian understands that there can be a lag time between publication of HTMs and updates to the ADB (which can be years). In Scotland, in terms of CEL 19 2010, users of ADB have to take "extreme care" to check that the ADB complies with Scottish Guidance. That is because, in Scotland, the ADB is an incomplete database. Accordingly, the ADB in Scotland requires a cross-checking exercise as between the ADB templates and the Scottish Guidance. This cross-checking exercise could lead to transcription errors. It also requires the creation of new template ADB sheets if there is none available (e.g. there is no template for a single room in critical care), which should be informed by the Scottish Guidance."
2.6	An environmental matrix is created by values being manually entered into a spreadsheet. The spreadsheet is not automatically pre-populated with values from a database. Accordingly, an environmental matrix would not automatically comply with published guidance such as HTMs. Such compliance would depend on the robustness of the process adopted for determining the values to be input into the	Suggest inclusion and deletion per the following wording: "An environmental matrix is created by values being manually entered into a spreadsheet, and in Scotland should be done with reference to the relevant Scottish Guidance. While the spreadsheet is not automatically pre-populated with values from a database, ~~Accordingly, an~~ environmental matrix prepared with reference to the relevant Scottish Guidance should ~~would not automatically~~ comply with the published guidance such as SHTMs. Such compliance would depend on the robustness of the process adopted for determining the values to be input into the spreadsheet. If the values to be inputted were determined by the Scottish Guidance, then the Environmental Matrix should comply. NHS Lothian were assured by Hulley & Kirkwood and by MML that the EM would be created with reference to the relevant Scottish Guidance. Accordingly, NHS Lothian

	spreadsheet. There is scope for errors to arise in the creation an environmental matrix. For example, transcription errors.	understood that the EM would comply with the relevant Scottish Guidance. The alternative is to use the ADB as a tool to create RDS. The ADB is an incomplete database. In Scotland, the ADB did not automatically comply with the relevant Scottish Guidance and "extreme care" had to be taken to ensure that it did. Accordingly, Hulley & Kirkwood would have had to cross-check the incomplete ADB with the relevant Scottish Guidance to ensure the RDS were compliant. So, while the EM spreadsheet was not automatically pre-populated with values from an incomplete ADB database, it was to be populated with reference to the Scottish Guidance. There is scope for errors to arise in the creation of both an environmental matrix and the creation of RDS from an incomplete ADB. For example, transcription errors."
2.7	In his report, Mr Maddocks describes room data sheets as "…the most critical design document" when designing a new hospital. In his oral evidence, Mr Maddocks described room data sheets, created using the ADB system, as "best practice". He considered that presenting technical specifications for a hospital in an alternative way, such as by way of a spreadsheet, could "lead to misunderstanding.	NHSL Comment: NHSL agree that RDS are a critical design document. NHSL did not design the RHCYP + DCN. The only aspect of the design which NHSL retained any liability for was the operational functionality of the hospital, which did not include m&e design for the ventilation. NHSL specified that the hospital had to be built to comply with Scottish Design Guidance, including SHTM 03-01 and CEL 19 (2010). IHSL confirmed that their design complied with Scottish Design Guidance at final tender stage. IHSL were appointed to design and build the hospital. IHSL prepared the RDS. It appears that IHSL used the ADB system to create RDS for the hospital. NHSL had to approve the RDS in relation to operational functionality only.
3.1 – 3.5	SG imposed a mandatory requirement on all NHS bodies to use the ADB system, or a suitable equivalent, as the tool for the briefing, design, and commissioning stages of any new hospital project.	NHS Lothian complied with the requirements of CEL 19 (2010). See the NHSL ADB and RDS Narrative.
5.1 – 5.10	**Purposes of the EM**	See NHSL ADB and RDS Narrative.

6.1 – 6.7	**Development of the Environmental Matrix for the RHCYP/DCN Project**	See NHSL ADB and RDS Narrative.
6.7	"Project Clinical Directors"	There was only one Project Clinical Director.
6.9	[Row 1, column 3 of table]	Suggest inclusion of the following underlined wording: [Row 1, column 3]: • <u>"The changes to ACH rates for critical care as between the December 2010 EM (with correct ACH rates for critical care) and the September 2012 EM which contained the error in relation to critical care were never flagged to NHSL by Hulley & Kirkwood, the reference design team or MML."</u>
	[Row 2, column 2 of table]: The bidder's design teams. Bidders were asked to confirm acceptance of NHSL's Environmental Matrix, highlighting any proposed changes on an exception basis.	[Row 2, column 2] "The bidder's design teams. Bidders were asked to confirm acceptance of NHSL's <u>Draft</u> Environmental Matrix, highlighting any proposed changes on an exception basis. <u>Bidders were asked to confirm compliance with Scottish Guidance. Bidders were asked to highlight any derogations from Scottish Guidance.</u>"
	[Row 3, column 2 of table]: IHSL was appointed as preferred bidder. Multiplex were contracted by IHSL for the design, procurement, construction and commissioning of the Works. Wallace Whittle, were the Mechanical and Engineering design consultants to Multiplex. MML provided comments on behalf of the Board. The EM was not approved by NHSL at Financial Close, and was subject to the Reviewable Design Data process.	[Row 3, column 2] "IHSL was appointed as preferred bidder. <u>IHSL confirmed compliance with Scottish Guidance. IHSL did not seek any derogations from Scottish Guidance.</u> Multiplex were contracted by IHSL for the design, procurement, construction and commissioning of the Works. Wallace Whittle, were the Mechanical and Engineering design consultants to Multiplex." "MML provided comments on behalf of the Board. <u>MML did not flag to the Board or provide any comments on behalf of the Board in relation to any non-compliances with air change rates in critical care.</u> The EM was not approved by NHSL at Financial Close, and was subject to the Reviewable Design Data process. "

7.1 – 7.12	**RHSC Project under Frameworks Scotland: 2010**	See the NHSL ADB and RDS Narrative.
7.3	The Project Manager was Fraser McQuarrie from Davis Langdon and the Supervisor was David Stillie of MML. BAM's Mechanical and Electrical Engineering Design consultant was H&K. The healthcare planner was Tribal. Although the contract was only concluded in 2010, work on the project began before the conclusion of the contract.	In the early implementation of Framework Scotland 2, there were a number of developments of the scheme contracts which would have led to a period between selection. The NEC contracts are collaborative and require the supplier and client to work together to develop the programme and deliverables, which are then incorporated into the actual contract. Initially, there was an expectation that this development of the contract would be completed within a six week period, with interim contractual cover provided by letter of appointment, but we did experience a number of extensions to this initial period. Therefore, the final sentence is correct but in suggesting that the work was not under contract provisions is incorrect.
7.9	"Therefore, at the preliminary stages of the project, H&K was aware of the need for HDU and critical care areas to have 10 air changes per hour. "	H&K was always aware of the need for HDU and critical care to have 10 air changes per hour as set out clearly in Guidance Note 14 and thereafter Guidance Note 15 of the EM which referred to HDU bed areas and Critical care areas requiring compliance with SHTM 03-01, appendix 2, 10 ac/hr. The reason for the change introducing the inconsistency/error in the body of the EM is unknown, particularly given the December 2010 version of the EM was correct in relation to critical care ACH. It may simply be human error.
8	**Reference Design development for RHSC – DCN project procured under NPD: 2012**	See NHSL ADB and RDS Narrative See NHSL Paper Apart on MML Scope of Duties
8.2	The change in the method of funding necessitated a change in the structureof the project. Rather than appointing a contractor to design and build the hospital, a project agreement required to be put in place.	Suggest inclusion of the following underlined wording: "The change in the method of funding necessitated a change in the structureof the project. Rather than appointing a contractor to design and build the hospital <u>under the Framework Agreement</u>, a project agreement required to be put in place <u>in which the contractor (IHSL) was appointed to design and build the hospital. The switch to an NPD contract changed the funding mechanism of the build from capital funding from the Scottish Government to private sector funding, but a contractor was still appointed to design and build the hospital.</u>

8.8	The change in funding model occurred at a point where significant design work had already been undertaken. The Inquiry has seen no documentation which suggests that NHSL, or its design team, re-appraised whether an environmental matrix was the correct approach for the revised project when the design team was re-appointed.	NHSL did re-appraise the approach to use an EM - see NHSL ADB and RDS Narrative. Suggest deletion per the following wording: "The change in funding model occurred at a point where significant design work had already been undertaken. The design work undertaken was recorded in the Davis Langdon Design Summary as at end of November 2010 (23 December 2010) ~~The Inquiry has seen no documentation which suggests that NHSL, or its design team, re-appraised whether an environmental matrix was the correct approach for the revised project when the design team was re-appointed."~~
8.14	For rooms in various departments in the hospital, it is not clear how a 'Room Function' was chosen from the RFRS. In particular, it is not clear to the Inquiry Team if this was a decision taken by an engineer acting in isolation or whether there was clinical input into this decision. This is relevant because there are various 'Room Functions' whereby the creator could face a range of options. For example, area B1 is given the department name 'PICU and HDU's – 24 Beds'. It is an area where critical care will be provided. There are a range of department sub-groups and room names in the EM for B1. One room names is 'Open Plan Bay (4 beds)'. The 'Room Function' of 'Multibed wards' is set out in the EM. It is not clear to the Inquiry Team why this 'Room Function' was chosen rather than 'HDU'. It is a general ward but it is a general ward in a critical care area.	NHS Lothian do not recall providing any input (clinical or otherwise) in to this decision by the engineer to include an RFRS. NHSL's position is that all rooms within critical care (either multi-bedded bays or single rooms) are subject to the requirements listed for "critical care" in SHTM 03-01 given they are located within a critical care area. This was not the approach taken by IHSL, who treated the multi-bedded bays and single rooms located in critical care as if they were subject to the lower standard of SHTM requirements for "single rooms" or "general wards".
8.22	It is not clear why values were inserted	See NHSL Paper Apart on MML Scope of Duties.

	into the EM which did not conform to the statements made in the Guidance Notes. This issue will need to be explored with witnesses at the April 2023 hearings diet.	
9	**Ensuring compliance with SHTM 03-01**	
9.1 – 9.6	General Comment	See NHSL response to PPP1. Responsibility for the Reference Design was passed to the Technical Advisory Team when the Reference Design Team left the project. MML stated in the Approach to Reference Design paper that The Technical Advisory Team *"must be in a position to adopt full ownership of the Reference Design prior to the departure of the Reference Design Team."* MML also had obligations to ensure compliance as between the reference design and the BCRs.
10	**The Environmental Matrix during Competitive Dialogue**	
10.17	Clinical Output Based Specifications were also included within the ITPD Volume 3 (Board's Construction Requirements), Schedule Part 6, Section 3, Sub-Section D (Specific Clinical Requirements). The Inquiry Team understands that these seek to describe the clinical requirements for differentparts of the hospital. …… • All PICU and HDU bed spaces are required to be of the same specification to allow greatest flexibility of use.	Suggest insertion of the following underlined wording: "Clinical Output Based Specifications were also included within the ITPD Volume 3 (Board's Construction Requirements), Schedule Part 6, Section 3, Sub-Section D (Specific Clinical Requirements). The Inquiry Team understands that these seek to describe the clinical requirements and operational functionality requirements for different parts of the hospital. This is the only element of the design for which NHSL retained in responsibility. The COS were reviewed by Capita (healthcare planners) and MML for compliance with NHS Guidance for the technical/engineering perspective (i.e. matters not relating to operational functionality) and changes made. A workshop was held with the TAs, Project Team and other Key stakeholders to ensure that there was consistency across the ITPD documentation[2]. …….. • All PICU and HDU bed spaces are required to be of the same specification to allow greatest flexibility of use.

[2] See the Project Board Paper: Clinical Output Specifications Development and Approvals Process

		NHSL position is that this final bullet point is of key importance. It aligns with SHTM 03-01 to the extent that all rooms within critical care (either multi-bedded bays or single rooms) should have been subject to the requirements listed for "critical care" in SHTM 03-01 given they are located within a critical care area. This was not the approach taken by IHSL, who treated all "multi-bedded bays" and all "single rooms" in the same way (i.e. requiring 4 ACH mechanical and 2 ACH natural), regardless of the fact that the rooms were in fact located in critical care and therefore required 10 ACH.
10.19	The ITPD was issued to bidders on 11 March 2013, marking the start of competitive dialogue, which lasted until 13 December 2013 when bidders were invited to submit their final tender. By the time that the ITPD was issued, SHTM 2025 had been superseded by SHTM 03-01.	1.1.1 Suggest inclusion of the following: "The ITPD was issued to bidders on 11 March 2013, marking the start of competitive dialogue, which lasted until 13 December 2013 when bidders were invited to submit their final tender. By the time that the ITPD was issued, SHTM 2025 had been superseded by SHTM 03-01. Paragraph 2.5 (a) (i) (2) of the (*Hierarchy of Standards)* of the Board's Construction Requirements provide that where there are contradictory standards or advice apparent in the BCRs then the most recent standard/advice shall take precedence. Accordingly, SHTM 03-01 (included as a requirement at para 2.3 of the BCRs) would take precedence. "
10.21	"M&E Engineering was discussed at Dialogue Meeting 2, which was held in May."	Suggest inclusion and deletion per the following wording: "M&E Engineering was discussed at Dialogue Meetings 2, 4D, 5 and 6 which ~~was~~ were held between ~~in~~ May 2012 and November 2013 and other issues in relation to critical care, operational functionality, compliance and the need for IHSL to produce a complete derogation register were discussed at meetings 1, 2, 4A, 4B, 4C, 4D, 5, 5A and 6. There was ongoing discussion to the extent that IHSL should not assume that reference design related derogations were already accepted. NHS Lothian do not accept that the EM was mandatory and, as such, do not accept it was a "derogation". However, even if the EM was perceived to be a derogation, it was clearly communicated by NHSL to IHSL throughout competitive dialogue that the onus was on them to flag any derogations within the appropriate Schedule of Derogations in C30. No derogation in relation to critical care ventilation, specifically the requirements of SHTM 03-01, was ever sought by IHSL." Please see NHSL Chronological Table of clinical input in to the Reference Design, in particular pages 7 – 13 which detail discussions with IHSL during competitive dialogue.

11	**The Environmental Matrix at Final Tender Stage**	
11.9	Draft Room data sheets were produced by IHSL in October 2013…… It is not clear to the Inquiry Team if these were submitted along with the final tender .	The IHSL Draft Room Data sheets dated October 2013 were submitted by IHSL at final tender.
11.10	Suggest new paragraph	"At the NHSL F&R Committee meeting on 5 March 2014, which was convened in order to close competitive dialogue and appoint a preferred bidder, Mr Cantlay, representing MML, advised the committee that: *"he was happy with the evaluation and satisfied that the preferred bidder was in full accordance with the requirements."*
12	**The Environmental Matrix in the period from the Appointment of the Preferred Bidder to Financial Close**	
12.1	"However, the requirement for a full set of room data sheets to be produced by financial close was waived by NHSL and the EM came to be included as reviewable design data within the contract. The reasons for this decision being taken will require to be explored with witnesses"	Suggest inclusion of the following underlined wording: "However, the requirement for a full set of room data sheets to be produced by financial close was waived by NHSL. It was agreed IHSL had to produce a set of RDS for the key and generic rooms at FC, which included RDS for critical care. The EM and the RDS were unapproved at Financial Close due to known non-compliances and, as such, came to be included as reviewable design data within the contract. The reasons for this decision being taken will require to be explored with witnesses at the hearing in April 2023. NHS Lothian's understanding at the time was that IHSL were concerned about how much design work it was required to undertake before FC and reached a point where, effectively, they refused to do any more. The Project Director had concerns more generally that IHSL's programme (or lack thereof) to FC was slipping and highlighted those concerns to the Finance Director, who escalated it to the NHSL Non-Executive Director. This escalation resulted in a meeting of a "Special Steering Board" on 22 August 2014 and a "Commercial Sub-Group of the Steering Board" on 31 October 2014 and 21 November 2014. The meetings included representation from NHSL, IHSL, SFT and the Scottish Government (other than the 31 October meeting where SG made apologies). Ultimately, it was

		agreed that IHSL had done enough to satisfy the Board's operational functionality requirements and that the RDD was an appropriate contractual mechanism by which NHSL could approve IHSL' ongoing design without accepting risk."
12.10	Table	Single cot cubicles do have en-suite.
12.3	"Liane Edwards of MML"	"Lianne Edwards of ~~MML~~ Multiplex"
12.15	On 14 October 2014, MML sent Multiplex a copy of NHSL's technical comments on the draft environmental matrix.	Suggest inclusion and deletion per the following wording: MML reviewed IHSL's draft EM and prepared technical comments on behalf of "the Board". On 14 October 2014, MML sent Multiplex a copy of the ~~NHSL's~~ technical comments MML prepared on behalf of the Board on the draft environmental matrix.
12.17	"No issues were raised by NHSL in relation to the values set out in the EM for critical care areas."	Suggest inclusion of the following underlined wording: "No issues were raised by MML, IHSL or NHSL in relation to the values set out in the EM for critical care areas."
12.19	"These comments show that NHSL had highlighted to IHSL potential inconsistencies between the EM and":	Suggest inclusion of the following underlined wording: "These comments show that MML on behalf of NHSL had highlighted to IHSL potential inconsistencies between the EM and":
12.20	"The comments also indicate a difference of opinion between NHSL and IHSL on the correct interpretation of NHSL's published requirements"	Suggest inclusion of the following underlined wording: "The comments also indicate a difference of opinion between MML, NHSL and IHSL on the correct interpretation of NHSL's published requirements"
12.22	The Inquiry Team notes that by financial close, room data sheets should have been prepared for all spaces in the hospital. It is not therefore clear why the EM would still be required at financial close. It is not clear when a decision was taken to dispense with the requirement for all room data sheets to be completed by financial close or why this decision was taken.	See comments at 12.1.

12.49	The Inquiry Team understands that the issues outlined above were not definitively resolved before NHSL entered into a contract with IHSL in February 2015. It is not clear to the Inquiry Team why NHSL were prepared to enter into the contract when such issues remained unresolved. This issue will require to be explored with witnesses at the hearing in April 2023.	The issue was resolved in that it became subject to the contractual mechanism necessary for further design development, i.e. the RDD process.
12.51	At Financial Close, the EM was included in the Project Agreement as one of 'Project Co's Proposals'. This iteration again contained two room function reference sheets.	Suggest inclusion of the following underlined wording: "At Financial Close, the EM was included in the Project Agreement as one of 'Project Co's Proposals'. This iteration <u>again contained at Guidance Note 14/15 the requirement for critical care and HDU areas to comply with SHTM 03-01, appendix 2, 10 ACH. The EM was not entirely inaccurate, rather it was inconsistent. It also again</u> contained two room function reference sheets."
12.60	It is not clear to the Inquiry Team how these discrepancies could have arisen if room data sheets, showing room environmental data, were produced using ADB. The procedure for the creation of IHSL's room data sheets will require to be explored with witnesses at the hearing diet in April 2023, In particular, whether room data sheets were produced to comply with the values set out inthe EM rather than published guidance and, if so, why this procedure was adopted and why it was deemed acceptable by NHSL.	See the NHSL RDS and ADB narrative. It is reasonable to assume that IHSL used the ADB and also referred to the Scottish Design Guidance as required. Any changes to the template ADB (e.g. reducing the air changes from 10 to 4) would have to be entered manually by the creator of the RDS. This should have prompted IHSL to flag the inconsistency between the EM, the ADB and the Scottish Design Guidance with NHSL so that NHSL could determine which standard should apply - all as required under paragraph 2.5 of the Project Agreement.
12.69	Schedule Part 8 Paragraph 4 outlines the meaning of the different "levels" allocated	Board review and approval was only ever in relation to operational functionality. See Schedule part 8, Appendix 1, Table A which clarifies that, in relation to a Level A or

	to Reviewable Design Data reviewed by the Board. These are set out in the table below:	Level B endorsement of any room data sheet: *"means that Project Co may proceed to construct in accordance with the Submitted item and that the Board is satisfied that the design and other information in the relevant room data sheet states Operational Functionality".*
12.73	By Financial Close, the EM was not obsolete. It was included as part of the contract between NHSL and IHSL. The EM had undergone various stages of development and review. Further development of the EM and room data sheets was still required, and would take place through the Reviewable Design Data process.	Suggest inclusion of the following underlined wording: "By Financial Close, the EM was not obsolete. It was included as part of the contract between NHSL and IHSL. The EM had undergone various stages ofdevelopment and review. Further development of the EM and room data sheets was still required, and would take place through the Reviewable Design Data process. Further to advice from MML, NHSL made a number of general comments about IHSL's EM at FC, including general comments about the inconsistency of the EM with NHSL's Requirements. However, despite contractual obligations to do so, MML did not inform NHSL about the inconsistencies between the EM and SHTM 03-01 in relation to ACH in single bedrooms in critical care or multi-bed rooms in critical care either prior to or at ITPD, during competitive dialogue, the appointment of preferred bidder, at FC or for the duration of the Project."
13	**Provisional Conclusions**	For the avoidance of doubt, NHSL does not accept the provisional conclusions of the Inquiry. See NHSL ADB and RDS Narrative and other documents provided.
13.1.3	Room data sheets produced using ADB automatically comply with guidance and legislation applicable in England.	See NHSL ADB and RDS narrative. Not all and every room type is on ADB and some rooms will have to be manually created. NHS Lothian understands there can be considerable lag between the HTM release and ADB update (which can be years). Alternatives to ADB include Codebook and individual architects' bespoke systems. There is a new / alternative initiative to ADB called "repeatable rooms". It is understood that, given some of the difficulties encountered with ADB, a number of NHS Trusts in England are now moving away from the use of ADB to the "repeatable rooms" imitative as the base data for populating RDS.
13.1.4	An NHS Scotland body utilising ADB would need to ensure compliance with Scottish guidance, including SHTMs.	Suggest inclusion of the following underlined wording: "An NHS Scotland body utilising ADB would need to ensure compliance with Scottish guidance, including SHTMs. This is because the ADB does not automatically comply with Scottish Guidance and is an incomplete database."

13.1.5	NHSL did not use ADB as a tool for the briefing stage of the RHCYP/DCN project.	Suggest inclusion and deletion of wording per the following "NHSL did ~~not~~ use ADB as a tool for the briefing stage of the RHCYP/DCN project. During the capital phase of the project, NHSL provided an RHSC ADB database to its PSCP, BAM. There was agreement at a design team meeting on 22 June 2010 that the best approach in relation to the review of the ADB was to separate (i) the m&e information from (ii) the clinical activities and equipment information. It was agreed that MML, H&K and NHS Lothian were to review the ADB sheets re the environmental data. The EM was the document used to capture the developing m&e design. H&K's position was that it would be an "easier reference tool" for user sign off. NA demonstrated how the use of codebook excel reports could potentially save a huge amount of time & resource but were of equal quality and value. Once the review process was complete, NA were to generate a full set of ADB information which would form part of the stage 4 contract (note: Stage 4 of the contract was not reached prior to the switch to an NPD project). This meeting and the outcome from it provided comfort to NHS Lothian that the requirements of CEL 19 2010 were being met. Following the switch to NPD, the design team remained the same with Mott Macdonald (MML), Davis Langdon, H&K and NA all remaining involved. The environmental data for the rooms continued to be developed by H&K in the form of the draft EM. Given the terms of the recent 22 June 2010 meeting and the retention of the design team, there was no obvious reason for a reappraisal of the utility of using the draft environmental matrix. However, NHSL did seek confirmation from its advisors as to how the EM was to feed in to the RDS.
13.1.6	An 'environmental matrix' was utilised as part of the procedure for NHSL to brief prospective tenderers on its technical requirements for the ventilation system.	Suggest inclusion of the following underlined wording" "An 'environmental matrix' was utilised as part of the procedure for NHSL to brief prospective tenderers on its technical requirements for the ventilation system. The EM was in draft form and was provided as disclosable data. NHSL did not warrant the accuracy of the information contained in the draft EM. It was for IHSL's design team to verify its accuracy and highlight any changes to NHSL. The ITPD and Project Agreement made it clear that the design responsibility, other than for "operational functionality", passed to the successful bidder, IHSL."
13.1.8	The Inquiry has seen no documentation	Suggest deletion of the following wording: ~~The Inquiry has seen no documentation~~

	demonstrating: (i) why NHSLdetermined to deviate from using ADB as a briefing tool; and (ii) why it considered that the alternative approach that it adopted was of equal quality and value to ADB.	~~demonstrating: (i) why NHSLdetermined to deviate from using ADB as a briefing tool; and (ii) why it considered that the alternative approach that it adopted was of equal quality~~ ~~and value to ADB.~~ See documentation provided with NHSL RDS and ADB database narrative.
13.1.9	The ITPD informed prospective tenderers that the preferred bidder required to prepare room data sheets for every room in the hospital by financial close. Therefore, the environmental matrix should have been obsolete by Financial Close as a briefing and design tool.	Suggest inclusion of the following wording: The ITPD informed prospective tenderers that the preferred bidder ~~required~~ to prepare room data sheets for every room in the hospital by financial close. Therefore, NHSL's environmental matrix was ~~should have been~~ obsolete by Financial Close as a briefing and design tool. The draft EM provided with the ITPD was "for information only". Project Co were to produce its own EM by FC. IHSL's EM was not agreed or approved at FC and so became subject to the RDD process.
13.1.10 – 13.1.14		H&K should be asked as to the source of its figures for the EM and whether this was with reference to the Scottish guidance as NHSL were advised.
13.1.15	H&K stated to MML on 16 March 2012 that the Reference Design –which included the environmental matrix– complied with published guidance (including SHTM 03-01).	Suggest the inclusion of the following underlined wording: "H&K stated to MML on 16 March 2012 that the Reference Design –which included the environmental matrix– complied with published guidance (including SHTM 03-01). This is in line with the Guidance Notes of the EM, which required that all critical care and HDU areas complied with SHTM 03-01, appendix 2, 10 ACH."
13.1.17 –	The 16 March 2012 confirmation was the only occasion, prior to the conclusion of the contract with the preferred bidder, where 'environmental information' set out in the Reference Design concerning the proposed ventilation system for the hospital – including air changes per hour and pressure regimes - was formally reviewed and signed-off for compliance with	See NHSL Paper Apart re the scope of MML Obligations as Technical Advisors. Suggest the inclusion of the following underlined wording: "The 16 March 2012 confirmation was the only occasion, prior to the conclusion of the contract with the preferred bidder, where 'environmental information' set out in the Reference Design concerning the proposed ventilation system for the hospital – including air changes per hour and pressure regimes - was formally reviewed and signed-off for compliance with published healthcare guidance (including SHTM 03-01) advisors. However, NHSL had appropriate appointments in place throughout the duration of the project to ensure that there was ongoing review of the design and compliance with published healthcare

	published healthcare guidance (including SHTM 03-01).	guidance. MML's Appointment as Technical Advisors to NHSL included the following obligation: *"[MML to] Check Reference Design for compliance with all appropriate NHSL and legislative guidelines and requirements (lists as pre-agreed with NHSL) and identify any derogations."* See Paper Apart on scope of MML obligations as Technical Advisor. Furthermore, it is not understood what is meant by "formally reviewed" (in PPP1, the language is "officially reviewed"). Compliance with healthcare guidance was part of the BCRs and was a matter for Project Co. There was no contractual, regulatory, statutory or other "official"/ "formal" need for there to have been any review or sign-off of the environmental information.
13.1.18	The environmental matrix provided with the ITPD contained environmental information that was inconsistent with the guidance set out in SHTM 03-01. In particular, values inserted in the environmental matrix for certain critical care areas did not comply with the guidance in SHTM 03-01.	Suggest inclusion of the following underlined wording: "The environmental matrix provided with the ITPD contained environmental information that was inconsistent with the guidance set out in SHTM 03-01. In line with their obligations as Technical Advisors to NHSL, MML were checking the reference design and the EM for compliance with legislative guidance and picked up a number of errors and inconsistencies which it flagged to NHSL and were ultimately resolved. However, MML did not identify every error and inconsistency, in particular, MML did not identify that the values inserted in the environmental matrix for certain critical care areas did not comply with the guidance in SHTM 03-01." See Paper Apart on scope of MML obligations as Technical Advisor.
13.1.19	The environmental matrix provided with the ITPD contained environmental information that contradicted certain values in the environmental matrix itself in relation to critical care areas.	Suggest inclusion of the following underlined wording: "The environmental matrix provided with the ITPD contained environmental information that contradicted certain values in the environmental matrix itself in relation to critical care areas. In line with their obligations as Technical Advisors to NHSL, MML were checking the reference design and the EM for compliance with legislative guidance and picked up a number of errors and inconsistencies which it flagged to NHSL and were resolved. However, MML did not identify the inconsistency in the EM itself in relation to critical care areas. In terms of paragraph 2.5 of the Project Agreement, IHSL had obligation to flag any inconsistencies to NHSL, and failed to do so in this regard."

		See Paper Apart on scope of MML obligations as Technical Advisor.
13.1.22 – 13.2.23	RE "Room Function"	HDU and Critical Care have the same environmental requirements. This is clearly set out in NHSL's COS B1 for critical care. All beds (multi-bedded bay or single beds) within critical care and HDU should have been designed in accordance with SHTM 03-01 and had 10ACH, as expressly stated in in Guidance Note 15 of the EM.
13.1.25	There was a lack of clarity in the procurement documents in relation to: (i) the purpose of the environmental matrix; and (ii) whether compliance with the environmental matrix was mandatory.	NHS Lothian's position is that it was clear compliance with the Scottish Guidance was mandatory and that if there were any inconsistencies with Scottish Design Guidance, then the onus was on IHSL to flag it to NHSL. In addition, during competitive dialogue, M&E Engineering was discussed at Meetings 2, 4D, 5 and 6 which ~~-~~were held between ~~in~~ May 2012 and November 2013 and other issues in relation to critical care, operational functionality, compliance and the need for IHSL to produce a complete derogation register were discussed at meetings 1, 2, 4A, 4B, 4C, 4D, 5, 5A and 6. There was ongoing discussion to the extent that IHSL should not assume that reference design related derogations were already accepted. NHS Lothian do not accept that the EM was mandatory and, as such, do not accept it was a "derogation". However, even if the EM was perceived to be a derogation, it was clearly communicated by NHSL to IHSL throughout competitive dialogue that the onus was on them to flag any derogations within the appropriate Schedule of Derogations in C30. No derogation in relation to critical care ventilation, specifically the requirements of SHTM 03-01, was ever sought by IHSL. Please see NHSL Chronological Table of clinical input in to the Reference Design, in particular pages 7 – 13 which detail discussions with IHSL during competitive dialogue.
13.1.28	Both IHSL and Bidder C were assessed by NHSL as having submitted compliant tenders. This assessment was made notwithstanding the fact that IHSL and Bidder C were offering to provide different technical requirements in terms of the environmental matrices submitted.	See comments in the General Response to PPPs Paper to the effect that assessment of a tender a compliant did not require a line-by-line analysis of the technical specifications of the tenders. It should also be noted that, at the NHSL F&R Committee meeting on 9 February 2015, which was convened in order to close competitive dialogue and appoint a preferred bidder, Mr Cantlay, representing MML, advised the committee that: *"he was happy with the evaluation and satisfied that the preferred bidder was in full accordance with the*

		requirements." See Paper Apart on scope of MML obligations as Technical Advisor.
13.1.35	No issue was raised by NHSL in relation to environmental information in IHSL's room data sheets for critical care areas in the period prior to conclusion of the contract.	Suggest the insertion of the following underlined wording: "No issue was raised by IHSL or MML to NHSL in relation to environmental information in IHSL's room data sheets for critical care areas in the period prior to conclusion of the contract. However, the RDS were unapproved at FC and subject to RDD on the basis of other known non-compliances. In terms of Schedule 8 Part 8, Appendix 1, Table A of the Project Agreement, NHSL subsequent approval of RDS only ever related to operational functionality. In terms of MML's appointment as Technical Advisor, it had obligations to: (i) Participate in final negotiations, along with the NHSL team and Legal and Financial Advisors, to achieve contract award and financial close; (ii) Assist in the production of a comprehensive and final version of the Contract Documents taking into account of the discussions, correspondence, and negotiations with the tenderers, preferred bidder and reserve preferred bidder and their respective lenders; (iii) Coordinate technical inputs to achieve Financial Close; and (iv) Provide necessary input to D&C, FM and Paymech elements of Financial Close including initial RDD process."
13.1.36	In October 2014, environmental information for single bedrooms within IHSL's environmental matrix was identified by the Board of NHSL as potentially non-compliant with SHTM03-01.	Suggest the insertion of the following underlined wording: "In October 2014, environmental information for single bedrooms (not in critical care) within IHSL's environmental matrix was identified by the Board of NHSL as potentially non-compliant with SHTM 03-01."
13.1.41	Notwithstanding this disconnect between what the Board of NHSL wished and the solution being offered by IHSL, NHSL did not insist on any changes being made to IHSL's tender (including the environmental matrixsubmitted by IHSL) before a contract was signed.	Suggest the inclusion of the following wording: "Notwithstanding this disconnect between what the Board of NHSL wished and the solution being offered by IHSL, NHSL did not insist on any changes being made to IHSL's tender (including the environmental matrixsubmitted by IHSL) before a contract was signed. IHSL's EM was unapproved at FC and became subject to the RDD process. In relation to the RDD process, MML had obligations as Technical Advisors to NHSL to: (i) Provide necessary input to D&C, FM and Paymech elements of Financial Close including initial RDD process and (ii)

		Management of Reviewable Design Data (RDD) process on behalf of Authority including progress reporting, attendance at workshops, administration and stakeholder input.
13.1.42	NHSL agreed to waive the requirement for the preferred bidder to produce room data sheets for every space in the hospital by Financial Close.	Suggest inclusion of the following underlined wording: "NHSL agreed to waive the requirement for the preferred bidder to produce room data sheets for every space in the hospital by Financial Close. Instead, it was agreed IHSL had to produce a set of RDS for the key and generic rooms at FC, which included critical care. The EM and the RDS were unapproved at Financial Close due to known non-compliances and, as such, came to be included as reviewable design data within the contract. NHS Lothian's understanding at the time was that IHSL were concerned about how much design work it was required to undertake before FC and reached a point where, effectively, they refused to do any more. Ultimately, following appropriate escalation of matters to SFT and SG level, it was agreed that IHSL had done enough to satisfy the Board's operational functionality requirements and that the RDD was an appropriate contractual mechanism by which NHSL could approve IHSL' ongoing design without accepting risk."

Appendix 3 – Procurement Process

The SHI have issued a Provisional Position Paper 3: "The Procurement Process for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences, Volume 1: The Period up to the Close of Competitive Dialogue" (PPP3 vol 1) and Provisional Position Paper 3: "The Procurement Process for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences, Volume 2: The Period from Close of Competitive Dialogue to the Award of the Contract" (PPP3 vol 2). (together referred to as 'PPP3')

There are aspects of PPP3 that NHS Lothian does not accept. The table below provides NHS Lothian's comments on PPP3. The table should be read in conjunction with the following documents and is subject to witness statements and oral evidence.

- NHS Lothian's General Response to the PPPs paper
- NHSL's responses to Provisional Position Paper 1: "The Reference Design utilised for the Royal Hospital for Children and Young People and Department for Clinical Neurosciences" (PPP1)
- NHSL's response to Provisional Position Paper 2: "The Environmental Matrix for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences" (PPP2)
- NHSL's response to the draft Research Paper: "Procurement Process for the RHSC/DCN Re-provision Project"
- NHS Lothian's Paper Apart: Mott MacDonald Ltd Appointment as Technical Advisors to NHS Lothian (19 August 2022)
- NHS Lothian's response to the questions contained within the draft Research Paper: "Comparison across versions of the Environmental Matrix in relation to SHTM 03-01 up to Financial Close"
- NHS Lothian's narrative on the ADB and RDS
- NHS Lothian's narrative on Operational Functionality
- NHS Lothian's response to RFI 2
- NHS Lothian's Chronological Table of clinical input in to the design
- NHS Lothian's Changes to Procurement Timetable Timeline
- NHS Lothian's Evaluation Criteria Timeline

Para Number	Text	Comment/Clarification/Suggested Revisal
Volume 1		
1.1 (v)	invited the submission of final tenders on 16 December 2012 by issuing a letter to bidders along with a document entitled	Date of invitation to submit final tenders was 16 December **2013**

	'Invitation to Submit Final Tenders' (ISFT) volumes 1 to 3	
1.1 (viii)		Should precede 1.1 (vii)
2.	**Legal Principles**	General Comment: The procurement was subject to commercial pressures, including making the project "attractive" to the market place (construction, finance, FM) which influenced the approach to the documentation publicly issued. There were not a lot of prior interests noted. Commercial/NPD background A specialist unit was set up in the Scottish Office in 2005 to handle PFI projects. In November 2014 the Scottish Government announced a £409m public-private funding package which would be funded through a non-profit distributing model (NPD) which would cap private sector returns, returning any surplus to the public sector. The RHCYP + DCN formed part of that package. Off Balance Sheet EU member states were required to keep public debt below a certain threshold, and PFI (or NPD in Scotland) was a mechanism to take debt off the government balance sheet. PFI liabilities did not count towards the national debt and government departments could also keep PFI spending off their own individual budgets. Risk Transfer The reason why PFI debts are off-balance-sheet is that the government authority taking out the PFI transfers one or more of the following risks to the private sector: risk associated with demand for the facility (e.g. under-utilisation); risk associated with the design and construction of the facility (e.g. overspend and delay); or risk associated with the 'availability' of the facility.

		The involvement of private finance in taking on performance risk is crucial to the benefits offered by PFI, incentivising projects to be completed on time and on budget, and to take into account the whole of life costs of an asset in design and construction. Risk transfer is therefore the key justification for PFI because PFI would not be worth undertaking without substantial risk-taking by the private sector.
2.15	Payment of expenses	NHSL's recollection is that the position on payment of expenses was a condition of SFT NPD programme
3.	**Roles in the Project**	General Comment: NHS in Scotland was established via National Health Services (Scotland) Act 1978 ('NHS Act') which places a duty on the 'secretary of state' to deliver health services across Scotland. The Secretary of State discharges (or delegates) this duty by way of the function orders to the territorial health boards (The Functions of Health Boards (Scotland) Order 1991 'Functions Order') or by Scottish Government Direction (Section 2(5) of the NHS Act). For example, the duty to provide hospital accommodation is under section 36 of the NHS Act and is delated to Health Board via the Functions Order under paragraph 4(c). Section 2(5) of the NHS Act states that in exercising any function otherwise conferred on Health Boards by the NHS Act each Health Board shall act subject to, and in accordance with, such regulations as may be made, and such directions as may be given, by the Secretary of State; and such regulations and directions may be made or given generally or to meet the circumstances of a particular area or matter. A direction can be made by way of Scottish Government Letter or via guidance found in CELs, HDLs and MELs. For completeness, Health Boards were set up by the National Health Service (Constitution of Health Boards) (Scotland) Order 1974 (as amended). Health Boards do not have the power to borrow under the NHS Act but the National Health Services (Private Finance) Act 1997 sets out that Health Boards in Scotland

		can enter into 'externally financed development agreements' with the approval of SG. Under section 1(3), the secretary of state can issue a certificate (known as a 1997 Certificate) if: (a)in his opinion the purpose or main purpose of the agreement is the provision of facilities in connection with the discharge by the Board or (b)a person proposes to make a loan to, or provide any other form of finance for, another party in connection with the agreement. For the RHCYP/DCN Project a 1997 Certificate was issued by SG (signed by signed by John Mathieson, then Finance Director at SG Health). This was a Completion Document in terms of the Project Agreement and NHSL were required to deliver the signed certificate before the Project Agreement could be entered into. At paragraph 8.8 on page 29 of the SCIM Guidance on PPP (part 2) states the following: 'Contract award 8.8 Once the NHS Scotland body and the Scottish Government are happy with the pre-contract review, the NHS Scotland body can proceed to financial close. SGHD will issue an Externally Financed Development Agreement (EFDA) Certificate (see Appendix 5 for a sample EFDA). The NHS Scotland body should prepare a draft based on this sample and submit to PFCU for authorisation. As timing is crucial, liaison with PFCU should take place as soon as a date for financial close is known. Once the contract has been awarded, the NHS Scotland body must despatch a contract award notice to OJEU within 48 days. 8.9 A pre-Financial Close Key Stage Review must be completed as part of this process.' Therefore, in order for the Project Agreement to be entered into by NHSL, SG had to provide approval via CIG and the Final Business Case and also provide the 1997 Certificate. Furthermore, SFT had to approve the pre-Financial Close KSR.

		Additionally, NHS Lothian also had to follow its own internal governance procedures. NHS Lothian may be the legal entity who entered into the Project Agreement but it is did so with the approval (and arguably the backing) of SG and SFT. If the approvals were not forthcoming NHS Lothian would not have been able to enter into the Project Agreement.
3.2	Change in Project Owner	The Project Owners changed from Jackie Sansbury to Susan Goldsmith on 30 June 2012 until Financial Close (13/14 Feb 2015) then Jim Crombie until end of June 2019.
3.6	Mott MacDonald appointment	See NHS Lothian's Paper Apart: Mott MacDonald Ltd Appointment as Technical Advisors to NHSL (19 August 2022).
3.7	'MML's previous involvement in the project was a key reason for their re-appointment for the role'	MML previous involvement in the project was one of the reasons for their appointment. Additionally, their recent track record on Forth Valley health PPP and Richard Cantlay's direct experience were important factors.
3.8	Project interface role	From NHSL this was Neil McLellan and Graham Gilles.
3.14	'It approved the business cases and provided the funding for the RHCYP/DCN Project.'	SG provided funding in terms of unitary charge payments and non NPD costs (enabling works and equipment). All other project funding was provided by way of Junior and Senior Debt though the NPD project structure.
3.15		SCIM is for ALL projects involving capital, with a section on those to be procured through a PPP funding model.
3.17		NHSL made operational decisions in relation to the project, within the confines of NPD programme requirements and the powers of the Health Board. All implications (funding and operational) on the NPD programme or governance had to be referred to/consulted on by SFT/SG. Many of these issues were tacitly or explicitly signed off at the Project Steering Board with SFT/SG representative in attendance.
3.20	HFS was asked to comment on an Independent Design Review commissioned by SFT	Question to SHI: Who asked HFS to review the Independent Design Review?

3.20	The Inquiry Team understands that HFS was not called upon to advise on, or review, technical information relating to the ventilation system for the RHCYP/ DCN prior to a preferred bidder being identified by NHSL	This was the role of the Technical Adviser (see NHSL paper on MML scope of obligations as Technical Advisor). However, HFS were called upon by NHSL to advise on the required pressure in single rooms during the preferred bidder phase.
4.	**Project Oversight and Assurance**	
4.4	Role of SFT	In NHSL experience, Donna Stevenson of SFT provided advice and assurance through the KSR process. Andrew Bruce of SFT also provided financial advice.
4.5 (vi)	SFT document titled 'Project Assurance', May 2013	It is important to note the timing of this document relative to the stages of the procurement programme for RHSC/ DCN.
4.6	KSR	Donna Stevenson was involved with the Project and SFT Primary Reviewer of KSR. Tony Rose was not involved in the Project and was SFT Secondary Reviewer. Tony Rose also became the Public Interest Director on Project Co (IHSL).
4.7	Escalation beyond SFT	NHSL did escalate issues beyond SFT where required, e.g. the Commercial Sub-Group Meetings of the Steering Board set up to address the concerns NHSL had in relation to the delays to FC in light of continued slippages to the IHSL programme, including a failure to produce all RDS by FC (see NHSL response to PPP1, PPP2 and the ADB and RDS narrative in particular).
4.8	"KSRs are the point at which issues or risks could be flagged and highlighted"	KSRs were not the only point where issues or risk could be flagged and highlighted. Risk registers were kept by MML and NHSL. Issues/Risks were raised at meetings of the Project Steering Board (representatives from both SFT and SG attended the PSB) and at meetings of the Finance and Resources Committee.
6.	**Preparation for Procurement**	
6.2	Core Evaluation Team	This was the approach adopted by NHSL as set out in the procurement documentation. It is not a general requirement of the competitive dialogue process.
6.3.2	SFT carried out programme level market sounding	At the time, SFT did not share this information with NHSL.

		Question for SHI: Who asked the principal question?
6.4.1	The Reference Design essentially involved providing bidders with a more detailed design that would otherwise be the case with an exemplar design.	See response to PPP1. Suggest that it should be clarified that there had to be a greater level of prescription and fixity beyond an exemplar design because the RHCYP/DCN had to be adjoined to the existing RIE at Little France. The RIE was an existing Private Finance Initiative (PFI) site runby Consort Healthcare Ltd (Consort). NHSL and Consort had to agree and resolve issues such as (i) the interface between RHCYP/DCN with the RIE, and (ii) access/egress to RIE. In addition, a reference design is not a fixed design solution but rather one potential diagrammatic representation of the Board's Operational Functionality requirements and fixed physical constraints as a result of a Supplemental Agreement (SA6) agreed with Consort Healthcare – neighbouring PFI operator on the RIE.
6.4.2	Appointment of H&K	H&K were sub contracted by MML at NPD stage. H&K were directly appointed by BAM during capital appointment i.e. not subcontracted by MML.
6.4.4	Suggest additional paragraph re discussion of derogations during competitive dialogue.	See NHS Lothian's response to PPP1 and PPP2. During Competitive Dialogue, there was ongoing discussion to the effect that IHSL should not assume that reference design related derogations were already accepted. NHSL does not accept that the EM was mandatory and, as such, does not accept it was a "derogation". However, even if the EM was perceived to be mandatory and/or a derogation, it was clearly communicated by NHSL to IHSL throughout competitive dialogue that the onus was on them to flag any derogations within the appropriate Schedule of Derogations in C30. No derogation in relation to critical care ventilation, specifically the requirements of SHTM 03-01, was ever sought by IHSL. Please see NHSL Chronological Table of clinical input into the Reference Design, in particular pages 7 – 13 which detail relevant discussions with IHSL during competitive dialogue.
6.6.1	The Inquiry Team's understanding is that bidders would be expected to focus time and resources on elements that, firstly,	Section 5.6 of the ITPD sets out the Quality Evaluation Criteria. It was for Bidders to determine how best to use its resources in completing its tender return.

	have a pass or fail scoring and secondly, carry the highest weightings.	
6.6.5		Also include Richard Cantlay from MML.
6.6.11	CEL 19 (2010)	The terms of CEL 19 (2010) were complied with. Please see NHS Lothian's ADB and RDS narrative.
6.6.14	Scoring of D8	Please see previously submitted NHS Lothian's Evaluation Criteria Timeline. As this section relates to engineering, an objective assessment was applied to establish if the submission complied with the requirements. Therefore, a pass/fall was allocated and any subjective element was scored. If a tenderer failed any evaluation quality criteria, then their bid would be deemed non-compliant.
6.6.18	General SFT NPD meeting not specific on NHSL	A general NPD meeting with SFT, NHS Lothian and NHS Dumfries and Galloway (not NHSL specific meeting).
6.6.19	Scottish Ministers accept that they were aware of the discussion regarding the percentage weighting for price and quality but consider that this was a decision for NHSL	This was not a decision for NHSL. The weighting was a condition imposed by SFT NPD guidance.
6.6.20	Pass/fail or quality criteria marking.	For clarity, all questions were evaluated on a pass/fail basis (see paragraph 5.6.2 of the ITPD). After the pass/fail evaluation was completed, then the Quality Evaluation Criteria allocated a score were evaluated and a score was allocated (see paragraph 5.6.3 of the ITPD). Therefore, if a Bidder failed any of the Quality Evaluation Criteria their bid would be deemed non-compliant.
6.6.25	C21 evaluation	Compliance with the BCRs (including SHTM 03-01) was mandatory and accordingly could only be pass or fail. IHSL stated that their design complied with the BCRs. Prior to the issue of the ISFT, NHSL held a meeting in October 2013 during competitive dialogue which was titled "Draft Final Tender Review – C12 and C21". C12 related to

		proposals for how bidders' design complied with Mandatory Reference Design Requirements. C21 related to confirmation that the bidders had complied with the Board's Construction Requirements. In addition, at Final Tender, as part of submission C.21, IHSL confirmed compliance with the BCRs subject to any derogations scheduled in submission C.30. No derogations were identified in C.30 in relation to SHTM 03-01. As noted above re 6.4.4, it was clearly communicated by NHSL to IHSL throughout competitive dialogue that the onus was on them to flag any derogations within the appropriate Schedule of Derogations in C30, even if they perceived it to be a derogation from the reference design. No derogation in relation to critical care ventilation, specifically the requirements of SHTM 03-01, was ever sought by IHSL.
6.6.26	C8 evaluation percentage	The scoring element of C8 was on top of a pass/fail evaluation of the criteria. If a tenderer did not comply with the minimum pass requirements their bid would not proceed any further in the tender process and would be deemed a non-compliant tender.
7.	**OJEU Notice, Pre-Qualification Questionnaire and the Memorandum of Information**	
7.18		FM Contractor was Bouygues.
9.	**The Invitation to Participate in Dialogue (ITPD)**	See in general NHSL response to PPP1 section 3.
9.6.5	Room requirements	A room requirement is not the same as a mandatory element of the Reference Design. It is an error to conflate the two.
9.6.7	However, the EM is referred to in the BCRs.	The proposition advanced here may indicate a misunderstanding between the function of (i) the mandatory and non-mandatory elements of the Reference Design, and (ii) the requirements of the BCRs. The BCRs set out the Board's requirements. The function of the BCRs is not to distinguish between indicative and mandatory documents. Furthermore, the BCRs are stated to be subject to various minimum standards, including SHTM 03-01. The absence of the Environmental Matrix from Appendix E is not inconsistent. The Environmental Matrix did not identify mandatory elements of the Reference Design.

		This is confirmed when one considers the terms of the BCRs, as contained in vol. 3 of the ITPD. Section 8.7 (Mechanical Service) of Sub-Section C (General Requirements) of Section 3 to Schedule Part 6 (as included in vol 3 of the ITPD) provides that: "*The Project Co shall design, supply, install, test, commission, operate and maintain all mechanical building services necessary to support the Clinical Services at the Facilities. The following systems are indicative of those anticipated by the Board but are not exhaustive and sole responsibility shall be Project Co's to determine all necessary systems are included.* *Systems shall be design, supplied, installed, tested, commissioned, operated and maintained all in accordance with the regulations and standards.*"
9.7.2	Any proposed bidder amendment to the NPD Project Agreement would be a derogation. All derogations required the approval of SFT	This was a mechanism to ensure that bidders were aware that there would be implications of post PB / funder amendments to the PA. Only derogations in respect of changes to the standard form NPD contract required approval from SFT. SFT were not interested in technical/compliance derogations.
9.7.3	'Fine tuning' after close of dialogue	It is presumed that 'fine tuning' means project specific and non-material changes to the Project Agreement.
9.8.21-23	COS for Critical care	The clinical aspects of the reference design were contained in the Clinical Output Specifications for the RHCYP and DCN project and included in the ITPD. The COS were developed and approved by the clinicians, Capita (healthcare planners) and Mott MacDonald Ltd. There is a Board Paper[3] dated 12 October 2012 which details the Approvals process for the COS, including: - Para 3.6*: The specifications [COS] were reviewed by the Technical Advisors and Capita and further changes made.*

[3] See Board paper dated 12 October 2012 which details the Approvals Process for the COS submitted to the Inquiry on 21 July 2022, PB_0116

		- Para 3.7: *The specifications [COS] were cross referenced to the Schedule of Accommodation, Adjacency Matrix, Board's Construction Specification and relevant Health Building Notes.* - Para 3.8: *A workshop was held with the Technical Advisors, Project Team and other key stakeholders to ensure that there was consistency across ITPD documentation.* As well as communicating the key clinical requirements, the B1 Critical Care Clinical Output Based Specification contained specification of the relevant technical design guidance, including SHTM 2025 (the pre-cursor to SHTM 03-01)[4]. The COS states that "*All PICU and HDU bed spaces are required to be of the same specification to allow the greatest flexibility of use."* This included bed spaces in multi-bed wards, single rooms and isolation cubicles within critical care. Please see NHSL's Chronological table of clinical input into the reference design for further information.
10.	**Key Stage Review 2a: Pre ITPD**	
10.3	There was no explanation, or analysis, in the KSR of the purpose of the environmental matrix	There was no requirement in the KSR to explain, or analyse, the purpose of the environmental matrix. The response to the question relates to use of Reference Design. MML's paper on Reference Design includes the following reference: *'The requirements for these remaining rooms will be detailed in a combination of Room Data Sheets, the Equipment Responsibility Matrix and the Environmental Matrix.'* This paper was discussed at the PSG and approved on 11th May 2012. Peter Reekie of SFT attended the PSG meetings and had various discussions with NHSL/MML on Reference Design and was fully aware of the use of an Environmental Matrix.

[4] Other design guidance referred to in the COS included: HBN 23: Hospital Accommodation for Children & Young People; HBN 57: Facilities for Critical Care; SHFN30: Version 3: Infection Control; SHTM 61: Flooring; HBN 14: Pharmacy; Paediatric Intensive Care Society Standards Document published in 2001.

11	**Competitive Dialogue**	
11.3	NHSL did not have an external healthcare planner to advise them during the Competitive Dialogue process.	This was not a requirement as operational functionality was held a mandatory status of the ITPD.
11.6	Bidders were expected to provide informal submissions in advance of dialogue meetings	In relation to operational functionality, risk of compliance rested with the Bidder. See NHS Lothian's narrative on Operational Functionality.
11.29	The Action notes for Dialogue meeting 4 with Bidder B (IHSL) do not show any discussion of ventilation strategy, the environmental matrix or use of ADB	NHSL's procurement guidance was to only respond / report against what was submitted, not what was missing.
11.30	Under the sub-heading 'variances' it is noted that "The non-compliances with the requirements of the operational policy are the same as the reference design.	Bidders were required to design a compliant proposal and not reproduce the reference design.
11.31	It is the project team's firm view that the procurement process cannot progress to Draft Final Tender Stage until three design compliant bids are evidenced.	This was in relation to operational functionality only.
11.34	By Dialogue Meeting 4B on July 24, 2013, IHSL's 1:200 design for Critical Care had 'B status: comments to be incorporated'. 'A status' was defined as 'no comments' and 'C status', which was given at the previous meeting of 20 June, meant 'unacceptable/resubmit'.	During the dialogue meetings NHSL used the RDD process status A, B and C. Approval was based on operational functionality only.
11.37	Email to Tim Davison 16 August 2013	Janice Mackenzie and other Project Team members acted as the conduit to Consultants from any issues relevant to them arising during dialogue. Following on from the email from Tim Davison on 16 August 2013, a meeting was arranged on 6 September 2013 with key members of the Project Team. Please see email from Janice Mackenzie dated 4 September 2013 who responded to each of the points raised in Tim Davison's email (INDEXED).

		Project Dashboard/ PSG meeting 25 October 2013 stated that Janice and Jackie attended the Medical Staff Committee on 23 September 2013 and 'concerns raised by consultants with the CE appear to have been addressed' (previously disclosed to the Inquiry).
11.40.2	Compliant Bid	Compliant Bid is in reference to the tender submission complying with the terms of ITPD. There are conditions throughout the ITPD but the main compliance conditions are below: ITPD (page 52) states that a final tender will be deemed non-compliant if a Tenderer fails to: a) Completeness and compliance check – as more fully set out in paragraph 5.3 (Compliance and Completeness); b) Compliance with the Stand Alone Requirements – as more fully set out in paragraph 5.4 (Compliance with Stand Alone Requirements); c) Evaluation of Funding Proposals - as more fully set out in paragraph 5.5 (Deliverability of Funding); d) Evaluation of all of the Quality Evaluation Criteria on a pass/fail basis - as more fully set out in paragraph 5.6.2 (Quality Evaluation Criteria) If a bid was assessed as compliant, that did not mean that it was assessed as complying with *inter alia* statutory guidance.
12.	**Close of Competitive Dialogue**	General comment (also noted at 6.4.4 above). See NHS Lothian's response to PPP1 and PPP2. During Competitive Dialogue, there was ongoing discussion to the extent that IHSL should not assume that reference design related derogations were already accepted. NHSL does not accept that the EM was mandatory and, as such, does not accept it was a "derogation". However, even if the EM was perceived to be mandatory and/or a derogation, it was clearly communicated by NHSL to IHSL throughout competitive dialogue that the onus was on them to flag any derogations within the appropriate Schedule of Derogations in C30. No derogation in relation to critical care ventilation, specifically the requirements of SHTM 03-01, was ever sought by IHSL.

		Please see NHSL Chronological Table of clinical input into the Reference Design, in particular pages 7 – 13 which detail relevant discussions with IHSL during competitive dialogue.
12.4	The project team recommended to the PSB that the competitive dialogue phase was concluded.	This was on the basis of advice from MML, Macroberts and Ernst & Young as technical, legal and financial advisors respectively.
12.6	Decision to close competitive dialogue	All three bidders had produced sufficient information for NHSL to conclude that any of the three final tenders were likely to meet NHSL's requirements in relation to Operational Functionality. See the Project Board Paper: Design Development from Preferred Bidder to Financial Close. This is a key explanatory document submitted to the Inquiry on 21 July 2022. It identifies the staff resourcing required in the next stage of detailed design development with the successful bidder, including input from clinical leads and infection prevention control. The phrase 'considerable anxiety' comes from a comment on IHSL's draft final tender within Approach to design and construction document. Considerable anxiety was not unique to IHSL at this stage of the project. The two other bidders required to work on different areas of their submissions.
13.9	Incomplete information IHSL's tender submission	Reference should be to draft final tender. At this stage the bidders had met the requirements for operational functionality and were ready to proceed to design development between Preferred Bidder and Financial Close. This was the requirement at this stage. NHSL did highlight that the programme from preferred bidder to financial close would be challenging. This is the stage where further design development would occur.

Volume 2		
14	**Submission of Final Tenders**	
14.8	Version of EM issued with ITPD Volume 3 also includes the Environmental Matrix in appendix C. The Inquiry Team is unclear whether the version of the Environmental Matrix issued with the ITPD was replaced with a bidder-specific version at the ISFT stage for bidders that had suggested changes to the Environmental Matrix during competitive dialogue. This will require to be explored with witnesses at the hearing commencing on 24 April 2023.	The Environmental Matrix issued with the ITPD and ISFT were the same version. It was not replaced with a bidder specific version at ISFT. The evaluation criteria for C8.3 states *'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.'* It was for bidders to accept the draft Environmental Matrix and propose any changes on submission of their bid.
14.20	ADB	See NHSL narrative on ADB and RDS.
14.30	Bidder C's response to question C8.3	For clarity, this extract of Bidder C's final tender does not relate to Critical Care.
14.35	Edinburgh Council Standard for Sustainable Building	A standard for buildings across the city. The standard is not hospital focused. The Council's standard allowed for health buildings to follow BREEAM (para 2.8 of the Council's standard).
14.38	IHSL's tender submission	IHSL's tender submission, as quoted in this paragraph, is almost an exact restatement of the SHTM. Reference to 'Single Bedroom Ward' is not in relation to Critical Care and reference to 'Mixed Approach' is with the exception of Critical Care.
14.48.2	Chris Liddle, IHSL's Design Champion	Chris Liddle was chairman of HLM at that time and is not a building services engineer but an architect.

Section 15	Evaluation of Final Tenders	General Comment: This comment is in relation to the evaluation of C8 and C10 and any reference within PPP3 should be read in conjunction with the comment below. As previously explained the Evaluation Criteria were agreed by NHSL together with all three of its advisers to the Project which is more fully detailed in the Evaluation Criteria Timeline (previously submitted to SHI). The decision made was that all the Quality Evaluation Criteria of the tender would be evaluated on a pass/fail basis and then a scoring element would be used to identify key differentiating factors between the bidders. The Quality Evaluation Criteria were also approved by SFT and it is set out section 5.6 in the ITPD. For clarity, if a Bidder did not pass all the Quality Evaluation Criteria then their bid would be deemed non-compliant and they would not progress any further in the tender process. Therefore, C8 and C10 were first evaluated on a pass/fail basis and then evaluated again and allocated an appropriate score based on Table C: Scoring System for Quality Evaluation Criteria (pages 59-60 of the ITPD). In all the three bids received there were areas where some bidders scored higher or lower than the other bidders. The overall scored element for each Bidder was on the basis of the total score allocated for all the scored Quality Evaluation Criteria for that Bidder, the Quality Evaluation Mark (which is detailed in paragraph 5.6.3 of the ITPD). In relation to Bidder C's changes to the Environmental Matrix please see NHSL's position set out in paragraph 2.5 of NHSL's General Response to the PPPs.
15.15	States that C30 was not scored	C30 was not scored as per the scoring requirements. This was not an omission.
15.16	No further comment on Bidder C's proposed changes to the EM	Suggest the inquiry explore further with MML.

18	**Development of design during the post-preferred bidder stage**	General comment: It is not clear in this section which risk registers are being referred to. There were different risk registers for the Project, one by the Project Team and others by MML. It should also be noted that often "Board" comments on documents were in fact prepared by MML on behalf of NHSL in their role as Technical Advisor. It is suggested that clarification is provided to the SHI by the author of the documents referred to. NHSL relied on MML to advise in relation to the ventilation requirements.
18.9.1	Agreed content of RDS the day before	Meeting held on 21 August 2014 was an extra Project Design Group meeting – minutes/action notes have not been located by NHSL. IHSL drafted the minutes of this meeting. NHSL have asked if the Inquiry has received minutes or action notes from this meeting from another core-participant.
18.7.2	IHSL (not TUV) to refer to ADB sheets re ventilation air change rates.	It is suggested that this should be explored with IHSL during oral evidence.
18.9.2	It is not clear to the Inquiry Team why NHSL was comfortable that all room data sheets would not be completed by financial close. Both the ITPD and the ISFT stated that the preferred bidder would be required to complete all room data sheets before financial close. It is also not clear what was agreed in relation to the content of the room data sheets. These issues will require to be explored with witnesses at the diet of hearings due to commence on 24 April 2023.	NHSL agreed to waive the requirement for the preferred bidder to produce room data sheets for every space in the hospital by Financial Close. Instead, it was agreed that IHSL had to produce a set of RDS for the key and generic rooms at FC. NHSL understanding at the time was that IHSL were concerned about how much design work it was required to undertake before FC and reached a point where, effectively, they refused to do any more. This issue was escalated by the Project Director to the Finance Director, who escalated it to the NHSL Non-Executive Director and SFT/SG (additional emails INDEXED). This escalation resulted in a meeting of a "Special Steering Board" on 22 August 2014 and subsequently "Commercial Sub-Group of the Steering Board" meetings on 31 October and 22 November 2014, specifically set up to address this, and other, issues leading to delays in reaching FC. The meeting on 22 August 2014 included representation from NHSL, IHSL and SFT and the Scottish Government and the meeting on 31 October and 22 November 2014 included the same parties other than SG, who made apologies for the meeting on 31 October 2014. Ultimately, it was considered that IHSL had done enough to satisfy the Board's operational functionality requirements, which was the only element of design which the Board retained responsibility for. In any event, the RDS were not approved at FC and became subject to the RDD

		process post FC. Subsequent approval of the RDS was only ever in relation to operational functionality. See Schedule part 8, Appendix 1, Table A which clarifies that, in relation to a Level A or Level B endorsement of any room data sheet: *"means that Project Co may proceed to construct in accordance with the Submitted item and that the Board is satisfied that the design and other information in the relevant room data sheet states Operational Functionality".* RDSs were discussed at a Project Delivery Group meeting to discuss the Programme held on 21 August 2014. At present NHSL are unable to locate minutes/action notes from this meeting. IHSL prepared the minutes and NHSL have asked SHI if they have received copies from another core-participant.
18.11.3	A design deliverable or Project Co Proposal that was approved by NHSL was given level A status meaning construction could commence based on that design document or proposal.	This applied only in relation to Operational Functionality.
18.31	It is not clear to the Inquiry Team why the risk status had reduced given that the controls in place were still deemed to be unsatisfactory. This will require to be explored with witnesses at the diet of hearings commencing on 24 April 2023.	The risk status was reduced as it was agreed that outstanding design would form part of RDD process as provided for in the Project Agreement. Outstanding information was to be made available post FC through RDD.
18.28.1	IHSL pushed very hard	For the avoidance of doubt, this means "IHSL were pushed very hard by NHSL to achieve maximum information during PB stage".
20	**Key Stage Review 4: Pre – Financial Close**	
20.4	It is not clear to the Inquiry Team why this statement was made. By financial close, the preferred bidder should have produced room data sheets for every	IHSL were not prepared to prepare all RDS before FC. NHSL along with SG/SFT agreed to proceed to FC with the outstanding RDS being progressed through RDD process. The RDS for key rooms and generic rooms were produced before FC.

	room in the hospital. It is not clear why this requirement was waived by NHSL. This issue will need to be explored with witnesses at the hearing diet that commences on 24 April 2023	There was discussion of this at Project Design Group Meetings and reported to Project Steering Board. It is important to note that the RDS that were produced at FC were for key and generic rooms and were subject to the RDD process.
20.6	NHSL has advised the Inquiry Team that they provided the above affirmative answers based on letters of support from its legal, financial and technical advisers.	NHSL acted on advice from its advisers
23	**Provisional conclusions**	
23.1.18	Competitive Dialogue	It was also clarified during competitive dialogue that, even if the bidders perceived there to be a derogation in the reference design, the onus was on the preferred bidder to flag any derogations within the appropriate Schedule of Derogations in C30. No derogation in relation to critical care ventilation, specifically the requirements of SHTM 03-01, was ever sought by IHSL.
23.1.22 – 23.1.26	CEL 19 (2010) and ADB.	See NHSL narrative on ADB and RDS
23.1.25	An Environmental Matrix was produced which sought to set out NHSL's technical requirements for the ventilation system.	A draft Environmental Matrix was produced as disclosed data for IHSL to refer to and develop as part of their detailed design.
23.1.37 and 23.1.38	NHSL's published requirements	Clarity is sought on reference to complying with NHSL's published requirements. The requirements to comply with the tender is addressed earlier in this response.
23.1.48 & 23.1.49	Waiver of full set of RDS	RDS for key and generic rooms in the Project were provided.
23.1.54	Prior to the conclusion of the contract, no issues were raised by NHSL or MM in relation to the requirements of the ventilation system for critical care areas	Suggest inclusion of following: Prior to the conclusion of the contract, no issues were raised by NHSL or MML or IHSL in relation to the requirements of the ventilation system for critical care areas proposed by NHSL.

	proposed by NHSL.	
23.1.57	As at August 2014, NHSL had concerns about the project programme	Suggest inclusion of following: As at August 2014, NHSL had concerns about the project programme, which they escalated to SFT and Scottish Government.
23.1.58	As at November 2014, NHSL had concerns about the quality of the information provided by IHSL in relation to the Project.	Suggest inclusion of following: As at November 2014, NHSL had concerns about the quality of the information provided by IHSL in relation to the Project, which they escalated to SFT and Scottish Government.
23.1.59	Prior to signing any contract with IHSL, NHSL was aware that there was significantly more 'reviewable design data' than had originally been planned for the Project.	Suggest inclusion of the following: Prior to signing any contract with IHSL, NHSL, SFT and SG were aware that there was significantly more 'reviewable design data' than had originally been planned for the Project.

NHS LOTHIAN

NARRATIVE ON THE ACTIVITY DATABASE (ADB) AND ROOM DATA SHEETS (RDS)

SUBMITTED 03 FEBRUARY 2023

Introduction

RDS in their completed form display, amongst other information, a description of the clinical activities carried out in the room as well as the number of personnel that will use it, information relating to environmental requirements, room characteristics including flooring and wall finishes, and a schedule of components and equipment for use in the room. The RDS are supplemented by a graphical representation (known as C sheets) of the room in plan and elevation form to display the room with the equipment positioned. C sheets are both 2D and 3D illustrations taken from drafting software such as Autodesk Revit.

The template for RDS is found in a software programme called Activity Data Base (ADB). This programme was initially developed in the early 2000s by NHS England but since around 2017 has been privately owned by Talon Solutions. The system allows the licenced user to set up specific projects to which department and room templates are saved, and the collective rooms and departments then form a schedule of accommodation (SOA). In addition to the C sheets, the RDS usually comprise four separate sheets, headed: Room Data Sheet; Room Environmental Data; Room Design Character; and Schedule of Components by Room. In general, the architect and the client (i.e. NHS Lothian) complete all sheets with the exception of the m&e / environmental data, which is the preserve of the building services engineers. It was and is not unusual in large scale Projects for the m&e / environmental design to utilise a supplementary alternative tool (such as an Environmental Matrix ("EM")) to capture the vast amount of m&e information.

In order to complete the RDS, the template ADB sheet is identified on the system and added to the list of rooms required in the project. If the rooms intended clinical use and size does not differ significantly from the template, then the template ADB is adopted and the RDS can be manually altered as required. If there is: (i) a significant difference from the template such as room size, activities, number of personnel, or (ii) no template available for that room type (e.g. there is no ADB template for single rooms in critical care), then the template ADB is given a unique number and saved to the project on the system and that becomes the template for the RDS for that room. Templates can be and often are manually altered or created. The saved template ADB sheets then become the RDS and are updated for the project as it evolves. RDS evolve throughout a Project to capture the relevant room information and a key feature is that, on completion of the build, the RDS contain all the As Built information and can be used as a reference tool going forward, i.e in the maintenance of the room, because it contains a comprehensive record of all that has been delivered in each room.

The ADB template for each room or space is intended to contain all relevant information from English guidance to make the room automatically compliant with English design guidance. However, not all room types are available on the ADB and require to be manually created. NHS Lothian understands there can be considerable lag tbetween the HTM release and ADB update (which can be years). Accordingly, diligence is required when using the ADB, particularly so in Scotland.

Alternatives to ADB include Codebook and individual architects' bespoke systems. There is a new / alternative initiative to ADB called "repeatable rooms". It is understood that, given some of the

difficulties encountered with ADB, a number of NHS Trusts in England are now moving away from the use of ADB to the "repeatable rooms" initative as the base data for populating RDS.

CEL 19 (2010)

The ADB has no reference to Scottish Design Guidance or Scottish clinical practice. The Scottish Government imposed a requirement in HDL (2006) 58 for NHS Scotland bodies to use the ADB as a tool for briefing, design and commissioning. Where ADB is deemed inappropriate for a particular project, and an alternative tool is used, the NHS Scotland Body is required to demonstrate that the alternative is of equal quality and value to ADB in its application. The policy was updated by way of CEL 19 (2010) which included a document called "A Policy on Design Quality."

The Policy on Design Quality states that the ADB automatically complies with guidance and legislation applicable in England. However, for Scottish users, it is stated that: *"Whilst Scottish users can create their own project-specific briefs and design using ADB's extensive library of integrated graphics and text which includes room data sheets, room layouts and departmental room schedules, extreme care should be taken to ensure that such data generated by the package are consistent and compliant with Scottish specific guidance such as Scottish Health Planning Notes, Scottish Health Facilities Notes (SHFNs) and Scottish Health Technical Memoranda (SHTMS) as published by Health Faculties Scotland."*

The ADB is an incomplete database for Scotland. In practice, taking extreme care means cross-checking any ADB template against the NHS Scottish design guidance and either making any necessary revisals manually or creating a new template, where required. Accordingly, using the Scottish design guidance as the primary source to populate an alternative tool (for example an EM) is at least of equal value and quality to having to perform a cross-check on an incomplete database.

The Environmental Matrix

The RHCYP and DCN project utilised a supplementary alternative tool, being the EM, to capture the m&e information. The EM was provided to bidders as Disclosable Data, for information only, to allow the successful bidder to develop their own RDS as part of their detailed design. A suite of other "room information", which captured, for example, room layouts, clinical activities and equipment lists, was also provided to allow bidders to develop other elements of the RDS.

NHS Lothian were advised by their Tehcnical Advisors (MML) that the EM referred back to the Scottish design guidance and were reassured as to the level of m&e detail to be included (which was greater than in the ADB alone). Accordingly, the EM was of equal (if not better) quality and value to ADB in its application.

NHS Lothian were also reassured by the fact that the documentation in the ITPD available to bidders, and the subsequent contract with the successful bidder, included a requirement for the successful bidder to ensure that the facilities (i) adhered to the requirements of CEL 19 (2010) and (ii) complied with Scottish design guidance SHTM 03-01 in relation to ventilation requirements. Where there was an inconsistency in standards, the most onerous standard would prevail, unless there was an agreed derogation (there was not).

In order to put the EM utilised in the RHCYP and DCN project in to context, it is necessary to understand the history of its development, beginning with the period during which the project was to be capital funded.

(i) Capital Funded Project

1. NHS Lothian's High Level Information Pack (HLIP) provided to BAM as the Principal Supply Chain Partner (PSCP) under the capital funded project refers to the use of the relevant design guidance and the Activity Database at paragraph 4.11 of Appendix C as follows:

> ***"4.11 Design Guidance***
> *Comprehensive NHS Estates design guidance has informed the departmental accommodation requirements; these include Health Building Notes (HBN), Health Technical Memoranda (HTM), Scottish Health Planning Notes (SHPN), Scottish Health Technical Memoranda (SHTM) and Activity Data Base (ADB). There are some slight variations between 'English' UK wide healthcare Estates guidance and the Scottish versions. Project teams and designers have to be aware of this, however universal space and ergonomic standards apply."*

2. On 15 February 2010, H&K emailed BAM and its design team members (Nigtinale Associates (NA)), architects; Arup, engineers; Tribal, healthcare planners; and BMJ, architects) with feedback on the Stage 3 Programme and interdependencies. This included a note against H&K Scheme Design Item 169: *"Requires Nightingale Codebook File's for all rooms resulting from Item 60. With regards to environmental issues, rather than employ ADB M& E sheets, HK will produce Environmental Matrix spreadsheet for each room type for easy reference as a user sign off tool."*

3. NHS Lothian prepared and issued an RHSC ADB database[1] for use by BAM and its design team (samples extracts of the RHSC ADB database for critical care are produced at Appendix 1). The RHSC ADB database was developed by the Project Team following significant consultation with the clinical user groups. The RHSC ADB database included clinical activity, equipment lists and environmental data.

4. On 16 June 2010, MML provided a copy of CEL 19 (2010) and the Policy on Design Quality by way of email[2] to NHS Lothian for information and advised that BAM were aware of the revised information. This provided comfort to NHS Lothian that it's Technical Advisors and PSCP were aware of the updated guidance.

[1] ADB&RDS_001
[2] ADB&RDS_002

5. On 22 June 2010, there was a 1:50 design meeting between NHS Lothian, Tribal, NA and possibly also BAM and Davis Langdon[3] to discuss the ADB/codebook queries, including: (1) a review of the database; (2) the generic rooms; (3) the review process for room layouts; and (4) room data sheets, including management of information, recording change, and generation of reports including a demonstration of how NA proposed to manage the database.

6. Following the 1:50 meeting on 22 June 2010, NA emailed NHS Lothian, BAM, Tribal and Davis Langdon on 23 June 2010[4]. The email includes by way of attachment: (i) a copy of a document by BAM / NA called Room Layout Process Review Meeting[5] (see extract at Appendix 2), demonstrating how the process for reviewing the ADB / Codebook proposed by NA would work; (ii) a starting list of generic rooms; (iii) an example C sheet; and (iv) a marked up copy of the RHSC Database Responses. The email noted the outcome of the discussion around the process for reviewing the ADB sheets, stating:

> *"The following points confirm the outcome of our discussions around the process for reviewing the ADB sheets;*
>
> "*We will only review equipment and finishes with the clinical users. Mot [sic] MacDonald and Hulley & Kirkwood will undertake a parallel exercise to review the environmental data with appropriate personnel from NHSL.*
>
> *We agreed in principle that we would manage the review of equipment/finishes/environment information by generating excel reports from the codebook database after each round of room layout meetings rather than generating a full set of ADB sheets. We demonstrated how this could potentially save a huge amount of time & resource during the review process. We confirmed that once the review process is complete we will then generate a full set of ADB information which will form part of the stage 4 contract and tabled a template ADB sheet which we had generated using Codebook".*

7. NHS Lothian and the design team considered and reached agreement at the meeting on 22 June 2010 that the best approach in relation to the review of the ADB was to separate (i) the m&e information from (ii) the clinical activities and equipment information. It was agreed that MML, H&K and NHS Lothian were to review the ADB sheets re the environmental data. The EM was the document used to capture the developing m&e design. H&K's position was that it would be an "easier reference tool" for user sign off. NA demonstrated how the use of codebook excel reports could potentially save a huge amount of time & resource but were of equal quality and value. Once the review process was complete, NA were to generate a full set of ADB information which would form part of the stage 4 contract (note: Stage 4 of the

[3] BAM and Davis Langdon were included in the follow up emails so may have been present at the meeting but that information is unknown.
[4] ADB&RDS_003
[5] included as attachment to email ADB&RDS_003

contract was not reached prior to the switch to an NPD project). This meeting and the outcome from it provided comfort to NHS Lothian that the requirements of CEL 19 2010 were being met.

8. In August 2010, BAM and Nightingale Associates produced a scheme design report[6]. The purpose of the report was to confirm the process of design development through the detail design phase. The report intended to provide a summary of key design decision and assumptions which informed the process and was split into chapters dealing with specific design disciplines. In relation to the chapter on Architectural design, it is stated that following an initial meeting on 8 April 2010: *"the ADB database provided by NHSL was linked to the Schedule of Accomodation and any arising queries raised and addressed. Following standardisation of the database a number of generic rooms were agreed and issued for discussion/debate at a series of workshops with NHSL."* The chapter in relation to Mechanical Services states at page 17 that: *"The ventilation systems to the Hospital shall be deisgned in accordance with Hospital Tehcnical Memorandum SHTM 2025 and guidance within HTM 03-01."*

9. It is stated at paragraph 13.1.12 in the SHI PPP2 that the *"environmental matrix was not produced using the ADB"* and at 13.1.14 that*"the environmental matrix was created by figures being manually input into a spreadsheet"*. It is suggested that the source of the figures used for the spreadsheet should be explored further with H&K in light of the above. Did H&K refer to: (i) the RHSC ADB database and/or (ii) the Scottish Design guidance at the time? If the only source of the figures was the relevant Scottish design guidance, then for the reasons set out above, that was of at least equal quality and value to the ADB.

(ii) Switch to NPD (announced November 2011)

10. Following the switch to NPD, the environmental data continued to be developed by H&K in the form of the EM. NA and MML continued to meet with the clinical user groups and NHS Lothian project team to develop the RDS and other room information. This room information was held in the Clinical Output Specifications, the Schedule of Accommodation, the Adjacency Matrix, the Equipment List and the Schedule of Operational / Design Notes.

11. Paragraph 8.8 of the SHI PPP2 states that the Inquiry Team has seen no documentation which suggests that NHSL, or its design team, re-appraised whether an EM was the correct approach for the revised project when the design team was re-appointed. Given (i) the continuity as between the design team in the capital funded phase and the reference design team in the NPD project[7], (ii) the outcome of the 22 June 2010 meeting where the issues had been recently

[6] ADB&RDS_009

[7] MML's appointment as NEC Planning Supervisor during the capital funded phase and then as Technical Advisor during NPD; Davis Langdon as Project Manager during the capital funded and project managers of the reference design team on behalf of MML; and H&K as specialist m&e sub-consultants and NA as the architectural sub-consultant.

appraised, and (iii) the devlopement of the design since then, there was no obvious requirement for a re-appraisal.

12. However, on 23 December 2011, NHS Lothian did email[8] Davis Langdon and sought clarification as to *"how H&K will feed into the process on page 2, Environmental".* On 4 January 2012, Davis Langdon responded[9] to confirm that:

> *H&K will feed into the RDS by producing a spreadsheet document "RDS Environmental Matrix" based on the final SoA. The purpose of this matrix is that it will take the place of the ADB RDS sheets per room relating to environmental criteria covered to make for a simple and easy reference tool which relates back to current SHTM/HTM/HBN guidance.*
>
> *The content of this doc will cover guidance on the following per room type :*
>
> - *Temperature Criteria - Design minimum and maximums.*
> - *Relative Humidity Criteria where relevant*
> - *Room Heating Type - reference design anticipated solution*
> - *Cooling Type - reference design anticipated solution*
> - *Ventilation - air change rate provisions, relative pressure, minimum filtration levels*
> - *Safety Temperatures - in rooms, from heating type and from dhw outlets*
> - *Lighting - normal and night lux levels, standby grade, colour rendering, control method,*
> - *Medical location grouping - room equipment where relevant*
>
> *The document is currently work in progress - an example sheet is attached. H&K will not be dealing with the detail of equipment power supplies, number and location of socket outlets, IT outlets , med gas outlets etc within the scope of our Reference Design "RDS Environmental Matrix". This will need to be covered by client briefing elsewhere.*

13. This email from Davis Langdon dated 4 January 2012 provided comfort to NHS Lothian that the EM was continuing to be developed by H&K to comply with relevant Scottish design guidance as required to meet the terms of CEL 19 2010. The level of m&e detail is listed and is is arguably of better quality and value then the ADB since it contained more information than the ADB (e.g. heat emitter type).

[8] ADB&RDS_005 – email chain
[9] ADB&RDS_005 – email chain

14. On 11 January 2012, as part of the third round of reference design[10] (1:50 stage), NA issued to NHS Lothian by way of email[11] B1 PICU and HDU Drawings, including RDS. The RDS did not include information in relation to ac/hr.

15. As set out in section 9 of SHI's PPP 2, on 16 March 2012 MML obtained a compliance statement from the reference design team (NA, BMJ, H&K and Arup) that stated: *"We have followed SHTMs and also HTMs when there is no Scottish equivalent."* There was a full list of derogations included in the letter. There were no derogations relating to SHTM 03-01. This provided comfort to NHS Lothian that the reference design complied with the Scottish design guidance, including SHTM 03-01 re ventilation requirements.

16. As noted, when the project was capital funded, NA were to generate a full set of ADB information which would form part of the stage 4 contract but stage 4 of the contract was not reached prior to the switch to an NPD project. However, the RDS were scheduled for completion by NA by 14 May 2012.[12] NA did not complete the RDS process by May 2012 and, by way of CCO dated 17 May 2012, NA were instructed by MML on behalf of the NHSL Board to cease the production of the RDS. The reasonsing behind this CCO cannot be recalled. However, NA were acquired by Hassell Ltd around this time. Hassel Ltd formed part of the Bidder C team. Had NA prepared the RDS, bidder C would have had to declare that in the pre qualifying questionnaire (PQQ) in the procurement process, which could have had a negative impact on Bidder C's tender application.

17. On 3 July 2012 there was a Room Data Sheet Review Meeting between NHS Lothian, Hiltron (healthcare planners) and MML, during which it was agreed Hiltron were to prepare RDS. It appears from the note[13] of this meeting that this was only in relation to the clinical activities and equipment rather than the environmental data.

18. On 15 August 2012, MML emailed[14] NHS Lothian noting as follows:

> *"Further to my meeting with Graham and yourself on Friday past to discuss the way forward in terms of passing on the individual room requirements to the bidders I confirm that as instructed I have informed Hiltron that they should do no further work on the room data sheets.*
>
> *I also confirm that both Graham and yourself are satisfied that, with the addition of the Schedule of Operational/Design Notes which will be produced by NHSL, this is now*

[10] See NHS Lothian's Chronological Table of Clinical Input in to the Reference Design
[11] ADB&RDS_006
[12] See Project Dashboard update from January 2012: Reference Design: "The Room Data Sheet production process commenced on 9 January 2012." Reference design: "Reference Design Completion is currently scheduled for 5th March 2012 on the understanding there are no further variations presented to the RDT. Nightingale Associates and Arup will continue beyond this date to compete the Room Data Sheet and Flood Modelling works respectively. The Room data sheet process is scheduled for completion by 14 May 2012."

[13] ADB&RDS_007
[14] ADB&RDS_008

the agreed way forward and that this will complete the suite of room information documents. Therefore, all of the room information you wish to pass on to the bidders is/will be included in:-

- *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.*

The requirement to comply with NHS Scotland design guidance is contained within the D & C Output Specification.

I trust that this is a true reflection of our discussions."

19. It is not known why NHSL decided against instructing Hiltron to prepare RDS. It appears that MML and NHS Lothian considered that there was sufficient room information in the above documents to allow bidders to develop their own design, and indeed their own RDS. It may have been that, on the basis there was sufficient information elsewhere, it was unnecessary to repeat the same information in another set of documents. Doing so would take additional time and incur additional cost. Repeating the same information in different sets of documents carries its own set of risks, e.g. discrepancies as between documents. MML provided comfort to NHS Lothian by stating that the requirement to comply with NHS Scotland design guidance was contained in the D&C output specification, i.e. the BCRs. In addition, the COS (which contained the clinical activities for the room) included reference to the relevant design guidance, including SHTM 2025 for critical care, and had been reviewed by MML and Capita[15].

20. MML were responsible for the preparation and drafting of the ITPD[16], which included provisions that:
    - bidders' design was to adhere to CEL 19 (2010);
    - bidders' design had to comply with the requirements of SHTM 03-01 and other NHS Scotland design guidance unless there was an agreed derogation (there was no derogation from SHTM 03-01);
    - bidders were to use the room information to prepare their own RDS;
    - where there was any inconsistencies or discreptancies between documents, the hierarchy of standards were such that SHTM 03-01 would prevail;
    - any information provided to the bidders was deemed disclosable data; and
    - all design risk transferred to the preferred bidder, other than in relation to operational functionality[17].

[15] See NHS Lothian Board Paper, Clincal Output Specifications and Approval Process dated 12 October 2012
[16] See NHS Lothian's Paper Apart on the Scope of MML Obligations

[17] See NHS Lothian's narrative on Operational Functionality

(iii) IHSL's Room Data Sheets (RDS)

21. IHSL produced some RDS during competive dialogue (dated 8 October 2013) and RDS for Generic and Key Rooms for Financial Close (FC) (dated 18 September 2014) which appear to have been prepared using the ADB. The RDS produced by IHSL for critical care (and other departments) were not in line with:

    (i) NHS Scotland Design Guidance SHTM 03-01, appendix 1, which stipulated 10 ac/hr for critical care;
    (ii) The ADB template as at 2014 (being the 2013 revision), which stipulated 10 ac/hr for single bed isolation cubicles and 10 ac/hr for multi-beds in critical care departments. There was no ADB template for single rooms in critical care.
    (iii) Guidance note 15 of the EM which stipulated 10 ac/hr for critical care.

22. If IHSL used the ADB to prepare the RDS, then: (i) the ADB template for the multi-bed rooms in critical care would have had to have been manually altered by IHSL from 10 ac/hr to 4 ac/hr; and (ii) a new template for single beds in critical care would have had to have been created. If IHSL used the EM as a reference tool, then IHSL should have noted the inconsistencies within the EM itself, and any inconsistencies as between the EM, the ADB templates and the NHS design guidance. IHSL should have flagged this inconsistency with MML and/or NHS Lothian and enquired as to whether a derogation to SHTM 03-01 was intended and, if so, submitted a derogation to that effect. Otherwise, in the absence of flagging the inconsistency to MML and/or NHS Lothian, the ITPD and subsequent contract made it clear that the more onerous requirement applies, being SHTM 03-01.

23. IHSL were to prepare a full set of RDS by FC. However, IHSL considered that their design had satisfied the operational functionality requirements of the Board and effectively "downed tools" on further design work until the contract was awarded. The Project Director had concerns about this (and other) issues and highlighted those concers to the Finance Director, who escalated it to the NHSL Non-Executive Director. This escalation resulted in a meeting of a "Special Steering Board" on 22 August 2014 and included representation from NHSL, IHSL, SFT and the Scottish Government. Ultimately, it was considered that IHSL had done enough to satisfy the Board's operational functionality requirements, which was the only element of design which the Board retained responsibility for. NHS Lothian agreed to waive the requirement for IHSL to produce 100% room data sheets for every space in the hospital by FC. Instead, it was agreed IHSL had to produce a set of RDS for the key and generic rooms at FC, which included critical care.

24. The RDS and IHSL's EM were not approved by NHSL at FC because they were known not to comply with the BCRs, including SHTM 03-01. As a result, IHSL's EM and RDS became subject to the Reviewable Design Data (RDD) process. For the sake of clarity, at this point the particular issue in relation to air change rates in critical care was unknown and had not been flagged by IHSL, MML or NHSL.

25. NHSL's subsequent approval of the EM and RDS was only in relation to "operational functionality", which was very limited and did not include m&e design. All design risk was transferred to IHSL in terms of the NPD style contract.

Appendix 1

Sample Extracts of RHSC ADB Database for Critical Care

ADB	Room Environmental Data	B1401A

Project:	RHSCE	Royal Hospital Sick Children- First Draft
Department:	2-01	HBN57 - Critical Care.
Room:	B1401A	Neonatal HDU-Single cot nursery: intensive care
Room Number:	19	**Revision Date:** 07/09/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	24	Temperature maximum: 30 deg C.
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):	10.0	Mechanical ventilation (supply): Supply vent. to suit temp. range.
Mechanical Ventilation (Extract ac/hr):	6.0	
Pressure Relative to Adjoining Space:	POS +ve	Humidity: 24C
Filtration (%DSE and % Arrestance):	25/ 85.I	
Humidity (%RH):	45	

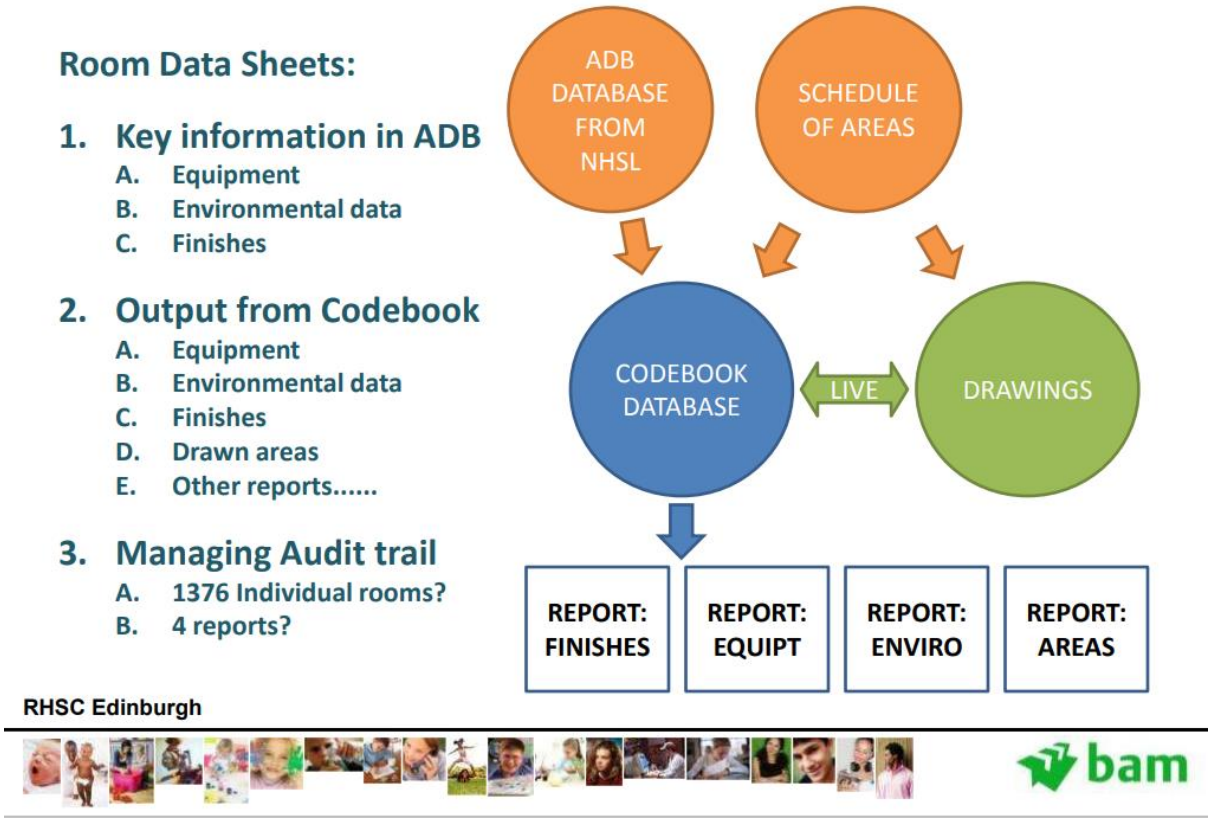
ADB	Room Environmental Data	B1602B

Project:	RHSCE	Royal Hospital Sick Children- First Draft
Department:	2-01	HBN57 - Critical Care.
Room:	B1602B	Surgical HDU-Isolation single bedroom
Room Number:		**Revision Date:** 07/09/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	27	Summer and winter (local control) temperature control: 16 to 27 deg.C
Summer Temperature (DegC):	16	
Mechanical Ventilation (Supply ac/hr):	6.0	Mechanical ventilation (supply): To provide source or protective isolation. Mechanical ventilation (extract): To provide source or protective isolation.
Mechanical Ventilation (Extract ac/hr):	6.0	
Pressure Relative to Adjoining Space:	BAL/ Neg	Final filtration: EU10/11 to suit clinical requirements. Humidity: 40-60
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):	60	

Appendix 2

Extract from BAM and NA "Room Layout Process Review" discussed at meeting on 22 June 2010



RESPONSE ON BEHALF OF NHS LOTHIAN

TO DRAFT PROVISIONAL POSITION PAPER ON THE PROJECT AGREEMENT

Introduction

1. The table below sets out NHS Lothian's Response to the Draft Provisional Position Paper on the Project Agreement (Version: 23 January 2023) ("**PPP4**"). NHS Lothian ("**NHSL**") would like to make some specific points to amplify the comments made in the table.

2. The overall structure of the Project Agreement in terms of design responsibility is clear and is set out in Clause 12. Project Co accepted all design responsibility, including ensuring that the Works satisfied the Board's Construction Requirements ("**BCRs**") and Project's Co's Proposal. Review and approval of Project Co's Proposals did not transfer risk and responsibility to NHSL. The only exception to this is the approval by NHSL of any Operational Functionality element of Reviewable Design Data in accordance with Schedule Part 8 *(Review Procedure)* of the Project Agreement. Such approval had the effect of transferring risk and responsibility to NHSL in relation to those matters falling within the scope of Operational Functionality. Ventilation did not fall within that scope.

3. PPP4, in places, appears to suggest that the Environmental Matrix incorporated into the Project Agreement was a form of specification identifying what Project Co was required to build. Such an approach is erroneous for the following reasons.

4. Firstly, NHSL had provided a draft environmental matrix to bidders during the procurement process. However, by the time of the Project Agreement, the Environmental Matrix incorporated into the Project Agreement was an IHSL document, for which IHSL had sole responsibility. The terms of the IHSL Environmental Matrix were a matter for IHSL. The draft environmental matrix provided by NHSL was Disclosed Data for which NHSL carried no design responsibility (as per Clause 7.1 *(No Liability)* of the Project Agreement).

5. Secondly, the IHSL Environmental Matrix was, as at Financial Close, Reviewable Design Data. It was not Approved RDD at financial close. As matters stood at Financial Close, IHSL could not build out the project in accordance with the IHSL Environmental Matrix.

6. Thirdly, paragraph 2.5 of the BCRs established a hierarchy of standards. To the extent that any entries within the IHSL Environmental Matrix conflicted with guidance (e.g. SHTM 03-01), the more onerous standard applied unless there was a specific derogation agreed. There is no basis for any suggestion that the IHSL Environmental Matrix was not subject to the hierarchy of standards.

7. Finally, the suggestion that the IHSL Environmental Matrix was equivalent to a contractual specification that had been agreed by NHSL, and therefore bound NHSL, entirely subverts the risk profile provisions of Project Agreement. There is no basis in the contract, or as a matter of common sense, to suggest that the IHSL Environmental Matrix had this unique status within the contractual documentation. Singling out the IHSL Environmental Matrix would appear to be the product of hindsight, unsupported by the terms of the Project Agreement.

Item	Para.	Additional relevant contractual provisions	Comments
1.	7	Clause 12	The Project Agreement requires Project Co to carry out the Works (i) so as to procure satisfaction of the BCRs, (ii) in accordance with Project Co's Proposals, and (iii) in accordance with the terms of the Project Agreement. There is no reference to, or obligation to build in accordance with, a "contractual specification" and so it does not make sense to talk in terms of the contractual specification being "deficient". Paragraphs 7(a) and 7(b) are therefore confusing. What "the Board intended to achieve" was set out in the BCRs, which included compliance with the hierarchy of standards. The terms in which paragraph 7 is written appear to indicate a fundamental confusion between how traditional building contracts are specified and then built out on the one hand (e.g. by means of a contractual specification), and how design and build contracts are procured on the other (e.g. under reference to the employer's requirements and contractor's proposals).
2.	10	N/A	The Project Agreement and relevant Schedules and Appendices were executed in paper form together with a number of CD Roms (which were also signed by the Board and Project Co). The CD Roms contained vast

Item	Para.	Additional relevant contractual provisions	Comments
			quantities of technical documentation and drawings. It is standard practice for CD Roms to be used for technical data. This is because is both costly to print such data and such data is more readable on an electronic format. This documentation was then collated in a "completion bible" by Allen & Overy. The completion bible is the source for all parties of the documentation executed by the Board and Project Co in February 2015.
3.	16	In addition paragraph 2.3(v) of the BCRs states as follows: - Compliance was also required in relation to all SHTMs and HTMs. Project Co was obliged to take into account the guidance and advice included within such SHTMs and HTMs. This included ensuring "that the Facilities comply with the requirements of such SHTM and HTM" and "adopt as mandatory all recommendations and preferred solutions contained in such SHTM and HTM".	Compliance with Room Data Sheets and the Environmental Matrix were not the only relevant contractual provisions in relation to ventilation requirements. Many additional contractual requirements were referred to, in particular Project Co's compliance with SHTM 03-01.
4.	16	In addition, paragraph 4.5.17 *(Completion Requirements)* of the BCRs states as follows:	As above.

Item	Para.	Additional relevant contractual provisions	Comments
		- "On completion of the Works…..Project Co shall demonstrate how the proposals facilitate the control and management of an outbreak and spread of infectious diseases in accordance with SHTM 03-01 and SHFN 30".	
5.	16	In addition, paragraph 5.2 *(Infection Prevention & Control)* of the BCRs states as follows: - "Project Co to ensure that all aspects of the Facilities allow for the control and management of any outbreak of or spread of infectious disease in accordance with the following: - Ventilation in Healthcare Premises (SHTM 03-01)	As above.
6.	16	In addition, paragraph 8 (*Mechanical & Electrical Engineering Requirements*) of the BCRs states the following: - "For the avoidance of doubt the hierarchy of standards and advice	As above. It should be noted that the first sentence in paragraph 8 of the BCRs is to the effect that Project Co shall provide the Works to comply with the (IHSL) Environmental Matrix. Given the "for the avoidance of doubt" wording set out in the adjoining column, it is made abundantly clear that the hierarchy of standards trumps any particular obligation.

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		detailed in paragraph 2.5 shall apply to this paragraph 8."	The same "for the avoidance of doubt" language is also used in paragraph 6 (*Civil & Structural Engineering Requirements*) of the BCRs. It is therefore clear that Project Agreement makes no distinction between different elements of the Works and that the hierarchy applies equally to mechanical, electrical, civil and structural works.
7.	16	In addition, paragraph 8.1 *(Minimum Engineering Standards)* of the BCRs states as follows: - The design of the environmental control system shall be co-ordinated and integrated with the design of the structure and the occupied areas to maximise the control and flexibility of the Facilities. The following is a list of non-exhaustive SHTMs, HBNs and HTMs applicable to the Facilities: - SHTM 03-01: Ventilation in Healthcare Premises.	As above.
8.	16	In addition, paragraph (i) Internal of paragraph 8.5.3 *(Air Quality)* of the BCRs states as follows: - "Particular attention shall be given to the risk of cross infection in the	As above.

Item	Para.	Additional relevant contractual provisions	Comments
		hospital / healthcare environment…..Project Co shall demonstrate through submission of information to the Board through Reviewable Design Data for review by the Board….how the proposals facilitate control and management of an outbreak and spread of infectious diseases and in particular shall comply with the requirements of SHTM 03-0 (Ventilation in Healthcare Premises).	
9.	16	In addition, paragraph 8.7.8 *(Mechanical Ventilation and Air Conditioning)* of the BCRs states as follows: - "Project Co shall demonstrate how the proposals shall facilitate the control and management of an outbreak and spread of infectious diseases in accordance with SHTM 03 – 01, SHFN 30 and HAI-SCRIBE".	As above.
10.	16	In addition, paragraph 8.7.22 *(Ventilation and Air Conditioning of Isolation Rooms)* of the BCRs states as follows:	As above.

Item	Para.	Additional relevant contractual provisions	Comments
		- Ventilation and air conditioning systems for these rooms shall be designed and installed in accordance with SHTM 03-01, 04-01 and NHSL Model Engineering Specification C04".	
11.	16	In addition, paragraph 2.5 *(Hierarchy of Standards)* of the BCRs states as follows: - "Where contradictory standards/advice are apparent within the terms of the Board's Construction Requirements and the Appendices then subject to the foregoing paragraph then (1) the most onerous standard/advice shall take precedence and (2) the most recent standard/advice shall take precedence. When the more onerous requirements is to be used the Board will have the right to decide what constitutes the most onerous requirement.	As the Inquiry has identified, the Project Agreement was a long and complex document. Paragraph 2.5 is important as it acknowledges that inconsistencies may arise in relation to technical standards over such an array of technical documentation. Paragraph 2.5 clearly states that if there were contradictory standards within the BCRs then the most onerous standard would be required to take precedence. In this particular case, SHTM 03-01 would take precedence over any apparent anomaly in the Environmental Matrix and Room Data Sheets. The point is that there is no basis, either in the Project Agreement or otherwise, to view the Environmental Matrix and Room Data Sheets as being somehow ring-fenced or not subject to the hierarchy of standards. Any such carve-out would not make sense, given the importance of the elements identified in the Environmental Matrix and the Room Data Sheets. All standards within the Project Agreement and BCRs required to be read in the round by Project Co with the most onerous standards taking precedence.

Item	Para.	Additional relevant contractual provisions	Comments
			Project Co had design responsibility/risk for designing the Facilities, pursuant to Clause 12.3 *(Design responsibility)* of the Project Agreement. This responsibility included the degree of skill and care that would be reasonably expected of a competent professional designer experienced in carrying out design activities of a similar nature, scope and complexity to those comprised in the Works. Project Co should have read all technical documentation and identified any conflicting standards with which it required to comply. Any conflicting standards should have been raised with the Board and the most onerous standard should then have been complied with by Project Co. The BCRs refer to the Environmental Matrix four times (one being a definition). The BCRs refer to SHTM 03-01 seven times. To suggest that, as a matter of contract, one document somehow trumps the hierarchy of standards (in the absence of express wording) is not accurate and ignores the correct approach to contractual construction. Having regard to the clear terms of the BCRs, and the terms of the Project Agreement, it is clear that the correct way to interpret the technical standards is that the most onerous standard must prevail.
12.	17	N/A	It is important to recall that the Environmental Matrix and the Room Data Sheets that formed part of the Project Agreement were IHSL documents for which IHSL had sole responsibility (except insofar as they touched on Operational Functionality and were Approved RDD). A pre-contractual draft environmental matrix had been provided to bidders but, by the time the Project Agreement was entered into, the Environmental Matrix was IHSL's. When this is understood, it is clear that the pre-contractual

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			environmental matrix was Disclosed Data for which NHSL carried no design responsibility. Further, as noted above, compliance with the Environmental Matrix was but one aspect of the BCRs to be complied with by Project Co. The Environmental Matrix was not a "standalone" document which took precedence over the other standards set out in the Project Agreement. The Environmental Matrix, as incorporated into the Project Agreement, conflicted with the other standards set out in the BCRs relating to SHTM 03-01. That was a matter for IHSL. At very least, Project Co should have identified that there was a conflict of standards, raised this with the Board and then complied with the most onerous standard.
13.	18	N/A	As a general point, it is unclear how derogations relating to the Environmental Matrix *"took compliance with the Environmental Matrix outside of Project Co's obligations".* Indeed, the reference to SHTM 03-01 confirms that Project Co was aware of the need to comply with SHTM 03-01 except where there was an express derogation agreed with the Board through the Derogation Register. As per Clause 12.3 *(Design responsibility)* of the Project Agreement, Project Co had overall design responsibility and could not contract out of this.

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14.	22	N/A	Noted that ABD Sheets automatically complied with English guidance (not Scottish guidance). There was no "off the shelf" tool that would ensure compliance with Scottish guidance. Reference is made to NHSL's "Narrative on the Activity Database (ADB) and Room Data Sheets (RDS)", submitted on 3 February 2023.
15.	23	N/A	Clause 12.3 *(Design responsibility)* is a key clause as it places all design risk onto Project Co. In terms of Clause 12.1 *(Overall Responsibility)* of the Project Agreement, Project Co was required to carry out the Works (i.e. to build the RHCYP & DCN) to satisfy the BCRs, Project Co's Proposals and the Project Agreement. In addition, Clause 12.3 *(Design responsibility)* of the Project Agreement stated that Project Co warrants that it *"has used and will continue to use, the degree of skill and care in the design of the [RHCYP & DCN]….that would reasonably be expected of a competent professional designer experienced in carrying out design activities of a similar nature, scope and complexity to those comprised in the Works".* Clause 12.3 *(Design responsibility) of the Project Agreement* made it very clear that design risk for RHCYP & DCN sat with Project Co.
16.	24	N/A	In terms of Clause 12.5 *(Board Design Approval)*, the Board confirmed that it had reviewed certain Project Co's Proposals and that these satisfied the concept of "Operational Functionality", subject to any qualifications or comments set out in Section 9 *(Board's Qualifications/Comments in*

Item	Para.	Additional relevant contractual provisions	Comments
			respect of Operational Functionality requirements) of Schedule Part 6 of the Project Agreement. This statement represented a line in the sand for both IHSL and the Board. Therefore, a demarcation emerged between:- Design Data which had been reviewed by the Board and which satisfied Operational Functionality; - Design Data which had been reviewed by the Board and had been commented on by the Board (as per the Section 9 *(Board's Qualifications/Comments in respect of Operational Functionality requirements)* of Schedule Part 6 of the Project Agreement; and - Design Data that had not been reviewed by the Board. This was the remaining Reviewable Design Data for the RHCYP & DCN. Clause 12.6 *(Board Design Approval)* would apply to this Reviewable Design Data. The Qualifications in relation to the Section 9 *(Board's Qualification/Comments in respect of Operational Functionality)* of Schedule 6 *(Construction Matters)* are on the bible and can be forwarded to the Inquiry if need be.
17.	24, footnote	N/A	It is submitted that it is not arguable that ventilation fell into the scope of Operational Functionality. No party at any time during performance of the contract suggested that ventilation fell within the scope of Operational Functionality. This is hardly surprising. The limited scope of Operational Functionality had been made clear in volume 1 of the ITPD, especially at Appendix E. Operational Functionality was about the geography of a room or department and the geography of equipment within such a room or department.

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			For example, practical questions that the Board would need to consider in relation to room lay outs to ensure that they were operationally functional would include: - whether medical staff could approach patients from both sides of a room?; - whether catering trolleys could enter and exit a room?; - whether kitchens or laundries had been placed appropriately (i.e. not next to critical care areas)?. The Board had a discreet obligation to "sign off" the location of a room and what equipment was contained within a room, but only insofar as this affected how the room would be used for medical and non-medical purposes. Although Project Co had overall design risk pursuant to Clause 12.3 *(Design responsibility)* of the Project Agreement, Clause 12.5 to Clause 12.6 *(Board Design Approval)* of the Project Agreement introduced a narrow element of design approval by the Board for Reviewable Design Data (i.e. design data which was set out in Section 5 of Schedule Part 6 of the Project Agreement, this being design data which had not been finalised at financial close in February 2015). The Board had a responsibility to determine whether Reviewable Design Data satisfied Operational Functionality. Operational Functionality is a discreet obligation and did not dilute the overall design risk which was placed upon IHSL pursuant to Clause 12.3 *(Design responsibility)* of the Project Agreement to ensure that the RHCYP

Item	Para.	Additional relevant contractual provisions	Comments
			& DCN complied with all obligations in the Project Agreement and the BCRs.
18.	30	N/A	The fourth section of Reviewable Design Data related to Part 4 (Non-Approved Project Co Proposals Design Data Comments).
19.	32	N/A	Project Co was not to commence construction of the RHCYP & DCN to which the Reviewable Design Data related until it had submitted the appropriate Reviewable Design Data to the Board. Once submitted, the options available were as follows: - The Board's Representative could confirm that IHSL was entitled to proceed with construction in accordance with paragraph 3.3 (this being the list of objections that the Board is entitled to raise) of Schedule Part 8 *(Review Procedure);* or - Project Co could dispute the status of such Reviewable Design Data pursuant to paragraph 1.3.1 or paragraph 4.3 of Schedule Part 8 *(Review Procedure);* or - Project Co could proceed to construct at its own risk pursuant to paragraph 1.3.2 of Schedule Part 8 *(Review Procedure).*
20.	33	N/A	The "Board design approval" requires to be taken in the context of two key provisions of the Project Agreement: **Clause 12.6.2 *(Board Design Approval)***

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			Firstly, Clause 12.6.2 *(Board Design Approval)* states that when Reviewable Design Data becomes an Approved RDD Item, such approved RDD Item shall *"be deemed to have satisfied the requirements of the Board in the manner and to the extent set out in Table A in Appendix 1 of Schedule Part 8 (Review Procedure) ("**Table A**").* This Table A specifically states that in relation to each Approved RDD Item, such item has satisfied Operational Functionality. **Paragraph 4.5 (Effect of Review) of Schedule Part 8 (Review Procedure)** Secondly, paragraph 4.5 *(Effect of Review)* of Schedule Part 8 *(Review Procedure)* states that in terms of Reviewable Design Data endorsed with "Level A – no comment", "Level B – proceed subject to amendment as noted" or "Level C – subject to amendment as noted", such return *"shall not relieve Project Co of its obligations under this [Project] Agreement nor is it an acknowledgement that Project Co has complied with its obligations".* The only caveat to this statement is in relation to Table A. Therefore, Approved RDD Items which have satisfied Operational Functionality (as referred to in Table A) are separate to the general obligation placed upon IHSL to comply with the Project Agreement (including Clause 12*.3 (Design responsibility)).* **Summary** In summary, if the Board endorsed Reviewable Design Data with a "Level A – no comment" in relation to Operational Functionality, IHSL could take this at face value and it is the Board's risk if this comment was not correct. However, by the Board providing a "Level A – no comment" the Board did not relieve Project Co from complying with its other obligations under the

Item	Para.	Additional relevant contractual provisions	Comments
			Project Agreement (including compliance with the BCRs and Clause 12.3 *(Design responsibility)).* Therefore, although the Board could choose to point out "errors" to Project Co, such as non-compliances with the BCRs, it was not duty bound to do so pursuant to Schedule Part 8 *(Review Procedure).* It was for IHSL to self-monitor its compliance with the Project Agreement and the BCRs.
21.	34.	N/A	This analysis is correct, although the phrase "approved basis for construction" may be apt to mislead. Project Co had design responsibility for the Project throughout. The Board approved design only to the extent of Operational Functionality. Approval did not signal anything beyond that and had no effect on design responsibility other than in relation to Operational Functionality.
22.	34, fn. 8	N/A	Having regard to the definitions of "Approved RDD Item", "Reviewable Design Data" and Schedule Part 8, it is submitted that Reviewable Design Data must be understood to refer to the entirety of the document submitted for review under the Review Procedure (which is defined as a "Submitted Item" in Schedule Part 8). As is made clear, an item of Reviewable Design Data falls within a subset of Submitted Items. The Board's approval of a Submitted Item means that Project Co complies with or implements it. If the Submitted Item comprises Reviewable Design Data, the approval process is more complex. Furthermore, approval transfers risk in relation to matters falling within the scope of Operational Functionality.

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23.	36, footnote 9	N/A	Regarding the statement in the footnote as to *"whether or not the BCRs imposed a requirement inconsistent with SHTM 03-01. As explained elsewhere in this note, that may be a difficult question to resolve",* it is suggested that paragraph 2.5 *(Hierarchy of Standards)* of the BCRs resolves this question, i.e. if there are conflicting standards, the most onerous standard takes precedence. See the various responses to paragraph 16 above.
24.	36	N/A	In terms of the statement that the *"Review Procedure may have presented the Board with an opportunity to detect deficiencies in the design"*, this may be so but there was no contractual duty on the Board to do so. Any such suggestion would entirely subvert the risk profile for the Project. Project Co had responsibility for design risk. The Board only had a narrow design risk in respect of Operational Functionality. The Review Procedure was not a mechanism for the Board to act as a Clerk of Works for the project. Design risk sat firmly with Project Co. As suggested above, a conflict in design should have meant that the most onerous standard required to be complied with. It is clearly stated in Paragraph 2.5 *(Hierarchy of Standards)* that where the more onerous standard is to be used the Board would have the right to decide what constituted the more onerous requirement. If Project Co had identified a contradictory standard, it should have raised this with the Board, via the Review Procedure or otherwise. The fact is that Project Co never raised any issue about conflicting standards, which went against its clear duty set out in Clause 12.3 *(Design Responsibility).*

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25.	40	N/A	During Project Co's Pre-Completion Commissioning, the Board was also entitled to undertake the Board's Commissioning.
26.	45	N/A	Reference to Clause 17.7 should be to Clause 17.17. It is correct to state that the Actual Completion Date was financially significant. Until the Actual Completion Date (this also being the date of the Payment Commencement Date), Project Co received no monthly fee from the Board. It relied solely upon drawn down funds from its bank loan and any liquidated damages levied against the building contractor (this being Multiplex).
27.	53	N/A	This analysis is incorrect. As noted above, the Environmental Matrix, as incorporated into the Project Agreement, was an IHSL document (and, contractually, is not the same as the environmental matrix provided to bidders as Disclosed Data during the procurement process). The IHSL Environmental Matrix was not a "specification which Project Co was required (and entitled) to deliver". It was an IHSL document that, like all other technical and design material, required to comply with the hierarchy of standards (including SHTM 03-01). It was also subject to the RDD process. The mistake of viewing the Project Agreement as including "specifications" to which Project Co was required to build has been commented on above. It is an error that, in different guises, appears to pervade the analysis in PPP4. There is no basis in the Project Agreement for suggesting that IHSL's Environmental Matrix somehow trumped all other contractual requirements set out in the BCRs and entirely subverted the Project Agreement's clear provisions on risk allocation. To suggest otherwise is to

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			fail to have regard to *inter alia* Clause 12 and the clear hierarchy of standards set out in the BCRs for conflicting standards. All technical documents and standards required to be read in the round within any conflicting standards being notified to the Board.
28.	54	N/A	This paragraph makes express the confusion that is implicit at paragraph 53 of PPP4. The Environmental Matrix, as incorporated into the Project Agreement, is an IHSL document. Its predecessor, disclosed by NHSL during the tender process, is a paradigm example of Disclosed Data. If, and to the extent that, IHSL chose simply to adopt the earlier environmental matrix as its own document for incorporation into the contract was a matter for IHSL. As Disclosed Data, the provisions of Clause 7.1 *(No Liability)* apply. i.e. the Board had no liability. Project Co had design responsibility and had a contractual obligation to design ventilation to SHTM 03-01. As identified, the IHSL Environmental Matrix was at odds with SHTM 03-01. IHSL should have identified any conflicts and raised them with the Board. This is because Project Co had design responsibility pursuant to Clause 12.3 and should have identified the conflict as a "*competent professional designer experienced in carrying out design activities of a similar nature, scope and complexity to those comprised in the Works".* The status of the IHSL Environmental Matrix as Reviewable Design Data is collateral to the issues of interest to the Inquiry. The key point addressed in the review process for Reviewable Design Data related to whether or not the Board's requirements for Operational Functionality were met. Ventilation did not fall within the scope of Operational Functionality. The

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			status of the IHSL Environmental Matrix as Reviewable Design Data also meant that the Board could assess it for compliance with the BCRs. However, the Board's approval did not transfer risk in relation to approved items (other than in relation to Operational Functionality).
29.	72	N/A	Section 9 *(Board's Qualifications / Comment in respect of Operational Functionality Requirements)* were an Agreed Form document within the completion bible prepared by Allen & Overy.
30.	74	N/A	It is agreed and accepted that the definition of Operational Functionality does not extend to ventilation.
31.	87	N/A	The executed version of the Independent Tester's contract is set out in the completion bible which was prepared by Allen & Overy.
32.	94	N/A	The National Infection Prevention and Control Manual is set out in Schedule Part 28 of the completion bible which was prepared by Allen & Overy.
33.	95	N/A	The date is 5 August 2020.
34.	110		As noted above, the reference to "the Project Agreement specification" is not appropriate since there was no Project Agreement specification. It is not accepted that there was any material "ambiguity" in relation to the IHSL Environmental Matrix and its contractual status. To the extent that the IHSL Environmental Matrix included parameters that were in conflict with guidance (e.g. SHTM 03-01), the hierarchy of standards applied unless there was a specific derogation included in the derogation register. In

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			relation to the issues of interest to the Inquiry, there were no entries in the derogation register. In addition, Clause 12.2.1 of the Project Agreement states that the fact Project Co has complied with its Project Co Proposals is not a defence to not complying with the BCRs.
35.	111	N/A	This conflict was resolved by paragraph 2.5 *(Hierarchy of Standards)* of the BCRs. Such a term is standard in the drafting of complex contracts. There is no ambiguity in how this paragraph should be applied.
36.	112	N/A	Any suggestion that the Environmental Matrix, as incorporated into the Project Agreement, acted as some sort of contractual specification that had been agreed upon by, and therefore bound, the Board is rejected. Reference is made to the foregoing comments about the Environmental Matrix being an IHSL document in relation to which IHSL had full design responsibility. Generally speaking, any technical document produced by Project Co will have "highly particularised details". Yet, the production of "highly particularised details" does not subvert the contractual risk allocation, even if the document has been through the review procedure. There is no basis, either in the contract or as a matter of common sense, to suggest that the IHSL Environmental Matrix has some sort of (unspecified) unique contractual status in this regard. The draft environmental matrix as provided to tenderers was Disclosed Data. In relation to the IHSL Environmental Matrix incorporated into the Project Agreement, Project Co had ultimate design responsibility pursuant to Clause 12.3 *(Design responsibility).* As a competent contractor, Project Co should have identified the conflicting standards expressed in SHTM 03-

Item	Para.	Additional relevant contractual provisions	Comments
			01 and the Environmental Matrix, raised such conflict with the Board and then complied with the highest standard (this being SHTM 03-01).
37.	113	Paragraph 2.5 of the BCRs: - "While the Board has placed a clear obligation on Project Co in relation to NHS publications, it also wishes to acknowledge that in certain cases the subject matter, guidance and advice included therein may have been further developed and improved since the date of publication. In this regard, the Board does not wish to limit the use of current best practice or innovation in relation to the adoption of design standards." - "For the avoidance of doubt, the Board considers NHS publications reflect minimum standards and any alternatives proposed by Project Co shall provide a similar or enhanced level of service and quality."	This paragraph is rejected. Paragraph 2.5 of BCRs is clear and unequivocal in its effect and application. It is also specifically referred to in paragraphs 6 and 8 of the BCRs, the latter being one of the paragraphs on which the Inquiry appears to place great weight. Such references do not make sense if paragraph 2.5 is only intended to resolve conflicts between published standards. Similarly, other parts of paragraph 2.5 (quoted in the adjoining column) make it clear that paragraph 2.5 is of much wider application than is suggested. This becomes clear when paragraph 2 (*Project Wide Requirements)* of the BCRs is read as a whole. For instance: - "Project Co shall ensure the design complies with the general ethos detailed here, whilst also addressing the detailed requirements listed in the following clauses." - "Project Co shall ensure that the design of the Facilities draws upon and endeavours to further develop, improve and exceed current best practice (and Good Industry Practice) standards achieved in other similar schemes." - Project Co shall ensure the Facilities comply with the following general requirements of the Board:… (b) Adherence to the requirements set out in CEL 19(2010)". - "…. 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

Item	Para.	Additional relevant contractual provisions	Comments
			of the NHS Requirements as the same may be amended from time to time: … h) HTM and SHTM". - "Project Co shall, in relation to all SHTM and all HTM (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 solutions contained in such SHTM and HTM". Paragraph 113 of PPP4 falls into the same trap, repeated elsewhere in PPP4, of suggesting that the IHSL Environmental Matrix constituted a "specification" for which the Board was responsible and that it was a standalone document which, uniquely in the context of the Project Agreement, subverted the allocation of design responsibility established in Clause 12. If the Board had specified a departure from SHTM 03-01 in the IHSL Environmental Matrix then why would reference to SHTM 03-01 be referred to within the BCRs on an un-caveated basis, i.e. no mention is made within the BCRs of the Environmental Matrix introducing a lesser standard than SHTM 03-01?

Submitted: 10 March 2023

	NHS LOTHIAN: CHRONOLOGICAL TABLE OF CLINICAL INPUT IN TO THE DESIGN UP TO FINANCIAL CLOSE (focus on critical care)
	Background The table below provides supplemental information to NHS Lothian's response to (i) paragraphs 3.11 – 3.13 the Scottish Hospitals Inquiry (SHI) Paper on the Reference Design and (ii) question 9(d) in the SHI Procurement Working Paper. As noted in NHS Lothian's responses to the Reference Design Paper, extensive engagement between the clinicians, the Project Team (including NHS Lothian Capital Planning and Project Managers) and the reference design team did take place. To assist further, NHS Lothian has prepared the chronological table below which demonstrates how the clinical engagement fitted in with the development of the reference design and beyond to financial close. **Summary** The clinical aspects of the reference design were contained in the Clinical Output Specifications for the RHCYP and DCN project, which were developed and approved by the clinicians, Capita (healthcare planners) and Mott MacDonald Ltd (MML, Technical Advisors to the Board)[1]. The B1 Critical Care Clinical Output Based Specification (the "COS") was the key document communicating the clinical requirements to the bidders and contained specification of the relevant technical design guidance, including SHTM 2025 (the pre-cursor to SHTM 03-01)[2]. The COS states that "*All PICU and HDU bed spaces are required to be of the same specification to allow the greatest flexibility of use."* This included bed spaces in multi-bed wards, single rooms and isolation cubicles within critical care. The clinicians reviewed and signed off on the operational functionality elements of reference design, namely at 1:500; 1:200 and 1:50 stages (for key and generic rooms).[3] The clinicians reviewed the design in relation to space and content, i.e. the layout, adjacencies, clinical activities and equipment required. One of the key issues from the outset was the pendant[4] design and tendering. It is noted in the COS that "*Lead clinical staff from Critical Care Unit must be involved with the tendering and specification of the pendant and bed head services."* One of the functions of the activity database (ADB) relates to the equipment required for each room which is provided in template form in the ADB. The equipment aspect of the ADB is distinct from the m&e function of the ADB. The clinicians are not m&e engineers. The clinicians did not review the detailed m&e technical documents like the Environmental Matrix (EM) in relation to ventilation requirements such as air changes per hour. NHS Lothian appointed Technical Advisors, MML, to manage the specialist m&e aspects of the project[5].

[1] See Board paper dated 12 October 2012 which details the Approvals Process for the COS submitted to the Inquiry on 21 July 2022, PB_0116
[2] Other design guidance referred to in the COS included: HBN 23: Hospital Accommodation for Children & Young People; HBN 57: Facilities for Critical Care; SHFN30: Version 3: Infection Control; SHTM 61: Flooring; HBN 14: Pharmacy; Paediatric Intensive Care Society Standards Document published in 2001.
[3] Reference is made to documentation submitted to the Inquiry on 21 July 2022 and further documentation submitted on 18 August 2022, in particular the (i) Agreed 1:200 Issue Log and sign off register dated 9 March 2012 and (ii) Agreed 1:50 Key rooms sign off register which contain the signed drawings dated 16 March 2012, submitted on 18 August 2022, RD_0001 and RD_0002.
[4] Pendants hang over the patient's bed and provide access to multiple gas, electrical and data outlets and are a key piece of equipment in critical care.
[5] See NHS Lothian's Paper Apart re the Appointment of MML as Technical Advisors submitted to the Inquiry on 19 August 2022.

	PRE NOVEMBER 2010: Re-provision of the RHSC (stand-alone) with Capital Funding
	By way of background, when the project was capital funded and the design was progressing with BAM as the Principal Supply Chain Partner, 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, who's stated purpose was: *"To progress design of the new hospital which will deliver the accommodation required to and support the delivery of the agreed redesigned clinical service, and the facilities required by patients and their families and staff."*[6] The RHSC Clinical Design Task Group comprised representation from: department clinical design leads; Edinburgh University; a family/public representative; Infection Control; Equipment Commissioning; Health & Safety; a Partnership Rep; NA (architects); Tribal (healthcare planners); BAM; and, the NHS Lothian Project Team and project support. The RHSC Clinical Design Task Group met on at least 21 occasions between 17 September 2009 and 30 September 2010. The Project Team had planned the third round of 1:50 meetings scheduled to start on the week of 8 November and to last for three weeks. When the change in funding was announced by the Scottish Government in November 2010, those meetings were cancelled. Prior to that, from the very 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. In relation to critical care, there was a sub group who met on at least 6 occasions between April 2008 and October 2008. The membership comprised of 12 clinicians, including nurses and pharmacists. NHS Lothian can provide further information and supporting documentation in relation to the clinical engagement during the capital funded project if that would assist the Inquiry.
	NOVEMBER 2010: Switch to NPD model
February 2011	23 February 2011: NHS Lothian held a clinical brief with medical staff to update on the Business Case Addendum, i.e. DCN being added to the RHSC project and switch to NPD scheme.
May 2011	13 May 2011: Clinical Update from Project Dashboard[7] included: ▪ Adjacency Relationship Matrix work being progressed with services.[8] ▪ Draft Schedule of Accommodation prepared.[9]

[6]See the Master Copy RHSC Clinical Design Task Group dated 7 April 2010 submitted to the Inquiry with this table, RD_0014.
[7] Project Dashboard reports were prepared collectively by the Project Team (with input from MML as Technical Advisors) as a means of updating the Project Board as to the key aspects of the Project. The Project Dashboard reports were issued to the Project Board in advance of meetings and key issues discussed (as seen in the Project Board Minutes/Action Notes). NHS Lothian has only extracted the information relevant to the clinical input in the reference design. However, it is suggested that the Project Dashboards and Project Board minutes are an excellent source conveying the timeline of what work was occurring in the various work streams from reference design through to commencement of construction and the RDD process. NHS Lothian submitted the Project Dashboard reports on n 21 July 2022 but, for ease of reference, have also submitted a bookmarked PDF of the Project Dashboard reports with this table, RD_0015.
[8] Fiona Halcrow, retired NHS Lothian Project Manager (senior nurse), progressed this work.
[9] Neil Mclennan and Graham Gillies, retired NHS Lothian Senior Capital Project Managers, progressed this work.

	▪ Work progressing with the review of clinical and non-clinical operational procedures. ▪ Request with the TAs to finalise the 1:50 Detailed Design Process of the stand-alone building to allow completion of the Room Data Sheets.[10] ▪ DCN Equipment lists[11] are being pulled together at this stage using the RHSC ADB sheets[12]. Meetings will be arranged with users to confirm equipment. ▪ Reference Design Structure (NHS Lothian Internal) finalised and Sub Task Groups identified.[13] 13 May 2011: Reference Design update from Project Dashboard included: ▪ The Design Team has produced a programme showing a 12 month duration to complete the Reference Design, based on the schedule of deliverables issued via NHSL on 13/04/11 and on three rounds of consultation meeting with the clinical staff. This is currently being looked at in order to reduce the timescale to an eight month period, one agreement being that clinical consultation will be reduced to two rounds.
July 2011	7 July 2011: First 1:500 Design Task Group Meeting (see 12 August 2011 Project Dashboard clinical update below).
August 2011	11 August 2011: Second 1:500 Design Task Group Meeting took place. 12 August 2011: Clinical Update from Project Dashboard included: ▪ Reference Design Brief updated. Version .02 circulated to TAs. ▪ Departmental Design Briefs work on-going. RHSC Therapy Department Brief still outstanding. DCN Therapy brief needs updated to reflect new SOA. Work progressing with RHSC OPD Design Brief i.e. exact location of specific clinic services in NB. ▪ Meetings held with the following clinical departments – Theatres/Critical Care/Radiology/RHSC OPD/RHSC Medical In-Patients. ▪ Progressing work with CAPITA re Bed / Radiology / Theatre Modelling. CAPITA Report 1.5 circulated to RHSC CMT staff for comment. Output reported to LUHT SMT 14.07.11. Work ongoing. ▪ First 1:500 Design Task Group held on 07.07.11. Work progressing with TA's / Architects on design. 2nd Design Task Group scheduled to occur 11.08.11. ▪ Completed majority of meetings with users. ▪ At present rationalising equipment lists. ▪ Generic rooms have been checked for size and shape and returned to Nightingale Associates (NA). ▪ Generic room revised component lists to NA by 12.08.11

[10] This is in reference to the work undertaken on the RDS by the architects, Nightingale Associates (NA) when the Project was for the stand-alone RHSC only.
[11] Neil Mclennan retired NHS Lothian Senior Capital Project Manager, progressed this work.
[12] As with footnote 10, this is in reference to the work undertaken for the RHSC ADB sheets when the Project was for stand-alone RHSC only.
[13] Submitted to SHI on 19 August 2022 , RD_0003 and RD_004.

September 2011 – January 2012	As above, the first Design Task Group meetings for the 1:500 drawings were held in July and August 2011. Thereafter and as detailed below, the 1:200 drawings were reviewed and signed off by the critical care department leads for the design, Dr Julie Freeman and Laura Reilly, as well as Carol Horsburgh (Infection Prevention control) in January and February 2012. The Design Task Group review of the critical care drawings with the reference design team comprised[14]: • Fiona Halcrow, NHS Lothian, Project Manager (senior nurse) • Neil McLennan,, NHS Lothian, Senior Capital Planning Manager • Dr Julie Freeman, NHS Lothian, Critical Care Consultant in Paediatric Anaesthesia and Lead for the design • Laura Reilly, NHS Lothian, Critical Care Clinical Nurse Manager • Dr James Steers, NHS Lothian, paediatric neuro-consultant and part-time Clinical Director for DCN • Dr David Rowney, NHS Lothian, Critical Care Consultant • Carol Horsburgh or Jean Harper, NHS Lothian, Infection Prevention Control • Mr Fraser Munro, NHS Lothian, Paediatric Consultant Surgeon. • Thomas Brady and/or Richard Park, Davis Langdon • Jamie Brewster or Nick Durham, Nightingale Associates • David Stillie or Colin McRae, MML In summary, the process generally was that: (i) Fiona Halcrow received the first draft drawing from NA and issued it by email to the Paediatric Critical Care Users (PCCU) Group, which consisted of around 30 or so interested persons who would use critical care, including surgeons and general paediatricians, for review/comment. Hard copies were available to staff on a wall notice board. Drawings were generally issued on a Monday. (ii) Dr Julie Freeman collected comments from the PCCU to feedback in advance of the Design Task Group meeting, either by email or at an internal pre-meeting which was open for all PCCU to attend and provide comments. These internal pre-meetings were generally on a Wednesday. (iii) Dr Julie Freeman would feedback comments on the drawings before, during and after Design Task Group meetings either by email via Fiona Halcrow or verbally during meetings. The Design Task Group meetings were generally on a Thursday. (iv) Davis Langdon kept an issues log to ensure that NA captured all of the changes requested by the clinicians and NHS Lothian Project Team. (v) Revised drawings were issued to Fiona Halcrow by NA. Fiona Halcrow would undertake a "quality assurance check" to ensure all changes were captured and avoid inefficient use of clinicians' time before providing to Dr Julie Freeman and Laura Reilly for further review/comment (process at (i) – (iv) repeated).

[14] Not all of those listed attended every meeting but there was always representation from the NHS Lothian Project Team, Critical Care clinicians, Nightingale Associates, Davis Langdon, and MML.

	(vi) Once satisfied the drawings met the operational functionality requirements for the clinical service provided, Dr Julie Freeman, Laura Reilly and/or Carol Horsburgh signed the drawings, known as "sign off". (vii) As well as the issues log, David Langdon kept a sign off register which included scanned copies of the signed off drawings.[15] NHS Lothian has submitted to the Inquiry a number of emails between[16] as between Fiona Halcrow and Dr Julie Freeman in relation to the sign off of the 1:500; 1:200 and 1:50 drawings for critical care. The emails submitted demonstrate aspects of the clinical engagement and review of the drawings for critical care, in addition to what was communicated verbally. The clinicians reviewed the drawing to ensure operational functionality with the service provided by their department. Feedback form from clinicians included issues such as the following (non-exhaustive list): - Department adjacencies - Department layout - Room adjacencies - Patient flows/pathways - Equipment requirements within each room/bay - Equipment storage - Staff facilities - Family facilities, e.g. the location of bereavement suites.
October 2011	13 October 2011: First 1:200 Design Task Group Meeting (to review first 1:200 drawing)
November 2011	10 November 2011: Second 1:200 Design Task Group meeting (to review second drawing). 29 November 2011: NHS Lothian internal meeting only (to review third 1:200 drawing)
December 2011	6 December 2011: Third 1:200 Design Task Group Meeting (to review third drawing)
January 2012	12 January 2012: First 1:50 meeting 13 January 2012: Clinical Update from Project Dashboard report included: ▪ 1.200 Drawing final sign off work progressing. 38 Departments Signed off. 4 Departments Signed off with minimal adjustments to be made. 14 Departments work on-going and should be complete by the end of January 2012. ▪ 1.50 Drawings (Key Rooms) meetings commenced w/b 9 Jan 2012.

[15] See 1:200 and 1:50 issue log and sign off registers submitted to the Inquiry on 19 August 2022, RD_0001 and RD_0002.
[16] All emails relied on in this table have been submitted to the Inquiry, 0017 – RD_0075

	31 January 2012: Critical Care sign off on 1:200 drawings
February 2012	8 February: Second issue of 1:50 drawings 17 Feb 2012: 1:200 Scheme Design Report by Nightingale Associates. 24 February 2012: Second 1:50 meeting and Critical Care sign off on 1:50 drawings as key rooms.
	MARCH 2012: Reference Design Completed
	APRIL 2012: Planning Application Granted
	AUGUST 2012: SA6 (land) signed on 10 August 2012
	SEPTEMBER 2012: OBC for Joint RHSC + DCN
October 2012	12 October 2012: See the Project Board Paper: Clinical Output Specifications Development and Approvals Process – Critical care COS issued to bidders as part of ITPD.[17] This is a key document which sets out the clinical input and design approval process and should be read in full. The paragraphs quoted below demonstrate that NHS Lothian relied on their Technical Advisors (MML) to review the COS from the technical/engineering perspective (i.e. non-clinical aspects). Again, it is of note that the COS included specification of the relevant guidance SHTM 2025 (the pre-cursor to SHTM 03-01) and stated that "*All PICU and HDU bed spaces are required to be of the same specification to allow the greatest flexibility of use."* Guidance note 14 (later 15) on the EM specified 10 ac/hr and required compliance with SHTM 03-01 for critical care areas. The BCRs required compliance with SHTM 03-01. - Para 3.6*: The specifications [COS] were reviewed by the Technical Advisors and Capita and further changes made.* - Para 3.7: *The specifications [COS] were cross referenced to the Schedule of Accommodation, Adjacency Matrix, Board's Construction Specification and relevant Health Building Notes.* - Para 3.8: *A workshop was held with the Technical Advisors, Project Team and other key stakeholders to ensure that there was consistency across ITPD documentation.*

[17] Submitted to the Inquiry on 21 July 2022, PB_0116

November 2012	9 November 2012, Project Dashboard re Clinical / Equipment included ▪ Clinical Output Specifications forwarded to SFT for review ▪ Equipment Schedule, Equipment Responsibility Matrix and Operational/design notes all issued as per programme.
	DECEMBER 2012: SA7 (infrastructure) agreed + OJEU Notice issued
13 December 2012	13 December 2012: NHS Lothian hosted a Bidders' Day at which Tim Davidson (Chief Executive, NHS Lothian); Susan Goldsmith (Director of Finance, NHS Lothian); Peter Reekie (SFT), and; Brian Currie (Project Director, NHS Lothian) gave a presentation to prospective bidders in relation to (i) what the re-provision of the RHSC and DCN entailed in terms of a general overview of the project; (ii) the NPD programme; and, (iii) further detail on the project, the reference design and the procurement process. This included an explanation by Brian Currie to potential bidders in relation to what was meant by the Reference Design and Operational Functionality. The Presentation and Speakers Notes[18] should be read in full. This was the first opportunity the bidders had to learn about the project and, from the very outset, it can be seen that it was communicated to the potential bidders that (i) the BCR's would always take precedence over the Reference Design for matters which do not define Operational Functionality and (ii) following the close of Competitive Dialogue, and the appointment of the Preferred Bidder, the Reference Design was to be replaced with the Preferred Bidder's affordable and commercially acceptable design solution.
	FEBRUARY 2013: Bidder Selection
	MARCH 2013: Competitive Dialogue commenced
March 2013 onwards	The Board held dialogue meetings with the bidders which covered various design issues, including discussions regarding operational functionality and 1:200 and 1:50 Design Meetings. NHS Lothian has noted the elements of the dialogue meetings relevant to IHSL's design development below, with reference to the Action Notes produced following the meetings[19]. It should be noted that the clinicians were not directly involved in competitive dialogue and evaluation of tenders. However, input from the critical care design leads was sought by the Project Team if/when required. Accordingly, some of the content below goes beyond the clinical engagement with the design, but may assist the Inquiry in terms of the wider context of IHSL's design development during the competitive dialogue process.
April 2013	3 April 2013: Dialogue Meeting 1 *"2.4: NOTE – Confirmed that NHSL do not wish to see the unpicking of operational functionality.*

[18] Submitted to the Inquiry along with this table, RD_0076
[19] These Action Notes have already been submitted to the Inquiry but NHS Lothian has prepared a bookmarked pdf bundle of the Action Notes for ease of reference, RD_0078

	6.1: NOTE – IHSL to design the facility to ensure that operational functionality is not compromised." As can be seen form the later Reference Design Bulletin: "Reference Design - update on requirements for Operational Functionality"[20], the issues arising in relation to operational functionality related to the room and departmental adjacencies. The Bulletin noted that the Board was prepared to relax the requirements in relation to a limited number of departments whose location within the RHSC and DCN was less critical, i.e. where it did not impact on the ability of the Board to deliver its clinical and non-clinical services, e.g. Classrooms and the Restaurant. ITPD Volume 1 and the Board's Construction Requirements, along with adjustments to the relevant Specific Non-Clinical Requirements documents, were updated accordingly. It was emphasised that, in relation to all other areas, the requirements of Operational Functionality apply in full. It was confirmed, for the avoidance of doubt, this meant that all departmental adjacencies and room adjacencies within each department, as drawn in the Reference Design, needed to be maintained.
May 2013	1 May 2013: Dialogue Meeting 2 "*2.3: 1:50 meetings confirmed between 1st July and 9th August."* *" 2.14: Where the Operational Functionality is compromised by virtue of compliance with the Board's requirements as set out in paragraph 5.2.2 of ITPD volume 1 then IHSL shall identify the specific areas affected and provide a supporting commentary. Any such changes will require discussion with and agreement by the Board. NHSL will issue a clarification to all Bidders.* *NHSL are still reviewing our position on compliance (in respect of your [IHSL] informal submission 2 D&C proposals and will issue a bulletin in the week commencing 06/05/13".* The above Action Notes indicate that, during competitive dialogue, NHS Lothian made it clear that the onus was on the bidder (IHSL) to flag any compromise to the Board's Requirements even where a non-compliance compromised operational functionality. 31 May 2013: Project Dashboard, Clinical & Equipment updated included: **Clinical & Equipment** ▪ Second Dialogue meetings held and await submissions for dialogue meeting 3.
June 2013	26 June 2013: Dialogue Meeting 4 *"3.9* ***Comparison with Reference Design***

[20] The Reference Design Bulletin has been submitted to the Inquiry this table, RD_0079

	IHSL commented that they were using diagrams to describe any instances where the Boards requirements cannot be delivered as a result of a specific Mandatory Reference Design Requirement. *NHS Lothian asked that IHS Lothian also use a matrix to describe any instances where the Boards requirement cannot be delivered as a result of a specific Mandatory Reference Design Requirement. The matrix would have to include detailed proposals to provide a complete audit trail.* *3.10 IHS Lothian to provide the schedule in word format which identified the department, room, perceived non-compliance with the Reference Design, proposed solution and the requirements with which it now complies and with the following additional columns – a "comments" column and a "yes / no" column in order that NHSL can add commentary."* The above Action Notes indicate that, during competitive dialogue, NHS Lothian made it clear that the onus was on the bidder (IHSL) to flag any issues/inconsistencies between mandatory requirements and the BCRs. NHS Lothian dispute that the EM was a mandatory requirement of the reference design. However, even if it was perceived to be mandatory, the onus was on IHSL to flag any inconsistency with the Board's Requirements. The BCRs, which included the SHTM 03-01 as a minimum engineering standard and as the more onerous requirement, prevailed over the EM. IHSL should have, at the very least, flagged any perceived inconsistency for discussion with NHS Lothian. Had they done so, any issues in terms of derogations to Guidance could have been raised by the Project Team with the clinical design leads and/or infection control and/or HFS/HPS for their input and assessment in terms of risks to patient safety. This obligation to flag any inconsistency with SHTM 03-01 remained with IHSL for the duration of the Project.
July 2013	16 July 2013: Extraordinary Meeting – 1:200 Design and Planning – Action Notes *24.* ***PICU First Floor*** *Drawing not issued prior to meeting, however, NHSL discussed with IHSL during meeting. IHSL to formally issue drawing for review and further discussion.* 24 July 2013: Dialogue Meeting 4B *2.12* ***Level 01, PICU / HDU / Critical Care / NICU*** *NHSL confirmed this drawing had been reviewed by Critical Care Leads, the following comments were made:* - *IHSL to ensure pendants work with location of beds in room.* - *1:50 drawings for 4 bed 'options' presented by IHSL during meeting and issued to NHSL for review and discussion with Critical Care Lead.* - *Bulk equipment store and equipment store require to be adjacent and in central location.* - *Bulk store to be located centrally to department.*

	- *Door between HDU to PICU currently clashes with clean utility room.* - *Staff base in HDU to be reviewed in relation to linen trolley area –currently clashes.* - *Play base and pantry milk base rooms are to be swapped over.* - *Clean utility in HDU to be open area as reference design.* As indicated in the Notes, when drawings were issued by IHSL during competitive dialogue, the drawings were reviewed by the Project Team and the critical care design leads consulted as required and comments fed back to IHSL.
August 2013	15 August 2013: Dialogue Meeting 4C <u>Continuation of 1:200 Meeting</u> *"4.15: Revised layout PICU being presented at the meeting, to be reviewed by NHSL and feedback presented at next round of meeting. IHSL to upload the drawing by next Thursday (22/08/2013)"*
September 2013	3 September 2013: Dialogue Meeting 4D <u>Continuation of 1:200 Meeting</u> *"2.15* ***Critical Care, 21/08/13 (P6 Version):*** - *ECG bay (059), Mobile X-Ray Bay (058), and X Ray ProcessingBay (057) - 1:50 required to prove functionality. Seminar Room and Staff room – acoustics will need to be considered. NHSL noted that Relative Sitting room has no day light.This had been discussed with Leads for this area who have stated whilst natural daylight would be desirable they did not want to affect the clinical functionality of the current design. Agreed that at Post Preferred Bidder Stage the interior design for this area would need to ensure light was enhanced."* Again this demonstrates that the engagement of the clinicians in reviewing IHSL's developing design was focused on clinical/operational functionality. *3.8: NHSL acknowledges that due to the level of development of the Reference Design, there are instances in the Reference Design that werenot measured in accordance with SHPN 04-01. The expectation from NHSL is that Bidders will develop the mandatory elements of the ITPD into a compliant solution. Bidder B should comply with SHPN 04-01 when measuring areas.* *With respect to Operational Functionality, the Board will only accept proposals that satisfy the Board's requirements in respect of Operational Functionality (ref Clause 12.5 of the Project Agreement)."*

	Whilst the subject matter here is not critical care ventilation, this note by NHS Lothian to IHSL during the competitive dialogue meetings demonstrates that NHS Lothian acknowledged that there were instances of non-compliance in the reference design and that it was for the successful bidder to develop their design into a compliant solution, in line with the Board's Construction Requirements. 17 September 2013: Dialogue Meeting 5 *"4.1 NHSL requested that if the reference design Schedule of Derogations are applicable to IHSL's design, then IHSL should include these reference design Schedule of Derogations within their submission to C30."*[21] *NHSL added that IHSL's Schedule of Derogations should include all IHSL's Derogations, and IHSL should not assume that reference design related Derogations are already accepted".* The discussion here that IHSL should not assume that reference design related Derogations are already accepted is of key importance. NHS Lothian do not accept that the EM was mandatory and, as such, do not accept it was a "derogation". However, even if the EM was perceived to be a derogation, it was clearly communicated to IHSL that the onus was on them to flag any derogations within the appropriate Schedule of Derogations in C30. Had they done so, any issues in terms of derogations to Guidance could have been raised by the Project Team with the clinical design leads and/or infection control and/or HFS/HPS for their input and assessment in terms of risks to patient safety. No derogation in relation to critical care ventilation, specifically the requirements of SHTM 03-01, was ever sought by IHSL. 25 September 2013: Competitive Dialogue 5A[22] ***"Level 1 First Floor General Arrangement (P7)*** • *DCN Acute – swap DSR with Ward Managers Office, otherwise 100%complete* • *Critical Care is 100% complete* *Theatres is 100% complete"*
November 2013	20 November 2013: Dialogue Meeting 6 *"43. Criteria C30[23] – All derogations and assumptions related to the Bidders proposal for design and construction must be logged in the response. E.g. renewable energy target derogation. This response must include any derogations that may have been previously included in the Reference Design, e.g. the proposal for the parent beds in four-bedded rooms should be highlighted. The Board confirmed that there is no proforma for responding to this criteria. The purpose of one of the spreadsheets submitted was unclear."*

[21] C30: Acceptable list of summary assumptions, clarifications and derogations.
[22] NHS Lothian only have the draft version of the Action Notes for this meeting
[23] C30: Acceptable list of summary assumptions, clarifications and derogations.

	"48. The Bidder confirmed that they understood the Board's requirements for Approach to Design and Construction." The discussion here again highlights that IHSL had to flag derogations, even if they had been previously included in the Reference Design. 29 November 2013: See the Project Board Paper: **Design Development from Preferred Bidder to Financial Close.** This is a key explanatory document submitted to the Inquiry on 21 July 2022. It identifies the staff resourcing required in the next stage of detailed design development with the successful bidder, including input from clinical leads and infection prevention control. The Paper should be read in full but the key points in terms of clinical engagement are as follows: *"User involvement in this intense process is essential to ensure that departments meet operational functionality requirements as well as the needs of patients and their carers. Building on past experience of design development as part of the reference design and also from other new build projects in order to ensure that we meet the necessary timescales it will be necessary to identify key leads as well as a small number of other staff to take this work forward."* *"It is proposed that Janice Mackenzie, Clinical Director, will lead the Design Development with Fiona Halcrow, Project Manager given their role during competitive dialogue in the development of the design."* *"…the Project Team are proposing that nominated lead/s are identified for a department/s and depending on the anticipated time commitment required they are either given protected time or released on a part-time basis for a 4 month period with backfill provided which will allow these individuals to fulfil the required responsibilities."* *"The role and responsibilities for the nominated leads will be to:* • *be the key link with the Project Re-provision Team* • *ensure that pre meeting material (design/drawings/equipment lists) areavailable for staff within the department to view and comment on* • *ensure views of all staff groups within the department are sought* • *collate feedback from departmental staff to bring to the design meeting* • *update departmental staff on progress* • *ensure any required actions are undertaken within the timescales set* • *work with the Re-provision Team where consensus within the sub taskgroup members cannot be reached to agree way forward"*

	"Given the need for significant input from Infection Control in design development the most effective way to achieve this would be for a dedicated resource from the Infection Control Team to review drawings and feedback and discuss their comments with department leads and attend design meetings as required." The nominated lead/s for critical care were Dr Julie Freeman and Laura Reilly. It was noted that they would require 2 sessions of protected time per week. Other users identified as needing to be consulted with included infection control.
	DECEMBER 2013: Close Dialogue and Invitation to Submit Final Tender
	JANUARY 2014: Final Tenders Received
	MARCH 2014: Appointment of Preferred Bidder (IHSL)
March 2014	10 March 2014: IHSL announced as the Preferred Bidder. 14 March 2014: There was an open meeting for all users (including critical care users and infection prevention control) looking at IHSL 1:200 drawings in the RHSC Lecture Theatre. 20 - 24 March 2014: Janice MacKenzie, Clinical Director, contacted Patrick MacAuley, Senior Product Specialist, HFS, to ask for HFS representation at the detailed design development of 1:50 drawings, noting it would be particularly helpful for meetings for the more complex departments i.e. theatres, radiology, critical care and the emergency department. HFS confirmed they would attend as many meetings as possible, and definitely those highlighted as complex. 27 March 2014: The clinical director, Janice MacKenzie, emailed department leads setting out the process for detailed design development with the preferred bidder. See in particular email from Janice MacKenzie to Dr Julie Freeman, critical care design lead, which included the following explanation of the process: *"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 already 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".*

April 2014	A crib sheet[24] "1 – 50 Drawings review notes – Equipment" dated April 2014 is amended by NHS Lothian and HFS to capture what is required in terms of reviewing the equipment requirements during the 1 to 50 process. 24 April 2014: First Meeting with IHSL design team for detailed design development. 25 April 2014: Project Dashboard, Clinical Update included: ▪ Drop in sessions for local design leads held and well attended. Initial feedback positive on design. ▪ 1st round of detailed design meetings have commenced. There will be three rounds of design meetings with sign off at 1:50 for each room required by the end of July 2014.
May 2014	29 May 2014: Second Meeting with IHSL for detailed design development. 30 May 2014: Project Dashboard, Clinical update and User Group Meetings updates included: **Clinical** ▪ 1st round of detailed design meetings complete and 2nd round underway. ▪ IHSL have introduced a status key: Status A – Green – Sighted off – Complete; Status B – Orange – Comments received – in Progress; Status C – Red – Not Discussed; and Status D – Blue – 1:200 Changes – In Progress. **User Group Meetings** ▪ Reflecting on the first two weeks of Round 2 UGMs which included Theatres and Emergency Department it is clear that significant progress has been made and that a good number of rooms have been confirmed as Status A with the remainder at Status B and only a few at Status C. ▪ Rooms reviewed: **164** Status A: 40 Status B: 105 Status C: 18 Status D: Not recorded

[24] Submitted to the Inquiry with this table at RD_0068

	▪ It has been established that for some departments it is unlikely that sign-off at Status A for all rooms will be achieved over three rounds of meetings and therefore a 4th meeting has been introduced to address this. So far the departments needing a 4th meeting include Theatres and the Emergency Department.
June 2014	12 June 2014: Third Meeting with IHSL for detailed design development.
July 2014	30 July 2014: As set out in the Project Dashboard of 26 September 2014 (see below), User Group Meetings were complete by 30th July 2014, with outstanding actions for the MML and IHSL.
September 2014	26 September 2014: Project Dashboard, Clinical Design Update included: ▪ UGM[25]'s were completed by the 30th July 2014. A number of changes were requested at the final meetings and the Project Team and Technical Advisors are now in the process of checking final drawings when issued by IHSL. A programme is in place to achieve this by the end of August 2014. ▪ The Project Team and TAs have concluded checking the final drawings issued by IHSL. Some of the actions from the final UGM meetings are still to be actioned and this will be undertaken after financial close. ▪ Proposal has been submitted for RDS to be completed prior to Financial Close and NHSL have provided feedback on this proposal. A proposal is still awaited for which rooms will be done as C sheets. ▪ Works is still progressing regarding the impact of Gauss Lines for MRE scanners. ▪ A final Equipment List has been issued by IHSL and is currently being reviewed by NHSL Equipment Group ▪ The next versions of draft PCP's related to design have been reviewed again and feedback given to IHSL. ▪ Arts and Therapeutic Group is continuing to take forward the "added value" projects that are being supported by EHLF and SKFF .
November 2014	21 November 2014: Project Dashboard, Clinical Design Update included: ▪ Have reviewed all of the relevant PCPs and associated drawings to agree technical documentation with IHSL. ▪ A series of meetings has taken place with IHSL to resolve outstanding design/technical issues e.g. anti-ligature, acoustics, lifts.
January 2015	30 January 2015: Project Dashboard, Clinical Design Update included: ▪ Meeting taking place with IHSL to discuss the RDD process which will commence after Financial Close. ▪ Currently five potential changes post FC to be considered. Work currently underway with local services to identify case for changes.
	FEBRUARY 2015: Financial Close (13/2/2015) and Construction commenced (16/2/2015)

[25] User Group Meetings (i.e. with clinical input).

	MARCH 2015: RDD Process commences
	Clinical engagement in the operational functionality elements of the design continued during the RDD process, mainly in relation to the equipment lists and in particular the tendering and specification of the pendants and bed head services. NHS Lothian can provide further information should it be of assistance to the Inquiry.[26]

22 September 2022

[26] See paper/information sheet re "Reviewable Design Data (RDD) Process – Information for Service Leads (B1 Critical care unit)", by Janice MacKenzie, Fiona Halcrow and David Stillie (MM) submitted in July 2022, RD_0005.

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RHSC Clinical Design Task Group

Purpose

To progress design of the new hospital which will deliver the accommodation required to support the delivery of the agreed redesigned clinical service, and the facilities required by patients and their families and staff.

Membership of Overall Task Group (Deputies in red)

Name	Representing
Paul Leonard	Emergency Care
Paul Eunson	Neuroscience / medical clinical lead
Steve Cunningham / Tom Marshall	Medical Paediatrics
Fraser Munro	Surgical Paediatrics
Dorothy Hanley / Peter Campbell	Nursing
Madeleine Mitchell	Outpatients
Julie Freeman	Critical Care
Eddie Doyle	Theatres / Surgical Care
Elaine Dhouieb	Therapies
Mike Conroy	Radiology
Neil Richardson	Pharmacy
Gwyneth Bruce	CAMHS
Jurgen Schwarze / David Wilson	Academic Group
Anna Stamp / Louis Golightly	Edinburgh University
Thea McMillan	Family / public representative
	Young People rep – to be delivered out with this group
Maureen Harrison	Family Support
Jean Harper	Infection Control
Dougie Coull	Equipment Commissioning
Sheena Watchman	Health Records
Paula Johnston / Scott Justice	Staff Partnership representation
Bryan Smith	GE Healthcare representative
Nick Durham	Nightingales (Architect)
Jason Speck	Tribal (Healthcare planners)
Dave Simpson	Co-lead for Redesign
Neil McLennan	Capital Planning
Isabel McCallum	Project Redesign Lead
Wilson McCracken	BAM Construction
James Steers	Clinical Director
Stewart Newton	Davis Langdon
Janice Mackenzie	Chief Nurse
Colin Briggs	Service Manager

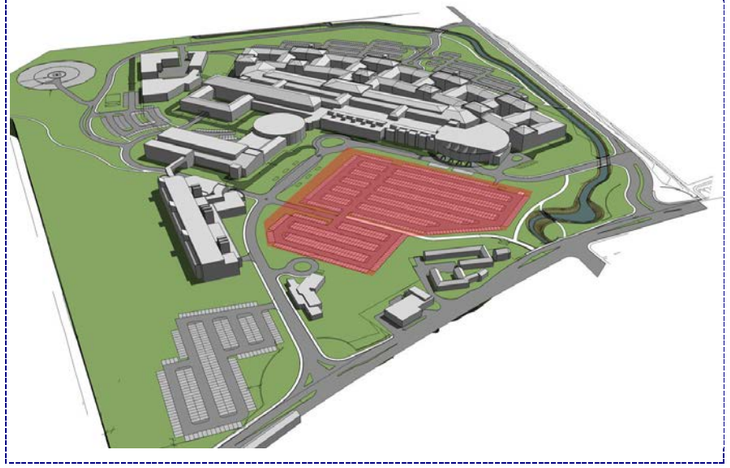
Dates of Meetings

Every Second Thursday - afternoon

NHS LOTHIAN
SCOTTISH HOSPITALS INQUIRY
SB1/657

1. **Project Dashboard - 13 May 2011**
2. **Project Dashboard - 12 August 2011**
3. **Project Dashboard - 13 January 2012**
4. **Project Dashboard - 9 November 2012**
5. **Project Dashboard - 31 May 2013**
6. **Project Dashboard - 25 April 2014**
7. **Project Dashboard - 30 May 2014**
8. **Project Dashboard - 26 September 2014**
9. **Project Dashboard - 21 November 2014**
10. **Project Dashboard - 30 January 2015**
11. **Project Dashboard 15 May 2015**
12. **Project Dashboard - 31 July 2015**
13. **Project Dashboard - 27 November 2015**

Design Image - The Site Boundary



Executive Summary

Time

- A First Draft Strategic Programme follows indicating an operational date of May 2017 assuming a start on the reference design process on 16th May 2011. The critical path generating this period of some 6 years is the creation of a reference design, the completion and approval of an OBC, the successful selection of three bidders following a PQQ process through the OJEU, a Dialogue process to select a preferred bidder and eventual construction and commissioning. Satisfactory conclusion of all relevant issues with Consort Healthcare prior to submission of OBC is also essential.
- It should be noted that this programme will be under continuous review and any opportunity to bring forward the final operational date will be taken.
- Work is underway to develop and agree detailed programmes for all work-streams supporting this Strategic Programme and many more tasks and dependencies will be added during the next few weeks.

Cost

- A full cost update will follow in future Project Reports once sufficient information is available. This will build on the early cost forecasts contained within the Addendum to OBC issued to SGHD on 23rd March, 2011.

Quality

- The Technical Advisor and Financial Advisor have been successfully procured using the OGC Buying Solutions Framework and a team structure is attached identifying key named individuals. Unfortunately, a co-located project team office is not possible given financial constraints and the team will be based primarily in Mott MacDonald's and Davis Langdon's offices with clinical interface at Rillbank Terrace. A Legal Advisor remains to be secured.
- Project Governance procedures in relation to the Corporate Requirements, Project Team and Project Processes will be covered in the PEP (Project Execution Plan) currently being finalised for distribution and comment.
- A Project Brief comprising Operational Requirements, Adjacency Matrix, Accommodation Schedule and Assumptions has been prepared by NHSL and will be released to the designers on 16th May, 2011. However, much work remains to be done on associated work-streams necessary to close out essential clinical enabling works within the RIE.
- The Reference Design main deliverable is an approved architectural design fully illustrating clinical functionality in three dimensions with all known site and infrastructure constraints clearly stated. This design whilst being entirely credible in structural, fire and building services engineering terms will not seek to dictate solutions in this regard. The design team are currently developing the complete schedule of deliverables with NHSL whilst commencing the design process.
- The design process particularly in relation to the engagement with clinical and client management teams has been prepared and builds on the work done over the last 18 months (copy attached).

Technical Advisor Commentary

- The appointment of MML through the Buying Solutions Framework has now been completed with only the final wording of the Parent Company Guarantee to be agreed. The Sub-Consultant Agreements for TG and TTPM have been finalised. The agreement for the appointment of DL is to be finalised w/c 9 May 2011. Fee proposals have been received from the proposed Reference Design Team. These appointments to be made through DL will be finalised upon agreement of scope with the exception of the Healthcare Planning appointment which is to be subject to a further tendering exercise.
- The TA team has commenced work in developing the procurement programme and establishing the terms of reference for each of the work streams. The TA team also attended a workshop with NHSL on 3 May 2011 examining the programme for the procurement phase and agreeing the approach to developing roles and responsibilities for the Work-stream. The project execution plan is approximately 60%. MML has been working with NHSL to develop and agree the brief for the Reference Design.

Stakeholder Management and Communication / Strategic and Workforce Planning

- Staff Open Sessions programmed to commence w/b 9 May 2011.
- Re-provision Workforce Task Group meetings have been postponed since the latter stages of 2010. These will re-commence once project fully underway.

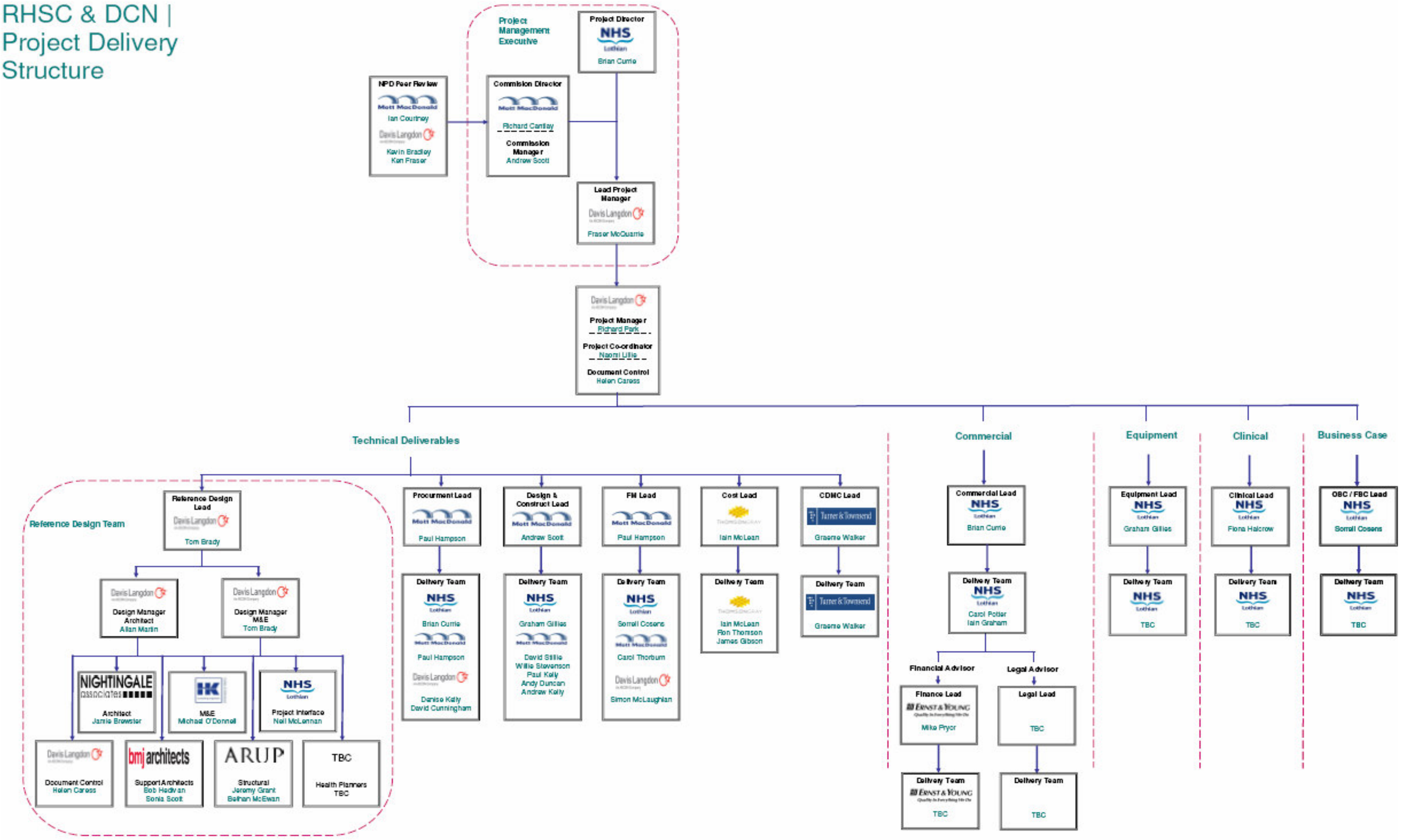
Clinical Update / Equipment

- Adjacency Relationship Matrix work being progressed with services.
- Draft Schedule of Accommodation prepared.
- Work progressing with the review of clinical and non-clinical operational procedures.
- Request with the TAs to finalise the 1:50 Detailed Design Process of the stand-alone building to allow completion of the Room Data Sheets.
- Reference Design Structure (NHS Lothian Internal) finalised and Sub Task Groups identified. Lead and Deputies being formalised.
- DCN equipment lists are being pulled together at this stage using the RHSC ADB sheets. Meetings will be arranged with users to confirm equipment.
- Meeting arranged with Capital Planning Equipment manager to pull together costs for equipment.

HFS - RHSC stand-alone scheme key milestones	
Concept Design - 1:500 sign off	08/03/2010
Scheme Design - 1:200 sign off	30/07/2010
Detailed Design - 1:50 sign off	20/11/2010
Cost Plan sign off	28/01/2011
Planning Submission	08/11/2010
Submit FBC to NHSL	07/02/2011
FBC Approval by NHSL	07/02/2011
Submit to CIG	08/03/2011
CIG Approval	14/03/2011
Construction Start	01/06/2011
Construction Work Complete	09/09/2013
Hospital Going Live	29/11/2013

NPD - RHSC & DCN key milestones	
Reference Design Brief	02/05/2011
Concept Design 1:500 & Approvals	23/05/2011
Scheme Design 1:200 & Approvals	26/09/2011
SGHD Approval of OBC	15/11/2011
SGHD Approval of FBC	07/01/2014
Planning in Principle Granted	22/11/2011
Detailed Planning Granted	13/11/2013
Car Park B Transfer Deadline	21/12/2011
Project Information Notice	22/09/2011
Bidders' Day	26/01/2012
Release OJEU Notice	16/11/2011
PQQ Period	26/01/2011
Select Short-list Bidders	03/05/2012
CD – Open Dialogue	07/05/2012
CD – Interim Process	10/05/2012
CD – Final Tenders	07/12/2012
CD – Evaluation	22/02/2013
Appoint Preferred Bidder	15/07/2013
Commercial Close	10/09/2013
Financial Close	19/02/2014
Construction Start	01/03/2014
Construction Work Complete	01/03/2017
Hospital Going Live	01/05/2017

RHSC & DCN | Project Delivery Structure



Reference Design

- DL approached the design team that worked on the previous stand alone RHSC scheme to appoint them directly as the Reference Design Team which would be 'ring fenced' in order not to preclude them from joining a bid team further down the procurement line.
- DL has now been given commitment from all designers that they do wish to join the Reference Design Team and have now submitted fee proposals to DL for acceptance.
- DL is currently liaising with the design team in regards to appointing them contractually on a back-to-back basis.
- DL has been asked to fulfil the management role previously undertaken by BAM to lead the design process. DL has appointed Tom Brady and Allan Martin as the design management team.
- NHSL requested a separate document-controller for the design process. This role will be undertaken by Helen Caress from DL.
- The Design Team has produced a programme showing a 12 month duration to complete the Reference Design, based on the schedule of deliverables issued via NHSL on 13/04/11 and on three rounds of consultation meeting with the clinical staff. This is currently being looked at in order to reduce the timescale to an eight month period, one agreement being that clinical consultation will be reduced to two rounds.
- NHSL has asked that the design team complete the 1:50 design stage from the previous RHSC stand-alone scheme; once appointed, DL will instruct accordingly.

Procurement

- An initial NPD Procurement meeting is being held on 11 May 2011 to discuss the NPD documents. In the interim, members of the Work-stream have been advising and agreeing the logic for the procurement programme and identifying issues that will require clarification and guidance for the legal advisers once appointed.

Design & Construct

- Information to follow once project fully underway.

Facilities Management

- Information to follow once project fully underway.

Health & Safety / CDMC

- An F10 notification for the project will be raised with the Health and Safety Executive shortly to reflect the details of the new project.

Commercial

- This section will be populated by Ernst & Young in conjunction with NHSL Finance when a sufficient level of information becomes available from the reference design process.

Business Case

- An Addendum to OBC was issued to SGHD on 23rd March 2011 and comment / query has been received. The relevant points, with the exception of some financial issues, have been dealt with.

Key Activities over the next 4 weeks

- Appoint TA support team - MMc
- Appoint Reference Design Team - DL
- Issue revised PEP - DL
- Agree strategic programme - All
- Finalise new meeting matrix - DL
- Finalise new roles & Responsibilities - DL
- Complete project brief and operational policies - NHSL
- Complete 1:50 exercise for previous stand-alone scheme - DL
- Refine design deliverables - NHSL/MMc
- Conclude Consort negotiations SA6 - NHSL

Project Administration

- The draft PEP can now be issued. DL awaiting input from other parties of the TA and NHSL teams.
- BIW web portal has now been established for the new joint RHSC & DCN scheme.
- Meeting held on 10th May between DL and NHSL to agree a Meeting Matrix.
- DL to issue new Project Directory.
- Design Team meetings will be held in DL Edinburgh office, work-space will be made available exclusively for the Design Team.

Enabling Works

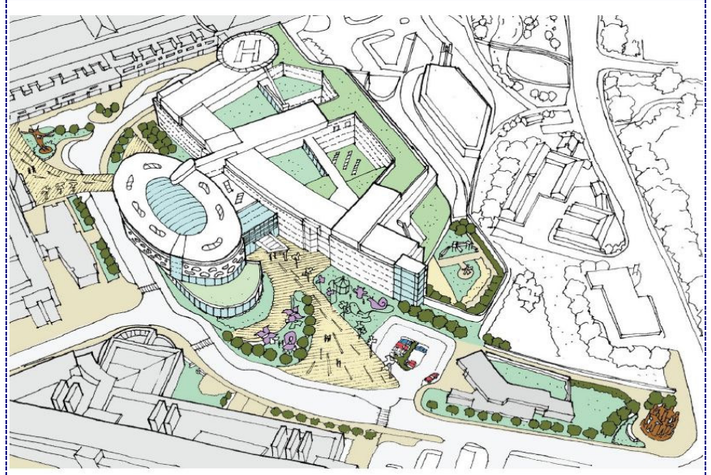
Project Management

- Car-park F bio-quarter plots 14-16 - This will provide 1,200 car parking spaces. Completion date is 17/06/2011, the project is on-target and within budget. There were initial delays due to poor weather over winter, but this should be absorbed. The most significant risk was temporary works to HV cables - these caused slight delay which has been absorbed in the programme and the issue closed out.

Consort

- Car Park F enabling work - The contractor is continuing to construct the bridge from the existing RIE site into the new car park F. Work is on programme for completion for the 17/6/11.
- Car Park F - The contractor is making reasonable progress with the car parking spaces, pavements and roads. The second bridge is also on schedule to be completed on the 17/6/1. The burn diversion is complete and the SUDs basin will be complete by the end of the week.
- Car Park B Diversions work - The contractor is slightly behind with the gas mains diversion. This is down to problems with locating the deep existing pipe work. The rest of the work is moving along to schedule.

Design Image - Draft Aerial View



Executive Summary

- All work is progressing well and to the detailed programme which has been developed up to the start of the procurement process.
- The user briefing process is well developed and user groups fully engaged in the brief development and reference design process.
- The reference design is being developed and the 2nd iteration of the 1:500 plans were issued to NHS Lothian on 03.08.11 as per programme. This is informing various other elements of the project development as necessary (costing, interface work etc). A key milestone has been met with the submission of the PPP application on 29.07.11. Equipment scheduling is ongoing with the 1:50 process. Design around interface issues to facilitate discussion with Consort being progressed.
- The technical scope of the project (external works, interface with Consort, FM, ICT, equipment etc) is all being developed in order to inform both the OBC costings and the development of the procurement and contract documents - the scope needs agreed (or assumed position agreed) in the next month for OBC purposes. This is being finalised within Work-streams for agreement by NHS Lothian and generally reflects the approach recommended by SFT.
- Technical costing development has reached version 2 - this is being used as the cost inputs for the shadow tarrif modelling.
- Procurement process, including dialogue process, has been developed and captured in a procurement strategy report. Procurement documents are now being developed in line with the agreed programme to reflect this procurement process.
- Risk workshops have now been carried out - all risks currently being populated onto risk register which has been set up for both risk management and risk costing purposes.
- Various reviews have just commenced or are due to commence imminently and all information required for these reviews being provided or made available - these include SFT review, Gateway 2, AEDET, NDAP and PWC review.
- The OBC development process is well underway and the structure and content of the OBC has been agreed with SGHD.

Technical Adviser Commentary

- The Technical Advisor team is now undertaking a variety of tasks as noted below. At a strategic level, the team is working closely with NHSL particularly in regard to the SFT Review currently underway. The Team have issued to SFT and their advisors, the first tranche of information required. A key milestone achieved in the past month was the submission of the Planning Permission in Principle (PPP) application to City of Edinburgh Council. This followed a period of consultation with the Council which will continue while the application is being considered.
- In addition to the SFT review, various other reviews are underway. The NHS Scotland Design Assessment Process (NDAP) is being initiated with a facilitator being sought from HFS. The Achieving Excellence Design Evaluation Toolkit (AEDET) is about to commence with the first meeting of the TA Team with NHSL being held w/c 08.08.11. Notification has also been received regarding the Governance Review being carried out by PWC with the TA Team instructed in the assistance required by NHSL.
- All Work-streams are now developing their individual areas of responsibility working closely with NHSL and the relevant stakeholders.
- Regular and additional ad hoc Work-stream review meetings are being held with progress being monitored against the Strategic Programme and Process diagram. All teams continue to report progress on programme. The TA team continues to work with the Financial Advisors particularly in the areas of risk, capex, FM and LCC. The TA team will liaise with the Legal Advisor following their imminent appointment.
- The Procurement Work-stream has developed and submitted a board paper outlining strategy and key decisions required. Progress is also being made on the ITPD and PQQ. It has been agreed that going forward the Procurement Work-stream should ultimately merge with commercial work stream
- The FM Work-stream has developed a responsibility matrix to assist in understanding the scope and this will be reviewed at a stakeholder workshop being held next month.
- The D&C Work-stream continues the development of the Board's Construction Requirements and meetings with NHSL to identify areas for resolution in regard to the Reference Design, site interfaces, enabling works interfaces, energy and CO2 load, and ICT.
- The initial Capex and LCC estimate has been published with the follow up being issued this month.
- The Reference Design Team (RDT) has completed that PPP application and has submitted the 1:500 layouts and adjacencies for consideration by NHSL. These will be reviewed w/c 08.08.11. The RDT are also examining in detail, interface issues to assist NHSL in the negotiations with Consort.
- Regarding contractual matters, all Collateral Warranties are signed and are being submitted to NHSL for signature. The appointment of Capita (formerly Tribal) as Health Care Planners has still to be finalised although they continue to work on the commission. The Reference Design Team scope and costs Contract Control Notice has been signed by NHSL. Supplementary appointments are now being made for a landscape architect and kitchen consultant.

Stakeholder Management and Communication / Strategic & Workforce Planning

- Workforce Planning work progressing. Current baseline establishment and budget for all services moving into NB almost complete.
- 1:500 designs were shared with the DCN Patient Reference Group and RHSC Family Council on 14.07.11.
- Neighbourhood Partnerships received notification of the planning submission at the end of 07.11.The next round of staff open sessions is set up from 12.09.11, when exhibition boards on the signed off 1:500 design will also go up around NHSL hospital sites.
- The 01.08.11 Team Brief updated all NHSL staff on project progress.
- Project and design team representatives are attending the Young People's Advisory Group on 20.08.11.
- The next Joint Stakeholder Project Board is planned for 02.09.11.
- A presentation on the project and OBC is planned for 09.11 NHSL Partnership Forum.
- Partner NHS Boards are being informed and engaged via the South-East and Tayside regional planning body.

Clinical Update / Equipment

- Reference Design Brief updated. Version .02 circulated to TAs.
- Departmental Design Briefs work on-going. RHSC Therapy Department Brief still outstanding. DCN Therapy brief needs updated to reflect new SOA. Work progressing with RHSC OPD Design Brief i.e. exact location of specific clinic services in NB.
- Meetings held with the following clinical departments – Theatres/Critical Care/Radiology/RHSC OPD/RHSC Medical In-Patients.
- Progressing work with CAPITA re Bed / Radiology / Theatre Modelling. CAPITA Report 1.5 circulated to RHSC CMT staff for comment. Output reported to LUHT SMT 14.07.11. Work ongoing.
- First 1:500 Design Task Group held on 07.07.11. Work progressing with TA's / Architects on design. 2nd Design Task Group scheduled to occur 11.08.11.
- Completed majority of meetings with users.
- At present rationalising equipment lists.
- Generic rooms have been checked for size and shape and returned to Nightingale Associates (NA).
- Generic room revised component lists to NA by 12.08.11.
- High cost NHSL workshop 12.08.11.
- Equipment groupings have been determined.

Reference Design

- The Reference Design Team (RDT) issued the 2nd iteration of 1:500 layout drawings on 03.08.11 to NHS Lothian, the second Clinical design review is scheduled to take place on 11.08.11.
- The Planning in Principle (PPP) application was successfully submitted to City of Edinburgh Council (CEC) on 29.07.11, public notification of the submission was recorded in the local press.
- The helipad consultant has been appointed whilst the catering consultant appointment is nearing completion.
- The RHSC 1:50's have been produced and comments made on same from NHS Lothian with regard to the equipment provisions.
- The RDT are currently utilising the RFI register on BIW, queries are currently being answered on time thus preventing programme delays.

Procurement

The key activities undertaken by the Procurement Work-stream include:

- Preparation of a procurement board paper outlining the strategy and key decisions required.
- Revised draft PQQ prepared incorporating comments from NHSL, financial and CDM advisors ready for circulation to Commercial Work-stream and NHSL stakeholder groups / governance forums.
- Procurement plan for CD developed including CD meetings approach.
- Procurement programme now incorporated into overall strategic programme.
- Structure and content of ITPD (based on NPD standard form) confirmed.
- Work-stream meetings No. 3 & 4 held.

It is now anticipated that the Procurement Work-stream will merge with Commercial Work-stream going forward.

Enabling Works

- Car-park B Diversions – these are running late but all work expected to be completed by 02.09.11.
- Fibre optic move part of the Anne Rawlinson building.
- Landscaping to both car park areas is suspended until the Autumn.

Facilities Management

- The FM Work-stream is continuing to develop the FM scope.
- The Work-stream has developed a matrix that sets out the scope of services to be included within the project and those that shall be provided by NHSL.
- A briefing presentation is scheduled for 09.09.11 to update internal FM stakeholders of the process going forward.
- Preparation of the input and output specifications is ongoing.

Health & Safety / CDMC

- An F10 notification for the project has been raised with the Health and Safety Executive to reflect the details of the new project.
- Review of draft PQQ for health and safety requirements.

Commercial

- Tender process for appointment of legal advisers well underway - areas of input being lined up for legal input once appointed.
- Technical Costs 2 issued in draft form 03.08.11 - review meeting held 09.08.11 to review between NHSL, technical advisory team and financial advisory team.
- Shadow tarrif model in development and will be revised to reflect Technical Costs 2.
- NPD contract documentation revieved from SFT and being reviewed.

Business Case

- SGHD have approved the proposed structure and content of the Outline Business Case (OBC).
- The first draft of OBC strategic sections has been reviewed by the Project Sponsor; it is intended to share draft sections informally with SGHD by 22.08.11.
- Technical Cost 1 will inform the drafting of the financial and economic chapters.
- The Commercial Work-stream is required to provide information on the procurement and management arrangements for the OBC.
- Risk assessment and management information will be provided by Davis Langdon following risk workshops this week.
- OBC costs and risks will be available for internal review by NHSL CIG meeting on 28.08.11.

Key Activities over the next 4 weeks

- Reviews: Clinical Task Group; HAI SCRIBE; Design Assessment Process; Gateway Review 2 (Delivery Strategy), 05-07.09.11; SFT Design Review (by Atkins) of strategy and the model of care, space modelling, and reference design; SFT to confirm dates of pre-OJEU Key Stage Review to fit with the procurement programme; Price Waterhouse Cooper to complete an analysis of NHSL capacity and experience of PPP delivery on behalf of NHSL; Key Stage Review 1 to be requested.
- 1:500 design proposals to be evaluated by stakeholders using the Achieving Excellence in Design Evaluation Toolkit (AEDET), 12.08.11, and to be signed-off along with the Approval of Concept Design Report, 09.09.11.
- NHSL final review & sign-off of 1:50 Room Layouts (Generic Rooms only), 02.09.11.
- Clinical Task Team Meetings round #2.
- Complete Traffic Impact Assessment.
- Confirm Equipment Component Lists.
- Complete first draft of OBC.
- Conclude Land Renunciation Agreement.
- Complete Technical Cost 3.
- Further define technical scope of project.
- Continued development of enabling works matrix and costs.

Project Administration

- Action logs now being issued fortnightly.
- The RDT (namely Arup, BMJ Architects, Hulley & Kirkwood, Montagu Evans and Nightingale Associates) has been 'ring fenced' on BIW, ie can only see files issued to these companies directly or those uploaded by themselves, in accordance with the agreed bidding process.
- Risk Workshop #1 held 05.08.11, Workshop for Clinical and Operational Risks held 10.08.11.
- Revised organogram issued to all parties, illustrating input from Susan Lloyd (Partnership), and new work-streams 'Consort Negotiations' and 'Enabling Works (non-NPD)'.

Design & Construct

The D&C Work-stream is progressing in-line with programme requirements with a view to having first draft of the output specification for review available end 08.11.

Current tasks undertaken include:

- Drafting of Output Specification – Board's Construction Requirements.
- Meetings with NHSL Estates regarding Sustainability and Energy requirements.
- Meetings on ICT requirements and draft of responsibility matrix prepared.
- Liaison with NHSL regarding Reference Design Brief to identify inputs required in Output Specification.

The following tasks are now underway:

- Alignment of Board's Construction Requirements with Reference Design Brief.
- Identifying and obtaining inputs required from NHSL particularly with regard to third party involvement (patient hotel etc.).
- Meeting with NHSL Estates regarding Sustainability, Energy and CO2 requirements.
- Civil / Structural and M&E review and input to Output Specification.

Moving forward, agreement will be obtained with NHSL on various areas of the D&C Output Specification and a schedule of meetings is being arranged.

Design Image - 1:200 Main Entrance

Executive Summary

	Progress	Blockage	Clarification	Next
Time	NHSL F+PR Committee approved OBC on 14th Dec., 2011.	Final SA6 Report by McGrigors remains to be issued to Consort Funders.	Heads of Terms for SA dealing with TAWO's 156 – 161. OJEU Issue Date.	ITPD Procure. Docs. OBC to Main Board. Agreed PiP Sect 75. SA for TAWO's 156 - 161
Cost £	OBC complete – awaiting Main Board approval.		Fixed Price Offers for TAWO's 156 – 161 from Consort. U of E contribution. Fundraising Strategy.	Instruct Consort to deliver TAWO's 156 – 161.
Quality		Clic Sargent withdrawal.	Project Delivery Proposal.	Approval of OJEU Notice, PQQ and MOI by all stakeholders. Development of all ITPD documentation. AEDET Review.

Risk Summary - Immediate Risks (NB Risk Register in full will be tabled quarterly)

Risk	Causes	Controls / Measures in Place	Residual Risk	Action Plan
OBC is unaffordable and not value for money.	Capital and Operational expenditure projections exceed funding availability.	Regular review/challenge since project inception inc. SFT KSR's.	Approved capped budget within OBC exceeded with liability residing with NHSL.	OBC financials require to be as accurate as possible and based on verifiable data.
Consort approval to Supplemental Agreements not forthcoming – inability to proceed to NPD procurement.	Failure of Consort (shareholders and/or funders) to approve SA's required to modify existing RIE project agreement.	Continuous negotiations with Consort and it's legal advisors to agree SA's. Reputational risk to Consort. Leverage through new NPD business opportunities.	Consort's ability to delay or halt progress through any one of it's eleven funder's failing to approve, as yet, unknown change once NPD procurement process underway.	SA6 (land swap) and all key enabling works with associated SA's to be agreed prior to procurement commencing. SFT advise seeking "Step in Rights" to allow NHSL to undertake any necessary works should Consort fail to do so.
Negative response from NPD Marketplace	Little funding appetite due to prevailing economic climate / lack of business confidence. One of many NPD opportunities coming to market at same time. More attractive business elsewhere in UK (Building Schools for the Future etc.).	Ensure "level playing field" ie no distinct Consort advantage.	Competitive Dialogue phase commences and bidders disengage. Funding volatility.	Project to be as attractive as possible with all major risks eliminated or mitigated. NPD programme in Scotland to be managed to maximise market interest for this project.
NHSL does not have required skill set or level of resource to support project.	NPD procurement unfamiliar to project team engaged on previous capital funded project. Staff not being released from normal duties. Inadequate budget to procure / recruit additional staff. Range of skills required not available within NHSL.	Full time project team in place. Capital Planning Director and Project Manager recently completed PFI at Midlothian Community Hospital. Appointed technical, legal and financial advisors all very experienced in PFI/PPP/NPD procurement.	NHSL staff not released from normal duties due to future demands / budget cuts. Loss of key individuals from within NHSL and advisory teams.	Project Director to identify skills and additional posts to support project post OBC for consideration by project Board and F+PR

Stakeholder Management and Communication / Strategic & Workforce Planning

Strategic & Workforce planning

- Completed activity modelling for RHSC Emergency Department.
- OPD activity modelling for RHSC and DCN progressing and should be completed by the end January 2012

Stakeholder Management and Communication

- Engagement of service stakeholders in the non-financial benefits appraisal of catering options. A report on the outcome of this appraisal will be provided to the Director of Facilities on 12 January 2012.
- Ongoing engagement of service users in 1:200 design sign-off and 1:50 development of key and generic rooms.

Clinical Update / Equipment

Clinical

- 1.200 Drawing final sign off work progressing. 38 Departments Signed off. 4 Departments Signed off with minimal adjustments to be made. 14 Departments work on-going and should be complete by the end of January 2012.

- 1.50 Drawings (Key Rooms) meetings commenced w/b 9 Jan 2012.

Reference Design

- Reference design completion is currently scheduled for 5th March 2012 on the understanding that there are no further variations presented to the RDT. Nightingale Associates and Arup will continue beyond this date to complete the Room Data Sheet and Flood Modelling works respectively. The room data sheet process is scheduled to complete by 17 April 2012, the Flood Modelling works scheduled for completion by 14 May 2012.
- Consideration will need to be given as to when the RDT members can be released from their contractual obligations to the RD process, to ensure that they are not conflicted from joining bid
- The 1:200 sign off process is continuing. 75% of departments have been signed off to date.
- The Room Data Sheet production process commenced on 9 January 2012
- The 1:50 Key room process has commenced
- The generic room drawings will be released to NHSL commencing 24 January 2012
- The 1:500 Concept Design report has been signed off by NHSL.
- The 1:200 Design report is scheduled for release to NHSL on 17 Feb 2012

Health & Safety / CDMC

- Identifying issues arising from Reference Design meetings.
- Reviewing CDM implications for proposed ground investigation contract.
- Reviewing Transport Access Paper

Business Case

- The OBC, pending conclusion of SA6, was approved by NHSL Finance and Performance Review Committee on 14 December 2011.
- The OBC has been submitted to NHSL Board for approval at the 25 January 2012 meeting. Consort fundholders approval of SA6 is required for this date.
- The OBC was submitted to the Scottish Government on 22 December 2011 for consideration at the 31 January 2012 Capital Investment Group meeting.

Commercial & Procurement Co-ordination

- PQQ/OJEU – All comments received from SFT have now been discussed with commercial workstream and incorporated as required.
- SFT have provided alternative “boiler plate” questions for PQQ and a revised document based on this has been prepared.
- Work on-going to revise evaluation procedures for PQQ in accordance with SFT recommendations.
- MoI being developed as front end to PQQ – similar to Glasgow Colleges NPD model.
- Advice being provided on how procurement documentation will describe reference design.

Facilities Management

- All outstanding RFIs have been dealt with and specifications finalised. Specifications will now go for review by Director of Estates before going to February Project Board.

Design & Construct

- Tasks undertaken in the last 4 weeks
  - Completion of Draft Output Specification – Board’s Construction Requirements
  - Internal review of Draft Output Specification
  - Issue of Draft Output Specification for review and discussion with NHSL.
  - Schedule of Information Required re-issued and queries being addressed by NHSL leaving approx 48 out of 103 queries still under discussion.
  - Liaison with NHSL regarding Reference Design Brief to identify inputs required in Output Specification.
  - Liaison with NHSL regarding the interface with the enabling works to be included in OS.
  - Draft Programme for the finalisation of the Output Specification
- Critical items that may affect programme
  - Agreement with NHSL on outstanding queries.
  - Finalisation of the impact of the Interface and Enabling works on the Output Specification including procurement strategy, financing and risk profile.

Enabling Works

- Consort have agreed to submit new costs for the six Enabling works packages TAWO 156 -161 by the 25/1/2012. These costs will provided the NHSL with fixed lump maximum sums for each work package. This will allow early Lender approvals to allow all these packages to be combined into the single Supplement Agreement 6.

Project Administration

- Programme version 5 will be issued next week.
- Action logs will continue to be issued on a fortnightly basis.
- Client RFI log will issued to NHSL on a weekly basis.
- Document release schedule to be updated and released this month.
- Procurement workshops to be arranged monthly for NHSL

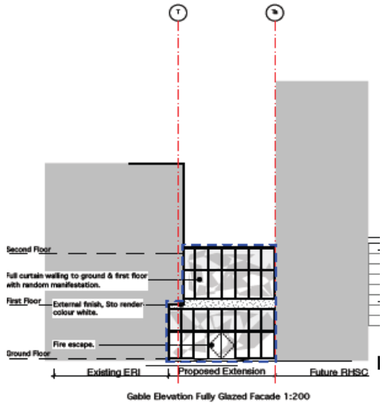
Key Activities over the next 4 weeks

- SA6 completion
- 1:200 Design sign off
- Preparation of Scheme Design Report
- Approval by SEAT Main Board and CIG
- First draft D&C specification
- PQQ and MOI approval

Existing PFI Interface / Key Issues

- SI Survey of existing flood defences complete by 13 Jan 2012. Interpretation and evaluation likely to be complete March 2012
- NHSL and Consort discussing Commercial Heads of Terms for single SA to undertake TAWO’s 156 – 161 via single Design and Build Contract between Consort and Balfour Beatty.
- Consort continue to develop designs to “tender stage” as instructed by second stage TAWO’s issued by NHSL. Fixed Prices, programmes and contractors proposals expected from Consort by 25th Jan for all with the exception of Flood works which will follow at end of March 2012.
- NHSL continue to develop scope of works for all Clinical Enabling Works.

Enabling Work Extension - Proposed Elevations



Gable Elevation Fully Glazed Facade 1:200

Executive Summary

	Progress	Blockage	Clarification	Next
Time	Planning Consents for VIE and ED Link Bld obtained. Variations to Enabling Wks issued to Consort. U of E approval to Enabling Wks obtained.	SA Enabling approval by 11 Consort Lenders now anticipated late Nov 2012.	Receipt of Feasibility Study - Critical Care in RIE. Market Interest / SFT req. for compressed procurement under consideration.	OJEU Notice release date dependant on letter of confirmation from Agent Bank. Nov 19th still possible. (Nov 12th cancelled)
Cost £	Tech Cost Plan 5B completed and approved by SFT as compliant with draft funding letter and OBC.		Fundraising Strategy. SG funding support / conditions. Draft Funding Conditions received – response in preparation.	Cost Plan for Clinical Enabling Works + Off Site Flood Works under development. Scope of "capped" enabling works to be confirmed.
Quality	SFT points of clarification following Pre OJEU KSR review received by NHSL. Response in preparation.		Scope of all Clinical Enabling Works to be presented (inc, any options) to ICIC and Project Steering Board by December 2012.	Recruitment of Contracts + Commissioning Managers becoming increasingly urgent. IT project manager req. also under review

Stakeholder Management & Communication

- NHSL staff to be informed of the impending OJEU notice in Team Brief in the week commencing 5/11/12.
- NHSL press release for OJEU release drafted in conjunction with SFT and SGHD.
- Bidders' Day confirmed for 19/11/12.
- Parliamentary Questions by Iain Gray, MSP on publication of the OBC, lifetime costs and community benefits.
- RHSC Family Council and DCN Patient Reference Group will be sending one representative each to the Bidders' Day. The Young People's Advisory Group will have two representatives.
- The Young People's Advisory Group met on 27/10/12 and agreed their priorities for working with the existing RHSC. Their immediate work will include linking in to the SKFF Artists in Residence programme and reviewing signage and wayfinding in the current hospital.
- The Project Stakeholder Board is due to meet on 4/12/12.

Strategic & Workforce Planning

Strategic

- Service Re-design - Initial meeting held with senior managers and 5 Year Plan to be developed

Workforce Planning

- FM Workforce continues to be progressed. Full report now expected Dec 2012.
- Meetings held with LUHD Nursing Director and NHSL Head of Infection Control with regard to a generic/flexible role. A workshop will be held March 2013 with key staff to progress this further. Cleaning matrix responsibility work underway and lead by FM – this may impact on FM Workforce.
- Clinical Enabling – Critical Care (including DCN Critical Care), Renal & Transplant Nursing Workforce work on-going and awaiting outcome of feasibility study and review of DCN Level 1 Beds prior to finalising report.

Business Case

- SGHD agreed to share a draft of the funding conditions letter on 26/10/12.
- NHSL have made more NHS costs information from the OBC available on their website and through Scottish Parliament. Commercially sensitive information remains redacted.

TAWO's 156-161 and Off Site Enabling Works

Car park F & B

- The scheduled work to the in-filling of the Burn on Consort land has not started.

Consort Enabling works packages TAWO 156 -161

- The completed SA enabling documentation was issued to Consort lenders advisors on the 28/9/12. This seems to be progressing to plan and should be signed next month. The planned variations have been agreed to be issued asap.
- Work should start and finish as previously indicated:
  Flood (156) 10/6/2013-3/3/2014
  Road (157) 3/6/2013-4/7/2014
  VIE (158) 7/1/2013-21/10/2013
  Link Build (159) 4/2/2013-17/3/2014
  Sewer (160) 10/12/2012-14/6/2013
  Services (161) 18/3/2013-14/3/2014
- The PM is trying to ensure there will be no delays with planning for 156, 158 and 159.

RIE Emergency Department/Theatre Links

- 1:50 plans have still to be finally approved for both areas. Work continues to progress in reaching a decant solution for the ED Resuscitation rooms.
- The Theatre Link room swap has been determined but now entails modification to another room in the orthopaedic theatre suite.

Clinical / Equipment/ ICT

Clinical

- Clinical out put specifications forwarded to SFT for review.
- DCN Nurse Dependency assessment commenced w/b 22 Oct 2012 for two weeks to review DCN Level 1 Beds.
- Report due end Nov 2012.

Equipment

- Equipment Schedule,Equipment Responsibility Matrix and Operational/Design notes all issued as per programme.
- Sign off meetings being arranged with users for November & December 2012.

ICT

- Meeting held 16 Oct 2012. Work stream remit approved. Action
- Plan detailing work to be progressed over the next 5 years to be drawn up and to dove tail into local and national eHealth strategies, service redesign initiatives and workforce planning (example Health Record Scanning, EPR, telehealth). eHealth innovation workshop to be scheduled for March 2013.

Commercial - Financial / Legal

Financial

- Payment mechanism - Agreed with SFT that sessions and gearing can be used. Motts now able to complete calibration. EY can then revise drafting in the PA schedule accordingly.
- ITPD financial sections - Overall mechanism now agreed with SFT. Minor revision to evaluation text required. Financial evaluation calibration to be agreed with key project team members.

Legal

- SA6 - signed on 10/08/12
  Enabling Works SA (TAWO 156-161) - negotiations reached conclusion with
- Consort. SA with funders for comment.
  ITPD - NPD Contract redrafted using the updated standard form with derogations to be taken to SFT.

Facilities Management

- Final Soft FM specs agreed by NHSL FM Workstream and issued to SFT for comments on 8th October, with response expected 31st October.
- Final Hard FM specs agreed by NHSL FM Workstream and issued to SFT for comments on 8th October, with response expected 31st October.
- FM Demarcation agreed by NHSL and issued to SFT for comments on 8th October, with response expected 31st October.
- Core Times still be finalised by NHSL in alignment with Payment Mechanism development.

Clinical Enabling Works

RIE 2nd Floor Services (e-health, SNBT, Clinical Haematology, Laboratories Medicine)

- Work continues to progress in determining space required for these services within and out with the RIE site. RIE office audit commenced and to be completed by the end of Nov 2012.

RIE Renal and Transplant Service relocation onto RIE 2nd Floor and RIE 1st Floor – Critical Care 115/116/117/118 Wards

- Work continues to progress with Consort on the Renal and Transplant HDU (relocation to 2nd Floor) and Critical Care (1st Floor refurbishment) regarding feasibility study of area. Design drawings have been issued to clinical staff for review. The Critical Care new design can provide 2 additional beds with isolation lobbies (Total ITU Bed provision 42). Report now expected mid November 2012 (design plans, costings and programme). The next phase of work will be consider decant solutions.

RIE Grd Floor – Pharmacy

- Pharmacy specification to be completed in the next few weeks prior to submitting feasibility documentation to Consort.
  Outline modelling of RHSC outpatients has commenced to support Pharmacy service model and workforce planning.

Design & Construct

Tasks undertaken in the last 4 weeks

- Preparation and issue of Draft 4 of the Output Specification

Critical items that may affect programme

- Conclusion on outstanding queries on the Output Specification.
- NHSL's detailed requirements of and restrictions on NPD Co during construction.
- Finalised details of the Pneumatic Tube System from NHSL.
- BT telephone connection details and helpdesk number.

Project Administration

- Risk Register Review ongoing.
- Strategic Development Programme Version 5.5 Issued for CD Stage.
- Fact Sheet issued by NHSL for internal review.
- Update Project Directory issued 05/10/12.

Procurement

- IM/PQQ version 4.3 and OJUE page turn meeting held with all Advisors on 30 Octber 2012. To be uploaded onto Public Contract Scotland by NHSL when finalised w/c 5th November 2012.
- A short term work group has been established to deal with Procurment issues during PQQ.
- ITPD Vol 1 - Rev K issued for comment 3/10/12 to NHSL. NHSL comments due back 9th Novemenr 2012.
- PQQ evaluation manual - V1.2 issued 06/09/12 for comment.
- Vol 4 – Dataroom. Collation of information for dataroom ongoing.
- Competitive Dialogue Paper Rev E issued to NHSL for comment 6/09/12.

Existing PFI Interface / Key Issues

- Initial comments on the Draft flood management scheme have been recived from the CEC, and indicate that a separate planning submission must be made for the off site flood work.
- NHSL and Consort have issued the SA documents to the Lender's lawyers.
- Consort continue to develop designs to "tender stage" as instructed by second stage TAWO's issued by NHSL.
- NHSL continue to develop scope of works, costs and programme for all Clinical Enabling Works

Key Activities over the next 4 weeks

- Collation of SFT comments on all documents issued to date.
- KSR Approval
- Itinerary for Bidders Day proposal to be finalised by NHSL
- Commence modelling of RHSC OPD Clinics to aid the development of the pharmacy dispensary processes
- Agree shortened programme durations for CD as per SFT instruction.

Health & Safety/CDMC

- Development and issue of Pre Construction Information document (PCI) for Reference Design (draft issued 25th May 2012 for comment).
- Comments on Draft 2 (Rev B) D&C Output Spec Volume 3 Board's Requirements issued to MM (Andy Duncan) as at 28th May 2012.
- Draft 3 (Rev C) Output Spec received (26th July 2012) incorporating Turner & Townsend comments of 28th May 2012 received from MM (Andy Duncan).
- Review of Draft evaluation criteria - ITPD Volume 1 draft document with comments added. (Comments issued 15th June 2012).
  Draft PCI for reference design and F10 issued for inclusion in Data Room.
- Detailed requirements and restrictions update from NHSL / MM meeting actions urgently awaited to update PCI.
  NHSL H&S workshop rescheduled to address process for construction and operational phases on Little France site.

RHSC/DCN Reprovision RR Report

ID	Title	Description	Controls in place	Adequacy of controls	Risk level (current)	Risk level (Target)	Date reviewed	Notepad	Closed date
3183	CLOSED - NHS Lothian does not have a site to locate the new RHSC/DCN facility.	CLOSED - There is a risk that NHSL does not have site to locate the new RHSC/DCN facility because negotiations with Consort have not been concluded. All 11 of Consort's funding bodies must approve the Supplementary Agreement 6.	CLOSED NHS Lothian has purchased Plots 14-16, as an alternative location for what is currently Car Park B.	Uncertain; impact of controls not known at this time and more work required to identify current situation	High	Low	19/04/2012	As at 19th April 2012 one Consort Funder remains to approve SA6 - Depfa. Meeting has been arranged w/c 23rd April 2012 to meet directly with NHSL and Consort. The Director of Finance signed Supplemental Agreement 6 on 10 August 2012, on behalf of Lothian NHS Board. This Agreement releases the required site (Car Park B), and grants the Board access rights for the construction and operation of the new facility. CLOSED	10/08/2012
3185	CLOSED - NHSL does not have planning consent to proceed with the new RHSC/DCN facility	CLOSED - There is a risk that the City of Edinburgh Planning committee does not provide consent to the Board for planning in principle for this facility.	CLOSED Risk closed on receipt of Pip Decision Notice and associated Section 75 Legal Agreement dated 5th April, 2012. Long established relationship with development control. Regular meetings with all stakeholders. Early warning of any issued an immediate response to any issues raised. Close liaison with A+ DS.	Satisfactory; controls adequately designed to manage risk and working as intended	Medium	R	13/02/2012	Risk closed on receipt of Pip Decision Notice and associated Section 75 Legal Agreement dated 5th April, 2012. CLOSED	05/04/2012
3400	Existing RIE cannot accommodate DCN level 3 and 2 patient activity from WGH Ward 20 and 33	Changes are required to the existing RIE to allow DCN Level 3 and 2 Patient activity from the WGH Ward 20 and 33 to be delivered from the RIE Critical Care Floor (1st). The three stages involve: 1) Relocating services occupying the 2nd Floor locationfor the new Renal and Transplant Unit 2) Create a new Renal and Transplant Unit 3) Changes to RIE Critical Care Wards 115/116/117/118 All three stages all need to be completed prior to the opening of the new RHSC and DCN building in June 2017. There is a risk that this may be unachievable given the close proximity of existing critical care and the nature of the construction activity necessary. This would necessitate the introduction of the existing DCN critical care to the "new build" RHSC + DCN Revenue Funded NPD procured project with potential significant town planning, programme and cost implications.	Consort Healthcare are to deliver a Feasibility Study to the Project Team by the end of October, 2012. This may give greater clarity on the viability of this proposal but it is unlikley that a conclusion will be possible before December 2012. This beinghe case, the OJEU Notice and subsequent procurement documentation is currently being reviewed and if necessary amended to faciliate the possible introduction of this major design change at some future date.	Satisfactory; controls adequately designed to manage risk and working as intended	High	Low			
3391	Facility does not meet the clinical and operational needs of the service.	The design of the new facility does not meet the clinical and operational needs of the service, and fails to deliver value for money.	The Project Steering Board has approved the reference design for the project. The reference design illustrates and fixes the required clinical and operational functionality. During the development of the reference design, it was subject to Scottish Futre Trust's Project Review process as part of the assurances required for the Outline Business Case. Elements of the reference design will be mandated in the procurement documentation and bidders will not be able to depart from this in their proposals. Technical Cost Plan 5a was prepared at the conclusion of the Reference Design process. This demonstrates that the Project falls within the current benchmarks for base construction costs for comparable developments as follows: NHS Fife –Victoria Hospital £3,367.74/m2 NHS Forth Valley – Forth Valley Royal £2,766.83/ m2 New South Glasgow Hospital £2,850.00/m2 RHSC + DCN, Little France (excluding NPD Site Works) £2,845.00/m2 Prices have been also been obtained from Consort (the PFI providerof the Royal Infirmary of Edinburgh) and their contractors for the non NPD Enabling Works.	Satisfactory; controls adequately designed to manage risk and working as intended	Medium	Low			

			The Project's Cost Consultant has advised the Project Steering Board that the prices, associated uplifts and risk allocations reflect the best value for money given the unavoidable procurement route available to the Board. Off Site Flood Works with a current estimated indicative cost of £2.5m have recently been identified. This cost was not previously anticipated and not included in the Outline Business Case. However Mike Baxter – Deputy Director (Capital and Facilities-SGHSCD), confirmed at the Project Steering Board of 10th August, 201 that this unforeseen expenditure of £2.5m will be funded by the Scottish Government.					
3225	Negative Response from NPD Market	Little funding appetite due to prevailing economic climate and lack of business confidence. One of many NPD opportunities coiming to market at same time. More attractive business eleswhere in UK (Building Schools for the Future in England etc.) Inabilityof interested bidders obtaining finance suitable and adequate to close dialogue and call for final tenders during Competitive Dialogue phase.	Project to be as attractive as possible with all major risks eliminated or mitigated. NPD programme in Scotland to be managed by SFT to maximise market interest for this project. Flexibility in funding mechanisms being allowed for in procurement documenttion. Five major players in the PFI / NPD market in Scotland have expressd informally a keen interest in bidding for the project.	Uncertain; impact of controls not known at this time and more work required to identify current situation	Medium	Low	16/10/2012	Indications from marketplace are that interest from at least five significant potential bidders remains. However, should programme slippage reappear and OJEU release date moves closer to £200m NHS D+G NPD Project's OJEU release date this may change.	
3224	OBC is unaffordable and not Value for Money	Capital and Operational expenditure projections exceed funding availability and approved capped budget within approved OBC exceeded with liability residing with NHSL.	OBC financials require to be as accurate as possible and based on verifiable data. An updated Technical Cost report indicated that current inflation indices provided a potential reduction in cost. This will continue to be monitored. NHS Lothian's shar of the revenue cost is incorporated in its Financial Plan.	Satisfactory; controls adequately designed to manage risk and working as intended	Medium	Low	10/10/2012		
3226	old - NHSL does not have required skill set or level of resource to support project.	NPD procurement unfamiliar to project team engaged on previous capital funded project. Staff not being released from normal duties. Inadequate budget to procure and recruit additional staff. range of skills not available within NHSL.	Full time project team in place. Capital Planning Director (key role within Core Evaluation Team) and Project Manager both recently completed PFI at Midlothian Community Hospital. Appointed technical, legal and financial advisers all very experienced inPFI / PPP / NPD procurement. Recruitment of Contracts Manager and Commissioning Manager to be expedited. The Project Director shall lead the Core Evaluation Team, supported by a lead from a representative from each of the technical, financial and legal advisers. The Core Evaluation Team includes: A full time Clinical Director Director of Capital Planning & Premises (for the duration of the procurement phase) Associate Director of Finance (for the duration of the procurement phase) Operations Manager (former LUHD COO) The Core Evaluation Team will be supported by specialist groups led by NHS Lothian personnel, including partnership representatives and Facilities. These groups feed into the dialogue process through the Core Evaluation Team and will engage with specific elements of the bidding process appropriate to those functions. These specialist groups will be further supported by the Project Team and its advisers, supplemented by identified leads from NHS Lothian corporate functions (Employee Relations, eHealth, Health and Safety and Procurement). It has been agreed with the Scottish Futures Trust and the SGHSCD that Director of Capital Planning & Projects will fulfill their requirement for a commercial lead for the Board on the evaluation and competitive dialogue phases through to Financial Close. It has also been agreed with the Scottish Futures Trust and the SGHSCD that the Board's Director of Finance is responsible for the procurement process for the project. This risk remains open for the Board. Throughout the project there always remains the risk of key members of staff leaving, or the required skill set for the project changing over time. It is recognised that it is important that consistency of membership of the	Satisfactory; controls adequately designed to manage risk and working as intended	Low	Low	10/10/2012		

3223	Procurement Process Delayed Post OBC Approval + OJEU Release	There is a risk that the procurement process once commenced following OBC Approval and Pre OJEU KSR Approval could be delayed by the inability to achieve unanimous sign off by all eleven Consort Funders to subsequent Supplemental Agreements post SA6. Ths may be due to financial/commercial issues between Consort and their funders, increase in risk exposure due to cumlative effect of all planned works within RIE Campus or possible leverage to ensure invitation to particpate in dialogue as one of three bidders. As a consequence momentum and interest from the marketplace would be lost and a sufficient number of bidders may not be available to ensure sufficient competition.	Review of residual risk to be undertaken once SA6 is approved by Consort Funders. Time taken and issues exposed through this process may indicate level of this residual risk. The Director of Finance signed Supplemental Agreement 6 on 10 August 2012, onehalf of Lothian NHS Board. This Agreement releases the required site (Car Park B), and grants the Board access rights for the construction and operation of the new facility. SA Enabling was presented to Consort lenders on 9th October, 2012 followingextensive negotiation and final agreement with NHSL. Lender approval is anticipated early Novmember 2012. Both SFT and Sct Gov IIB have advised that procurement (release of OJEU Notice) cannot proceed unless SA Enabling has been approved and signed. Approval of further SA's for Clinical Works within the RIE are not considered to be necessary to allow procurement to commence.	Uncertain; impact of controls not known at this time and more work required to identify current situation	High	Low	10/10/2012		
3392	Project not delivered on time	Project not delivered to published operational date as at OJEU Notice release.	A revised strategic programme has been prepared with an OJEU Notice release date of November, 2012. This is seven months later than that reported previously and remains dependent on all Consort's lenders approving SA Enabling. The durations stated foreach of the activities are as prescribed by SFT and SGHD in early 2011. Lothian NHS Board is wholly dependent on Consort Healthcare and their agents to deliver an approved Supplemental Agreement by mid October, 2012 to allow commencement of procurement on the 1st November, 2012 through the release of an OJEU Notice. Good progress is being made in concluding the Agreement. All commercial terms have been concluded between NHS Lothian and Consort and the Agreement is now with Consort's lender's lawyer for consideration. Client change must be avoided and in particular no revision of clinical briefs with resultant design change to the Reference Design can be tolerated without significant detrimental impact to programme.	Satisfactory; controls adequately designed to manage risk and working as intended	High	Low	16/10/2012	The key sections of the programme where delay may occur are recognised by the Project Team as: Release of OJEU Notice (dependant on Consort Lenders) Closing of Dialogue and call for Final Tenders (adequacy of proposals and possible protracted design phase due to need to revisit Reference Design should Critical Care not be accommodated within existing RIE) Period from Preferred Bidder to Financial Close (Detailed Planning Consent and possible Funding Competition in particularly availability of finance) Construction (opportunities to accelerate may aslo be possible) 16 Oct 2012 - SFT have asked for a review of programme durations. A workshop has been arranged for 26th Oct, 2012 with them, SGHD and the project team to discuss.	

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Site Investigations Underway

Executive Summary

	Progress	Blockage	Clarification	Next
Time	Dialogue Round 3 will be completed day preceding P St Bd. Verbal update from Project Director to be given.	Local Resident opposition to Off Site Flood Works following public mtg of 22 May. CEC considering strategy.	Final Enabling Works programmes and link with Financial Close + vacant possession awaited from Consort. Funding Strategy and Instructions to Bidders – awaiting SFT confirmation of EIB involvement or not.	Make Planning Applications for all Flood Works. Dialogue Round 4. FBC Sub Project Team to be set up – deliverables + timelines to be established.
Cost £	Offer made to Exxon Mobile to purchase former Petrol Filling Station.		SKFF and Lothian Health Foundation charitable contributions remain unknown but limited following recent mtgs with respective Boards.	Cost Plan for Clinical Enabling Works + Off Site Flood Works under development. Consort have committed to supplying proposals by mid June.
Quality	SI Works commenced on site – currently on programme.		Clinical Enabling Works scope progressing slowly in conjunction with other RIE "Capacity" projects. Ability of Bidders to submit meaningful design proposals within Competitive Dialogue programme remains to be confirmed.	Long term sickness causing "equipment" resource difficulties – Capital Planning sourcing internal secondee. Commissioning Team Structure being developed ahead of internal recruitment.

RIE Campus Redevelopment

On site External Enabling

- BBCL are continuing to work on the construction sections of the new programmes to see if they can pull back the new deadlines closer to the originals.
- The road design has been presented to all the necessary RIE management groups with out any comments and the contractor instructed to process this plan with the RCC. The RCC is scheduled to be submitted by 17/6/13.
- The casting of the VIE concrete bases has begun.
- BBCL's designers are still updating the M&E drawings and planning the decant phases. The tender for M&E is now scheduled for issue at the end of 30/6/13.
- The new sewer line drawings are to be issued 15/5/13.
- The contractor is still having issues with BT.

Clinical Enabling

RIE 2nd Floor Services (e-health, SNBT, Clinical Haematology, Laboratories Medicine)

- Solutions are still being considered for these services needing to be relocated by spring 2015 to allow construction work to start on the Renal and Transplant HDU. LAMS addressing non clinical moves (e-health).
- **RIE Renal and Transplant Service relocation onto RIE 2nd Floor and RIE 1st Floor – Critical Care 115/116/117/118 Wards**
- Consort preparing M&E report to aid users in identifying a decant solution for the RIE ITU. This work will be progressed at a workshop on 17th May 2013.

Emergency Department Resuscitation Decant & PTS proposals

- All the decant proposals have been approved by the LFCWG and RIE site liaison groups.
- The remaining x-ray and pendant issues have now been finalised.
- As programmed the SOU will decant into the Modular Unit w/b 12 August 2013 and the ED Resuscitation Rooms into the SOU 30 Sept 2013.
- ED and SOU Staff working on decant and commissioning plans.

Additional Beds RIE

- SA now complete
  - Construction start date delayed by 3 weeks, start now 8 July 2013. Construction completion date now 6 Dec 2013. Wards operational start of Dec 2013
- Decant of existing areas for the preparation of the 109b/209b construction work well under way. Area will be cleared by the 10 June 2013.
- Equipment inventory and procurement underway
- FBC being submitted to F & R on 12 June 2013
- Additional assessment beds on the RIE Ground Floor discussed and agreed in principle by senior clinicians at end of April 2013. Sub working groups set up to take detail design work forward for each service impacted upon.
- Endoscopy and MRI plans agreed. Requires agreement and completion of SA.

PTS

- The PTS survey findings were discussed on the 14/5/13. Two option routes are expected to be delivered to the NHSL by the 24/5/13.

Service Redesign & Workforce Planning

Strategic

- DCN and RHSC Service Redesign Working Groups are both progressing action plans

Workforce Planning

- Workforce Plan detailing work to be completed and agreed prior to FBC sign off 2014 under development.
- FM Workforce working group draft reports under review. Early indications show a significant increase in domestic and portering staff establishment. At this time catering workforce being calculated on a full production kitchen.

Procurement

- Competitive Dialogue Meeting 2 completed and follow-up actions by NHSL closed out.
- Informal submissions are currently being reviewed in advance of meeting 3 with Bidders 28-30 May.
- Ongoing response to bidders queries.
- Evaluation Manual for the scoring of draft and final to be completed in June.

Financial

- Funding Strategy requires clarification for Bidders to complete their submissions. See paper for Project Steering Board approval.
- Clarification on funding route and use of RPI/PRIx still awaited from SFT - meeting arranged Friday 17th

Legal

- Bidders informed that NHSL are exploring the option of the adjacent filling station site, and asked to intimate any Bidder interest to NHSL.

Technical

Tasks undertaken in the last 4 weeks:

- Amendment to the BCRs to provide clarification on operational functionality provided.
- Briefing information for Specialist Paediatric Biochemistry Laboratory – to be designed into Reference Design shelled space – issued.
- Impact of changes to guidance regarding FM processes and spaces confirmed.

Critical items that may affect programme:

- No issues affecting programme at this time.

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Stakeholder Management & Communication

- Planning for stakeholder engagement in competitive dialogue through AEDET review in June and 1:50 design development in July -August.
- Fact Sheet updated.
- The Project Clinical Directors Have attended 2 SEAT meetings to update on the project from a DCN perspective and RHSC perspective Version 8 of the factsheet has been issued.
- Briefing prepared for CMTs and those attending AEDET reviews on operational functionality and the reference design.
- The Project Director and Clinical Director have met with the SKFF, Lothian Health Foundation, Teenage Cancer Trust, Trefoil Trust and Ronald McDonald, to discuss their involvement.

Clinical / Equipment / ICT.

Clinical & Equipment

- Second Dialogue meetings held and await submissions for dialogue meeting 3. Project Team responding to bidders queries.

ICT

- ICT - draft plan detailing work to be progressed over the next 4 ½ years currently being populated in tandem with the service redesign and workforce planning work. ICT equipment inventory currently being reviewed.

Facilities Management

- Bidder dialogue meetings attended by NHSL - Jackie Sansbury, Howard Royston and Technical Advisers.
- Dialogue meetings 1 & 2 bidders proposals in response to D1 to D6 have been submitted and reviewed by the FM sub group and feedback provided to each of the bidders at the dialogue meetings.
- Bidder queries and NHSL clarifications and responses are collated following each dialogue meeting. Where required, Bidders have been requested to resubmit proposals which are also reviewed prior to the dialogue meeting and feedback provided.

Project Administration

- Strategic Development Programme Version 9.1 Issued for CD Stage.
- Project Directory to be revised upon selection of Bidder.
- Project resources currently being sourced:

  Contracts Manager
  Internal IT PM
- Agenda's for bidders meeting number 3 issued to all bidders for comment
- Updated and completed the KSR outstanding issues spread sheet
- Dialogue queries being managed through Conject.

Commissioning

- Commissioning plan now under development.

Off Site Flood Defence Works

- The team is continuing with the planning approval and design development.
- SI tenders are to be re-costed.
- Planning neighbour meeting is now to take place on the 22 May 2013.
- It has been established that the proposed works requires access to several local residents properties. There could be issues if these specific residents do not give their permissions voluntary.

Business Case

- In line with Strategic Programme version 13, the Full Business Case for the RHSC and DCN is due to be approved by NHSL by the end of April 2014. This allows for submission to SGHSCD Capital Investment Group for the meeting of 3 June 2014, to seek final approval before Financial Close.

KSR Process

- Monthly working group meeting with SFT to progress governance reviews.
- SFT are to provide a summary of the key points of the next KSR (Close of Dialogue), and advice on the level of commissioning detail required at this stage.
- SFT are to provide details of the pre-Preferred Bidder KSR, as this is not available on SFT website.

Key Activities over the next 4 weeks

- Collation of SFT comments on all documents issued to date.
- Commence modelling of RHSC OPD Clinics to aid the development of the pharmacy dispensary processes
- Complete Project Plan during CD and Evaluation Manual.
- Review issue of submissions from bidders
- Undertake Bidders Meeting number 3 with all bidders
- Ground Investigation works to continue.

Health & Safety / CDM-C

- The Little France Campus Working Group has commenced with membership from all parties on the Campus. It is reporting to the Board Health and Safety Committee.

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Part Drum Removal at RIE Emergency Department

Executive Summary

	Progress	Blockage	Clarification	Next
Time	• PB Letter signed by Preferred Bidder. • PB to FC Programme agreed with IHSL. • Bus Hub operational. • On Site Flood Works Planning Consent granted.		• Input from charities to be developed. • Consort to confirm start date for On Site Flood Works – now likely end of May.	• Achieve FC by 1st Oct and all interim milestones. Commence work on all phases of Assessment Beds Project at RIE and examine feasibility of 3 storey extension to Ward Arc.
Cost £	• Initial meeting with SEAT members positive but with work to do on quantum of contributions. • Funding Competition "teasers" issued.	• Revenue costs for Equipment options to be considered and decisions made.	• Charitable contributions remain unknown but all confirmed support. • Off Site Flood Works Scope agreed with CEC ahead of P App on 9th May – Cost Plan pressure anticipated (RIE original berms + new bridge reqs main reasons) – TBA.	• FM Workforce indicating significant increase / cost – FBC impact.
Quality	• Stakeholder communications sessions completed.	• Concerns remain over Consort and their contractor Balfour Beatty to deliver critical enabling works to programme, share information and undertake diligence in works implementation.	• Outcome of Public Consultations on "Reserved Matters" and "Off Site Flood Works", scheduled 1st May and 29th April awaited ahead of Planning Applications.	• Deliver full sign off by end of July. • Project Delivery Group in place. • Commissioning Manager + DCN Clinical Lead remain to be recruited. • Consort Interface Manager still to be appointed.

RIE Campus Redevelopment

RIE 2nd Floor Services (SNBTS, E-health, Haematology, Laboratories Medicine)

- Progress has been made in identifying new locations for the 70 staff needing to be relocated. Costings underway.

Renal and Transplant HDU relocation to 2nd Floor RIE and Critical Care Alterations (115/116/117/118)

- 1:50 room layout changes re Critical Care support space to be signed off w/c 21 April 2014.
- Tender on course to be issued w/c 9th June.
- Critical Care contingency planning is ongoing.
- Discussions on the feasibility and cost of implementing 50% Ceiling Hoists throughout critical care to be concluded by the end of April.

Pharmacy (Aseptic Suites, Store and Reception Areas)

- Work on Feasibility study started, Feasibility report to be submitted May 2014.
- Design work has commenced for the TAWO 180 Pharmacy Reconfiguration Project.
  Initial work on specification of robotics system, the flows and adjacencies for the aseptic suite, and contingency plans for a temporary aseptic suite is underway.

Link Building - Ground Floor (Emergency Department Resus Decant Proposal)

- The contractor has begun the down takings and plans to have the steel structure away by the 2/5/14 weather permitting. Unfortunately this is behind programme. The internal down takings is moving forward but is also behind.

Sewer Diversions

- The sewer work came to a stop due to damage to a gas service. The repair has now been approved and the work will resume.
- There is an expectation that the sewer works will be completed in the next three weeks.

Service Diversions

- Service utilities trial excavations have begun and the Utilities companies have been put on notice for their works. There is a risk with this programme.

VIE Relocation

- The new VIE is now in use. The removal of old VIE is now scheduled for the 11 May 2014. However this date is in doubt due to the recent withdrawal of the lifting lugs tester.

Road Infrastructure

- The bus terminus started operations on the 21/4/14.
- The road works on Little France Crescent is now expected to start on the 28/4/14.

Flood Protection work

- The CEC planning was granted to allow the flood protection work to restart.
- The Contractor expects the piling work to start on the 27/5/14.

Esso Service Station Works

- SI works commenced on the petrol filling station site on 9 April 2014 and completed, slightly earlier than scheduled, on 17 April 2014. The Factual Report will follow on from analysis of the results by Mott MacDonald. The SI works also included a site wide asbestos survey.

Service Redesign & Workforce Planning

Workforce Planning

- Clinical Workforce Planning - Initial meetings have been held with Dir of Ops from W & C's, DCN, Radiology and Theatres re workforce planning for new building. Actions identified and are currently being followed up. Work involves separating out current pressures within the service areas and developments and thereby only demonstrating additional workforce costings associated with the new building taking into consideration patient activity/demand and capacity.
- Facilities Management – update report submitted to the organisational workforce group. Actions emerging from meeting included exploring sourcing helipad workforce out with NHSL(this information should be with us by the end of April). Pending outcome of other FM workforce issues on-going within NHSL may result in further review of FM workforce for building (Soft FM in house at RIE)
- Following attendance at SEAT DOPS/DOFS meeting in early April a series of weekly working group meetings have been programmed to occur with SEAT members. The aim is to work through the detail and gain agreement in principal to the future predicted workforce.
- Meeting to progress issues further within NHSL set to occur on the 25th April with Finance Director, Scheduled Care Director and Director of Ops.
- All predicted future workforce assumptions to be concluded by the end of May 2014

Service Redesign

- Both RHSC and DCN design groups are continuing to progress elements of service re-design and are meeting regularly. Two submissions for pump priming have been submitted for consideration.
- RIE service re-design programme now agreed with Directors of Operations. Paper to be drafted to go to Clinical Management Group to gain clinical support.
- Redesign – progress is being made with the detail of how the DCN acute care area will function and how the patient flow through it.

Procurement & Commercial

- Preferred bidder, Integrated Health Solutions announced on 05/03/14. Letter signed by IHSL 07/03/2014.
- Standstill for unsuccessful bidders ended on 17/3/2014.
- Debrief meetings completed with B3 and Mosaic.

Financial

- Engaging with IHSL to take forward funding competition. Regular call set up to progress. Long list of funders to be agreed w/c 17/3; PIM issued, shortlist by end April, selection of funder end May.
- Payment mechanism calibration to be finalised - revised thresholds issued 14/3 awaiting IHSL response.

Legal

- Version 2 of the Final Tender (Bidder B) NPD Project Agreement issued by MacRoberts to IHSL on 25 March. IHSL issuing its response to MacRoberts in respect of the Gaps List on 26 March. Meeting on 23 April between MacRoberts and Burness Paull to do a page turn of the NPD Project Agreement.

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Stakeholder Management and Communication

- We dealt with an enquiry from the Evening News relating to on-site flood works and issues raised by some local residents
- Information sessions concluded. The sessions were well attended and a Q&A document has been updated and can be found on the staff intranet
- We issued the fly-through animated video to staff and the media
- A public awareness campaign about works at the RIE and RHSC + DCN will launch at the end of April
- Staff and public messages about enabling works continue to be issued
- Two pre planning consultation meetings will take place at the RIE on Tuesday April 29 (off-site flood works) and Thursday 1 May (Reserved Matters). Local residents, elected members and other key stakeholders have been invited to attend.
- An information letter was issued to all Little France Mills residents regarding the SI works at the former petrol filling station. The correspondence was also issued to the local MSP and CEC Planning and Environmental Health Departments.
- Charities – Engagement with key is ongoing and meetings have been held with each of them to start to formalise their charitable input to the project. IHSL based on the priority areas identified for enhancements/added value above the base build are in the process of developing costed proposals for discussion with ELHF & SKFF.

Additional Capacity Projects RIE

Assessment beds

- Detailed design is underway for PAA and Toxicology. Further work on reconfiguring OPD/6 is underway.
- Progress to 2nd floor is being made with potential agreement for labs and some SNBTS staff nearing completion.

Facilities Management

- IHSL has provided a programme for completion of FM documents which has been agreed with the Board and includes – Schedule 12 Part 2 MS, Part 3 Quality Plan, Part 4 Energy Strategy.
- Meeting agenda agreed and notes provided by IHSL for each meeting.
- A first draft of section 1 of Schedule 12 Part 2 has been provided and reviewed by MM and Board and comments provided to IHSL
- Next meeting on 24th April to review section 2 of Method statement.
- Agreed document drafts are being provided by IHSL in line with the agreed programme and requirements.
- Update catering specification and SOA submitted to IHSL. 1st round of FM detailed design meetings commenced. Kitchen and restaurant specialist involved in process.

Commissioning

- PM Lead appointed.

KSR Process

- KSR 3 Pre-preferred bidder completed.

RHSC + DCN / RIE

- Initial discussions with IHSL in terms of Facilities and Contract Management aspects.
- Continuation of contract monitoring programming, planning and procedures for the operational phase.
- Continuation and progress of developing tools to administer and integrate contract management into the contract e.g. Contract Administration Manual & Management Plan.
- Draft Green Travel Plan prepared by Estates and Facilities, much further work needed.
- Review of RIE operational aspects including information provisions e.g. Life-Cycle, Building User Guide and review of existing RIE Project Agreements.

Programme Overview

Task Name	Start	Finish
Typical User Group Design Review Programme	Mon 10/03/14	Wed 02/07/14
Clinical and Non Clinical Design Review	Thu 13/03/14	Wed 30/07/14
Clinical / User Groups Review	Tue 01/04/14	Wed 30/07/14
Planning - Reserved Matters Application	Fri 09/05/14	Wed 01/10/14
Document Review	Fri 21/03/14	Mon 22/09/14
Design Freeze, Cost plan Capex and its revenue and life cycle fixed	**Tue 15/07/14**	**Mon 01/09/14**
FBC Drawing Review and Joint sign off of Boards Construction Requirements	Tue 15/07/14	Fri 29/08/14
Final BM review of design / cost plan / PA	Fri 01/08/14	Fri 29/08/14
Final Design Sign Off	Mon 01/09/14	Mon 01/09/14
Fixed Capex for Model and D&C agreement	Mon 01/09/14	Mon 01/09/14
Financial Close	Thu 02/10/14	Thu 02/10/14
Site Possession	Fri 03/10/14	Fri 03/10/14

Clinical / Equipment

Clinical

- Drop in sessions for local design leads held and well attended. Initial feedback positive on design.
- 1st round of detailed design meetings have commenced. There will be three rounds of design meetings with sign off at 1:50 for each room required by the end of July 2014.

Equipment

- Revised equipment schedule was issued to IHSL. First joint meeting has taken place. First cut assessing equipment transferability due to commence.
- Work to create equipment schedules for Renal & Transplant HDU & Critical Care to start w/c 21/4 to produce budget costs by mid-May.

ICT

- Meeting held with key staff in e-health in taking forward work associated with 'paper light hospital'. Ground work being undertaken and to scope process and resources needed. Report being prepared for the projects service re-design steering group setting out what 'paper light' actually means for the services moving into the new building.
- E-health meeting with operational service leads with regard to health record storage and scanning. All service areas have now been identified that need health records scanned prior to move.
- Initial meeting held with Director of E-health with regard to ICT equipment procurement, commissioning and decommissioning.

Health & Safety / CDMC / Logistics

Health & Safety

- No accidents or incidents reported by Consort's Contractor. New safety related "Observations Photo Library" working well with downward trend on local incidents.
- Drum Removal process underway with closely monitored activities. Concerns remain on documentation, Risk mitigation, Communication and working to the content of own Method Statements.
- Further asbestos survey work is ongoing, Contractor to report.
- Concerns remain over unwillingness to share H&S critical information, cooperation and coordination. All parties need to work with prime the focus on Health & Safety in high risk, business critical areas.

Logistics

- High construction activity continues on TAWO's 157 (Roads & Car Park C), 156 (Flood defence works) so high volume of large vehicles remain on campus.
- TAWO 157 (Roads)– campus vehicle circulation is generally good with minor disruption only on East Side of Ward Arc with Phases 2 and 3 underway and the new routing for Car Park D traffic. Bus Hub going live on 21st April will change site dynamic and will need close attention.
- TAWO 157 (Roads) – Phase 3b (Little France Drive North) discussions held with all Stakeholders and CEC. Target start date now 28th April.
- TAWO 156 (Flood) - Works still to get fully underway with concerns about Large vehicular access via the North Junction and potential "Blue Light" route compromise. Further discussions arranged with Contractor.
- Pedestrian logistics a concern on east side of campus with high vehicle activity and Bus Hub move.
- Generally, very few logistical issues but there are more challenges in the very near future.

Key Activities over the next 4 weeks

- PB to FC programme being reviewed by IHSL.
- Project delivery group & project management executive meetings being held fortnightly.
- Communications systems sign off and training.

Off Site Flood Defence Works

- SI works completed on site – Lab tests awaited.
- Meetings held with CEC flood prevention and planning regarding options A & B. CEC confirmed that the preferred option is to implement option A.
- Public consultation due end April 2014.
- Planning consent programmed for September 2014, with application 9th May 2014.

Project Administration

- Setting up of communication systems and structures with IHSL underway.
- Systems training to be delivered
- Meeting schedule to be confirmed by IHSL.

Business Case

- FBC approval by NHSL is required in June 2014, for submission to Scottish Government CIG for the 26/08/14 meeting.
- Meetings scheduled with SEAT planning groups in March, April and May to achieve board sign off in June 2014.
- Report on FBC revenue costs to Project Steering Board 25/04/2014.

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Elevation – DCN Entrance as submitted for Planning Consent on May 2014

Executive Summary

	Progress	Blockage	Clarification	Next
Time	• Reserved Matters / Local Planning Application submitted 9th May by IHSL. • Off Site Flood Works Planning Application submitted 9th May.	• Delay in commencing Roads Phase 3b due to unavailability of sub-contractor frustrating progress.	• Input from charities being developed (see paper attached). • Funder view on Paymech Proposal awaited and uncertainty / concern over prospect of Scottish Independence (referendum 2 weeks prior to FC).	• Achieve FC by 1st Oct and all interim milestones.
Cost £	• The trustees of the Edinburgh and Lothian's Health Foundation have guaranteed a grant of 2m. • Change Control process established. Costings for agreement awaited.	• Revenue costs for Equipment options to be considered and decisions made.	• Charitable contributions remain unknown but all confirmed support. • Pff Site Flood Works – Cost Plan pressure anticipated (RIE original berms + new bridge reqs main reasons) – TBA.	• Workforce indicating significant increase / cost – FBC impact. • FBC approval from PSB required at 20th June meeting with subsequent F+R approval 9th July and Main Board approval 6th August.
Quality		• Concerns remain over Consort and their contractor Balfour Beatty to deliver critical enabling works to programme, share information and undertake diligence in works implementation.	• Additional Management support for RIE Site Director.	• Deliver full sign off by end of July. • Commissioning Manager + DCN Clinical Lead remain to be recruited. Consort Interface Manager still to be appointed.

RIE Campus Redevelopment

RIE 2nd Floor Services (SNBTS, E-health, Haematology, Laboratories Medicine)
- Progress has been made in identifying new locations for the 70 staff needing to be relocated. Costing underway.

Renal and Transplant HDU relocation to 2nd Floor RIE and Critical Care Alterations (115/116/117/118)
- Detail design work is near completion with a tender to be issued w/c 9th June.
- A phasing plan and access arrangements for construction are being developed.
- Critical Care contingency planning is ongoing.
- The equipment inventory to be finalised at end of May.

Pharmacy (Aseptic Suites, Store and Reception Areas)
- Work on Feasibility study is well underway, and room layout discussions are ongoing.
- A draft programme for construction is to be agreed.
- Contingency planning (including the need for a temporary aseptic suite) is taking place.
- Draft specifications for the robotics system and for the temporary aseptic suite have been developed.

Link Building - Ground Floor (Emergency Department Resus Decant Proposal)
- The main steel structure was all removed by the 9/5/14. This is behind programme. The internal down takings is moving slowly forward and is also behind. The final site boundary and drop off zone are expected to be completed by the 25/5/14. The contractor is asking for this boundary to be maintained until the end of the project.

Sewer Diversions
- The contractor has now completed the sewer diversions. The Contractor will approach Scottish Water to approve and take possession of the sewer work once the manholes are complete. No re-instatements will be carried out on the sewer areas as these works fall into the zone of the pile work. The gas final repair will also be completed following the piling.

Service Diversions
- The service civil works have begun in the area of Car Park these will move to the south. The planning of the service works directly outside the RIE west entrance have started. There is still a risk with this programme.

VIE Relocation
- The removal of old VIE has had to be delayed as the scheduled testing company withdrew at late notice. The lift is more likely to occur in June/July 2014.

Road Infrastructure
- Commencement of the road works on Little France Crescent have been frustrated by unavailability of sub contractor.
- Car Park C works is moving along and on schedule to meet the 02/07/14 opening.

Esso Service Station Works
- SI complete and formal reporting anticipated w/c 26 May 2014. An additional borehole is to be drilled on 27 May 2014 which will last 1 day will follow on reporting thereafter.

Service Redesign & Workforce Planning

Workforce Planning
- SEAT Workforce Group meetings have been on-going throughout May. Areas reviewed include RHSC and DCN nursing workforce, radiology, theatres, facilities management, and RIE critical care. Projected workforce assumptions have been rigorously challenged internally and externally - see attached report re business case costs for the re-provision of RHSC and DCN
- Facilities Management – update report submitted to the organisational workforce group. Actions emerging from meeting included exploring sourcing helipad workforce out with NHSL(this information should be with us by the end of April). Pending outcome of other FM workforce issues on-going within NHSL may result in further review of FM workforce for building (Soft FM in house at RIE)
- Workforce Planning work will continue for the foreseeable future and will continue to involve SEAT colleagues
- Costs have been obtained from Edinburgh and Newcastle Airports for out sourcing the workforce for the helipad. These are currently being reviewed but are significant. Further work is also on-going internally in staffing this facility from an existing internal workforce.

Service Redesign
- Both RHSC and DCN design groups are continuing to progress elements of service re-design and are meeting regularly. Two submissions for pump priming have been submitted for consideration.
- RIE service re-design programme now agreed with Directors of Operations. Paper to be drafted to go to Clinical Management Group to gain clinical support.
- Redesign – progress is being made with the detail of how the DCN acute care area will function and how the patient flow through it.

Procurement & Commercial

- Preferred Bidder workshop held 28/04/2014.

Financial
- Funding competition progressing well – provisional shortlist of 4 identified with 3 reserves. Still on target to make final choice by end of May.
- Payment mechanism - calibration meeting 19/5 scheduled, with legal drafting meeting planned for 20/05.

Legal
- Version 3 of the Final Tender (Bidder B) NPD Project Agreement, together with version 2 of the Gaps List, to be issued by MacRoberts w/c 26.05.14. Documents List circulated by Burness Paull on 16 May was marked up and returned by MacRoberts on 22 May. In general, matters are moving forward.

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Stakeholder Management and Communication

- Public awareness campaign about works at the RIE and RHSC + DCN has started with posters in 140 busses across Lothian
- Staff and public messages about enabling works continue to be issued, these include the impending (25th May) closure of Car Park E to staff as part of the Phase 3b works.
- Separate pre-planning consultation meetings were held for the reserved matters and off-site flood works applications. Key staff on hand to answer all questions.
- Working with charities to ensure appropriate and timely information is issued to highlight their involvement in the project.
- Meeting held between NHS Lothian and HIS Lothian to determine terms of reference and press guidelines. Joint communications task group to be established for the project moving forward.
- Catering strategy – testing sessions for staff and key stakeholders held at St Johns in May. Key parties informed about the change to kitchen design provision. Positive feedback received about quality of the food.

Additional Capacity Projects RIE

Assessment beds

- Progress is being made with the overall 1:200 and phasing of the project. Phase 1 is being worked through in detail with 1:50 design meetings well underway for all areas.
- Work on producing the equipment lists is also underway as are operational working groups looking at the operational policies, patient flows are resource requirements.

Facilities Management

- IHSL has provided a programme for completion of FM documents which has been agreed with the Board and includes – Schedule 12 Part 2 Method Statements, Part 3 Quality Plan, Part 4 Energy Strategy.
- Meeting agenda agreed and notes provided by IHSL for each meeting.
- A first draft of section 1 of Schedule 12 Part 2 has been provided and reviewed by MM and Board and comments provided to IHSL.
- Next meeting on 5th June to review sections 1&2 of Method Statement and Service Quality Plan.
- Agreed document drafts are being provided by IHSL in line with the agreed programme and requirements.
- 1st round of FM detailed design meetings complete with 2nd round commenced.
- 1st meeting held with specialist designer for Kitchen area.

Commissioning

- PM Lead appointed.

KSR Process

- KSR 3 Pre-preferred bidder completed. Next KSR is pre financial close (September 2014).

RHSC + DCN / RIE

- Continuing discussions with IHSL in terms of Facilities and Contract Management aspects.
- Continuation of contract monitoring programming, planning and procedures for the operational phase.
- Continuation and progress of developing tools to administer and integrate contract management into the contract e.g. Contract Administration Manual & Management Plan.
- Draft Green Travel Plan prepared by Estates and Facilities, much further work needed. Meeting to be setup with UoE to progress further.
- Review of RIE operational aspects including information provisions e.g. Life-Cycle, Building User Guide and review of existing RIE Project Agreements.
- First meeting on Interface construction issues held on 14th may 2014.

Programme Overview

Task Name	Start	Finish
Typical User Group Design Review Programme	Mon 10/03/14	Wed 02/07/14
Clinical and Non Clinical Design Review	Thu 13/03/14	Wed 30/07/14
Clinical / User Groups Review	Tue 01/04/14	Wed 30/07/14
Planning - Reserved Matters Application	Fri 09/05/14	Wed 01/10/14
Document Review	Fri 21/03/14	Mon 22/09/14
Design Freeze, Cost plan Capex and its revenue and life cycle fixed	**Tue 15/07/14**	**Mon 01/09/14**
Drawing Review and Joint sign off of Boards Construction Requirements	Tue 15/07/14	Fri 29/08/14
Final BM review of design / cost plan / PA	Fri 01/08/14	Fri 29/08/14
Final Design Sign Off	Mon 01/09/14	Mon 01/09/14
Fixed Capex for Model and D&C agreement	Mon 01/09/14	Mon 01/09/14
Financial Close	Thu 02/10/14	Thu 02/10/14
Site Possession	Fri 03/10/14	Fri 03/10/14

Clinical / Equipment

Clinical

- 1st round of detailed design meetings complete and 2nd round underway.
- IHSL have introduced a status key:
  Status A - Green – Signed-off – Complete;
  Status B - Orange – Comments received – in Progress;
  Status C - Red – Not Discussed; and
  Status D - Blue – 1:200 Changes – In Progress.

Equipment

- Work continues to specify the group 1 equipment. Work is now also underway reviewing the equipment developments. Following this review a paper will be brought to the PSB for consideration.

ICT

- E-health currently scoping resource paper for taking forward a 'paper light environment' for the new building.
- Various ICT issues have been raised throughout the detailed design user groups meetings and have been escalated to E- health colleagues.

Key Activities over the next 4 weeks

- PB to FC programme being reviewed by IHSL.
- Project delivery group & project management executive meetings being held fortnightly.
- FBC costs approved by partner NHS Board.

Health & Safety / CDMC / Logistics

Health & Safety

- No accidents or incidents reported by Contractor. New safety related "Observations Photo Library" working well with downward trend on local incidents.
- Drum Steelwork Removal almost complete. Concerns remain on documentation, Risk mitigation, Communication and working to the content of own Method Statements in that work area. Discussion required internally to ensure NHSL "Duty of Care" is fully recognised and risks fully assessed and mitigated.
- No further asbestos survey work. Removal will take place as works progress.
- Concerns remain over unwillingness to share H&S critical information, cooperation and coordination. All parties need to work with prime the focus on Health & Safety in high risk, business critical areas. "Duty of Care" comments above remain in general terms. NHSL should be given full visibility on all RAMS for comment prior to works commencement and ensure that our own "Duty of Care" responsibilities are fully addressed under HSE regulations.

Logistics

- High construction activity continues on TAWO's 157 (Roads & Car Park C), 156 (Flood defence works) so high volume of large vehicles remain on campus. Stone deliveries to build up pile mats prior to piling operations start on 27th May.
- TAWO 157 (Roads)– campus vehicle circulation is generally good with minor disruption only on East Side of Ward Arc with Phases 2 and 3 underway and the new routing for Car Park D traffic. Bus Hub going live on 21st April has changed site dynamic in terms of vehicle profiles and has thrown up some safety concerns. This is being closely monitored.
- TAWO 157 (Roads) – Phase 3b (Little France Drive North) started work on 12th May with full junction control Traffic management in place. Contractor making poor progress which is causing unnecessary disruption to road network in that location. Situation requires escalation process.
- TAWO 156 (Flood) - Works to get fully underway on 27th May with concerns about Large vehicular access via the North Junction and potential "Blue Light" route compromise. Discussions ongoing with Contractor.
- Pedestrian logistics a concern on east side of campus with high vehicle activity and Bus Hub move. Decision taken to man the Rear Entrance area from 19th May in the interests of pedestrian safety and vehicle movements. Working well to date.
- Generally, logistical issues and challenges are growing and need to be closely monitored.

Project Administration

- Setting up of communication systems and structures with IHSL underway.
- Systems training to be delivered
- Meeting schedule to be confirmed by IHSL.

Business Case

- FBC approval by NHSL is required in June 2014, for submission to Scottish Government CIG for the 26/08/14 meeting.
- Meetings scheduled with SEAT planning groups in May and June to achieve board sign off in June 2014.
- Report on FBC costs to Project Steering Board 20/06/2014. With Project Sponsor approval required by 18/07/2014.

Off Site Flood Defence Works

- Detailed planning application submitted on 9th May.
- CEC planning has now been granted and the piling work is now scheduled to make a start on the 27/05/14. This is approximately 15 weeks behind schedule.
- Planning consent programmed for September 2014.

User Group Meetings

- Reflecting on the first two weeks of Round 2 UGMs which included Theatres and Emergency Department it is clear that significant progress has been made and that a good number of rooms have been confirmed as Status A with the remainder at Status B and only a few at Status C.
- Rooms Reviewed: **164**

Status A	40
Status B	106
Status C	18
Status D	Not Recorded

- It has been established that for some departments it is unlikely that sign-off at Status A for all rooms will be achieved over three rounds of meetings and therefore a 4th meeting has been introduced to address this. So far the departments needing a 4th meeting include Theatres and the Emergency Department.

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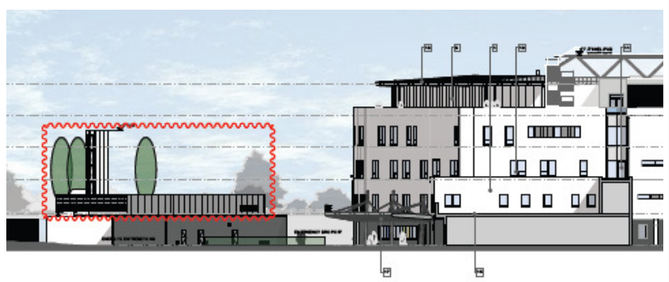

PART OF EAST ELEVATION FLUE SUBMISSION

Executive Summary

	Progress	Blockage	Clarification	Next
Time	• Off Site Flood Works – Planning Application to Committee on 26th Sept. and PQQ's back 26th Sept		• **Technical** – PCP's, Drawings, Derogations, Room Data Sheets • **Design** – Lifts, Anti Lig, Communication Spaces, Acoustics, Flue – Planning Consent. • **Interface** – "Approval" from Consort unlikely but no proposals outside principles in SA's – WIP on detail • **PayMech** – EIB to be convinced (compromise likely). Funder appointment delayed accordingly – on critical path	• 6th Oct – No Material Change to Tech Info. • 28th Nov – Financial Close.
Cost £	• Referendum decision – more certainty around cost of funding.		• Changes post PB being costed – current estimate circa + £ 400k capex.	• All capital costs to be established for final input to Financial Model.
Quality			• Noise + vibration issues may slow progress with On Site Flood Works. • FBC approval – outstanding query from SGHSCD	• DCN Clinical Lead(s) to meet with Project Team and commence engagement w/c – 29th Sept.

RIE Campus Redevelopment

RIE 2nd Floor Services (SNBTS, E-health, Haematology, Laboratories Medicine)
- Detailed plans are being put into place to free up space on 2nd Floor at RIE to make way for the renal and transplant unit. The plans will see staff relocate within RIE, to Canaan Lane and to the Bio Quarter. The programme is delayed due to ongoing discussions around the lease of Bio Quarter space and by the revised date for the Reprovision team to vacate Canaan Lane.

Renal and Transplant HDU relocation to 2nd Floor RIE and Critical Care Alterations (115/116/117/118)
- The work has gone out to tender, responses are expected in November
- The start of construction may be put back (8 weeks) to June 2015 because of the delay in vacating the 2nd floor.

Pharmacy (Aseptic Suites, Store and Reception Areas)
- Detailed design work on the 1:50's is underway.

Link Building - Ground Floor (Emergency Department Resus Decant Proposal)
- The erection of the steel work is complete. The roof and cladding work has started. Good progress has been made and some time has been caught up and the contractor is now reporting only 4 weeks behind. This still means there will be no completion before the Xmas break.

Sewer Diversions
- The reinstatement works have started and the grouting up of the old sewer lines is scheduled to start at the end of September 2014.

Service Diversions
- Nearly all the civil works are complete. The service diversions to the East side went ahead after obtaining their approvals. Unfortunately one of the cables designated and cleared to be cut turned out to be carrying the main RIE telecommunication lines. This resulted in the hospital loosing telephone lines both in and out for a period of around 3 hours. The main reason for this incident is still under investigations.

VIE Relocation
- This section of work is now considered to be complete and will not be reported on next time.

Road Infrastructure
- section of road works between QMRI and Chancellor's buildings is well under way and is on schedule to be complete at the end of the month, when the focus of the road works will move onto the car park B junction. This means the present car park B entrance and exit will close over the week end starting the 28/9/14. The Logistic manager is looking into developing a plan to keep car park B open..

On Site Flood Works
- The pilling to flood walls C & A are substantially complete. The piling rig was scheduled to return to site on the 4/8/14 to start wall B (The final section running along the east side of the ward block). Unfortunately the return had to be suspended as the service diversions were not complete.
- The pilling to flood wall B will begin on the 18/9/14. This work will move towards the ward block before heading away towards the bridge at Little France Drive junction.
- The piling work to wall B is very unlikely to cause concern to the residents of Little France Mills. However as reported last time there is a concern that as the work gets closer to the Ward Block there will be similar noise and vibration issues registered by patients and staff.
- The reinstatement work to the piling walls around Little France Mills is being modified to ensure no sections of landscape will be disturbed by IHSL works.

Motorcycle Parking
- As a direct consequence of the site the current parking needs to be re-provided. An area next to car park A has been identified and works are due to commence mid/late October 2015 for 1 week.

Service Redesign & Workforce Planning

Workforce Planning
- SEAT Workforce programme of meetings commenced in September. Representation from all SEAT Boards in attendance plus Dumfries and Galloway. RIE Renal and Tx and Critical Care Services review to take place on the 9th October 2014
- Preparatory meetings with services have commenced

Service Redesign
- The redesign pump priming proposals submitted by the RHSC Redesign Group were approved at the last Project Steering Board and the local services are now starting the recruitment process.
- The RHSC & DCN Redesign Steering Board met on the 3rd September and this group now includes representation from SEAT Boards

Procurement & Commercial

Financial
- Agreement on calibration of payment mechanism still to be reached
- Paper now agreed between Motts and Sweetts and to be shared with EIB
- Meeting with EIB to be set up for w/c 15/9 or 22/9 to discuss.
- Preferred funder to be selected once position on triggers agreed

Legal
- "Version 4 of the Final Tender (Bidder B) NPD Project Agreement and version 3 of the Gaps List was issued to IHSL on 29.07.14. SFT approved this version, as compared to version 3 of the Final Tender (Bidder B) NPD Project Agreement, but had a handful of comments around Community Benefits which are now being progressed with IHSL. A revised Gaps List was issued by Burness Paull to the Board on 12.09.14 and this shall be used to inform version 5 of the Final Tender (Bidder B) NPD Project Agreement. Funder comments from Hogan Lovells have been received and responded to by the Board on 08.09.14. Fortnightly legal calls between the Board and IHSL are now taking place.

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Stakeholder Management and Communication

- The awareness campaign to highlight the project is continuing with the plasma screen in the RIE main mall installed and working.
- There is now updated information about the ongoing works on the inpatient and outpatient letters at the RIE.
- Internal staff messages continue to be issued through all staff emails and through the monthly staff newsletters.
- The Sick Kids Friends Foundation issued a press release about £2.9 million funding towards the RHSC + DCN project. This was picked up by the local and national media.
- A naming strategy proposal has been developed and will be rolled out before the end of the year. A new name for the RHSC + DCN building will be voted on by the public in 2015.
- Planning approval was received for the RHSC + DCN in August. NHS Lothian issued a press release which was picked up nationally. This information also went to all staff.
- Weekly update meetings with local residents continue to take place.
- Working with IHSL re: guidance on media and communications for their supply chain partners.

Additional Capacity Projects RIE

Assessment beds

- Heads of Terms in preparation
- Phasing discussions ongoing with particular focus on early enabling works.

Facilities Management

- Service yard redesign completed.
- Quality plan and Method statement – reviews now complete.
- Outstanding issue around replacement of Board Specified Group 1 items which is still being progressed.
- Workshop looking at implications of design of FM still to be diarised.
- Change protocol – reviews now complete.
- Energy Strategy expected by the end of September.

Commissioning

- PCP document in preparation.
- Draft NHSL Programme being updated.

KSR Process

- Next KSR is pre financial close (November 2014).

RHSC + DCN / RIE

- Continuing discussions with IHSL in terms of Facilities and Contract Management aspects.
- Continuation of contract monitoring programming, planning and procedures for the operational phase.
- Continuation and progress of developing tools to administer and integrate contract management into the contract e.g. Contract Administration Manual & Management Plan.
- Review of RIE operational aspects including information provisions e.g. Life-Cycle, Building User Guide and review of existing RIE Project Agreements.
- A meeting was held on 22nd August with NHSL and University of Edinburgh to progress the Travel Plan work already undertaken. Further meetings have now been scheduled to progress matters.
- Regular scheduled meetings are continuing to take place between NHSL and IHSL together with Consort. Coordination is taking place with RIE Logistics and the key enabling works to ensure appropriate levels of planning are taking place.
- Initial and secondary surveys undertaken within RIE in respect of the new PTS and ICT to ensure a workable design can be achieved.

Programme Overview

Task Name	Start	Finish
Planning - Reserved Matters Application	11/08/2014	10/10/2014
Cost Plan	02/06/2014	10/10/2014
Design freeze, cost plan capex and its revenue and life cycle fixed	13/10/2014	05/09/2014
Technical Advisor Due Diligence	06/10/2014	30/10/2014
Approval processes	31/10/2014	27/11/2014
Financial Model	13/10/2014	13/10/2014
EPC (D&B)	10/03/2014	26/09/2014
Funding Competition	18/08/2014	06/10/2014
Financing Agreements	30/06/2014	10/10/2014
Technical Schedules	22/08/2014	03/10/2014
NHS Lothian Board Approvals:		
Board approval Room Data Sheets	08/09/2014	19/09/2014
Board Approval and Sign off of PCPs	19/09/2014	19/09/2014
Agreement of caveat to address operational functionality	06/10/2014	06/10/2014
Board Operational Functionality Sign-Off	22/09/2014	03/10/2014
Board Approval pre-financial close papers	31/10/2014	13/11/2014
Board Approval	14/11/2014	27/11/2014
Financial Close	**28/11/2014**	**28/11/2014**

Equipment

Equipment

- Group 1 specifications now signed off with users and returned to IHSL.
- Modeling of MRI scanners magnetic fields still underway.

Key Activities over the next 4 weeks

- PB to FC programme update by IHSL
- IHSL reporting on FC progress to PSB.
- Project delivery group & project management executive meetings being held fortnightly.
- FBC to be approved by Scottish Government.

ICT

- Still awaiting information from e-health with regard to the technical equipment required for the setup of seminar/conference/meeting rooms in the building
- Secondary diverse routes into the RIE communication rooms resolved. Ground and First Floor link to be used to access the two communication rooms in the RIE. ICT PCP in final stages of completion. Ehealth have signed 14th September 2014 the 1:50 detailed design for the node room. IHSL ICT work stream meetings occurring fortnightly.
- 'Paper Lite' Project Initiation Agreement developed and now at RHSC and DCN CMT's for consideration (early Oct 2014. Ehealth will not run with the project if CMT's do not take responsibility for ensuring initiative is implemented within their services. PIA to come to PSB Oct 2014. Funding source for project still to be identified.

Health & Safety / CDMC / Logistics

Health & Safety

- No accidents or incidents reported by the Contractor. New safety related "Observations Photo Library" working well with generally downward trend on local incidents.
- Concerns over DDA compliance of Car park C and safety of our disabled patrons. Further discussions to take place prior to opening.
- Concerns over contractor taking possession of critical operational areas but then making no progress on works. This creates unnecessary disruption and increased safety risk.
- Concerns remain over unwillingness to share H&S critical information, cooperation and coordination. All parties need to work with prime the focus on Health & Safety in high risk, business critical areas. "Duty of Care" comments above remain in general terms. NHSL should be given full visibility on all RAMS for comment prior to works commencement and ensure that our own "Duty of Care" responsibilities are fully addressed under HSE regulations.

Logistics

- Lower volume of construction vehicles moving around the campus as activity has been focused on QMRI / Chancellor's road closure. Suspension of piling activities on TAWO 156 (Flood defence works) until early September has reduced vehicle impact on site.
- TAWO 157 (Roads)– campus vehicle circulation is generally good with minimal disruption only on East Side of Ward Arc. Bus Hub has changed the site dynamic in terms of vehicles with some Safety concerns remaining. This is still being closely monitored and discussed with stakeholders. Car Park C now being open will change dynamic again.
- TAWO 157 (Roads) – Phase 3b (Little France Drive North) is ongoing with Step 6 still to be completed on gas main connections. There are future concerns on vehicle dynamic related to these works, especially the impact of a closure of Car Park B.
- TAWO 157 Roads – Phases 9,10 and 11 (QMRI and Chancellors Building closure) is ongoing. Further two / three weeks expected duration. Has been disruptive to traffic, especially for Maternity team.
- TAWO 156 (Flood) - Works have recommenced . Concerns raised and to be further discussed on effect of piling operations in close proximity to building and Vanguard Unit. Next phase is closest to the building and will be highly noticeable and potentially disruptive to hospital business.
- Pedestrian movements being closely monitored on east side of campus with high vehicle activity and Bus Hub move. Rear or east entrance continues to operate safely due to manned presence. Resource ongoing.
- Generally, logistical issues and challenges are growing and need to be closely monitored during the forthcoming phases of works.

Project Administration

- Processes and communications to develop contract technical documentation.

Business Case

- FBC submitted to SCIG for 26th August; NHSL awaiting decision on approval.

Off-Site Flood Defence Works

- Contractor's PQQ uploaded to Public Contract Scotland portal - return date 26 September Planning application on CEC planning committee agenda for 24 September or 8 October Tender documents currently being prepared.
- Pre Tender Cost Plan in preparation.

Clinical Design

- UGM's were completed by the 30th July 2014. A number of changes were requested at the final meetings and the Project Team and Technical advisors are now in the process of checking final drawings when issued by IHSL. A programme is in place to achieve this by the end of August 2014.
- The Project Team and Technical Advisors have concluded checking the final drawings issued by IHSL. Some of the actions from the final UGM meetings are still to be actioned and this will be undertaken after financial close.
- Proposal has been submitted for Room Data Sheets (RDS) to be completed prior to Financial Close and NHSL have provided feedback on this proposal. A proposal is still awaited for which rooms will be done as C sheets.
- Work is still in progress regarding the impact of the Gauss Lines for the MRI scanners
- A final Equipment List has been issued by IHSL and is currently being reviewed by NHSL Equipment Group
- The next versions of draft PCP's related to design have been reviewed again and feedback given to IHSL.
- Arts & Therapeutic Group is continuing to take forward the 'added value' projects that are being supported by EHLF & SKFF

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ON SITE FLOOD WORKS PROGRESS

Executive Summary

	Progress	Blockage	Clarification	Next
Time	• All technical info with Funder's LTA 17/11 – later than planned due to IHSL seeking to continually improve their position – Derogations, Env. Matrix, RDD, Sched Accomm + GSU's, Opex + Life Cycle, Energy Strategy etc. • Planning consent granted for revised flue (5/11).		• **FC Target date now 23rd Jan 2015 due to late delivery of technical info to LTA. Risks remain, most notably clean LTA Report and Funding Agreement concluded within next 2 – 3 weeks.** • Board also await written acceptance of Interface Proposals from Consort.	• Contractual terms to be agreed with all charities. • LTA reports to credit committees and funding documentation prepared. • Renal / C Care contractor to be appointed by Consort. • Alternative location for eHealth req from RIE due to delayed project team exit from C Lane. • Off Site Flood Works out to tender – Nov 14.
Cost £	• SG confirmed revenue support to the Board will be increased to reflect the additional capital costs of £2,116, 232 to the final tender cost.	• Condition Precedent introduced by IHSL – circa £1m as a result of FC date now post 3 Jan 2015 (90 days post original FC date). Being challenged.	• Renal / C Care Enabling Works tender return.	
Quality		• Three H&S events have occurred at the RIE (Enabling Works): A serious incident concerning electrical non isolation and two minor hand injuries.	• Major traffic congestion at RIE due to staff parking – mitigating proposals escalated to Board Exec. • FBC approval awaited. Specific KSR requirements awaited from SFT.	• Ensure all contractual documentation for FC is completed and clarity of RDD and comments on drawings and PCP's is adequately recorded.

RIE Campus Redevelopment

RIE Campus Development

- Agreement has been reached with Consort to commence fortnightly meetings to coordinate the operational aspects of clinical enabling. These meetings will include clinical and managerial representation from each of the projects as well as infection control, site management, Cofely and the project team.

RIE 2nd Floor Services (SNBTS, E-health, Haematology, Laboratories Medicine)

- Plans to free up space on the 2nd floor at RIE to make way for the renal and transplant unit are progressing well.
- The fit out of the Bio Quarter to accommodate some lab staff will be complete on 30th January 2015.
- A detailed programme of office moves for the first 50 staff has been developed.

Renal and Transplant HDU relocation to 2nd Floor RIE and Critical Care Alterations (115/116/117/118)

- Mid tender review meetings have taken place, Consort/NHSL are in discussions with three companies.
- The start of construction will be May 2015.

Pharmacy (Aseptic Suites, Store and Reception Areas)

- Detailed design work continues. Work is ongoing with Health Facilities Scotland to procure a temporary aseptic suite and the robotic system.
- On-site planning meetings for the temporary aseptic unit have commenced.

Link Building - Ground Floor (Emergency Department Resus Decant Proposal)

- The rendering process has been delayed due to poor weather.
- The M&E work is now moving forward.
- The contractor is still reporting progress as 4 weeks behind.

Sewer Diversions

- These works are now substantially complete.
- The reinstatement works are continuing and part of the grouting up of the old sewer is still scheduled to start at the end of November 2014.

Service Diversions

- Nearly all the communication cabling is complete.
- The CCTV diversions is now about to start.

Road Infrastructure

- The gas diversion was completed on the 1/11/14.
- The road works on the south side of car park B junction are nearing completion and on the 17/11/14 this will transfer on to the north side to allow the junction to be completed.
- There will also be another section of road works on the north of the loop road.
- The road programme is still under review with the expectation that this work will now end in the mid to late March 2015.

On Site Flood Works

- The pilling driving work finished on the week ending the 7/11/14.
- The work is now focusing on cutting down the piles and removal of the pilling platform to wall B.
- The CEC are still considering the NHSL reinstatement plans.
- The Contractor has indicated that the new instructions for additional design for flood alarm, works to burn basin and Back of wall drains is likely to see the works on site finishing in October 2015.

Service Redesign & Workforce Planning

Workforce Planning

- Meetings with SEAT Board colleagues have commenced, a template for the service report has been agreed, with the first meeting held this month to review Critical Care & Renal HDU. A number of actions were identified and are being taken forward by the relevant services. The next meeting will be in November to discuss Radiology workforce.

Service Redesign

- The next meeting of the RHSC & DCN Redesign Steering Group took place on 5th November 2014 and internal workshop took place the following day to consider how best to report progress against plan.
- Following approval of the pump priming proposal for a Project Manager for the RHSC OPD workstream the Children's CMT are starting the recruitment process and will be meeting with the Project Team to fully agree actions and timeframes.
- Following the appointment of the DCN Clinical Leads the DCN Redesign Action Plan is being reviewed.
- NHSL Modernisation Team are supporting workers in pharmacy and assessment beds projects.
- Recruitment has commenced for posts associated with RHSC one stop dispensing project. It is hoped that the recruitment process will commence shortly for the adolescent workstream co-ordinator and Band 6 for Outpatient workstream.

Procurement & Commercial

Financial

- Position on payment mechanism now agreed with EIB.
- Preferred funder (M+G) now appointed and progress being made towards financial close.

Legal

- Version 6 of the NPD Project Agreement approved by the Board on 12.11.14. Version 6 of the NPD Project Agreement awaiting incorporation of funder comments (if appropriate) which are due to be issued to the Board w/e 14.11.14. Board and its advisers to meet funders in London w/c 24.11.14 to discuss funder comments.

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Stakeholder Management and Communication

- The 'Your Travel Choices' campaign has been launched and a week of information stands were held in the main mall (11-13 November) highlighting alternative methods of getting to and from work. The campaign asks those people who bring their car to site to consider other methods of travel and is intended to reduce levels of traffic on site. The RHSC + DCN model was on show through the week and members of the team fielded questions about the project.
- The Evening News ran a story on recently relocated disabled parking spaces at the RIE. This tied in with the redevelopment works to Car Parks C and D.
- Ongoing internal and external communications to inform staff and the public about enabling works continue, including website updates and staff newsletter information.
- NHS Lothian facilitated a meeting with charity partners to look at them working better together. We also issued media guidance to our partners. Further meetings will take place in 2015.
- The RHSC + DCN naming campaign will be launched in early 2015.
- Time lapse cameras will be situated on the site and updated images will be made available periodically.

Additional Capacity Projects RIE

Assessment beds

- Phasing now agreed with Consort. Early works planned for Feb/March 2015.

Medical Photography

- The scoping exercise is complete and a Clinical Output Specification will be drafted by mid-November.

Equipment

- Group 1 (including Board specified) costing agreed with IHSL.
- Group 1 Board specified equipment replacement drafting updated for PA.
- Details of Catering equipment have now been received from IHSL and agreed.
- Lifecycle and maintenance costs almost complete.

Commissioning

- PCP document agreed.
- Draft NHSL Programme has been updated.
- IHSL high level programme being updated.

KSR Process

- Next KSR is pre financial close (January 2015).

RHSC + DCN / RIE (Contract Management)

- Continuing discussions with IHSL in terms of Facilities and Contract Management aspects.
- Continuation of contract monitoring programming, planning and procedures for the operational phase.
- Continuation and progress of developing tools to administer and integrate contract management into the contract e.g. Contract Administration Manual & Management Plan.
- Review of RIE operational aspects including information provisions e.g. Life-Cycle, Building User Guide and review of existing RIE Project Agreements.
- A meeting was held on 22nd August with NHSL and University of Edinburgh to progress the Travel Plan work already undertaken. Further meetings have now been scheduled to progress matters.
- Regular scheduled meetings are continuing to take place between NHSL and IHSL together with Consort. Coordination is taking place with RIE Logistics and the key enabling works to ensure appropriate levels of planning are taking place.

Programme Overview

- See current IHSL programme to Financial Close.

Facilities Management

- OPEX and life cycle costing agreed.

Key Activities over the next 4 weeks

- PB to FC and Construction Programme updated by IHSL
- IHSL reporting on FC progress to PSB.
- Project delivery group & project management executive meetings being held fortnightly.

ICT

- Still awaiting information from e-health with regard to the technical equipment required for the set-up of seminar/conference/meeting rooms in the building.
- 'Paper Lite' Project Initiation Agreement discussed with RHSC and DCN CMT's. Both CMT's have mandated proposal. Meeting being set up with Finance colleagues to agree funding route prior to PIA being presented at PSB.

Health & Safety / CDMC / Logistics

Health & Safety

- Three incidents reported by Contractor, non-isolated cable and badly cut fingers. No Riddor. Safety related "Observations Photo Library" working well with generally
  downward trend on local incidents. Visible signs of increased pro-activity in SWH&S meetings.
- Hard work and diligence must continue going forward to achieve required standards.

Logistics

- Lower volume of construction vehicles moving around the campus as activity is still focused on QMRI / Chancellor's / CP B corner with the road closure at Anne Rowling. Piling activities and vehicles are enclosed on the East Side of the campus.
- TAWO 157 (Roads)– campus vehicle circulation is generally good considering the closure outside Anne Rowling with minimal disruption or complaint. Bus Hub has changed the site dynamic in terms of vehicles with some Safety concerns remaining. This is still being closely monitored and discussed with stakeholders. Car Park C opening has also changed the dynamics. Gas main reconnection now expected for 1st November 2014.
- Car Park B now closed with Car Park E reopened temporarily to ease congestion issues.
- TAWO 156 (Flood) - Works are ongoing. Noise and vibration levels being closely monitored.
- Pedestrian movements being closely monitored on east side of campus. Rear or east entrance continues to operate safely due to manned presence. Resource ongoing.
- Generally, logistical issues and challenges are growing and need to be closely monitored during the forthcoming phases of works.

Project Administration

- Processes and communications to finalise contract technical documentation are progressing.

Business Case

- FBC submitted to SCIG for 26th August; NHSL awaiting decision on approval.

Off-Site Flood Defence Works

- List of five tendering contractors confirmed.
- Tender documents being finalised for issue late Nov 2014.
- Public utility finalisation work works anticipated Feb 2015.
- Works commence March 2015 and finish Oct 2015.

Clinical Design

- Have reviewed all of the relevant PCPs and associated drawings to agree technical documentation with IHSL.
- A series of meetings has taken place with IHSL to resolve outstanding design/technical issues e.g. anti-ligature, acoustics, lifts
- The Arts & Therapeutic Design Group are continuing to meet and are progressing a number of projects. Interviews took place on 23rd October with Lighting Designers to take forward the 'added value' project in relation to enhancing the atrium space. A brief is being developed in relation to the controllable environment project and we are having initial discussions about potential research opportunities.
- As part of the Arts & Therapeutics framework interviews took place to appoint a lighting designer to take forward the enhancement of the atrium lighting and KSLD have been appointed. Work has commenced on developing the briefs for the projects that require to be taken forward over the next 6 months. Preliminary discussions have taken place to explore potential research opportunities linked to impact of some of the added value projects on patient and staff well-being.

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Site Pre Construction

Executive Summary

	Progress	Blockage	Clarification	Next
Time	• **New Target FC date 5th February, 2015.** • Consort appointed FES to undertake Renal/CC and Additional Beds Projects. • Off Site Flood Works being tendered.	• Board's lawyers await final versions of most documents to allow DD to take place – may have impact on FC date.	• Funding Agreements + Re Financing at Top Co level. • PA + "direct losses" • D+B Sub Contracts + Warranties	• **FINANCIAL CLOSE** • Construction + Commissioning programme • Off Site Flood Works commence March 2015
Cost £		• Fix CAPEX: - Inflation Increase - Financing Costs Increase - (EIB rates reduction)	• Post FC remit of PSB and governance around: - Post FC Changes - Equipment - RDD • Upward cost pressure on Enabling Works – Extn Time claims and Footpath to A+E.	• Business Case for Add Beds to Director of Scheduled Care next month then F+R. Contractual terms to be agreed with all charities.
Quality	• SFT nominated Public Interest Director approved by Project Co.	• Report remains outstanding from Consort on H+S incident on site (A+E Link). • Report also awaited on telephone line lack of resilience at RIE.	• Funding Letter + FBC approval awaited. • KSR to be signed off.	• Launch Workshop. • FC Announcement format? • Sod Cutting Event format? • Ability to recruit – admin + commissioning manager.

RIE Campus Redevelopment

RIE Campus Development

- Agreement has been reached with Consort to commence fortnightly meetings to coordinate the operational aspects of clinical enabling. These meetings will include clinical and managerial representation from each of the projects as well as infection control, site management, Cofely and the project team.

RIE 2nd Floor Services (SNBTS, E-health, Haematology, Laboratories Medicine)

- The plans to free up space on the 2nd floor at RIE to make way for the renal and transplant unit are challenging but ongoing.
- The fit out of the Bio Quarter to accommodate some lab staff is complete; a detailed programme of office moves for the first 50 staff has been agreed.
- Some 'pre-works' will start in March.

Renal and Transplant HDU relocation to 2nd Floor RIE and Critical Care Alterations (115/116/117/118)

- The preferred construction contractor has been identified; the contract will be formally awarded at the end of March.
- The project is on time and within the agreed budget.
- Contingency plans continue to be developed around the provision of critical care beds during summer 2015

Pharmacy (Aseptic Suites, Store and Reception Areas)

- Tender documentation has been issued for the hire of temporary aseptic unit.
- A contract for the construction work will be awarded via a single action tender in June.

Link Building - Ground Floor (Emergency Department Resus Decant Proposal)

- The M&E work is still moving forward and the internal building fabric work is now started.
- The contractor's last progress report indicated a 5 weeks delay.
- After discussions the plan is to try and make the Link building operational on the 9/3/15. However this could be affected by the late delivery of pendant fixings and delivery of the new Ambulance drop off area which may push the date back to mid March 2015

Sewer Diversions

- These works are now considered complete and will be removed for the next report.

Service Diversions

- The CCTV diversions are reported to be the last diversions and it is anticipated that these will be completed in early February.

Road Infrastructure

- The road works have moved to the back of the RIE site to complete road widening for the transfer of buses.
- The cycle and foot path change is scheduled to start on the 9/2/15.
- The road programme review has been completed and the works are all expected to be completed by the 7/4/15.

On Site Flood Works

- All piling work is complete.
- The Contractor has indicated that the new instructions for additional design for flood alarm, works to burn basin and Back of wall drains is likely to see the works on site finishing in October 2015. This is under review with the intention of the Off Site Flood works Contractor undertaking these works (when appointed).

Hand back of enabling work areas

- Consort are presently working through plans to arrange the transfer back in to their hands all the enabling areas in or around the RHSC & DCN site by the 6/2/15.

Service Redesign & Workforce Planning

Workforce Planning

- Further work is being done to model activity to assist with the workforce calculations and proposed bed numbers to open in 2017.
- Detailed analysis of theatre activity is almost complete and this will support the allocation of sessions and the staffing model as well as the redesign needed.
- Radiology activity analysis on-going and almost complete and will support the radiology sessions and staffing model needed in 2017 - Radiology SEAT meeting due early March

Service Redesign

- Redesign meetings and activities continue.
- DCN focusing on concluding medical model in new unit – workshop planned 6th March
- Positive discussions have taken place to agree appropriate nursing and medical support to CAMHs when on site.
- RHSC Redesign – Each of the 30 workstream lead/s have identified priority actions for 2015 and will report on progress against these actions to the Service Redesign Steering Group. Current challenge in relation to recruitment of some posts related to one stop dispensing proposal which is delaying the start of the project. Awaiting clarification if other posts related to redesign pump priming will be impacted by the current recruitment freeze.
- Non recurring funding agreed to support development of a HAN hub in the current RHSC to allow the change in practice to be introduced in advance of the move.

Procurement & Commercial

Financial

- Updated model including agreed additional capex costs to date and change log received
- Cost of delay (inflation and additional cost) under discussion and yet to be included in model
- Revised EIB rates yet to be included
- Close protocol received and commented on – dry runs planned for w/c 26/1/15

Legal

- Version 6 of the NPD Project Agreement issued to all parties on 10.12.14.
- Version 7 to be issued imminently once further gaps received from Funders and Schedule Part 17 and 23 have been resolved between SFT, Board and IHSL.

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Stakeholder Management and Communication

- Plans are in place for Financial Close press and internal comms activity. An opinion piece focusing on the clinical benefits will be issued to coincide with the announcement.
- Plans to hold a sod cutting event in late March, early April. Staff and patient representatives will be invited. Dates are with the Scottish Government to confirm.
- A further round of staff information sessions will be held in the months following Financial Close. Dates, times, locations and content of the sessions are still to be confirmed.
- Comms prepared for the start of IHS Lothian works and the closure of Car Park E at the RIE.
- Internal and external communications continue around enabling works and clinical enabling, including website updates and staff newsletters.
- A new monthly staff newsletter for the RHSC will be issued next month (tbc) and regular project updates will be provided.
- The new project website has averaged around 5,000 hits per month since going live last year. Link provided in patient letters and in other project related communications.
- The project intranet page has been updated to include latest images and individual floor plan will be added over the coming months.

Additional Capacity Projects RIE

Assessment beds

- Phasing now agreed with Consort. Early works planned for Feb/March 2015.

Medical Photography

- A clinical output specification has been submitted to Consort and TAWO number issued. Construction will take place in July 2016.

Equipment

- Group 1 (including Board specified) costing agreed with IHSL.
- Group 1 Board specified equipment replacement drafting updated for PA.
- Details of Catering equipment have now been received from IHSL and agreed.
- Lifecycle and maintenance costs almost complete.

Commissioning

- Meetings have begun with support services to understand the scope of input needed and the resources' required
- Job descriptions competed for CAMHs and FM. CAMHs JD agreed with the service. FM JD - still awaiting feedback from the service.

KSR Process

- Working with SFT to complete remaining financial information for pre FC KSR

RHSC + DCN / RIE (Contract Management)

- Continuing discussions with IHSL in terms of Facilities and Contract Management aspects.
- Continuation of contract monitoring programming, planning and procedures for the operational phase.
- Continuation and progress of developing tools to administer and integrate contract management into the contract e.g. Contract Administration Manual & Contract Management Plan.
- Review of RIE operational aspects including information provisions e.g. Life-Cycle, Building User Guide and review of existing RIE Project Agreements.
- A meeting was held on 22nd August with NHSL and University of Edinburgh to progress the Travel Plan work already undertaken. Further meetings have now been scheduled to progress matters.
- Regular scheduled meetings are continuing to take place between NHSL and IHSL together with Consort. Coordination is taking place with RIE Logistics and the key enabling works to ensure appropriate levels of planning are taking place.

Facilities Management

- Internal NHS Lothian meetings continue to work through issues. FM workforce meeting with SEAT due in early Feb.
- Plans for further redesign of the service yard are underway with IHSL.
- Review of soft FM services provision and interface with Hard FM

Key Activities over the next 4 weeks

- Project delivery group & project management executive meetings being held fortnightly.
- Project Launch workshop for Construction phase.

ICT

- Paperlite Strategy programme initiation document almost complete and details resources and plan of work needed to be introduced in advance of the move.

Health & Safety / CDMC / Logistics

Health & Safety

- Safety related "Observations Photo Library" working well with generally downward trend on local incidents. Visible signs of increased pro-activity in SWH&S meetings
- Hard work and diligence must continue going forward to achieve required standards.

Logistics

- Lower volume of construction vehicles moving around the campus as activity is minimal and fairly low risk.
- TAWO 157 (Roads)– campus vehicle circulation is generally good with disruption only on the East side near the Service yard area. Bus Hub still has some Safety concerns remaining. This is still being closely monitored and discussed with stakeholders.
- Car Park E closure will create campus congestion issues.
- TAWO 156 (Flood) - Minimal disruption with earth removal vehicles at a very low frequency.
- Pedestrian movements being closely monitored on east side of campus. Rear or east entrance continues to operate safely due to manned presence. Resource ongoing. Pedestrian safety remains a concern due to lack of segregation in key areas.
- Generally, logistical issues and challenges have reduced as work packages close out.

Daily Programme to Financial Close

19-Jan-15 Mon	20-Jan-15 Tue	21-Jan-15 Wed	22-Jan-15 Thu	23-Jan-15 Fri
Board DD on Project Documents	Board DD on Project Documents	*[Equity Board approved]*	FC Protocol dry run	
B Director appointed		EIB/M&G review final docs	EIB/M&G review final docs	EIB/M&G review final docs
Financial close room opened (London)	EIB/M&B review final reports	EIB/M&G credit approved		Final Key-Subcontractors appointment/CW executed
EIB/M&B review final reports	Project accounts opened	KYC completed		
Lovells to circulate final CTA	D&C Schedules final form	KYC completed		
D&C main body - final form	FM Schedules final form			
FM main body final form				
AoA novated				
Final form Key-Subcontractors appointment/CW				

26-Jan-15 Mon	27-Jan-15 Tue	28-Jan-15 Wed	29-Jan-15 Thu	30-Jan-15 Fri
Finance docs agreed	IC Acatel expires/appoint	All CP's in near final form	[*if required*] Final DD reports issued	VAT registration confirmed
	All final invoices provided		Model audit opinion issued	Constitutional docs - final form
	Funds flow agreed		Placement of insurance	Placement of insurance
			FC Protocol dry run	

02-Feb-15 Mon	03-Feb-15 Tue	04-Feb-15 Wed	05-Feb-15 Thu	06-Feb-15 Fri
Board resolutions - final form	Project Docs - Final form	All CPs in final form	**Financial Close**	
Borrowers board meeting granting approvals	FC Protocol dry run	L/C Issued	Execution of Financing and Project Documentation	

Legend

Financing Meeting / Call	IHSL Meeting	Senior Creditor process	Board process	CPs to close

Project Administration

- Processes and communications post FC are being set up.
- Project Launch workshop for Construction phase being arranged.

Business Case

- FBC submitted to SCIG for 26th August; NHSL awaiting decision on approval.

Off-Site Flood Defence Works

- Main works currently out to tender - return date 20 February 2015 Advanced tree clearance and utility diversion works being procured Continued liaison with CEC regarding discharge of planning conditions and technical approval continued liaison with SEPA regarding the CAR Licence application

Clinical Design

- Meeting taking place with IHSL to discuss the RDD process which will commence after Financial Close
- Currently five potential changes post FC to be considered. Work currently underway with local services to identify case for changes
- Art & Therapeutic Design Group continues to meet. Two workshops were held in December with stakeholders to further develop the briefs for the Pod space and Bedside Controllable environment. Following discussion with Edinburgh University's Chair in Education and Technology a research proposal is being submitted to the Economic & Social Research Council (ESRC) collaborative PhD studentship for a research proposal looking at 'Promoting play in a children's hospital: a person-centred approach to technology design with families', this would link into several of the identified 'added value' projects.

RHSC + DCN - Little France | Programme Board Report | 15th May 2015

RHSC + DCN – Little France – Crèche Demolition

Executive Summary

	Progress	Blockage	Clarification	Next
Time	• Construction on programme. • RDD process underway. • Meeting Schedule + Agendas agreed.		• NHS Glasgow IT reps to meet with Lothian colleagues to share recent experiences.	• **Handover 7th July 2017** • **Operational 25th Sept 2017** • Off Site Flood Works to commence May 2015
Cost £	• Off Site Flood Works – Tenders being evaluated – lowest two under budget.		• Funding Post FC change • Upward cost pressure on Enabling Works – Extn Time claims and Footpath to A+E.	• Contractual terms to be agreed with all charities. • CMT Re Structure and management of change
Quality	• NHSL Project Team remaining at C Lane until move to site – Mid June. • Sod Cutting Ceremony held. • PCo have commenced communications with residents of Little France Mills.	• Report remains outstanding from Consort on H+S incident on site (A+E Link).	• FBC Addendum to proceed to March NHSL Main Board – F+R Approved. • Specific guidance on Lothian Smoke free Policy awaited on Contractors within RIE Campus. • "Naming" Panel to be convened May 2015 + commence process.	• Recruitment – Commissioning Managers and Admin. • NHSL Project Audit underway.

Clinical Design / Reviewable Design Data

- RDD Briefing Sessions for Leads held in April were well attended.
- RDD packs for Production Group 1 departments (Orthoptics, Audiology, Plastic Dressing Clinic, Therapies, RHSC OPD 1st Floor) have been reviewed by Lead Users, Project Team, Infection Control, FM, Equipment Group and TAs and returned to Project Co –
- Production Group 2 review commences later this month (Dental, Social Work, Family Support, Cardiology & Respiratory, OPD (Ground Floor), RHSC Entrance & Pod)

Art & Therapeutic Design

- Designers have been appointed for two of the ATD added value projects - Atrium Spine Wall and the Pod & Play Provision (William Warren, Daniel Warren & Alexandra Fitzsimmons) and the Interview and Sitting Rooms and RHSC Drop-in Centre (Dress for the Weather).
- Meeting held with KSLD in relation to the enhancement to the Atrium Lighting for them to present their Stage 1b report to key stakeholders and overall their proposal was well received.
- Briefs for projects to personalise CAMHS, enhance the bedside environment, design multi-sensory therapies, capture history and present it in a contemporary way in the new build, and link arts and scientific research in DCN are in development and will launch in the next three months.

Commercial & Change

Financial

- Change management process, including impact analysis of all Board proposed changes, is being developed with the input of the Chief Officer and Project Sponsor.

Legal

- Collation and distribution of signed documentation underway through legal advisers.

Change

- Change management process to be discussed at the May Project Steering Board

Construction Health & Safety

Health & Safety

- Bus Hub still has some Safety concerns remaining. This is still being closely monitored and discussed with stakeholders. Designer feedback is still outstanding on safety concerns. Consort to revisit.
- Pedestrian safety remains a concern due to lack of segregation in key areas. Again designer feedback awaited following two pedestrians being knocked down on a crossing.
- Good pro-activity between new contractors on campus at SWH&S meetings with less safety observations to report. One incident fully reported by Brookfield following a site incident within their boundary.

Logistics

- In general terms large vehicle traffic volumes on campus remain high. Brookfield Multiplex vehicle movements at North Entrance are in the region of 90 per day during current activities. Large slow moving vehicles such as piling rigs will need to be managed closely in the coming days and weeks. FES on the Endoscopy project is managing vehicle movements well to date. Extra effort and diligence by all stakeholders will be required now we have moved the Ambulance area to the new Resus location. In this first week of the change we have no real issues and things appear to be settling down well.
- We have now closed off Little France Crescent for construction works between Endoscopy Day Case and Emergency Department with a manned presence at the turning circle outside PCI to protect the "Blue light" route in to PCI. This aspect is working really well to date with no issues. In reality Little France Crescent will not reopen to traffic.

RHSC + DCN - Little France | Programme Board Report | 15th May 2015

RIE Campus Redevelopment

RIE Campus Development
- Fortnightly meetings continue to coordinate the operational aspects of clinical enabling.

RIE 2nd Floor Services (SNBTS, E-health, Haematology, Laboratories Medicine)
- All the 2nd floor services have been re-located to free up space on the 2nd floor at RIE to make way for the renal and transplant unit.
- 'Pre-works' is complete.

Renal and Transplant HDU relocation to 2nd Floor RIE and Critical Care Alterations (115/116/117/118)
- The start of the construction has been delayed by 6 weeks to 15th June, caused by a delay in agreeing the soft FM costs in the Supplemental Agreement.
- Revised contingency plans are being developed for the loss of critical care beds between June and September 2015.

Pharmacy (Aseptic Suites, Store and Reception Areas)
- The temporary aseptic suite procurement has been abandoned due to the lack of detail in the tender responses. The process will be repeated.
- The aseptic suite detailed design is complete.
- A specification is being drawn up for robotics solution for the storage and dispensing of medicines. This will go out to tender at the start of June

Link Building - Ground Floor (Inc. Resus Decant)
- Unfortunately there were several issues with the final delivery of the Resus area (i.e. X-ray and power). This resulted in a 2 week delay to the final operational date taking place on the 5/5/15.
- The conversion back of the temp resus area into Surgical Observation Unit started on the 7/5/15. This later start date will hopefully see the Vanguard unit removal around the 13 of June.

Road Infrastructure
- The road works are nearing completion and the team is now planning for a transfer of buses on the 25/5/15.
- The present programme is still to be fixed but the early indications are that the works will continue into early July.

On Site Flood Works
- The back of wall drainage installation has been completed and the reinstatement work is progressing well.
- This leaves only the flood alarm, road & path temp wall structures and bridge installations to be completed which are still expected to be finished in June.

Off Site Flood Defence
- Preferred contractor now identified
- Advance utility diversion works almost complete
- All pre-start planning conditions discharged

Medical Photography
- The feasibility work has commenced.

Contract Management (RHSC+DCN / RIE)

- Continuing discussions with IHSL in terms of Facilities and Contract Management aspects.
- Continuation of contract monitoring programming, planning and procedures for the operational phase.
- Continuation and progress of developing tools to administer and integrate contract management into the contract e.g. Contract Administration Manual & Contract Management Plan.
- Review of RIE operational aspects including information provisions e.g. Life-Cycle, Building User Guide and review of existing RIE Project Agreements.
- A meeting was held on 29th April 2015 with NHSL, UoE, Scottish Enterprise and Grontmij to progress the Travel Plan work already undertaken. Further meetings have now been scheduled to progress matters. Discussions ongoing with Bioquarter and UoE to ensure collaborative approach.
- Regular scheduled meetings are continuing to take place between NHSL and IHSL together with Consort. Coordination is taking place with RIE Logistics and the key enabling works to ensure suitable and appropriate levels of planning are taking place.

Project Admin

- NHSL admin resource will be in place from the end of May following vacancies since January.

Office move
- Team moved into McKinlay on 17th April to make way for E health to move out of RIE, freeing up space for renal and transplant HDU.
- Preparations being made for team move to site on 12.6.15.

Stakeholder Management and Communication

- Media coverage following the turf-cutting by patients on 24 March included local and national press, BBC television and Forth FM.
- Staff information sessions are scheduled in May and June for RHSC, CAMHS, DCN and RIE.
- Continued communications at Little France around the enabling works and now NPD works on site.

Facilities Management

- Internal NHS Lothian meetings to continue to work through issues.
- Monthly joint FM meetings with SPV, Bouygues and NHS Lothian have begun.
- FM meetings continue with FM work stream concentration on waste streams and some yard operations at our meeting in April.
- Future meetings are scheduled.
- Standard agenda agreed including operational interface issues and mobilisation plan.

Equipment

- Equipment justifications are being completed for specific high cost items.
- Further discussion regarding the process for approval to take place with Project Sponsors

Commissioning

- Startup meetings held with IHSL Commissioning Lead.
- Monthly meetings will commence in June 2015.
- NHS topic based workshops continue with HR workshop on 7.5.15.
- FM Commissioning Manager advertised. Interviews expected to be early June.

ICT

- IHSL ICT meeting held to confirm neurophysiology needs in new building. Further meeting to occur in two months regarding ICT commissioning programme.
- Paperlite Strategy work underway

Service Redesign and Workforce Planning

Service Redesign
- New funding proposal for discussion at next meeting pending understanding of delays in recruitment to current proposals.

DCN Service Redesign Group
- Work continues in progressing the standard operating procedures for the DCN Acute Care Ward. Key issue emerging is the senior medical cover for area and the service is currently exploring the option of basing a consultant neurosurgeon in this area.

RHSC Service Redesign Group
- Delays are continuing in taking forward the recruitment to three of the projects (One Stop Dispensing, Outpatients and Adolescent) that have received pump priming funding. The Adolescent post has now been banded and will now proceed for recruitment approval. Outpatient post has been approved for recruitment. The posts related to the One-Stop Dispensing are currently being advertised. Leads have been asked to assess impact of these delays on the project outcomes.

Workforce Planning
- Position report being prepared for the Chief Officer outlining the work progressed to date by the services and shared with SEAT colleagues.

RHSC + DCN - Little France | Programme Board Report | 31st July 2015

RHSC + DCN – Little France – Site Progress July 2015

Executive Summary

	Progress	Blockage	Clarification	Next
Time	• Construction on programme – Phase 3 Interface Works handback 29th July (final A+E drop off area). Cores continue to rise and basement excavations progressing well. Tower cranes being progressively erected. • Off Site Flood Works – August 18 start on site.	• RDD process increasingly challenging with additional demand on team resources through lack of coordination, incomplete info/drg status, design dev v change and slow updates by IHSL. • Equipment, Commissioning and FM could all benefit from joint meetings – response from IHSL awaited.	• Potential Delay Event due to late delivery of A+E Enabling by NHSL – details awaited from IHSL.	• Handover 7th July 2017 • Operational 25th Sept 2017 • Migration of Services from 25th Sept 2017 • Service Workstreams being established to carry forward Service Redesign + Workforce Planning 28th August handover meeting.
Cost £	• Contractual terms being progressed with all charities.		• Funding of Post FC Change. • Upward cost pressure on Enabling Works – Extn Time claims and Footpath to A+E. • Final Account with Consort still some way off.	
Quality		• H+S issues remain at RIE – pedestrian safety. • Road Safety Audit actions awaited from Consort • LFM residents and elected member proving difficult.	• IHSL restructure announced – JV with Dalmore Capital. • Resource concerns with both Consort + Cofely at RIE – new Shareholder implications?	• CAMHS Commissioning Manager to be appointed.

Clinical Design / Reviewable Design Data

- 4 Production Groups (PG) have now concluded departmental sign off, a total of 15 departments. Review of PG5 departments (CAMHS, Spiritual Care, Radiology and PARU (latter two departments split over 2 PGs) commences beginning of August.
- Three options for requested design change for CAMHS Intensive Treatment Area received from Project Co, two of the options did not meet the Board's requirements and the remaining option requires further design development to ensure the area would be operational functional.
- Initial meeting held with Project Co regarding internal/external balustrade heights due to safety concerns, Project Co have now presented alternative proposals which are being discussed within NHSL and follow-up meeting organised.
- Interior design workshops with users have concluded and the concepts including colours agreed.
- A number of M&E workshops e.g. lighting, bedhead trunking, nurse call are being held with clinical representatives to ensure these functions are meeting the BCRs and clinical needs

Art & Therapeutic Design

- Proposal are continuing to be developed for the charitable funded projects and appointed artists/designers are engaging with users of the service/s.
- Stage 1 'report outs' have been held for the following projects:-
  - Atrium Spine Wall
  - The Pod, Waiting Areas and Play/Dining Rooms
  - Interview and Sitting Rooms and Drop in Centre
- Discussions continuing with Project Co in relation to courtyards and bedside environment projects

Commercial & Change

Legal

- Collation and distribution of signed documentation underway through legal advisers.

Change

- Change management process discussed at the May Programme Board and a monthly summary report will be provided.

Construction Health & Safety

Health & Safety

- Pedestrian safety remains a huge concern on RIE Campus due to lack of segregation in key areas. Consort Designer feedback awaited following several incidents.
- Good pro-activity between all contractors on campus at SWH&S meetings with less safety observations to report.

Logistics

- In general terms large vehicle traffic volumes on campus remain high but have little traffic impact and raise few concerns. In terms of our Risk Register / Matrix suggest increasing to a higher level on Road safety issues.
- All contractors are working within their own Traffic Management Plans and respecting NHSL requirements for this campus.
- Temporary ambulance area working well but moves to it's final permanent position on Wednesday 29th July.
- Little France Crescent now stopped up with piling operations starting on the Link in early August. Logistics agreed.
- Positive initiatives by BME on the handling of large vehicles on site.

RHSC + DCN - Little France | Programme Board Report | 31st July 2015

RIE Campus Redevelopment

RIE Campus Development
- Fortnightly meetings continue to coordinate the operational aspects of clinical enabling.

RIE 2nd Floor Services (SNBTS, E-health, Haematology, Laboratories Medicine)
- All the 2nd floor services have been re-located.

Renal and Transplant HDU relocation to 2nd Floor RIE and Critical Care Alterations (115/116/117/118)
- Construction of the new unit will start on 15/06/15 and be completed on 22/01/16, Contingency plans agreed
- Critical Care will start in Jan 15 and be completed in a year

Pharmacy (Aseptic Suites, Store and Reception Areas)
- The programme has been altered, completion put back to Spring 2017.

Link Building - Ground Floor (Inc. Resus Decant)
- The SOU area was converted and re-opened for patients on the 29/6/15. The Vanguard unit left the RIE on the 1/7/15.
- The focus is now on completing the removal of the temporary ambulance entrance. The expectation is that this will be completed in August.
- The resus area is still to be fitted with a new screen/curtains in September 2015.

Road Infrastructure
- The VMS system has been agreed and the work is progressing.
- A final programme has still to be issued to the NHSL but the indication is that the contractor will move off site on the 7/8/15 to return later in September to complete any unfinished works.
- The construction of car park F extra foot path has still not been instructed.

On Site Flood Works
- All the reinstatement work is still progressing.
- This bridge installation has been delayed further and is now set for erection on the 31/7/15.
- Very little progress has been made with the flood alarm and Flood gates.

Off Site Flood Defence
- Contract with preferred Contractor for signing Pre-start meeting being arranged for w/c 3 August Site start scheduled for 25 August

Medical Photography
- Feasibility Study underway

Contract Management (RHSC+DCN / RIE)

- Continuing discussions with IHSL in terms of Facilities and Contract Management aspects.
- Continuation of contract monitoring programming, planning and procedures for the operational phase.
- Continuation and progress of developing tools to administer and integrate contract management into the contract e.g. Contract Administration Manual & Contract Management Plan.
- Review of RIE operational aspects including information provisions e.g. Life-Cycle, Building User Guide and review of existing RIE Project Agreements.
- A meeting was held on 3rd June 2015 with NHSL, UoE, Scottish Enterprise and Grontmij to progress the Travel Plan work already undertaken. Further meetings have now been scheduled to progress matters. Discussions ongoing with Bioquarter and UoE to ensure a collaborative approach.
- Regular scheduled Interface meetings are continuing to take place between NHSL and IHSL together with Consort. Coordination is taking place with RIE Logistics and the key enabling works to ensure suitable and appropriate levels of planning are taking place.

Project Admin

- Nothing to report at this time.

Stakeholder Management and Communication

- The first in a series of time lapse videos has been issued and is now live on the project website. We gained national media coverage for the project through this.
- We have opened dialogue with the Scottish Government Protocols team to set in motion the re-application for the RHSC (or similar) name.
- Costs and draft artwork have been prepared for the site hoardings and will be finalised through August. These will include images of the RHSC & DCN along with key messages.
- We met with ward councillors to discuss car parking on site. A follow-up meeting with local residents will take place in the months ahead.
- Proactive external communications were issued around the start of the Renal and Transplant and Critical Care works. An article appeared in the Evening News and online.

Facilities Management

- Service Yard design remains unresolved
- Management of proximity car parks underway
- Visits to small service yards in diary

Equipment

- A workshop was held with clinicians on Tuesday to begin the process of selecting pendants, operating lights, UV canopies and surgeons panels.

Commissioning

- Pharmacy Commissioning Manager appointed
- Visit to Glasgow Ehealth team to discuss input to construction and commissioning.

ICT

- Review of current ICT Equipment postponed until roll out of equipment associated with Paperlite Programme.
- NHSL Ehealth senior staff and members of Project Team visiting Queen Elizabeth University Hospitals 28th July 2015

Service Redesign and Workforce Planning

DCN Service Redesign Group
- Workstreams are progressing agreed actions for 2015. Workshop being organised to review DCN Acute Care Model Sept 2015. Draft Head Injury Protocols under review with neurosurgeons.

RHSC Service Redesign Group
- Workstreams are progressing agreed actions for 2015. Priority areas include Outpatients, One Stop Dispensing, DOSA and developing model of care for Transistional Care Unit

Workforce Planning
- Work progressing with services in finalising reports for the RHSC and DCN Workforce meeting with colleagues from SEAT Boards (3rd August 2015)
- Report being prepared showing Base (fixed costs), Business Case Developments (agreed in RHSC and DCN OBC 2013) and NHSL Developments costs
- WGH Sustainability report being prepared showing gaps in WGH service provision when DCN move off site.

RHSC + DCN – LITTLE FRANCE

PROGRAMME BOARD – 27 NOVEMBER 2015

PROJECT DASHBOARD

Recommendation/ action required:

The Programme Board is asked to note progress.

Author:	**Director:**
	Brian Currie Project Director RHSC+DCN – Little France

NHS Lothian

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RHSC + DCN – Little France Basement Progress Nov 2015

Executive Summary — 84 WEEKS TO HANDOVER

	Progress	Blockage	Clarification	Next
Time	• Third floor formwork underway, basement + backfilling nearing completion. External wall commenced in NE corner, stairs and balustrades to cores and vertical riser modules beginning delivery and install. • Off Site Flood Works commenced.		• Potential Delay Event due to late delivery of A+E Enabling by NHSL – further details and contract condition clarification awaited from IHSL. £104k claimed. • Pile 133 rework completed – potential future programme implications – working with IHSL to minimise commissioning impact.	• Handover 7th July 2017 • Operational 25th Sept 2017 • Migration of Services from 25th Sept 2017 • Further significant Changes cannot be tolerated. • Design Closeout. • Continual debate over Change v Design Dev.
Cost £	• Enabling Works Final Account with Consort (Balfour Beatty element) agreed.	• Pharmacy Works under review – upward cost pressure. • IHSL resource to deal with changes – design + commercial,	• Enabling Works Final Account with Consort being progressed and conclusion hopefully by 28th Sept.	• BioLabs Change – decision required urgently. • Ron MacDonald Change. • Patient Entertainment Support + Revenue Costs.
Quality	• First "Liaison Committee" held 25th Nov at NHSL's insistence.	• H+S issues (principally traffic/pedestrian segregation) remain at RIE actions awaited from Consort.	• IHSL restructure announced – JV with Dalmore Capital. IHSL to provide further detail. • Consort resources post Equitix/IML shareholding conclusion.	• Project Tagline launch Dec 2015.

Design

- 9 Production groups completed, all departments on the Ground and 2nd Floor have now been signed off and 25% of departments on 1st floor. There are a further 5 Production Groups to be completed by the end of March 2016. 2nd submissions of PG01 &02 have been reviewed by the Project Team and overall revisions to room layouts have been actioned.
- Finalising discussions regarding balustrade heights.
- A number of workshops have been held in relation to hospital wide strategies e.g. security & access, wayfinding, interior design.
- RDD process is continuing with a substantial number of drawings being reviewed on a weekly basis.
- Following a review by the Laboratories Management Team they have requested that the Specialist Paediatric Biochemistry Laboratory is relocated to WGH. Board reviewing alternative options for this area.
- Following final sign-off by Ronald McDonald representatives, they have now raised substantial concerns about the design. Meeting held with them to explore the level of change that can be accommodated at this time without impacting on programme.

Commercial & Legal

Commercial & Legal

- Awaiting update from SFT regarding ESA10 and ONS review of Project.

Construction Health & Safety

Health & Safety

- Pedestrian safety remains a huge concern due to lack of segregation in key areas. Designer feedback expected following several incidents. Risk Register / Matrix increasing to a higher level on Road safety issues.
- Good pro-activity between all contractors on campus at SWH&S meetings with less safety observations to report.

Logistics

- In general terms large vehicle traffic volumes on campus remain high but have little traffic impact and raise few concerns.
- All contractors are working within their own Traffic Management Plans and respecting NHSL requirements for this campus.
- Blue light routes remain clear and rarely compromised by construction vehicles.
- Positive initiatives by both BME and FES on the handling of large vehicles on site working well.

Art & Therapeutic Design

- Confirmed locations and brief for stained glass to be moved / replicated from the current RHSC, and appointment to archivist / design residency: 'old to new'
- Users' review of charity-funded proposals for courtyard and play space enhancements
- Progressing patient entertainment research, including appointing a consultant advisor on digital strategy and visiting Glasgow, to enhance the bedside environment.
- A proposal for enhancement in haematology-oncology ward beyond the space allocated to TCT is being discussed with two other charities: SKFF and It's Good 2 Give.
- Artists to develop wall graphics and wayfinding designs appointed: Rachel Duckhouse, David Galletly, Natasha Russell and Alison Unsworth

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RIE Campus Redevelopment

RIE Campus Development
- Monthly meetings continue to coordinate the operational aspects of clinical enabling.

Renal and Transplant HDU relocation to 2nd Floor RIE and Critical Care Alterations (115/116/117/118)
- The renal/transplant construction is progressing to time; the unit will be handed to NHSL on 25th Jan 2015.
- Drainage work to the 1st floor is complete. There will be further site disruption in the next two months to accommodate electrical, fire, water and PTS tie-ins.
- Construction work in the critical care wards will commence on 25th Jan 16, and will last until the end of next year.

Pharmacy (Aseptic Suites, Store and Reception Areas)
- A revised programme has been agreed, completion will be late spring 2017.
- Dialogue continues between Consort and NHSL with regard to the escalating construction costs. The contractor may sub- contract out some of the construction in an attempt to reduce costs.

Link Building - Ground Floor
- The contractor has returned to site on the 14/9/15.
- The temporary ambulance entrance has been removed and the contractor is focusing on completing snagging to this area.
- The new area has developed a roof leak which is under investigation.

Road Infrastructure
- There is still no formal comment back from the Local Council regarding the approval of the Road Consent. This is delaying the moving of the long zebra crossing.
- The contractor is now completing snagging to the roads.

On Site Flood Works
- Consort is reporting that there are issues with their proposed flood gate plans. They have now stated that these works will not be constructed until the New Year.

Off Site Flood Defence
- Contractor established site compound w/c/ 9/11/15
- Works commenced w/c 16/11/15

Medical Photography
- Detailed design is ongoing.

Contract Management (RHSC+DCN / RIE)

- Continuing discussions with IHSL in terms of Facilities Management and Contract Management aspects.
- Continuation of contract monitoring programming, planning and procedures for the operational phase.
- Continuation and progress of developing tools to administer and integrate contract management into the contract e.g. Contract Administration Manual & Contract Management Plan.
- Review of RIE operational aspects including information provisions e.g. Life-Cycle, Building User Guide and review of existing RIE Project Agreements.
- A meeting was held on 03/11/15 with NHSL, UoE, Scottish Enterprise, Edinburgh Council and Grontmij to progress the Travel Plan work already undertaken. Further meetings have now been scheduled to progress matters. Discussions ongoing with Bioquarter and UoE to ensure a collaborative approach.
- Regular scheduled Interface meetings are continuing to take place between NHSL and IHSL together with Consort. Coordination is taking place with RIE Logistics and the key enabling works to ensure suitable and appropriate levels of planning are taking place.
- A shadow helpdesk has been in operation for circa 13 months to monitor programme by Cofely in terms of Helpdesk operation. Sustained effort is required to promote service improvement within this area. Meetings are taking place with Consort/ Cofely to assist.
- RIE contract documentation is being sourced and filed in appropriate formal/ layout.
- High level site walk round of the RIE commenced on 09/09/15 with NHS Lothian, Consort and Cofely

Project Team Resources

- CAMHS Commissioning Manager in post.

ICT

- Workshop held with IHSL to review and clarify requirements.
- Review of Patient Entertainment system ongoing with outcome needed soon

Commissioning

- New IHSL room handover programme is giving cause for concern for commissioning. Further updated programme due this week to try to resolve the back end delivery of rooms.
- Alterations to mock up rooms almost complete and change requests submitted to reduce the number of assisted bathrooms, add a light in bed housing for parents, add additional bed screen round parents in 4 bed paediatric wards.
- Feedback from Mock ups is being prepared for staff and will be sent out once rooms are available for viewing again.
- Master commissioning plan in preparation with Motts.
- NHS commissioning meetings to commence Jan 2016.

Facilities Management

- PG09 (Basement) sign off
- Job description for security helipad officer and supervisor submitted to ER.
- Building User Guide index in draft
- Bin washer visit rearranged for 27/11/15
- Change notice submitted for Catering outlets

Equipment

- Board specified group 1 clinical evaluation for theatre pendants, panels, canopies and lights completed.
- New range of ward furniture being delivered to mock ups for viewing from national contract.
- Equipment development paper prepared for discussion.

Stakeholder Management and Communication

- The project tagline, Proud Histories New Chapters, will be launched at the end of Nov/early Dec. Site hoardings, posters, leaflets and a website refresh will accompany media activity around the launch date itself.
- A staff communications forum has been established to enable better two-way communications and understanding of comms issues within the RHSC, DCN and CAMHS. So far there has been a good bit of interest in being part of this group, with around 15 members of staff from across a wide range of areas coming forward.
- The revised project factsheet has been distributed and will be reviewed and, if required, updated on a quarterly basis. The factsheet gives high level information about the project including bed numbers.
- A communications plan for the Arts and Therapeutic Design project has been drawn up and media activity will soon follow.
- Proactive media guidelines have been established with IHS Lothian Ltd and reactive guidelines are now being devised. This ensures that all proactive and reactive media are channelled appropriately and dealt with in a timely manner.
- A competition to name the four tower cranes is to take place with a primary school next to the RHSC + DCN. This will happen at the start of January. This will provide a positive PR story and good engagement opportunity for the project.

Programme

From: Freeman, Julie
To: McLennan, Neil
Cc: McGeechan, Christine
Subject: RE: RHSC + DCN Design Task Group
Date: 15 July 2011 13:45:19

Neil,

The Critical Care essential adjacencies are satisfied by this design including the On Call Suite.

Second Floor being all RHSC and Third floor being all DCN is good.

Family Hotel being close to but separate from the RHSC Inpatient section is good and is appropriately placed at the same level as the Main RHSC inpatient floor.

The street is well placed and the access cores are well placed. Nothing is too far away.

The Theatres need looked at with all of the components placed to see if the street going through is a problem.

Changing the first floor plan around is not a problem as long as our adjacencies are satisfied. Improved access to light would be an advantage.

Nursing staff would like more light in critical care we have noticed the opportunity for light pipes or light bricks from the courtyard above. Good internal ergonomics are as important for Critical Care.

Separation of paediatric patient flows and DCN patient flows is required. Patients with neurodisabilty and children are not an easy mixture.

Adults will want grown up space. Children will want child friendly space.

The use of the basement is clever.

This is a good first drawing.

Regards
Julie Freeman

From: McGeechan, Christine
Sent: 14 July 2011 12:08
To: Brown, Kirsteen; Bruce, Gwyneth; Burnside, Audrey; Campbell, Peter; Clinkscale, Gareth; cmumford@[redacted]Conroy, Michael; Cosens, Sorrel; Cunningham, Steve; Currie, Katy; Doyle, Edward; Duguid, Karen; Easton, Richard; Eunson, Paul; Fitzpatrick, Michael; Fraser, Diane; Freeman, Julie; Gillies, Graham; Halcrow, Fiona; Hanley, Dorothy; Harper, Jean; Harrison, Maureen; Jefferies, Janette; Jurgen Schwarze (jurgen.schwarze[redacted] Lam, Jimmy; Leonard, Paul; Lloyd, Susan; Mackenzie, Janice; McDerment, Catherine; McFadzean, Jillian; McGovern, Fiona; McKenzie, Lesley; McKenzie, Susan; McLennan, Neil; McPhillips, Maeve; Mitchell, Madeleine; Munro, Fraser; Niven, Hester; Reilly, Laura; Richard Davenport (rjd@[redacted] Richard Davenport (rjdavenport@[redacted]Robson, Michael; Rod Gibson; Rose, Mary; Russell, Sharon; Smith, Linda L; Stark, Mairi; Steers, James; Stewart, Alisson; Thea MacMillan; Thorpe, Michele; Upton, Carrie; Watchman, Sheena; Watchman, Sheena; Wilson, Brian
Subject: RHSC + DCN Design Task Group

Dear All

I would like to thank you for taking the time to attend the Design Task Group on Thursday 7th July, 2011

To assist with keeping our records complete can I ask that all comments be feed back to Neil McLennan at Neil.McLennan@[redacted] This will allow the project team to collate all comments and report back to our Design Team the necessary changes. Can I please reiterate that no comments should be sent to our Technical Advisers, as this could lead to unnecessary confusion and cause delay in getting comments looked at and meeting our tight deadlines.

Kind regards

Christine

Christine McGeechan
Project Administrator
LUHD - RHSC + DCN Reprovision

NHS Lothian
1 Rillbank Terrace
Edinburgh
EH9 1LN
T: [redacted]
E: Christine.mcgeechan[redacted]

From: Freeman, Julie
Sent: 29 August 2011 15:08
To: Mackenzie, Janice; Halcrow, Fiona
Cc: McLennan, Neil; Steers, James
Subject: 1:500 Critical Care

Janice, Fiona,

The Critical Care adjacencies are satisfied at 1:500.

Flows to and from Theatre need to be looked at carefully at 1:200 level to ensure those adjacencies are satisfied.

Having PICU and RHSC Theatres at polar opposite ends of the building needs to be avoided.

The issues with the shape and courtyard position may not be as bad as I feared. The scale is at A2 but my drawing is on A3 so doubling the measurements does make things look better.

We will be expecting a 1:200 drawing as good as the last one.

There will be a Gold Fish Bowl effect on the courtyard which is most disadvantageous for the bereavement suite.

Otherwise the bereavement suite is well located.

This can be resolved with reflective one way glass on all sides of the courtyard. This needs to be effective in difficult conditions such as dawn and twilight where there may be a light on inside the room.

The Newcastle PICU has this glass on their windows which are overlooked.

If the placement of the Burns Bath to service PDC and Theatres becomes an impossible task then I would suggest that PDC and Theatres Each have their own bath.

The PDC one could be a standard assisted bath at 14sqm.

Regards
Julie

From: Reilly, Laura
Sent: 28 October 2011 11:44
To: Freeman, Julie
Subject: RE: Critical Care Meeting - 3rd Round

Only available on the 6th, from 11am onwards
Laura

-----Original Message-----
From: Freeman, Julie
Sent: 28 October 2011 11:37
To: Reilly, Laura
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What dates are you not available in that week?

We see you as the key person (plus Laura) for this area.

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
[redacted]

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Regards
Julie

From: Freeman, Julie
Sent: 02 September 2011 12:42
To: Mackenzie, Janice; Halcrow, Fiona
Cc: McLennan, Neil; Steers, James
Subject: RE: 1:500 Critical Care

Janice, Fiona,

I have thought further and have discussed the 1:500 drawings with colleagues.

I still am concerned about the position of the DCN Core for two reasons.

The proportion of the green section of the drawing allocated to DCN will be expected to be about one quarter of the volume on the drawing.

This is because RHSC Theatres is larger and includes the Day Case Unit.

So as a result:

The DCN Core may come up into the RHSC side of the Theatres or end up splitting RHSC Theatres.

There is also the issue of the general public coming up the DCN Core to visit patients in DCN Acute Care which may result in crossed flows.

The detail of this is a 1:200 issue and I am sure possible to resolve.

I thought better to say now rather than leave it.

Regards
Julie

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Regards
Julie

From: Freeman, Julie
Sent: 05 October 2011 11:26
To: Halcrow, Fiona; Rowney, David; Reilly, Laura; Smith, Pat; Marshall, Tom; Cunningham, Steve; Tsirikos, Thanos; Adams, Christopher; Stewart, Ken; McGovern, Fiona; Hanley, Dorothy; Munro, Fraser; McHoney, Merrill; Harper, Jean; McFadzean, Jillian; Addison, Patrick; Wilson, Brian
Cc: Lloyd, Susan; Steers, James; Mackenzie, Janice; Cosens, Sorrel; McLennan, Neil; Gillies, Graham; Currie, Brian; MacDonald, Andrew
Subject: RE: Shared on 'file server-shared data (laur-appl)'(S:) - RHSC & DCN Users Folder. - RHSC Critical Care Folder - 1:200 Meetings - Agenda and Drawings

Hi Everybody,

Any comments on the drawing to me by Wed 12 Oct (meeting is in 13 October).

I will aim to arrange a pre-meeting on 12 Oct pm for the clinicians I will circulate the time later this week.

Regards
Julie

From: Halcrow, Fiona
Sent: 05 October 2011 09:20
To: Freeman, Julie; Rowney, David; Reilly, Laura; Smith, Pat; Marshall, Tom; Cunningham, Steve; Tsirikos, Thanos; Adams, Christopher; Stewart, Ken; McGovern, Fiona; Hanley, Dorothy; Munro, Fraser; McHoney, Merrill; Harper, Jean; McFadzean, Jillian; Addison, Patrick; Wilson, Brian
Cc: Lloyd, Susan; Steers, James; Mackenzie, Janice; Cosens, Sorrel; McLennan, Neil; Gillies, Graham; Currie, Brian; MacDonald, Andrew
Subject: Shared on 'file server-shared data (laur-appl)'(S:) - RHSC & DCN Users Folder. - RHSC Critical Care Folder - 1:200 Meetings - Agenda and Drawings

Dear All

Dear All

We have set up a shared folder for RHSC & DCN Users - it can be located on the above pathway.

The following folder has been added to this shared folder facility (to address the current 1:200 Scheme Design meetings that are just about to start)and include:

- **RHSC Critical Care**

Other areas will be added in due course.

You all have read-only access.

For some of you hard copies of the information pertaining to the 1st round of 1:200's will be delivered to the RHSC Reception Area for collection later today and email will be sent to these staff.

For colleagues who do **not** have a NHSL Ehealth account, unfortunately access to this shared drive is not available.

If you have any difficulty with this please let me know.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
[redacted]

From: Halcrow, Fiona
Sent: 26 October 2011 09:59
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: Mackenzie, Janice; Steers, James; McLennan, Neil; Gillies, Graham; Cosens, Sorrel; Lloyd, Susan; Currie, Brian; Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
Subject: Critical Care 2nd Drawing

Dear All

We have received the 2nd drawing through from Nightingale Associate Architects for the RHSC Critical Care Area.

I have dropped this into the RHSC & DCN Users folder for you to access.

It is located within the next meeting folder 10 November 2011, plus the log of issues that were recorded at the last meeting and the next meetings agenda.

Actions to be progressed prior to next meeting includes:

- review the drawing against the log of issues and ensure the architect has captured all of the changes requested
- review the new drawing for operational functionality of your service
- identify issues that are crucial to the functionality of the department
- ensure design brief is accurate and reflects your service and feedback any changes to Fiona Halcrow

Hard copies of the drawing is expected to be delivered to 1 Rillbank later today, and I will then advise the staff who will receive an actual hard copy.

If you have any problems accessing any of the above please get in touch with me (phone numbers listed below).

The next meeting occurs on the **10 November 2011**, **Time 08.30-10.30 hrs, Venue: 18 Millerfield Place**

BW

Fiona Halcrow

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: 0131 [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 28 October 2011 12:40
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: 'Brady, Thomas'; 'Jamie Brewster'; McLennan, Neil; Mackenzie, Janice; Steers, James; Gillies, Graham; 'Lillie, Naomi'; David Stillie
Subject: 3rd Round of 1:200 - Meeting Date and Time

Dear All

I am writing to confirm the date/ time /venue for the 3rd Round of 1:200 Drawing meeting for the Critical Care Department.

This will occur on: 6 December 2011 (Tuesday)
Time: 11.00-12.00 Hrs (60 minutes)
Venue: Conference Room at 10 Chalmers Crescent, Edinburgh

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 28 October 2011 11:59
To: Freeman, Julie
Cc: Reilly, Laura; Munro, Fraser; Marshall, Tom
Subject: RE: Critical Care Meeting - 3rd Round

Hi Julie

I'm just firming up on this today. Lets go with the 6th December 2011. I would think 90 minutes at the most will be needed.

I have put into the internal post today the hard copy of drawings for this next round of meetings.

It came through very early which is good and allows you and your team to assess your area properly.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 28 October 2011 11:56
To: Halcrow, Fiona
Cc: Reilly, Laura; Munro, Fraser; Marshall, Tom
Subject: FW: Critical Care Meeting - 3rd Round

Fiona,

Laura and I could be available from 11:00 am on Tues 6 Dec if that is OK.

I think Tom is away all week. Not sure about Fraser. If the drawings are available by Fri 2 Dec we could at least ensure that both of them have seen the final drawing.

Could you let me know soon if this will work? Then I can book my course for 7/8 Dec.

Regards
Julie

From: Reilly, Laura
Sent: 28 October 2011 11:44
To: Freeman, Julie
Subject: RE: Critical Care Meeting - 3rd Round

Only available on the 6th, from 11am onwards
Laura

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RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 01 November 2011 10:23
To: 'Lillie, Naomi'
Subject: RE: 3rd Round of 1:200 - Meeting Date and Time

Thank you

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Lillie, Naomi [mailto:naomi.lillie[redacted]]
Sent: 31 October 2011 10:47
To: Halcrow, Fiona
Subject: RE: 3rd Round of 1:200 - Meeting Date and Time

Hi Fiona,

This meeting is in BIW, with Tom Brady, David Stillie and yourself as 'attendees' for the sake of the notification but just let me know if you want this changed.

Hope all's well with you and the team,
Regards,
Naomi

Please note that we moved office on 15 August 2011. Our new address is 1 Tanfield, Edinburgh, EH3 5DA. Our telephone number remains 0131 550 9440.

From: Halcrow, Fiona [mailto:Fiona.Halcrow@[redacted]
Sent: 28 October 2011 12:40
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: Brady, Thomas; Jamie Brewster; McLennan, Neil; Mackenzie, Janice; Steers, James; Gillies, Graham; Lillie, Naomi; David Stillie
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Dear All

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This will occur on: 6 December 2011 (Tuesday)
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Venue: Conference Room at 10 Chalmers Crescent, Edinburgh

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

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EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

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Royal Hospital for Sick Children
Sciennes Road
Edinburgh
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Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Munro Fraser (NHS LOTHIAN) <fraser.munro[redacted]
Sent: 08 November 2011 12:24
To: Freeman, Julie
Subject: RE: Critical Care 2nd Drawing

Julie
I won't be there but some comments:
1. Parents accomodation not well positioned adjacent to staff rest etc.
2. Bereavement suite next to reception/waiting area.
3. Equipment store not adjacent to bulk sstore and too far from PICU
4. Low acuity bed spaces won't work side on.
5. Can't see high acuity 4 bed bay from nursing station.
6. Linie buggy in staff base in high acuity.
7. I thought we were supposed to have one isolation cubicle between low and high acuity.
8. Aren't all PICU cubilcles meant to be isolation? (6 and 8 not)
9. Cubicles 5, 7, 9 and 10 don't look good with entrances both ends.
10. Cubicle 20 too isolated in low acuity.
11. No access to linen for low acuity / neonates.
12. Access to PICU is still through high acuity circulation space.
13. No clean utility easily accessible to PICU
14. No MDT work area supporting PICU - one needs to be at interface of PICU and high acuity.
15. Waste from dirty utility serving low acuity/neonates will have to be taken to disposal hold either through low acuity or neonatal circulation space.

In short - still completely unworkable and possibly worse than before. Seems no chance of a satisfactory design before year end at this rate. We must insist that process is delayed if we are not happy as I understand very limited or no opportunity to influence anything past this stage.

Fraser

From: Freeman, Julie [Julie.Freeman[redacted]
Sent: 08 November 2011 12:01
To: Tsirikos Thanos (NHS LOTHIAN); Halcrow Fiona (NHS LOTHIAN); Addison Patrick (NHS LOTHIAN); jean.harper@[redacted]Marshall Tom (NHS LOTHIAN); McFadzean, Jillian; McGovern Fiona (NHS LOTHIAN); Munro Fraser (NHS LOTHIAN); Reilly Laura (NHS LOTHIAN); Stewart Ken (NHS LOTHIAN); Wilson Brian (NHS LOTHIAN); Lo, Milly; Rowney, David; Simpson, Dave; Theilen Ulf (NHS LOTHIAN); Chinchankar Nandita (NHS LOTHIAN); McCormack Jon (NHS LOTHIAN); Patwardhan Kiran (NHS LOTHIAN); Whyte Emma X (NHS LOTHIAN); Holmes Angela (NHS LOTHIAN); Jolly Fiona (NHS LOTHIAN); MacMillan Dorothy (NHS LOTHIAN); McCormick Jacqueline (NHS LOTHIAN); Richardson Jane (NHS LOTHIAN); Ryan Alison (NHS LOTHIAN); Shaw Kirsty (NHS LOTHIAN); Smith Pat (NHS LOTHIAN); Kerr Dennis (NHS LOTHIAN)
Cc: Cunningham Steve (NHS LOTHIAN); Hanley Dorothy (NHS LOTHIAN); McHoney Merrill (NHS LOTHIAN); Rowney, David; Smith Pat (NHS LOTHIAN); Tait Fiona (NHS LOTHIAN)
Subject: RE: Critical Care 2nd Drawing

Hi,
As usual there will be a pre meeting at 15:30 in the Lecture Theatre on wed 9 Nov.
Julie

From: Tsirikos, Thanos
Sent: 03 November 2011 14:55
To: Halcrow, Fiona; Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Wilson, Brian
Cc: Mackenzie, Janice; Steers, James; McLennan, Neil; Gillies, Graham; Cosens, Sorrel; Lloyd, Susan; Currie, Brian; Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
Subject: RE: Critical Care 2nd Drawing
Dear Fiona,

Thank you very much for your message and for sending the 2nd drawing for the RHSC Critical Care Area.
Please accept my apologies as I am unable to attend the meeting on the 10th of November due to conducting interviews for our spinal secretaries and on the 6th of December as I am on study leave.
I would be grateful if our ICU colleagues who know the casemix and requirements of our service would discuss any specific issues or concerns that they may have with us as the designs of the critical care area are coming to completion.
I hope that this is satisfactory.
Best regards,
Thanos Tsirikos

From: Halcrow, Fiona
Sent: 26 October 2011 09:59
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: Mackenzie, Janice; Steers, James; McLennan, Neil; Gillies, Graham; Cosens, Sorrel; Lloyd, Susan; Currie, Brian; Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
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Fiona Halcrow

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF
Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

to do so is strictly prohibited and may be unlawful.

Thank you for your co-operation.

NHSmail is the secure email and directory service available for all NHS staff in England and Scotland
NHSmail is approved for exchanging patient data and other sensitive information with NHSmail and GSi recipients
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From: Munro Fraser (NHS LOTHIAN) <fraser.munro@[redacted]
Sent: 08 November 2011 12:24
To: Freeman, Julie
Subject: RE: Critical Care 2nd Drawing

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Subject: RE: Critical Care 2nd Drawing

Fraser,

I would intend to go through the list of issues as last time.

It seemed more efficient.

Julie

From: Munro Fraser (NHS LOTHIAN) [mailto:fraser.munro[redacted]
Sent: 08 November 2011 12:25
To: Freeman, Julie
Subject: RE: Critical Care 2nd Drawing

I will be there on Thurs but not Wed.
Cheers
Fraser

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Sciennes Road
Edinburgh
EH9 1LF
Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]
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From: Freeman, Julie
Sent: 09 November 2011 18:44
To: Halcrow, Fiona
Subject: RE: Critical Care 2nd Drawing

Fiona,

There is a lot to discuss.

Julie

From: Halcrow, Fiona
Sent: 08 November 2011 12:08
To: Freeman, Julie
Subject: Re: Critical Care 2nd Drawing

Hi. What are your initial thoughts? F

From: Freeman, Julie
To: Tsirikos, Thanos; Halcrow, Fiona; Addison, Patrick; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Wilson, Brian; Lo, Milly; Rowney, David; Simpson, Dave; Theilen, Ulf; Chinchankar, Nandita; McCormack, Jon; Patwardhan, Kiran; Whyte, Emma X; Holmes, Angela; Jolly, Fiona; MacMillan, Dorothy; McCormick, Jacqueline; Richardson, Jane; Ryan, Alison; Shaw, Kirsty; Smith, Pat; Kerr, Dennis
Cc: Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
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RHSC Re-Provision Project Manager

Royal Hospital for Sick Children

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Edinburgh

EH9 1LF

Telephone: [redacted]

Fax: [redacted]

Mobile: [redacted]

From: Freeman, Julie
Sent: 09 November 2011 13:33
To: Munro, Fraser
Subject: RE: Critical Care 2nd Drawing

Fraser,

We have picked up most of this and more.

I think we go through the list of issues as before and say where it does not meet the Design Brief.

There are actually more OK on my list than last time and there are some obvious solutions.

I think we must remain cooperative as the best means of getting what we want.

See you tomorrow.

Julie

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From: Halcrow, Fiona
Sent: 09 November 2011 18:47
To: Freeman, Julie
Subject: RE: Critical Care 2nd Drawing

Julia

Ah.

The meeting starts of with going through the issue Log and what has been achieved etc.

We then get on to the new issues.

It sounds like a 3rd round is needed.

See you tomorrow at 08.30 hrs - I think, if I remember to bring some biscuits - that should help!

Fiona

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From: Halcrow, Fiona
Sent: 08 November 2011 12:08
To: Freeman, Julie
Subject: Re: Critical Care 2nd Drawing

Hi. What are your initial thoughts? F

From: Freeman, Julie
To: Tsirikos, Thanos; Halcrow, Fiona; Addison, Patrick; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern,

Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Wilson, Brian; Lo, Milly; Rowney, David; Simpson, Dave; Theilen, Ulf; Chinchankar, Nandita; McCormack, Jon; Patwardhan, Kiran; Whyte, Emma X; Holmes, Angela; Jolly, Fiona; MacMillan, Dorothy; McCormick, Jacqueline; Richardson, Jane; Ryan, Alison; Shaw, Kirsty; Smith, Pat; Kerr, Dennis
Cc: Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
Sent: Tue Nov 08 12:01:14 2011
Subject: RE: Critical Care 2nd Drawing

Hi,

As usual there will be a pre meeting at 15:30 in the Lecture Theatre on wed 9 Nov.

Julie

From: Tsirikos, Thanos
Sent: 03 November 2011 14:55
To: Halcrow, Fiona; Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Wilson, Brian
Cc: Mackenzie, Janice; Steers, James; McLennan, Neil; Gillies, Graham; Cosens, Sorrel; Lloyd, Susan; Currie, Brian; Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
Subject: RE: Critical Care 2nd Drawing

Dear Fiona,

Thank you very much for your message and for sending the 2nd drawing for the RHSC Critical Care Area.

Please accept my apologies as I am unable to attend the meeting on the 10th of November due to conducting interviews for our spinal secretaries and on the 6th of December as I am on study leave.

I would be grateful if our ICU colleagues who know the casemix and requirements of our service would discuss any specific issues or concerns that they may have with us as the designs of the critical care area are coming to completion.

I hope that this is satisfactory.

Best regards,

Thanos Tsirikos

From: Halcrow, Fiona
Sent: 26 October 2011 09:59
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: Mackenzie, Janice; Steers, James; McLennan, Neil; Gillies, Graham; Cosens, Sorrel; Lloyd, Susan; Currie, Brian; Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
Subject: Critical Care 2nd Drawing

Dear All

We have received the 2nd drawing through from Nightingale Associate Architects for the RHSC Critical Care Area.

I have dropped this into the RHSC & DCN Users folder for you to access.

It is located within the next meeting folder 10 November 2011, plus the log of issues that were recorded at the last meeting and the next meetings agenda.

Actions to be progressed prior to next meeting includes:

- review the drawing against the log of issues and ensure the architect has captured all of the changes requested
- review the new drawing for operational functionality of your service
- identify issues that are crucial to the functionality of the department
- ensure design brief is accurate and reflects your service and feedback any changes to Fiona Halcrow

Hard copies of the drawing is expected to be delivered to 1 Rillbank later today, and I will then advise the staff who will receive an actual hard copy.

If you have any problems accessing any of the above please get in touch with me (phone numbers listed below).

The next meeting occurs on the **10 November 2011**, **Time 08.30-10.30 hrs, Venue: 18 Millerfield Place**

BW

Fiona Halcrow

Fiona Halcrow

RHSC Re-Provision Project Manager

Royal Hospital for Sick Children

Sciennes Road

Edinburgh

EH9 1LF

Telephone: [redacted]

Fax: [redacted]

Mobile: [redacted]

From: Halcrow, Fiona
Sent: 11 November 2011 16:24
To: Freeman, Julie; Reilly, Laura; Munro, Fraser; Marshall, Tom
Cc: McLennan, Neil
Subject: RE: Critical Care 1:200 Drawing

Dear All

I have just spoken with the architect. Critical Care departments layout is more complex to address and therefore the next expected drawing will be close to the end of next week.

Will keep you posted on any change to this.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 11 November 2011 13:27
To: Halcrow, Fiona; McLennan, Neil
Cc: Reilly, Laura; Munro, Fraser; Marshall, Tom
Subject: Critical Care 1:200 Drawing
Importance: High

Fiona, Neil,

Could you make sure that the architects doing our drawing have a copy of the Critical Care Design Brief?

I suspect they are working from the accommodation schedule hence some of the mistakes.

Regards
Julie

From: McLennan, Neil
Sent: 25 November 2011 14:59
To: Freeman, Julie; Halcrow, Fiona
Cc: Reilly, Laura; Marshall, Tom; Munro, Fraser
Subject: RE: Critical Care Drawing

Julie
The meeting on the 6th needs to achieve an agreed drawing so I think we will need to meet next week. What times are good for you ?
Neil

Neil McLennan
Senior Capital Planning Manager
Capital Planning & Premises Development
1 Rillbank Terrace
Edinburgh
Tel: [redacted] Internal: [redacted]
Mobile: [redacted]
E Mail: neil.mclennan@[redacted]

From: Freeman, Julie
Sent: 25 November 2011 14:53
To: Halcrow, Fiona; McLennan, Neil
Cc: Reilly, Laura; Marshall, Tom; Munro, Fraser
Subject: RE: Critical Care Drawing

Fiona, Neil,

There are some very good parts of this drawing but there are parts that are not right and still do not meet the Design Brief.

I do not think an E-Mail is the best way to describe the issues. A face to face discussion would work better.

The alternatives are to just meet on 6 Dec and have a later meting if needed.

If a meeting prior to the 6 Dec is required then next week may be good for me but would need to be arranged quickly.

Regards
Julie

From: Halcrow, Fiona
Sent: 22 November 2011 11:20
To: Freeman, Julie; Reilly, Laura
Subject: Critical Care Drawing

Dear Both

We are keen to get feedback from you with regard to the latest drawing circulated.

As you know Fraser has made some comments.

When do you think you will be in the position to advise upon?

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 29 November 2011 18:14
To: Freeman, Julie
Subject: RE: Critical Care - Changes Requested

Julie

Thanks for the speedy return. It has been forwarded to Cardiff

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 29 November 2011 17:01
To: Halcrow, Fiona; Reilly, Laura
Cc: McLennan, Neil
Subject: RE: Critical Care - Changes Requested

Fiona,

See highlighted changes.

Julie

From: Halcrow, Fiona
Sent: 29 November 2011 15:59
To: Freeman, Julie; Reilly, Laura
Cc: McLennan, Neil
Subject: Critical Care - Changes Requested
Importance: High

Hello

Hopefully I have understood what was all suggested earlier today

Working from Left to Right in the drawing

Neo-Natal HDU
1)The Second Version drawing rooms 21-24 and support area - please replicate this in current Neo-natal HDU area
This will bring the single neonatal cubicle ensuite to the same end of the cubicle as the door to the cubicle.
This will mean the staff base and clean ultility are more central within NNU.
2)Mobile X-ray /X Ray Process/Cardio Bay/Disposal Hold to move to a more central position in the department but close to main hospital corridor (suggest where the parent accommodation is currently positioned)
3)Play Base Store and Buggy does not need to be located in this area
4)Single Bed Cubicle with en-suite needs to be able to accommodate a parent pull down bed
5)Can the doors be removed lying in between room numbers 3-4 and a wall inserted thereby enclosing the NNU

6) Seminar Room - needs to be accessed easily by other staff from the hospital street - query where the parents bedrooms are currently positioned

Low Acuity

6) Can this clinical area be squared off rather than dog legged - (Room 5 and 7)
7) Interview Room in this area could be positioned to the right of room 7

Parent Accommodation

1) Parent Accommodation - Bedrooms/sitting rooms/ to move down to the far end of the Neo-natal Unit (Mobile X-Ray Bay / X Ray Process/ Disposal Hold)
2) Waiting Area, ACC WC to move to where the patient sitting room was and for the reception area to be moved to serve this area. The Data Manager/Secretarial Office and Retrieval Team office needs to sit adjacent to this area. The other two offices could be positioned elsewhere
3) The corridor lying to the right of the equipment store - remove please

HDU High Acuity

1) Door requested between room numbers 11 and 13 (to be able cohort patients)

PICU

1) The doors lying between Room Numbers 15/17 - are these fire doors? If so could they be able to open both ways please
2)Doors requested to co-hort patients, entrance of room number 19/21

Staff Room / Interview Room - areas cannot have doors opening onto each other

Node Room - query can this go somewhere else -

Equipment Retrieval Store - this room needs to be more square to accommodate equipment

Best Wishes

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 29 November 2011 17:01
To: Halcrow, Fiona; Reilly, Laura
Cc: McLennan, Neil
Subject: RE: Critical Care - Changes Requested

Fiona,

See highlighted changes.

Julie

From: Halcrow, Fiona
Sent: 29 November 2011 15:59
To: Freeman, Julie; Reilly, Laura
Cc: McLennan, Neil
Subject: Critical Care - Changes Requested
Importance: High

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Best Wishes

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 29 November 2011 17:20
To: 'Jamie Brewster'; thomas.brady@[redacted]
Cc: McLennan, Neil
Subject: Feedback from recent RHSC Critical Care 1:200 Drawing

Dear Both

Neil and I met with Julie Freeman and Laura Reilly from RHSC Critical Care. They were very positive about the recent drawing circulated. They have a few amendments to be made.

Working from Left to Right of the drawing

Neo-Natal HDU

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Node Room - query can this go somewhere else -

Equipment Retrieval Store - this room needs to be more square to accommodate equipment

Jamie, I will give you a ring in a few minutes and if I don't get you today will ring tomorrow.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 05 December 2011 13:33
To: 'Jamie Brewster'
Cc: 'Brady, Thomas'
Subject: FW: RHSC Critical Care 3rd Round Meeting - 10 Chalmers Crescent, Edinburgh. Conference Room - 11.00-12.00 hrs

Jamie

This is just keeping you in the communication loop re critical care (email below). We are not expecting any action to be done today on this.

Remember to bring your winter clothes with you to Edinburgh - it is freezing.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 05 December 2011 12:52
To: Halcrow, Fiona; Addison, Patrick; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: McLennan, Neil; Steers, James
Subject: RE: RHSC Critical Care 3rd Round Meeting - 10 Chalmers Crescent, Edinburgh. Conference Room - 11.00-12.00 hrs

Fiona,

Scale drawings will be useful if they can be made available this pm.

The LA HDU beds look like they are side on this may be resolvable by taking the external wall out 2m.

We also need to check that the HA HDU spaces are at least 4m wide so that they will accommodate the pendants.

Regards
Julie

From: Halcrow, Fiona
Sent: 05 December 2011 09:25
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: McLennan, Neil; Steers, James; Mackenzie, Janice; 'Brady, Thomas'; 'Jamie Brewster'; Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
Subject: RHSC Critical Care 3rd Round Meeting - 10 Chalmers Crescent, Edinburgh. Conference Room - 11.00-12.00 hrs

Dear All,

Tomorrow we have the 3rd 1:200 Drawing meeting for the RHSC Critical Care department.

The following documents can be viewed from the RHSC & DCN User folder:

- The RHSC Critical Care 1:200 Version B (2/12/11)
- Email forwarded to NA with users comments from last version of drawing
- Issue log from 2nd round 1:200 meeting

It is important that you review the issues from both the log and email to ensure these changes have been incorporated into this new drawing.

Tomorrows agenda will include:

1) Introductions and apologies
2) Review issue log and email
3) Assess drawing to ensure correct internal departmental adjacencies have been reached
4) Agree and sign-off

If the hard copies of the drawing get here in time, I will try and get them out to you later today.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 05 December 2011 09:25
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: McLennan, Neil; Steers, James; Mackenzie, Janice; 'Brady, Thomas'; 'Jamie Brewster'; Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
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BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 16 December 2011 11:30
To: Freeman, Julie
Subject: RE: Critical Care 1:50 Low Acuity Open Plan Bay

Julie

Thank you for getting back to me on this.

Will advise Jamie.

Not received any other drawing for Critical Care yet.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 16 December 2011 11:28
To: Halcrow, Fiona; Addison, Patrick; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Pringle, Audrey; Munro, Ronald
Cc: McLennan, Neil
Subject: RE: Critical Care 1:50 Low Acuity Open Plan Bay

Fiona,

This looks OK but a few comments.

In this area there will in general only be one ventilator or CPAP driver at the head of the bed although the arc of the pendant will determine the space required at the head of the bed.

The two chairs will be at the side of the bed for parents but that looks possible.

The trolley at the right hand side will be the CIS trolley and the nurse needs to be able to sit at that station to work and remain within the bedspace.

The orientation of the bed space must be end on rather than side on as discussed at the last two meetings.

Regards
Julie

From: Halcrow, Fiona
Sent: 09 December 2011 16:28
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro,

Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Pringle, Audrey; Munro, Ronald
Cc: McLennan, Neil
Subject: Critical Care 1:50 Low Acuity Open Plan Bay

<< File: HDU OPEN PLAN BAY.pdf >>
Dear All

Jamie has forwarded through a sketch for the Low Acuity Open Plan Bay. It was felt the shape of the room (square arrangement) may compromise the laying out of equipment. The attached sketch (which for now simply takes the equipment shown in the previous RHSC only 1:50 layout) attempts to indicate how it may be arranged using the dimensions indicated on the latest 1:200 layout tabled this week.

Feedback appreciated

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 23 December 2011 11:52
To: Halcrow, Fiona
Subject: RE: Version C PICU 1.200 Drawing

Ta. I'm away now.
Julie

From: Halcrow, Fiona
Sent: 23 December 2011 11:26
To: Freeman, Julie
Cc: McLennan, Neil
Subject: RE: Version C PICU 1.200 Drawing

<< File: Critical Care SOA Version 8.xls >>

Julia

This is a copy from SOA Version 8.

The equipment room, as you can see is still 32sqm but that has been increased to 40 sqm in the SOA version 9 but that has not been released yet.

Hard copy of drawings at reception desk now.

Merry Xmas

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 23 December 2011 11:19
To: Halcrow, Fiona; Addison, Patrick; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
Subject: RE: Version C PICU 1.200 Drawing
Importance: High

Fiona, Neil,

Could you E-Mail me a copy of the updated Accommodation Schedule?

I am away till the 28th but will look at the Drawing and Accomodation Schedule between Christmas and New Year.

Now is the time to get things right!

Have a good holiday.

Regards
Julie

From: Halcrow, Fiona
Sent: 23 December 2011 09:56
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
Subject: Version C PICU 1.200 Drawing

Dear All

Find attached issue log recorded at the 6 December 2011 meeting and update PICU 1.200 Drawing for Sign Off.

Can you please consider and feedback any comments in the first instance to Dr Julia Freeman. There are some labelling issues with the room numbers and I will feedback that back to the TA's.

I have spoken with Dr Freeman this morning and we have agreed that feedback to the project team will not happen until after the festive break (4 January 2012).

Hope you all have a good festive break and see you all next year.
<< File: DL - 069322 - 1 to 200 Design Log - B1 Rev B.pdf >>
<< File: NA-10727-L(200)1-01_iss4_revC.pdf >>

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 23 December 2011 09:56
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
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Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

Davis Langdon
An AECOM Company

Mott MacDonald

RHSC + DCN - Little France

Project Log | 1: 200 Design Issues

Department(s)
B1 : PICU and HDU's - 24 Beds

Drawing(s)
NA-10727-L(200)1-01

Architects
Nightingale Associates

Date Issued: 06 December 2011 Revision B

No.	Date Raised	Description of Issue	Proposal	Design Status (1-4)	Action By	Closed Date	Comments
1	13 October 2011	B1 - Fire exit @ PICU may not be required, however if it is then it is not in a sensible location due to the control of infection issues.	NA to check and delete if applicable	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
2	13 October 2011	B1 - Principle of open bay and single bedroom meets the brief		No Further Action.		10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
3	13 October 2011	B1 - Isolation cubicles 7 is fine 8 is a problem. location of Door into gowning lobby not correct. Also an issue with position patient entrance door.	Redraw Isolation room 8 to ensure workflow is improved	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
4	13 October 2011	B1 - Linen bay is not big enough to accommodate the linen trolley (not friendly for manual handling)	Redraw linen bay	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
5	13 October 2011	B1 - Clean Utility room, entrance required from service corridor. Clean Utility needs 2 doors. Clean utility, equip store, bulk supplies need to be co located.	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
6	13 October 2011	B1 - Dirty utility should not be located behind staff base.	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
7	13 October 2011	B1 - Support service around staff base at PICU	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
8	13 October 2011	B1 - Multi disciplinary work room needs to be removed from clinical area, move to staff base area? Access to room needs to peripheral to unit.	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
9	13 October 2011	B1 - HDU cubilce 1 isolation door may encroach into nurses working area. Sink near foot of bed. Door cannot be at patient bedside.	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
10	13 October 2011	B1 - Isolation cubicle 2 form is fine. Ensure equal access to isolation and single cubicle space.	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
11	13 October 2011	B1 - Linen / resus bay restricts view to isolation room 1	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
12	13 October 2011	B1 - HDU open bay needs to be closed off from throroughfare from an infection and patient privacy point of view	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
13	13 October 2011	B1 - Assisted bathroom will be used by low acuity patients, relocate to low acuity HDU	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
14	13 October 2011	B1 - Xray processing bay is the bay for the entire RHSC. Needs to be located off of main hospital street corridor.	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
15	13 October 2011	B1 - Junction between High / Low Acuity should be a single cubicle and an isolation cubicle. Single cubicle should be adjacent to open bay	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
16	13 October 2011	B1 - MDT in low acuity needs to be relocated near a staff base	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
17	13 October 2011	B1 - Gas cylinder bays, need to be proximal to a clinical area and evenly distributed. Gas room at relatives area is too remote	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
18	13 October 2011	B1 - Mobile xray and cardiology; needs to closer to hospital street	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
19	13 October 2011	B1 - Low acuity open plan bedded area; doesn't have good visibility from staff base.	Redraw as required	1 : Design Development	RDT	10 November 2011	Further duscussion required
20	13 October 2011	B1 - Low acuity Dirty utility location needs to be improved. Move to junction between Low acuity and neonatal HDU	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
21	13 October 2011	B1 - Clean utility needs to be an open area at Neonatal HDU open bed area. Resus bay to be located in Neonatal staff base..	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011

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Project Log | 1: 200 Design Issues

Department(s)
B1 : PICU and HDU's - 24 Beds

Drawing(s)
NA-10727-L(200)1-01

Architects
Nightingale Associates

Date Issued: 06 December 2011 Revision B

No.	Date Raised	Description of Issue	Proposal	Design Status (1-4)	Action By	Closed Date	Comments
22	13 October 2011	B1 - Bulk Supplies / equip store refer to item 5.	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
23	13 October 2011	B1 - Duty Consultant office needs to be more centrally located. Needs to be access PICU and HDU quickly. Located on an external wall	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
24	13 October 2011	B1 - Interview rooms, large interview room needs to be approximate to PICU, not in clinical area, but close to. Family needs easier egress. Room should not be next to staff, consultants, staff areas to ensure a degree of separation. Smaller interview roomlocation is not too bad, to be used for HDU and Neonatal area.	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
25	13 October 2011	B1 - Seminar room to be shared with theatres, needs to be located to be accessed from hospital street.	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
26	13 October 2011	B1 - Equipment service room is for the the whole hospital, needs to be accessed from hospital street.	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
27	13 October 2011	B1 - Parent flows need to be improved. Parent / Relatives areas need to be closer to PICU. Parents area needs to be external from the unit.	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
28	13 October 2011	B1 - Data manager and secretary area to have an adjacency to retreival team office.	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
29	13 October 2011	B1 - On call suite is in a prime PICU support area.	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
30	13 October 2011	B1 - Reception area needs to have visibile sight lines of the corridor / entrance.	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
31	13 October 2011	B1 - Courtyards, patients can look into body viewing room. Reflective glass in the bereavement suite. It is a 2 way issue. Is the bereavement suite in the correct location	Redraw as required. D&C to incorporate requirement into Output Spec	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
32	13 October 2011	B1 - Retreival equipment store needs to be accessed from the hospital street.	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
33	13 October 2011	B1 - Gas Lab needs to be located in the support area, best placed between PICU and HDU. Located on the street to ensure theatres can access same.	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
34	13 October 2011	B1 - Swap the progression / flow from what it currently is. Patient flow from theatres to be considered	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
35	13 October 2011	B1 - 2 Staff WC's close to staff rest room. 1 other to be located centrally to unit. Staff rest room location is satisfactory.	Redraw as required	1 : Design Development	RDT	10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
36	13 October 2011	B1 - 3 Linen bays provided only need 2. Pair up linen bay with gas cylinder areas.	Redraw as required	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
37	13 October 2011	B1 - Space for clinical support workers (procurement staff) has moved to bulk supplies store		No Further Action.		10 November 2011	Issue confirmed as resolved at meeting on 10/11/2011
38	10 November 2011	PICU 4 bed has no natural light	Re-configure unit to show from left to right - PICU/High Acuity/Low Acuity/Neonates	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
39	10 November 2011	Neonates Area improved with access to daylight	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
40	10 November 2011	Configuration of single bedrooms to be reconsidered in terms of bed position and gowning lobbies - see design brief.	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
41	10 November 2011	Linen trolley obscures view from staff base in PICU	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
42	10 November 2011	Gowning Lobbies in Cubicles 6 & 8 OK	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
43	10 November 2011	Single cubicle next to HDU - rm 10 - no lobby required	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
44	10 November 2011	Change Interview to MDT	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
45	10 November 2011	Interview Room to have access from back corridor	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011

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Project Log | 1: 200 Design Issues

Department(s)
B1 : PICU and HDU's - 24 Beds

Drawing(s)
NA-10727-L(200)1-01

Architects
Nightingale Associates

Date Issued: 06 December 2011 Revision B

No.	Date Raised	Description of Issue	Proposal	Design Status (1-4)	Action By	Closed Date	Comments
46	10 November 2011	View into High Acuity 4 bed bay restricted	Reverse clean utility and staff base/MDT	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
47	10 November 2011	Current MDTs a little too far from PICU	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
48	10 November 2011	Relocate Low Acuity cubicles between High Acuity and Low Acuity	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
49	10 November 2011	Clean Utility and Bath in Low Acuity A outside cohort area	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
50	10 November 2011	Tracking Hoists - how many? - designed to allow in all bed areas?	NHSL to confirm	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
51	10 November 2011	No door between Neonates and Low Acuity A	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
52	10 November 2011	Neaonates configuration approved	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
53	10 November 2011	Rm 24 single ward not bedroom	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
54	10 November 2011	Reception at wrong end	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
55	10 November 2011	Bereavement/Unit Entrance should not be co-located	Noted	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
56	10 November 2011	Separate Staff/Parent areas	Noted	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
57	10 November 2011	On call better placed centrally within unit	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
58	10 November 2011	Roof terrace more appropriate from Waiting Area	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
59	10 November 2011	Seminar Rm to left end in area without daylight	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
60	10 November 2011	Equipment service area and Retrieval store do not require daylight	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
61	10 November 2011	Parent accommodation external to unit	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
62	10 November 2011	Try to achieve daylight in parent's sitting room.	Revisit design	1 : Design Development	RDT	6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
63		**Comments below based on previous layout. Revised layout revision B tabled at meeting on 06/12/2011 and reviewed**					
64	06 December 2011	The Second Version drawing rooms 21-24 and support area - please replicate this in current Neo-natal HDU area . This will bring the single neonatal cubicle	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
65	06 December 2011	Mobile X-ray /X Ray Process/Cardio Bay/Disposal Hold to move to a more central position in the department but close to main hospital corridor (suggest where the parent accommodation is currently positioned)	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
66	06 December 2011	Cardio and Mob X-ray need only be in bays	Remove front walls	1 : Design Development	RDT		
67	06 December 2011	Play Base Store and Buggy does not need to be located in this area	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
68	06 December 2011	Single Bed Cubicle with en-suite needs to be able to accommodate a parent pull down bed	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
69	06 December 2011	Can the doors be removed lying in between room numbers 3-4 and a wall inserted thereby enclosing the NNU	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
70	06 December 2011	Access to Dirty Utility from Neonates	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
71	06 December 2011	Movement of equipment to and from Rm 4	Adjust position of wall across corridor to open up corridor side of bed bay	1 : Design Development	RDT		
72	06 December 2011	Seminar Room - needs to be accessed easily by other staff from the hospital street - query where the parents bedrooms are currently positioned	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
73	06 December 2011	Can this clinical area be squared off rather than dog legged - (Room 5 and 7)	Review shapes and layout of bed bays 5-8 - clarify layout at 1:50 at this stage	1 : Design Development	RDT		
74	06 December 2011	Interview Room in this area could be positioned to the right of room 7	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
75	06 December 2011	Parent Accommodation - Bedrooms/sitting rooms/ to move down to the far end of the Neo-natal Unit (Mobile X-Ray Bay / X Ray Process/ Disposal Hold)	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011 - Ensure good sound proofing between bedrooms and sitting area
76	06 December 2011	Waiting Area, ACC WC to move to where the patient sitting room was and for the reception area to be moved to serve this area. The Data Manager/Secretarial Office and Retrieval Team office needs to sit adjacent to this area. The other two offices could be positioned elsewhere	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
77	06 December 2011	The corridor lying to the right of the equipment store - remove please	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
78	06 December 2011	Door requested between room numbers 11 and 13 (to be able to cohort patients)	Add door	1 : Design Development	RDT		

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Project Log | 1: 200 Design Issues

Department(s)
B1 : PICU and HDU's - 24 Beds

Drawing(s)
NA-10727-L(200)1-01

Architects
Nightingale Associates

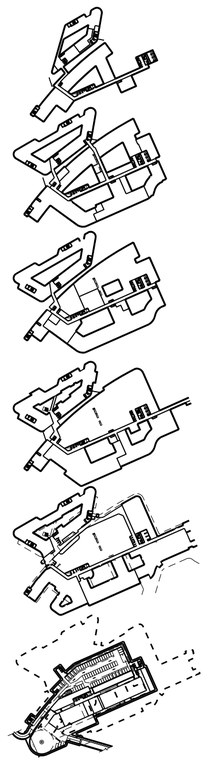
Date Issued: 06 December 2011 Revision B

No.	Date Raised	Description of Issue	Proposal	Design Status (1-4)	Action By	Closed Date	Comments
79	06 December 2011	The doors lying between Room Numbers 15/17 - are these fire doors? If so could they be able to open both ways please	Change to open both ways	1 : Design Development	RDT		
80	06 December 2011	Doors requested to co-hort patients, entrance of room number 19/21	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
	06 December 2011	Review shape of bed bays 5-8 (layout rev.B dated 2/12/2011)	Revisit design	1 : Design Development	RDT		
81	06 December 2011	Staff Room/Bereavement Room	Revisit design	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011 - Ensure good quality sound insulation between rooms and between Bereavement Room and corridor.
82	06 December 2011	Equipment Retrieval Store needs to be more square	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011
83	06 December 2011	RH Gas Store and Staff WC at corner of corridor to swap	Revisit design	1 : Design Development	RDT		
84	06 December 2011	Bulk Store/Equip Store - possibly better as one room	Noted	No Further Action.		6 December2011	Issue confirmed as resolved at meeting on 6/12/2011 - May be worth looking at this as one area at 1:50
85	06 December 2011	Hoist Bays	Reduce to 1no bay and flip staff base - on understanding that there will be tracking hoists in all area except Neonates.	1 : Design Development	RDT		

ALL SCHEDULED AREAS REFER TO SCHEDULE OF ACCOMMODATION VERSION 8

Notes:
- This drawing is copyright.
- Do not scale dimensions from this drawing.
- All discrepancies on this drawing are to be reported to the architect.
- Do not modify any element of this drawing.
- Use drawing only for purpose(s) issued.

No	Design Risk Register



Rev	Date	Revision Notes
C	22.12.11	Issued for Sign Off
B	02.12.11	Issued for Sign Off
A	25.10.11	Amended layout following user comments

Client / Contractor

NHS Lothian

NIGHTINGALE associates architects www.nightingaleassociates.com

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Project

EDINBURGH RHSC + DCN
- LITTLE FRANCE

Drawing Title

B1 PICU and HDU's - 24 B 98/108 ds

Job No	Date	Scale@A2
10727	30/09/11	1:200

Status
SIGN OFF

Drawing No						Rev
Origin	Project No.	Type	Code	Level	Sequential	
NA /	10727 /		L(200)		1/01	C

A43133428

From: Halcrow, Fiona
Sent: 23 December 2011 11:50
To: 'Jamie Brewster'
Subject: RE: 1.1 - Medical Inpatients

Jamie

Thank you for sending this updated drawing through.

Much appreciated.

See you next year.

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Jamie Brewster [mailto:Jamie.Brewster@n[redacted]
Sent: 23 December 2011 11:38
To: Halcrow, Fiona
Cc: thomas.brady[redacted] Stillie, David; Lindsay Gibbon
Subject: 1.1 - Medical Inpatients

Fiona

See attached which hopefully now captures the latest comments. I've taken advantage of the comment received regarding MDCU and the staff toilet – this now provides a convenient location for the IPS cupboard.

Regarding PICU, we'll re-issue with corrected labelling in the New Year once Julie has had a final chance to look over the current version (I'd expect there to be one or two minor issues to address once she's done this).

Regarding Surgical long Stay, Lindsay will address this early in the New Year as she attended the relevant meetings.

Regards

Jamie

Jamie Brewster | Architect | Studio Director
NIGHTINGALE ASSOCIATES
The Old Convent | The Walk | Cardiff | CF24 3AG

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From: Halcrow, Fiona [mailto:Fiona.Halcrow@[redacted]
Sent: 23 December 2011 10:57
To: Jamie Brewster
Cc: thomas.brady@[redacted]Stillie, David; Tom McAviney
Subject: PICU Drawing and Surgical Long Stay Drawing

Hi Jamie

I have circulated the above named drawing to the Critical Care Sub Task Group. The lead Julie Freeman will feedback to me after the festive break (4 January 2012).

Most issues appear to have been resolved. There is a labelling issue with room numbers though. The single room lying next to the milk store is wrong and the single isolation room next to number 21 has no label.

Surgical Long Stay Ward - I have just remembered something else about this drawing - the reception area - what is happening here?

Bye for now

Have a lovely xmas and see you next year.

Best Wishes

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

****

****

From: Halcrow, Fiona
Sent: 23 December 2011 10:57
To: Jamie Brewster
Cc: thomas.brady@[redacted] Stillie, David; 'Tom McAviney'
Subject: PICU Drawing and Surgical Long Stay Drawing

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Surgical Long Stay Ward - I have just remembered something else about this drawing - the reception area - what is happening here?

Bye for now

Have a lovely xmas and see you next year.

Best Wishes

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 06 January 2012 12:31
To: Freeman, Julie
Subject: Re: Version C PICU 1.200 Drawing

Julia. Thanks for your feedback. Fiona

From: Freeman, Julie
To: Halcrow, Fiona; Addison, Patrick; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
Sent: Fri Jan 06 12:28:26 2012
Subject: RE: Version C PICU 1.200 Drawing

Fiona,

I have looked at this with Laura and compared with the Accommodation Schedule.

I wish to make the following points:

- Low Acuity Open plan bay the beds still look side on to me.
- Neonatal Single bed cubicle I think we need to see in 1:50 there looks like potential door conflict.
- The Dirty Utility between PICU and High Acuity HDU is drawn at 14sqm it should be 19sqm. We will be stripping down equipment in here.
- The relatives overnight stay rooms are drawn at 8 sqm they are scheduled for 10sqm. They are twin rooms. We need to see this at 1:50. We had trouble getting these rooms to work in last drawing.
- The gas cylinder store for PICU/HDU needs to be where the IPS is in PICU.
- Could the Staff Room and the Retrieval equipment store be swapped round?
- We need to see a 1:50 of the retrieval store to check that it works.
- There needs to be a Resuscitation Trolley Associated with the High Acuity Staff base, there should be room as staff base is scheduled at 4sqm but is drawn at 6sqm.
- Could the Resuscitation trolley in LA HDU be more central to that area? Current position is not disastrous but could be improved.
- Both linen bays are end on rather than side on. The doors at the side.
- The PICU 4 bed bay needs doors.
- The High Acuity 4 bed bay needs doors. The bed spaces in HA HDU look to be of different dimensions on each side of the room.
- The Low Acuity 4 Bed Bay needs doors.

Regards

Julie

From: Halcrow, Fiona
Sent: 23 December 2011 09:56
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: Adams, Christopher; Cunningham, Steve; Hanley, Dorothy; McHoney, Merrill; Rowney, David; Smith, Pat; Tait, Fiona
Subject: Version C PICU 1.200 Drawing

Dear All

Find attached issue log recorded at the 6 December 2011 meeting and update PICU 1.200 Drawing for Sign Off.

Can you please consider and feedback any comments in the first instance to Dr Julia Freeman. There are some labelling issues with the room numbers and I will feedback that back to the TA's.

I have spoken with Dr Freeman this morning and we have agreed that feedback to the project team will not happen until after the festive break (4 January 2012).

Hope you all have a good festive break and see you all next year.

<< File: DL - 069322 - 1 to 200 Design Log - B1 Rev B.pdf >>

<< File: NA-10727-L(200)1-01_iss4_revC.pdf >>

BW

Fiona

Fiona Halcrow

RHSC Re-Provision Project Manager

Royal Hospital for Sick Children

Sciennes Road

Edinburgh

EH9 1LF

Telephone: [redacted]

Fax: [redacted]

Mobile: [redacted]

From: Halcrow, Fiona
Sent: 11 January 2012 16:39
To: Freeman, Julie; Reilly, Laura
Subject: FW: RHSC & DCN - B1 PICU & HDU Drawing Issue
Attachments: NA-10727-R(70)1-11.pdf; NA-10727-R(70)1-12.pdf; NA-10727-R(70)1-13.pdf; NA-10727-R(70)1-14.pdf; NA-10727-R(70)1-15.pdf; NA-10727-REP-20120111_RDS_B1 PICU.pdf; NA-10727-R(70)1-10.pdf

Dear Both

This has just arrived today. We do not have hard copies.

The architect is bringing some along tomorrow am.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Sarah Menzies [mailto:Sarah.Menzies@[redacted]
Sent: 11 January 2012 12:48
To: Halcrow, Fiona; McLennan, Neil; thomas.brady@[redacted] david.stillie@[redacted]
Cc: Lindsay Gibbon
Subject: RHSC & DCN - B1 PICU & HDU Drawing Issue

RHSC & DCN

Dear all,

Please see the following attached:

- 1-10 B1.01.0 Single Bed Cubicle
- 1-11 B1.01.B1401A Single Cot Cubicle
- 1-12 B1.01.B1407A Open Plan Bay (3 cots
- 1-13 B1.01.B1602A Single Bed Isolation Cubicle
- 1-14 B1.01.B1609A Open Plan Bay (4 beds
- 1-15 B1.01.B1609A Open Plan Bay (4 beds
- Room Data Sheet.

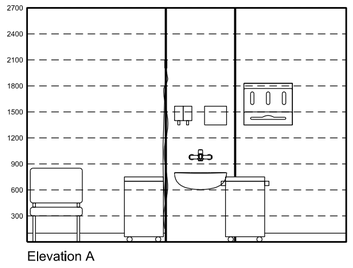
These will also be uploaded to BIW.

Kind regards,

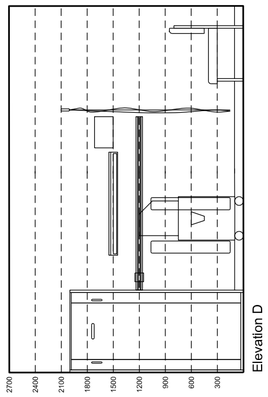
Sarah.

Sarah Menzies | Administrator
NIGHTINGALE ASSOCIATES
The Old Convent | The Walk | Cardiff | CF24 3AG

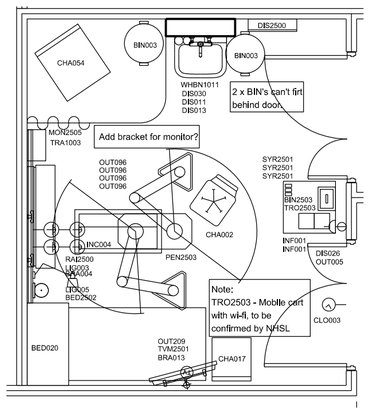
[redacted]
e: sarah.menzies@[redacted]
w: www.nightingaleassociates.com

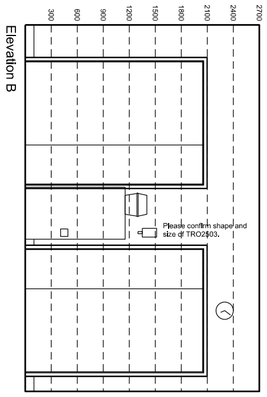


Elevation A

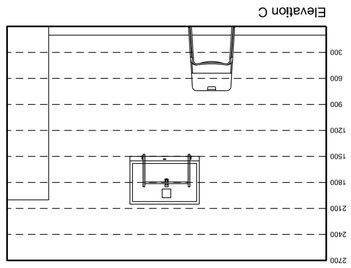


Elevation D





Elevation B



Elevation C

1:50 0 1 2 3

PICU & HDU

Single Cot Cubicle

Briefing Code - B1401A

Required Area - 15.0 m²
Designed Area - 17.6 m²

Equipment Schedule

Grp	ADB No	Qty	Description
1	BED2502	1	BED HEAD BUFFER, bed and wall protection, vertical, wall mounted.
1	CLO003	1	CLOCK synchronous with second sweep hand, wall mounted
1	LIG003	1	LUMINAIRE, reading, adjustable arm, 100 watt
1	LIG005	1	LUMINAIRE, bedhead, dimmable, patient reading and general nursing care/examination
1	OUT005	1	SOCKET outlet, switched, 13 amp, single
1	OUT096	4	OUTLET earthing point, shrouded, wall mounted
1	OUT209	1	SOCKET outlet television aerial, single, trunking mounted
1	PEN2503	1	MEDICAL SERVICE PENDANT, critical care bed/trolley space, to HTM 08-03 requirements.
			- 1 No. CAL1000 (1) CALL, nurse call system, to specialist design/specification.
			- 50 No. OUT010 (1) SOCKET outlet, switched, 13 amp, twin
			- 8 No. OUT121 (1) SOCKET outlet, computer data, double.
			- 2 No. OUT151 (1) SOCKET outlet patient monitoring, wall/trunking mounted
			- 1 No. OUT215 (1) SOCKET outlet, telephone
			- 4 No. OUT453 (1) OUTLET, 4 kPa compressed air, medical
			- 4 No. OUT470 (1) OUTLET, oxygen, medical
			- 4 No. OUT475 (1) OUTLET, vacuum, medical
			- 1 No. OUT480 (1) OUTLET, gas scavenging (AGS), medical
			- 1 No. TEL2502 (1) TELEPHONE handset
1	RAI2500	1	RAIL, clinical equipment, wall mounted, length as drawn.
1	TRA1003	1	TRACK, curtain, bed/trolley, length and shape as drawn. Collapsible.
1	TRO2503	1	MOBILE CART WITH WI-FI, TO BE CONFIRMED BY NHSL
1	WHBN1011	1	WASH BASIN, clinical, large 60cm, with non touch panel mounted tap/s.
2	BED020	1	BED, fold down, 760 mm width mattress, vertical.
2	BRA004	1	BRACKET, holder, suction unit, trunking/rail mounted.
2	BRA013	1	BRACKET, TV, height adjustable, wall mounted
2	DIS011	1	DISPENSER, barrier cream, disposable single cartridge, wall mounted
2	DIS013	1	DISPENSER, paper towel, wall mounted
2	DIS026	1	DISPENSER, Medical hand sanitizer, lever action, wall mounted
2	DIS030	1	DISPENSER, soap, disposable single cartridge, lever action, wall mounted
2	DIS2500	1	DISPENSER, dan/centre, combined glove/apron.
3	BIN003	2	BIN, disposal, general purpose, liner, mobile
3	BIN2503	1	BIN, sharps disposal
3	CHA002	1	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors
3	CHA017	1	CHAIR, upright, upholstered, stacking
3	CHA054	1	CHAIR nursing with side panels
3	INC004	1	INCUBATOR, baby
3	INF001	2	INFUSION volumetric pump, 356H 178W 178D
3	MON2505	1	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 280H 360W 215D
3	SYR2501	3	SYRINGE pump; battery operated; 170H 35W 75D; with docking station.
3	TVM2501	1	TV / monitor flat screen

Notes:

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- Do not scale dimensions from this drawing.
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No	Design Risk Register

Rev	Date	Revision Notes
-	11/01/12	First Floor

Client / Contractor

NHS Lothian

NIGHTINGALE associates architects www.nightingaleassociates.com

bmj architects www.bmjarchitects.co.uk

Project

EDINBURGH RHSC + DCN
- LITTLE FRANCE

Drawing Title

PICU & HDU

B1.01.B1401A
Single Cot Cubicle

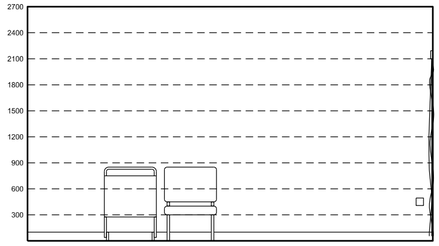
Job No	Date	Scale@A2
10727	11/01/2012	1:50

Status

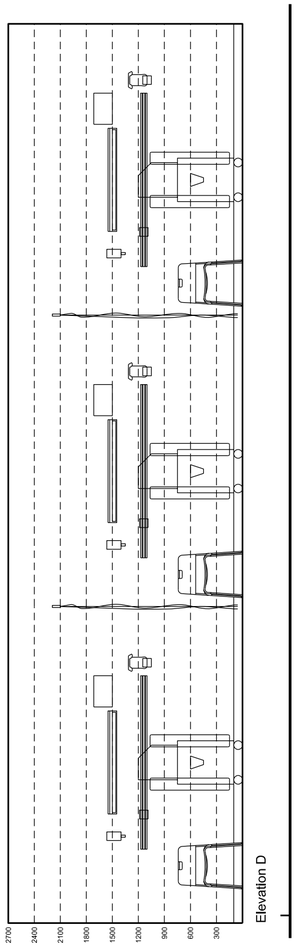
For Information

Drawing No						Rev
Origin	Project No.	Type	Code	Level	Sequential	
NA / 10727 / R(70)1-11						-

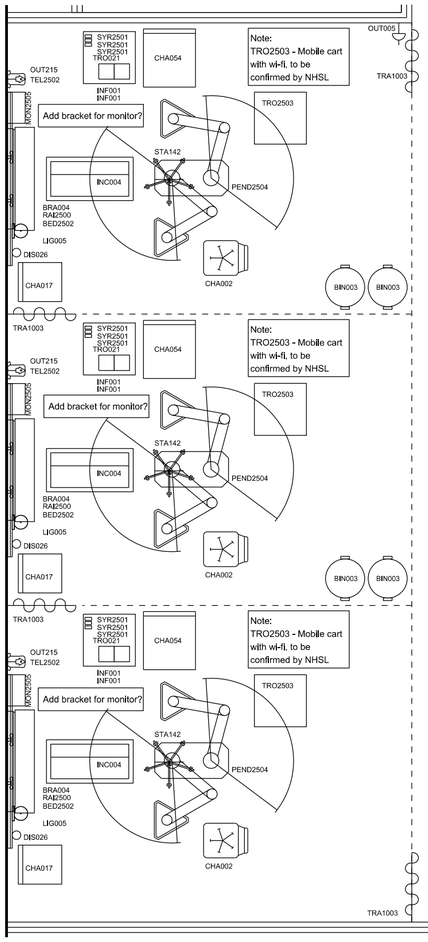
A43133428



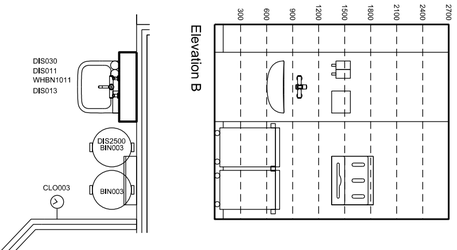
Elevation A



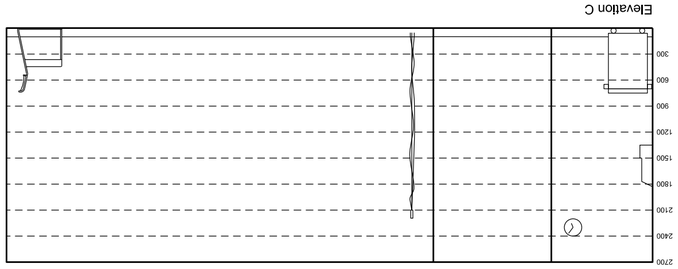
Elevation D



Created new Pendant union PEND2504. This includes all outlets required, not enough space to list individualy.
1 x CAL1000
16 x OUT010
4 x OUT096
2 x OUT121
2 x OUT453
2 x OUT470
2 x OUT475
1 x OUT480



Elevation B



Elevation C

1:50 0 1 2 3

A43133428

PICU & HDU

Open Plan Bay (3 cots)

Briefing Code - B1407A

Required Area - 45.0 m²
Designed Area - 56.0 m²

Equipment Schedule

Grp	ADB No	Qty	Description
1	BED2502	3	BED HEAD BUFFER, bed and wall protection, vertical, wall mounted.
1	CLO003	1	CLOCK synchronous with second sweep hand, wall mounted
1	LIG005	3	LUMINAIRE, bedhead, dimmable, patient reading and general nursing care/examination
1	OUT005	1	SOCKET outlet, switched, 13 amp, single
1	OUT215	3	SOCKET outlet, telephone
1	PEND2504	3	MEDICAL SERVICE PENDANT, critical care bed/trolley space, to HTM 08-03 requirements.
			- 1 No. CAL1000 (1) CALL, nurse call system, to specialist design/specification.
			- 16 No. OUT010 (1) SOCKET outlet, switched, 13 amp, twin
			- 4 No. OUT096 (1) OUTLET earthing point, shrouded, wall mounted
			- 4 No. OUT121 (1) SOCKET outlet, computer data, double.
			- 2 No. OUT453 (1) OUTLET, 4 kPa compressed air, medical
			- 2 No. OUT470 (1) OUTLET, oxygen, medical
			- 2 No. OUT475 (1) OUTLET, vacuum, medical
			- 1 No. OUT480 (1) OUTLET, gas scavenging (AGS), medical
1	RAI2500	3	RAIL, clinical equipment, wall mounted, length as drawn.
1	TEL2502	3	TELEPHONE handset
1	TRA1003	4	TRACK, curtain, bed/trolley, length and shape as drawn. Collapsible.
1	TRO2503	3	MOBILE CART WITH WI-FI, TO BE CONFIRMED BY NHSL
1	WHBN1011	1	WASH BASIN, clinical, large 60cm, with non touch panel mounted tap/s.
2	BRA004	3	BRACKET, holder, suction unit, trunking/rail mounted.
2	DIS011	1	DISPENSER, barrier cream, disposable single cartridge, wall mounted
2	DIS013	1	DISPENSER, paper towel, wall mounted
2	DIS026	3	DISPENSER, Medical hand sanitizer, lever action, wall mounted
2	DIS030	1	DISPENSER, soap, disposable single cartridge, lever action, wall mounted
2	DIS2500	1	DISPENSER, danicentre, combined glove/apron.
3	BIN003	6	BIN, disposal, general purpose, liner, mobile
3	CHA002	3	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors
3	CHA017	3	CHAIR, upright, upholstered, stacking
3	CHA054	3	CHAIR nursing with side panels
3	INC004	3	INCUBATOR, baby
3	INF001	6	INFUSION volumetric pump, 356H 178W 178D
3	MON2505	3	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 280H 360W 215D
3	STA142	3	STAND, Infusion, twin hook, breaks, mobile
3	SYR2501	9	SYRINGE pump: battery operated; 170H 35W 75D; with docking station.
3	TRO021	3	TROLLEY, 4 sets of runners, 850H 600W 600D

Notes:
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- Do not modify any element of this drawing.
- Use drawing only for purpose(s) issued.

No	Design Risk Register

Rev	Date	Revision Notes
-	12/01/12	First Issue

Client / Contractor

NHS Lothian

NIGHTINGALE associates architects www.nightingaleassociates.com

bmj architects www.bmjarchitects.co.uk

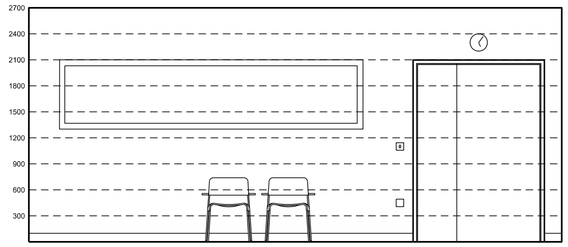
Project
EDINBURGH RHSC + DCN
- LITTLE FRANCE

Drawing Title
PICU & HDU
B1.01.B1407A
Open Plan Bay (3 cots)

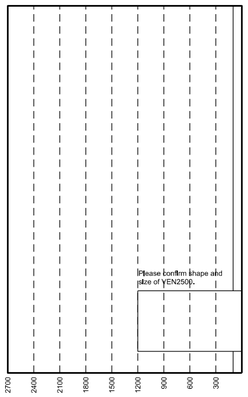
Job No	Date	Scale@A2
10727	11/01/2012	1:50

Status
For Information

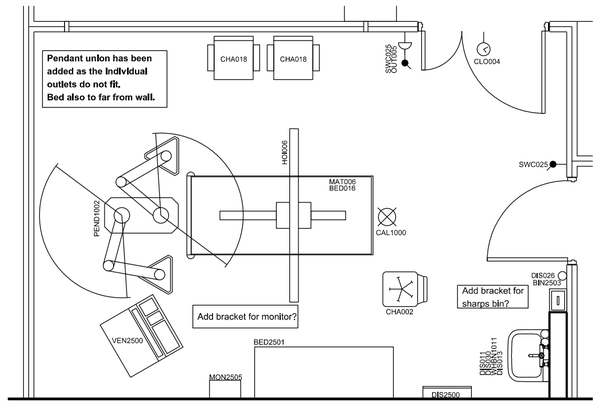
Drawing No						Rev
Origin	Project No.	Type	Code	Level	Sequential	
NA / 10727 / R(70)1-12						-

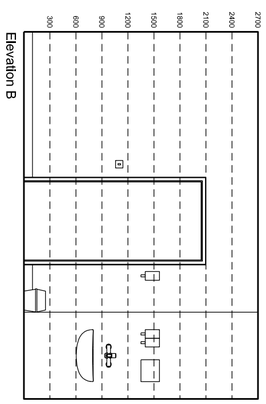


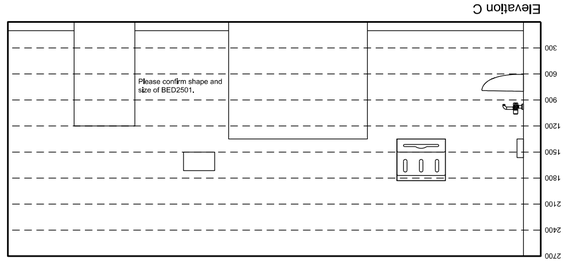
Elevation A



Elevation D







1:50 scale bar: 0 1 2 3

PICU & HDU

Single Bed Isolation Cubicle

Briefing Code - B1602A

Required Area - 26.0 m²
Designed Area - 26.0 m²

Equipment Schedule

Grp	ADB No	Qty	Description
1	CAL1000	1	CALL, nurse call system, to specialist design/specification.
1	HOI006	1	HOIST PATIENT, electric, 24V, track ceiling mounted. (Length of the track to suit the individual needs.)
1	OUT005	1	SOCKET outlet, switched, 13 amp, single
1	PEND1002	1	MEDICAL SERVICE PENDANT, critical care bed/trolley space, to HTM 08-03 requirements. - 1 No. CAL1000 (1) CALL, nurse call system, to specialist design/specification. - 14 No. OUT010 (1) SOCKET outlet, switched, 13 amp, twin - 2 No. OUT1000 (1) OUTLET, oxygen/helium mixture, medical. - 8 No. OUT121 (1) SOCKET outlet, computer data, double. - 1 No. OUT151 (1) SOCKET outlet patient monitoring, wall/trunking mounted - 1 No. OUT215 (1) SOCKET outlet, telephone - 1 No. OUT2500 (1) OUTLET, connection for IPOD - 4 No. OUT453 (1) OUTLET, 4 kPa compressed air, medical - 2 No. OUT461 (1) OUTLET, nitrous oxide, medical - 2 No. OUT462 (1) OUTLET nitrous oxide/oxygen mixture medical, trunking mounted - 4 No. OUT470 (1) OUTLET, oxygen, medical - 4 No. OUT475 (1) OUTLET, vacuum, medical - 2 No. OUT480 (1) OUTLET, gas scavenging (AGS), medical
1	SWC025	2	SWITCH, light, to M&E design.
1	WHBN1011	1	WASH BASIN, clinical, large 60cm, with non touch panel mounted tap/s.
2	CLO004	1	CLOCK battery with second sweep hand, wall mounted
2	DIS011	1	DISPENSER, barrier cream, disposable single cartridge, wall mounted
2	DIS013	1	DISPENSER, paper towel, wall mounted
2	DIS026	1	DISPENSER, Medical hand sanitizer, lever action, wall mounted
2	DIS030	1	DISPENSER, soap, disposable single cartridge, lever action, wall mounted
2	DIS2500	1	DISPENSER, danicentre, combined glove/apron.
3	BED016	1	BED, CCU/ITU, radio translucent rising backrest, two-way tilt, height adjustable (685-860), on castors
3	BED2501	1	Mobile bed divider 1600W 1350H
3	BIN2503	1	BIN, sharps disposal
3	CHA002	1	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors
3	CHA018	2	CHAIR, upright, with arms, upholstered, stacking
3	MAT006	1	MATTRESS, ITU/CCU bed, extra care
3	MON2505	1	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 280H 360W 215D
3	VEN2500	1	VENTILATOR: Mobile/freestanding; adjustable minute volume; 700D 700W 1200H

Notes:
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- Use drawing only for purpose(s) issued.

No	Design Risk Register

Rev	Date	Revision Notes
-	11/01/12	First Issue.

Client / Contractor

NHS Lothian

NIGHTINGALE associates architects www.nightingaleassociates.com

bmj architects www.bmjarchitects.co.uk

Project

EDINBURGH RHSC + DCN
- LITTLE FRANCE

Drawing Title

PICU & HDU

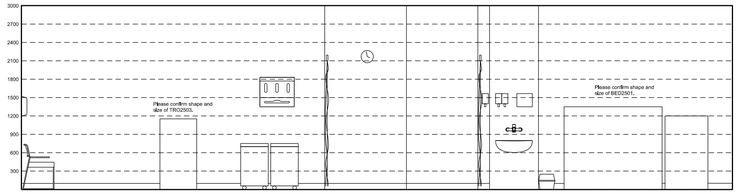
B1.01.B1602A
Single Bed Isolation Cubicle

Job No	Date	Scale@A2
10727	11/01/2012	1:50

Status
For Information

Drawing No						Rev
Origin	Project No.	Type	Code	Level	Sequential	
NA / 10727 / R(70)1-13						-

A43133428



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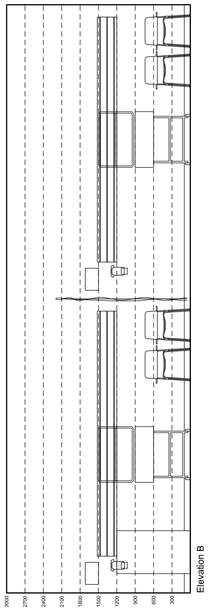
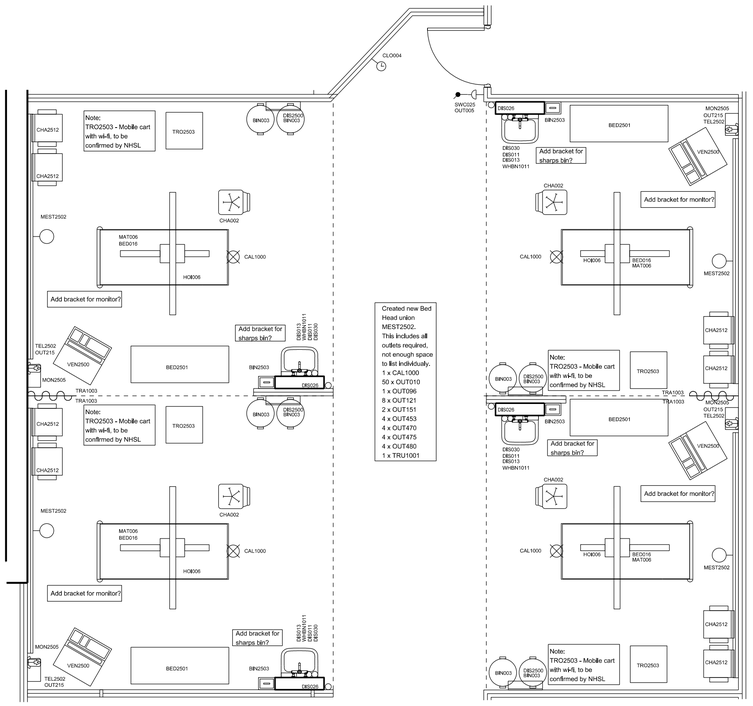
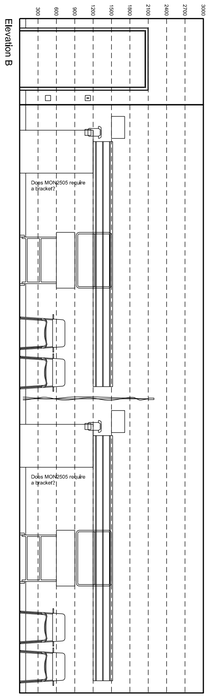


Elevation B



Elevation B



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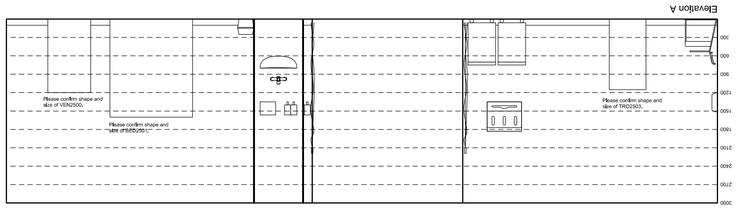

1:50

0 1 2 3

A43133428

PICU & HDU

Open Plan Bay (4 beds)

Briefing Code - B1609A
Required Area - 80,0 m²
Designed Area - 114,0 m²

Equipment Schedule

Grp	ADB No	Qty	Description
1	CAL1000	4	CALL, nurse call system, to specialist design/specification,
1	CHA2512	8	CHAIR, upright, with arms, vinyl/plastic, stacking
1	HOI806	4	HOIST PATIENT, electric, 24V, track ceiling mounted, (Length of the track to suit the individual needs.)
1	MEST2502	4	MEDICAL SERVICE TRUNKING, post-anaesthetic recovery bed/trolley space, to HTM 08-03 requirements, - 1 No, CAL1000 (1) CALL, nurse call system, to specialist design/specification., - 50 No, OUT010 (1) SOCKET outlet, switched, 13 amp, twin - 1 No, OUT096 (1) OUTLET earthing point, shrouded, wall mounted - 8 No, OUT121 (1) SOCKET outlet, computer data, double, - 2 No, OUT151 (1) SOCKET outlet patient monitoring, wall/trunking mounted - 4 No, OUT453 (1) OUTLET, 4 kPa compressed air, medical - 4 No, OUT470 (1) OUTLET, oxygen, medical - 4 No, OUT475 (1) OUTLET, vacuum, medical - 1 No, OUT480 (1) OUTLET, gas scavenging (AGS), medical - 1 No, TRU1001 (1) MEDICAL SERVICE TRUNKING, horizontal, length as drawn,
1	OUT005	1	SOCKET outlet, switched, 13 amp, single
1	OUT215	4	SOCKET outlet, telephone
1	SWD025	1	SWITCH, light, to M&E design,
1	TEL2502	4	TELEPHONE handset
1	TRA1003	4	TRACK, curtain, bed/trolley, length and shape as drawn, Collapsible,
1	TRO2503	4	MOBILE CART WITH WI-FI, TO BE CONFIRMED BY NHSL
1	WHBN1011	4	WASH BASIN, clinical, large 60cm, with non touch panel mounted taps,
2	CLO004	1	CLOCK battery with second sweep hand, wall mounted
2	DBS011	4	DISPENSER, barrier cream, disposable single cartridge, wall mounted
2	DBS013	4	DISPENSER, paper towel, wall mounted
2	DBS026	4	DISPENSER, Medical hand sanitiser, lever action, wall mounted
2	DBS030	4	DISPENSER, soap, disposable single cartridge, lever action, wall mounted
2	DBS2500	4	DISPENSER, dual/centre, combined glove/apron,
3	BED016	4	BED, CCU/ITU, radio translucent risling backrest, two-way tilt, height adjustable (680-960), on castors
3	BED2501	4	Mobile bed divider 1600W 1350H
3	BIN003	8	BIN, disposal, general purpose, liner, mobile
3	BIN2503	4	BIN, sharps disposal
3	CHA002	4	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors
3	MAT006	4	MATTRESS, ITU/CCU bed, extra care
3	MON2505	4	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 280H 360W 215D
3	VEN2500	4	VENTILATOR: Mobile/freestanding; adjustable minute volume; 7000-700W 1200H

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- Use drawing only for purpose(s) issued.

No	Design Risk Register

Rev	Date	Revision Notes
-	11/01/12	First Issue

Client / Contractor

NHS Lothian

NIGHTINGALE associates architects www.nightingaleassociates.com

bmj architects www.bmjarchitects.co.uk

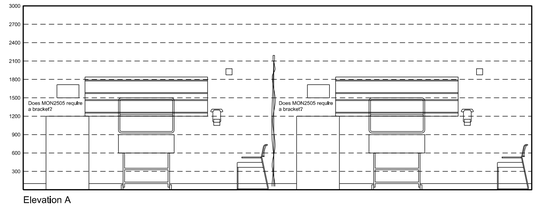
Project
EDINBURGH RHSC + DCN
- LITTLE FRANCE

Drawing Title
PICU & HDU
B1.01.B1609A
Open Plan Bay (4 beds)

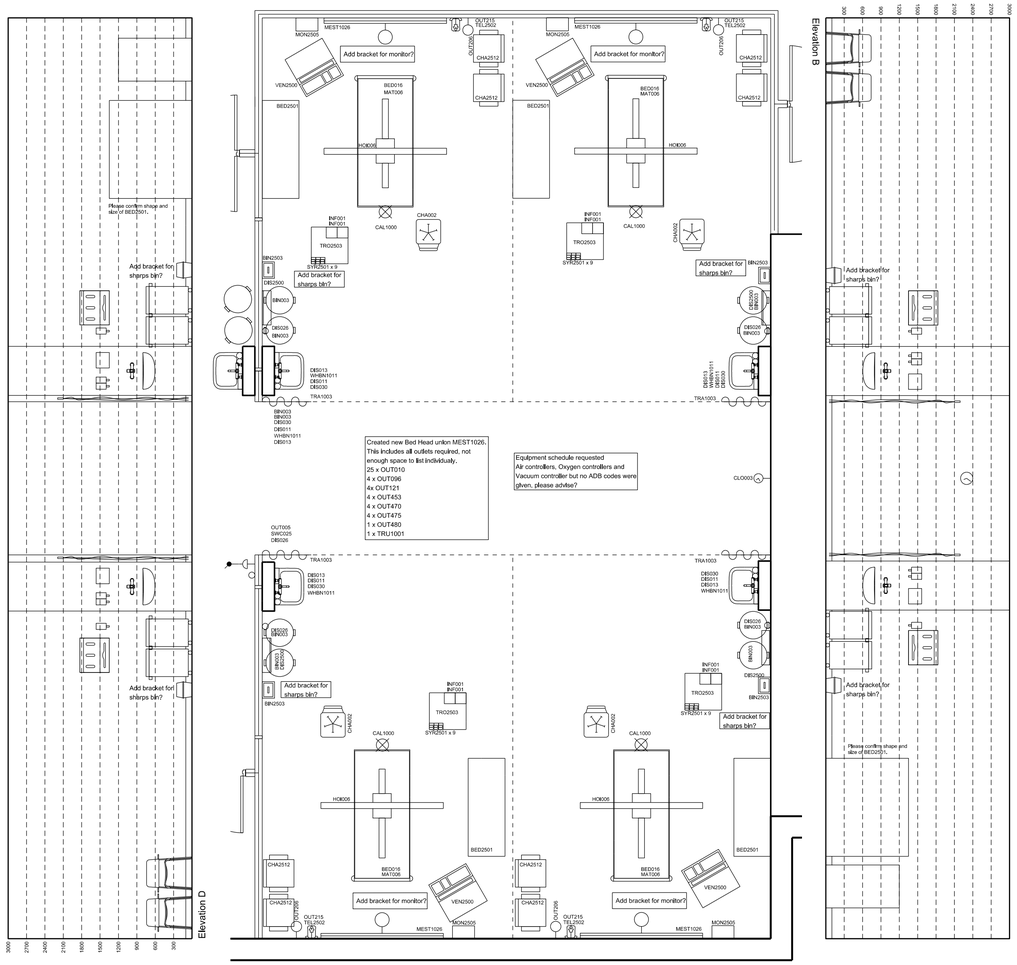
Job No	Date	Scale@A1
10727	11/01/2012	1:50

Status
For Information

Drawing No						Rev
Origin	Project No.	Type	Code	Level	Sequential	
NA / 10727 /R(70)1-14						-



Elevation A



1:50

A43133428

PICU & HDU

Open Plan Bay (4 beds)

Briefing Code - B1609A
Required Area - 104.0 m²
Designed Area - 124.8 m²

Equipment Schedule

Grp	ADB No	Qty	Description
1	CAL1000	4	CALL, nurse call system, to specialist design/specification,
1	CHA2512	8	CHAIR, upright, with arms, vinyl/plastic, stacking
1	CLO003	1	CLOCK synchronous with second sweep hand, wall mounted
1	HOB006	4	HOIST PATIENT, electric, 24V, track ceiling mounted, (Length of the track to suit the Individual needs,)
1	MEST1026	4	MEDICAL SERVICE TRUNKING, critical care bed/trolley space, to HTM 08-03 requirements, • 25 No. OUT010 (1) SOCKET outlet, switched, 13 amp, twin • 4 No. OUT096 (1) OUTLET earthing point, shrouded, wall mounted • 4 No. OUT121 (1) SOCKET outlet, computer data, double, • 4 No. OUT453 (1) OUTLET, 4 kPa compressed air, medical • 4 No. OUT470 (1) OUTLET, oxygen, medical • 4 No. OUT475 (1) OUTLET, vacuum, medical • 1 No. OUT480 (1) OUTLET, gas scavenging (AGS), medical • 1 No. TRU1001 (1) MEDICAL SERVICE TRUNKING, horizontal, length as drawn,
1	OUT005	1	SOCKET outlet, switched, 13 amp, single
1	OUT206	4	SOCKET outlet television aerial, single, wall mounted
1	OUT215	4	SOCKET outlet, telephone
1	SWD025	1	SWITCH, light, to M&E design,
1	TEL2502	4	TELEPHONE handset
1	TRA1003	4	TRACK, curtain, bed/trolley, length and shape as drawn, Collapsible,
1	TRO2503	4	MOBILE CART WITH Wi-Fi, TO BE CONFIRMED BY NHSL
1	WHBN1011	5	WASH BASIN, clinical, large 60cm, with non touch panel mounted tap/s,
2	DIS011	5	DISPENSER, barrier cream, disposable single cartridge, wall mounted
2	DIS013	5	DISPENSER, paper towel, wall mounted
2	DIS026	5	DISPENSER, Medical hand sanitizer, lever action, wall mounted
2	DIS030	5	DISPENSER, soap, disposable single cartridge, lever action, wall mounted
2	DIS2500	4	DISPENSER, disincentre, combined glove/apron,
3	BED016	4	BED, CCU/ITU, radio translucent risking backrest, two-way tilt, height adjustable (685+860), on castors
3	BED2501	4	Mobile bed divider 1600W 1350H
3	BIN003	10	BIN, disposall, general purpose, liner, mobile
3	BIN2503	4	BIN, sharps disposal
3	CHA002	4	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors
3	INF001	8	INFUSION volumetric pump, 356H 178W 178D
3	MAT006	4	MATTRESS, ITU/CCU bed, extra care
3	MON2505	4	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 292H 360W 215D
3	SYR2501	36	SYRINGE pump; battery operated; 170H 35W 75D; with docking station,
3	VEN2500	4	VENTILATOR; Mobile/freestanding; adjustable minute volume; 700D 700W 1200H

Notes:
- This drawing is copyright.
- Do not scale dimensions from this drawing.
- All discrepancies on this drawing are to be reported to the architect.
- Do not modify any element of this drawing.
- Use drawing only for purpose(s) issued.

No	Design Risk Register

Rev	Date	Revision Notes
-	11/01/12	First Issue

Client / Contractor

NHS Lothian

NIGHTINGALE associates architects www.nightingaleassociates.com

bmj architects www.bmjarchitects.co.uk

Project
EDINBURGH RHSC + DCN
- LITTLE FRANCE

Drawing Title
PICU & HDU
B1.01.B1609A
Open Plan Bay (4 beds)

Job No	Date	Scale@A1
10727	11/01/2012	1:50

Status
For Information

Drawing No						Rev
Origin	Project No.	Type	Code	Level	Sequential	
NA / 10727 /R(70)1-15						-

10727	Cover Sheet	

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU**

Issue date: 2012/01/11

Room Number		Room Name	Revision
B1.01.B1602A	-	Single Bed Isolation Cubicle	2012/01/11
B1.01.B1609A	-	Open Plan Bay (4 beds)	2012/01/11
B1.01.0	-	Single Bed Cubicle	2012/01/11
B1.01.B1407A	-	Open Plan Bay (3 cots)	2012/01/11
B1.01.B1401A	-	Single Cot Cubicle	2012/01/11
B1.01.B1609A	-	Open Plan Bay (4 beds)	2012/01/11

Key to Transfer/Existing Options
T - Transfer
F - Future

Key to Equipment Group Codes
1 - Contractor supply, has fix/service requirements
2 - Specialist supply, has fix/service requirements
3 - Not fixed, has size implication
4 - Not fixed, no size implication

Key to Service Requirements
-
EP - Electric Socket
EF - Electrical Supply Fixed
E3 - Electrical Supply 3 Phase 4 Wire
CA - Compressed Air
DR - Drainage
WA - Water (Hot and Cold)
PG - Piped Medical Gases
DP - Data Point
WD - Water (Drinking)
WC - Water (Cold Only)
WH - Water (Hot Only)

10727	Room Data - Design Issues	B1602A

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU High Acuity**

Room: **Single Bed Isolation Cubicle**

Room Number: **B1.01.B1602A** Revision: **2012/01/11**

Revision	*Revision Code/Date*	**-**
Design Criteria	*Briefing Room Code*	**B1602A**
	Area Required	**26.0 m²**
	Area Designed	**26.0 m²**
	Ceiling Height	**2.7 metres**
Occupancy	*Personnel*	**1 x Patient Up to 8 Staff 2 x parents (24/7)**
Activities		**1) Accommodating a patient needing continuous medical and nursing care using piped medical gases, vacuum and life-support system. NIV Scoliosis Patients 2) Medical and nursing procedures requiring all sides access to patient whilst 1-6 staff use specialised equipment. 3) Monitoring vital physiological signs. 4) Air control to provide source or protective isolation for patients at risk or liable to infect others. 5) Clinical hand washing 6) PICU overcapacity use / decanting during maintenance 7) Treating NIV Scoliosis patients 8) Dispensing medication.**
Design Notes		**1. Engineering services are integral to ceiling mounted supply system & include power supply & medical gases. 2. Space required for equipment used intermittently at the bed space includes: EEG machine; mobile imaging; ultrasound/echocardiography; endoscopy (fibre-optic light source); defibrillators; invasive/non-invasive cardiac output monitoring devices; haeomfiltration; ECG Machine; Inovent (600 x 650 x 450); Oscillator ventilator (750 x 750 x 1350); Tilt table (2000 x 600); CFAM, Cooling Blanket, Second double trolley; CPAP Driver; NIV Ventilater; Anaesthetic machine 3.Clinical information system PACS/TRAK,, third arm option, project decision 4.Emergency button - voice location to PICU/HDU Bed number. 5. Bed divider trolley to be specified with lockable medicine drawer. Approximate size (1600w x 600d x 1360h)**

		6. Pendant outlets number and type to be specified. **7. Thermal ceiiling incompatible with tracking hoist.** **DesignNotes: 1. Room orientated such that monitors are visible from HDU main thoroughfare.** **2. Privacy control to be easily operated.** **3. Walls of cubicle to maximise glazing above 1000mm to be visible from corridor and adjacent rooms. Venetian blinds not favoured as they impair full visibility.** **Note: Blackout to all glazing required for ultrasound procedures.**
Adjacencies		**1. Access only via gowning lobby. (G0507X)** **2. Contiguous to rest of medical HDU space** **3. Close to bulk supplies store.** **4. Close to PICU or Surgical HDU clean utility**

10727	Schedule of Components by Room	B1602A

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU High Acuity**

Room: **Single Bed Isolation Cubicle**

Room Number: **B1.01.B1602A** Revision: **2012/01/11**

New	Tr/Ex	Qty	Code	Description	Services	Group
1		1	CAL1000	CALL, nurse call system, to specialist design/specification.	EF	1
1		1	HOI006	HOIST PATIENT, electric, 24V, track ceiling mounted. (Length of the track to suit the individual needs.)	EF	1
1		1	OUT005	SOCKET outlet, switched, 13 amp, single		1
1		1	PEND1002	MEDICAL SERVICE PENDANT, critical care bed/trolley space, to HTM 08-03 requirements.	EF PG	1
				1 No. CAL1000 (1) CALL, nurse call system, to specialist design/specification.		
				14 No. OUT010 (1) SOCKET outlet, switched, 13 amp, twin		
				2 No. OUT1000 (1) OUTLET, oxygen/helium mixture, medical.		
				8 No. OUT121 (1) SOCKET outlet, computer data, double.		
				1 No. OUT151 (1) SOCKET outlet patient monitoring, wall/trunking mounted		
				1 No. OUT215 (1) SOCKET outlet, telephone		
				1 No. OUT2500 (1) OUTLET, connection for IPOD		
				4 No. OUT453 (1) OUTLET, 4 kPa compressed air, medical		
				2 No. OUT461 (1) OUTLET, nitrous oxide, medical		
				2 No. OUT462 (1) OUTLET nitrous oxide/oxygen mixture medical, trunking mounted		
				4 No. OUT470 (1) OUTLET, oxygen, medical		
				4 No. OUT475 (1) OUTLET, vacuum, medical		
				2 No. OUT480 (1) OUTLET, gas scavenging (AGS), medical		
2		2	SWC025	SWITCH, light, to M&E design.		1
1		1	WHBN1011	WASH BASIN, clinical, large 60cm, with non touch panel mounted tap/s.	WA DR	1
1		1	CLO004	CLOCK battery with second sweep hand, wall mounted		2
1		1	DIS011	DISPENSER, barrier cream, disposable single cartridge, wall mounted		2
1		1	DIS013	DISPENSER, paper towel, wall mounted		2
1		1	DIS026	DISPENSER, Medical hand sanitizer, lever action, wall mounted		2
1		1	DIS030	DISPENSER, soap, disposable single cartridge, lever action, wall mounted		2

New	Tr/Ex	Qty	Code	Description	Services	Group
1		1	DIS2500	DISPENSER, danicentre, combined glove/apron.		2
1		1	BED016	BED, CCU/ITU, radio translucent rising backrest, two-way tilt, height adjustable (685-860), on castors	EP	3
1		1	BED2501	Mobile bed divider 1600W 1350H		3
1		1	BIN2503	BIN, sharps disposal		3
1		1	CHA002	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors		3
2		2	CHA018	CHAIR, upright, with arms, upholstered, stacking		3
1		1	MAT006	MATTRESS, ITU/CCU bed, extra care		3
1		1	MON2505	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 280H 360W 215D	EP	3
1		1	VEN2500	VENTILATOR; Mobile/freestanding; adjustable minute volume; 700D 700W 1200H		3

10727	Room Data - Design Issues	B1609A

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU Low Acuity**

Room: **Open Plan Bay (4 beds)**

Room Number: **B1.01.B1609A** Revision: **2012/01/11**

Revision	*Revision Code/Date*	
Design Criteria	*Briefing Room Code*	**B1609A**
	Area Required	**80.0 m²**
	Area Designed	**114.0 m²**
	Ceiling Height	**3 metres**
Occupancy	*Personnel*	**4 x Patient 8 x Parents (24/7) 1-6 Staff per bed space**
Activities		**1) Accommodating a patient needing continuous medical and nursing care using piped medical gases, vacuum and life-support system. NIV Scoliosis Patients 2) Medical and nursing procedures requiring all sides access to patient whilst 1-6 staff use specialised equipment. 3) Dispensing medication. 4) Monitoring vital physiological signs. 5) Clinical hand washing/scrubbing. 6) Parking resuscitation trolley within circulation space. 7) Dispensing chilled water.**
Design Notes		**1. Engineering services are integral to the ceiling mounted supply system & include power supply & medical gases. 2.Space required for equipment used intermittently at the bed space includes: EEG machine; mobile imaging; ultrasound/echocardiography; endoscopy (fibre-optic light source); defibrillators; invasive/non-invasive cardiac output monitoring devices haeomfiltration. Anaesthetic machine. Inovent 600 x 650 x 450mm. ECG Machine. Oscillator ventilator 750 x 750 x 1350mm. Tilt Table 2000 x 600mm CFAM Cooling blanket Second double trolley 3. Clinical information system PACS/TRAK, third arm option, project decisiion. 4. Emergency button - voice location to PICU/HDU bed number, to be audible throughout unit 5. 4No. Bed divider trolleys to be specified with lockable medicine drawer. Approximate size (1600w x 600d x 1350h) 6. Pendant outlets number and type to be specified, project decision**

	7. Thermal ceiling incompatible with the tracking hoist. 8. Vision panel required.
Adjacencies	1.Contiguous with the rest of the Intensive Care spaces. 2. Close to the Bulk Supplies Store 3. Close to PICU Clean Utility

10727	Schedule of Components by Room	B1609A

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU Low Acuity**

Room: **Open Plan Bay (4 beds)**

Room Number: **B1.01.B1609A** Revision: **2012/01/11**

New	Tr/Ex	Qty	Code	Description	Services	Group
4		4	CAL1000	CALL, nurse call system, to specialist design/specification.	EF	1
8		8	CHA2512	CHAIR, upright, with arms, vinyl plastic, stacking		1
4		4	HOI006	HOIST PATIENT, electric, 24V, track ceiling mounted. (Length of the track to suit the individual needs.)	EF	1
4		4	MEST2502	MEDICAL SERVICE TRUNKING, post-anaesthetic recovery bed/trolley space, to HTM 08-03 requirements.	EF PG	1
				1 No. CAL1000 (1) CALL, nurse call system, to specialist design/specification.		
				50 No. OUT010 (1) SOCKET outlet, switched, 13 amp, twin		
				1 No. OUT096 (1) OUTLET earthing point, shrouded, wall mounted		
				8 No. OUT121 (1) SOCKET outlet, computer data, double.		
				2 No. OUT151 (1) SOCKET outlet patient monitoring, wall/trunking mounted		
				4 No. OUT453 (1) OUTLET, 4 kPa compressed air, medical		
				4 No. OUT470 (1) OUTLET, oxygen, medical		
				4 No. OUT475 (1) OUTLET, vacuum, medical		
				1 No. OUT480 (1) OUTLET, gas scavenging (AGS), medical		
				1 No. TRU1001 (1) MEDICAL SERVICE TRUNKING, horizontal, length as drawn.		
1		1	OUT005	SOCKET outlet, switched, 13 amp, single		1
4		4	OUT215	SOCKET outlet, telephone		1
1		1	SWC025	SWITCH, light, to M&E design.		1
4		4	TEL2502	TELEPHONE handset		1
4		4	TRA1003	TRACK, curtain, bed/trolley, length and shape as drawn. Collapsible.		1
4		4	TRO2503	MOBILE CART WITH WI-FI, TO BE CONFIRMED BY NHSL		1
4		4	WHBN1011	WASH BASIN, clinical, large 60cm, with non touch panel mounted tap/s.	WA DR	1
1		1	CLO004	CLOCK battery with second sweep hand, wall mounted		2
4		4	DIS011	DISPENSER, barrier cream, disposable single cartridge, wall mounted		2
4		4	DIS013	DISPENSER, paper towel, wall mounted		2

New	Tr/Ex	Qty	Code	Description	Services	Group
4		4	DIS026	DISPENSER, Medical hand sanitizer, lever action, wall mounted		2
4		4	DIS030	DISPENSER, soap, disposable single cartridge, lever action, wall mounted		2
4		4	DIS2500	DISPENSER, danicentre, combined glove/apron.		2
4		4	BED016	BED, CCU/ITU, radio translucent rising backrest, two-way tilt, height adjustable (685-860), on castors	EP	3
4		4	BED2501	Mobile bed divider 1600W 1350H		3
8		8	BIN003	BIN, disposal, general purpose, liner, mobile		3
4		4	BIN2503	BIN, sharps disposal		3
4		4	CHA002	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors		3
4		4	MAT006	MATTRESS, ITU/CCU bed, extra care		3
4		4	MON2505	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 280H 360W 215D	EP	3
4		4	VEN2500	VENTILATOR; Mobile/freestanding; adjustable minute volume; 700D 700W 1200H		3

10727	Room Data - Design Issues	0

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU Low Acuity**

Room: **Single Bed Cubicle**

Room Number: **B1.01.0** Revision: **2012/01/11**

Revision	*Revision Code/Date*	
Design Criteria	*Briefing Room Code*	**0**
	Area Required	**26.0 m²**
	Area Designed	**27.7 m²**
	Ceiling Height	**3 metres**
Occupancy	*Personnel*	**1 x Patient Up to 8 Staff 2 x parents (24/7)**
Activities		**1) Accommodating a patient needing continuous medical and nursing care using piped medical gases, vacuum and life-support system. NIV Scoliosis Patients 2) Medical and nursing procedures requiring all sides access to patient whilst 1-6 staff use specialised equipment. 3) Monitoring vital physiological signs. 4) Air control to provide source or protective isolation for patients at risk or liable to infect others. 5) Clinical hand washing 6) PICU overcapacity use / decanting during maintenance 7) Nurse dispensing medications**
Design Notes		**1. Engineering services are integral to ceiling mounted supply system & include power supply & medical gases. 2,.Space required for equipment used intermittently at the bed space includes: EEG machine; mobile imaging; ultrasound/echocardiography; endoscopy (fibre-optic light source); defibrillators; invasive/non-invasive cardiac output monitoring devices; haeomfiltration; ECG machine; Inovent (600 x 650 x 450) Oscillator ventilator (750 x 750 x 1350) Tilt table (2000 x 600) CFAM, cooling blanket, second double trolley. Anaesthetic machine. 3. Clinical informatioon system PACS/TRAK, third artm option, project decision. 4. emergency button - voice location to PICU/HDU Bed number, to be audible throughout unit. 5. bed divider trolley to be specified with lockable medicine drawer. Approximate size (1600 x 600 x 1350H) 6. pendant outlets number and type to be specified, project**

		decision. **7. Thermal ceiling incompatible with the tracking hoist.** **DesignNotes: 1. Room orientated such that monitors are visible from HDU main thoroughfare.** **2. Privacy control to be able to be operated easily.** **3. Walls of room to maximise glazing above 1000mm to be visible from corridor and adjacent rooms. Venetian blinds not favoured as they impair full visiblity.** **Note blackout to all glazing required for ultrasound procedures.**
Adjacencies		**1. Access via gowning lobby.** **2.Close to recovery** **3. Close to NNU** **4. Adjacent to Burns Bathroom** **5. Close to HDU Clean utility(Surgical),** **6. Close to surgical NNU Dirty Utility.**

10727	Schedule of Components by Room	0

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU Low Acuity**

Room: **Single Bed Cubicle**

Room Number: **B1.01.0** Revision: **2012/01/11**

New	Tr/Ex	Qty	Code	Description	Services	Group
1		1	CAL1000	CALL, nurse call system, to specialist design/specification.	EF	1
2		2	CHA2512	CHAIR, upright, with arms, vinyl plastic, stacking		1
1		1	HOI006	HOIST PATIENT, electric, 24V, track ceiling mounted. (Length of the track to suit the individual needs.)	EF	1
1		1	OUT005	SOCKET outlet, switched, 13 amp, single		1
1		1	OUT096	OUTLET earthing point, shrouded, wall mounted		1
1		1	PEN2503	MEDICAL SERVICE PENDANT, critical care bed/trolley space, to HTM 08-03 requirements.		1
				1 No. CAL1000 (1) CALL, nurse call system, to specialist design/specification.		
				50 No. OUT010 (1) SOCKET outlet, switched, 13 amp, twin		
				8 No. OUT121 (1) SOCKET outlet, computer data, double.		
				2 No. OUT151 (1) SOCKET outlet patient monitoring, wall/trunking mounted		
				1 No. OUT215 (1) SOCKET outlet, telephone		
				4 No. OUT453 (1) OUTLET, 4 kPa compressed air, medical		
				4 No. OUT470 (1) OUTLET, oxygen, medical		
				4 No. OUT475 (1) OUTLET, vacuum, medical		
				1 No. OUT480 (1) OUTLET, gas scavenging (AGS), medical		
				1 No. TEL2502 (1) TELEPHONE handset		
1		1	SWC025	SWITCH, light, to M&E design.		1
1		1	TRO2503	MOBILE CART WITH WI-FI, TO BE CONFIRMED BY NHSL		1
1		1	TRU1001	MEDICAL SERVICE TRUNKING, horizontal, length as drawn.	EF PG	1
1		1	WHBN1011	WASH BASIN, clinical, large 60cm, with non touch panel mounted tap/s.	WA DR	1
1		1	CLO004	CLOCK battery with second sweep hand, wall mounted		2
1		1	DIS011	DISPENSER, barrier cream, disposable single cartridge, wall mounted		2
1		1	DIS013	DISPENSER, paper towel, wall mounted		2
1		1	DIS026	DISPENSER, Medical hand sanitizer, lever action, wall mounted		2
1		1	DIS030	DISPENSER, soap, disposable single cartridge, lever		2

New	Tr/Ex	Qty	Code	Description	Services	Group
				action, wall mounted		
1		1	DIS2500	DISPENSER, danicentre, combined glove/apron.		2
1		1	BED016	BED, CCU/ITU, radio translucent rising backrest, two-way tilt, height adjustable (685-860), on castors	EP	3
1		1	BED2501	Mobile bed divider 1600W 1350H		3
2		2	BIN003	BIN, disposal, general purpose, liner, mobile		3
1		1	BIN2503	BIN, sharps disposal		3
1		1	CHA002	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors		3
1		1	MAT006	MATTRESS, ITU/CCU bed, extra care		3
1		1	MON2505	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 280H 360W 215D	EP	3
1		1	VEN2500	VENTILATOR; Mobile/freestanding; adjustable minute volume; 700D 700W 1200H		3

10727	Room Data - Design Issues	B1407A

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU Neonatal HDU**

Room: **Open Plan Bay (3 cots)**

Room Number: **B1.01.B1407A** Revision: **2012/01/11**

Revision	*Revision Code/Date*	
Design Criteria	*Briefing Room Code*	**B1407A**
	Area Required	**45.0 m²**
	Area Designed	**56.0 m²**
	Ceiling Height	**2.7 metres**
Occupancy	*Personnel*	**3 babies 2-3 Staff 6 Parents**
Activities		**1) Observation, medical and nursing care and treatment of baby needing neonatal care. 2) Weighing babies. 3) Staff or parent to feed baby in incubator. 4) Holding working supplies of nappies, towels. 5) Disposal of waste and contaminated materials. 6) Clinical hand washing 7) Bathing baby within space 8) Weighing babies. 9) Setting up and administering TPN**
Design Notes		**1.Shelves and/or equipment rail. 2.Lamp indicator repeat call situated overdoor on outside entrance of the room. 3. Space used for equipment used intermittently at cot space, includes: Phototherapy units, CPAPdrivers. EEG machine.Mobile X-ray. Ultrasound/ Echocardiography machine. ECG machine. Second double trolley. Scales. baby bath. Emergency buton with voice. Small cot or incubators. 4. All beds visible from Staff Base. 5. Scales 750W 650D 1050H 6. Baby bath 800W 600D 1100H 7. Baby Therm 800W 1350D 1900H 8. Cot 800 w 1350 D 1400H DesignNotes: 1. All monitors visible from staff base and adjacent NNU bed space. SpaceNotes: Multi cot area 3 x 15m2 9. Glazed screens to be added.**
Adjacencies		**1. Adjacent to surgical HDU and Recovery 2. Allow for patient movement to and from Theatre on a cot or Babytherm 3. Contiguopus with single cubicle 4. Close to PICU 5. Close to Surgical clean utility/dirty utility**

10727	Schedule of Components by Room	B1407A

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU Neonatal HDU**

Room: **Open Plan Bay (3 cots)**

Room Number: **B1.01.B1407A** Revision: **2012/01/11**

New	Tr/Ex	Qty	Code	Description	Services	Group
3		3	BED2502	BED HEAD BUFFER, bed and wall protection, vertical, wall mounted.		1
1		1	CLO003	CLOCK synchronous with second sweep hand, wall mounted	EF	1
3		3	LIG005	LUMINAIRE, bedhead, dimmable, patient reading and general nursing care/examination	EF	1
1		1	OUT005	SOCKET outlet, switched, 13 amp, single		1
3		3	OUT215	SOCKET outlet, telephone		1
3		3	PEND2504	MEDICAL SERVICE PENDANT, critical care bed/trolley space, to HTM 08-03 requirements.		1
				1 No. CAL1000 (1) CALL, nurse call system, to specialist design/specification.		
				16 No. OUT010 (1) SOCKET outlet, switched, 13 amp, twin		
				4 No. OUT096 (1) OUTLET earthing point, shrouded, wall mounted		
				4 No. OUT121 (1) SOCKET outlet, computer data, double.		
				2 No. OUT453 (1) OUTLET, 4 kPa compressed air, medical		
				2 No. OUT470 (1) OUTLET, oxygen, medical		
				2 No. OUT475 (1) OUTLET, vacuum, medical		
				1 No. OUT480 (1) OUTLET, gas scavenging (AGS), medical		
3		3	RAI2500	RAIL, clinical equipment, wall mounted, length as drawn.		1
3		3	TEL2502	TELEPHONE handset		1
4		4	TRA1003	TRACK, curtain, bed/trolley, length and shape as drawn. Collapsible.		1
3		3	TRO2503	MOBILE CART WITH WI-FI, TO BE CONFIRMED BY NHSL		1
1		1	WHBN1011	WASH BASIN, clinical, large 60cm, with non touch panel mounted tap/s.	WA DR	1
3		3	BRA004	BRACKET, holder, suction unit, trunking/rail mounted.		2
1		1	DIS011	DISPENSER, barrier cream, disposable single cartridge, wall mounted		2
1		1	DIS013	DISPENSER, paper towel, wall mounted		2
3		3	DIS026	DISPENSER, Medical hand sanitizer, lever action, wall mounted		2
1		1	DIS030	DISPENSER, soap, disposable single cartridge, lever action, wall mounted		2

New	Tr/Ex	Qty	Code	Description	Services	Group
1		1	DIS2500	DISPENSER, danicentre, combined glove/apron.		2
6		6	BIN003	BIN, disposal, general purpose, liner, mobile		3
3		3	CHA002	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors		3
3		3	CHA017	CHAIR, upright, upholstered, stacking		3
3		3	CHA054	CHAIR nursing with side panels		3
3		3	INC004	INCUBATOR, baby		3
6		6	INF001	INFUSION volumetric pump, 356H 178W 178D		3
3		3	MON2505	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 280H 360W 215D	EP	3
3		3	STA142	STAND, infusion, twin hook, breaks, mobile		3
9		9	SYR2501	SYRINGE pump; battery operated; 170H 35W 75D; with docking station.		3
3		3	TRO021	TROLLEY, 4 sets of runners, 850H 600W 600D		3

10727	Room Data - Design Issues	B1401A

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU Neonatal HDU**

Room: **Single Cot Cubicle**

Room Number: **B1.01.B1401A** Revision: **2012/01/11**

Revision	*Revision Code/Date*	
Design Criteria	*Briefing Room Code*	**B1401A**
	Area Required	**15.0 m²**
	Area Designed	**17.6 m²**
	Ceiling Height	**2.7 metres**
Occupancy	*Personnel*	**1 Baby & 3 adults**
Activities		**1) Observation, medical and nursing care and treatment of baby needing intensive care and/or segregation facilities. 2) Weighing babies. 3) Staff or parent to feed baby in incubator, or sitting in chair. 4) Holding working supplies of nappies, towels. 5) Filling and emptying baby baths. 6) Disposal of waste and contaminated materials. 7) Clinical hand washing 8) Rooming with mother 9) Bathing baby within space 10) Setting up and administering TPN**
Design Notes		**1.Shelves and/or equipment rail. 2.Lamp indicator repeat call situated overdoor on outside entrance of the room. 3. Space used for equipment used intermittently at cot space includes: Phototherapy units, CPAP drivers. EEG machine. Mobile X-ray. Ultrasound/ echocariography machine. ECG machine. second double trolley. scales. baby bath. emergency button with voice. Cot or inubators. 4. Scales 750W 650D 1050H 5. Baby bath 800W 600D 1100H 6. Baby Therm 800W 1350D 1400H 7.Cot 800W 1350D 1400H 8. Glazed screens to be added.**
Adjacencies		**1. Within view from staff base. 3. Close to surgical HDU. 3. Close to Surgical clean utility 4. Contiguous with Neo-Natal 3 Bed Bay**

10727	Schedule of Components by Room	B1401A

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU Neonatal HDU**

Room: **Single Cot Cubicle**

Room Number: **B1.01.B1401A** Revision: **2012/01/11**

New	Tr/Ex	Qty	Code	Description	Services	Group
1		1	BED2502	BED HEAD BUFFER, bed and wall protection, vertical, wall mounted.		1
1		1	CLO003	CLOCK synchronous with second sweep hand, wall mounted	EF	1
1		1	LIG003	LUMINAIRE, reading, adjustable arm, 100 watt	EF	1
1		1	LIG005	LUMINAIRE, bedhead, dimmable, patient reading and general nursing care/examination	EF	1
1		1	OUT005	SOCKET outlet, switched, 13 amp, single		1
4		4	OUT096	OUTLET earthing point, shrouded, wall mounted		1
1		1	OUT209	SOCKET outlet television aerial, single, trunking mounted		1
1		1	PEN2503	MEDICAL SERVICE PENDANT, critical care bed/trolley space, to HTM 08-03 requirements.		1
				1 No. CAL1000 (1) CALL, nurse call system, to specialist design/specification.		
				50 No. OUT010 (1) SOCKET outlet, switched, 13 amp, twin		
				8 No. OUT121 (1) SOCKET outlet, computer data, double.		
				2 No. OUT151 (1) SOCKET outlet patient monitoring, wall/trunking mounted		
				1 No. OUT215 (1) SOCKET outlet, telephone		
				4 No. OUT453 (1) OUTLET, 4 kPa compressed air, medical		
				4 No. OUT470 (1) OUTLET, oxygen, medical		
				4 No. OUT475 (1) OUTLET, vacuum, medical		
				1 No. OUT480 (1) OUTLET, gas scavenging (AGS), medical		
				1 No. TEL2502 (1) TELEPHONE handset		
1		1	RAI2500	RAIL, clinical equipment, wall mounted, length as drawn.		1
1		1	TRA1003	TRACK, curtain, bed/trolley, length and shape as drawn. Collapsible.		1
1		1	TRO2503	MOBILE CART WITH WI-FI, TO BE CONFIRMED BY NHSL		1
1		1	WHBN1011	WASH BASIN, clinical, large 60cm, with non touch panel mounted tap/s.	WA DR	1
1		1	BED020	BED, fold down, 760 mm width mattress, vertical.		2
1		1	BRA004	BRACKET, holder, suction unit, trunking/rail mounted.		2
1		1	BRA013	BRACKET, TV, height adjustable, wall mounted		2

New	Tr/Ex	Qty	Code	Description	Services	Group
1		1	DIS011	DISPENSER, barrier cream, disposable single cartridge, wall mounted		2
1		1	DIS013	DISPENSER, paper towel, wall mounted		2
1		1	DIS026	DISPENSER, Medical hand sanitizer, lever action, wall mounted		2
1		1	DIS030	DISPENSER, soap, disposable single cartridge, lever action, wall mounted		2
1		1	DIS2500	DISPENSER, danicentre, combined glove/apron.		2
2		2	BIN003	BIN, disposal, general purpose, liner, mobile		3
1		1	BIN2503	BIN, sharps disposal		3
1		1	CHA002	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors		3
1		1	CHA017	CHAIR, upright, upholstered, stacking		3
1		1	CHA054	CHAIR nursing with side panels		3
1		1	INC004	INCUBATOR, baby		3
2		2	INF001	INFUSION volumetric pump, 356H 178W 178D		3
1		1	MON2505	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 280H 360W 215D	EP	3
3		3	SYR2501	SYRINGE pump; battery operated; 170H 35W 75D; with docking station.		3
1		1	TVM2501	TV / monitor flat screen		3

10727	Room Data - Design Issues	B1609A

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

Department: **B1 PICU & HDU PICU**

Room: **Open Plan Bay (4 beds)**

Room Number: **B1.01.B1609A** Revision: **2012/01/11**

Revision	*Revision Code/Date*	
Design Criteria	*Briefing Room Code*	**B1609A**
	Area Required	**104.0 m²**
	Area Designed	**124.8 m²**
	Ceiling Height	**3 metres**
Occupancy	*Personnel*	**4 x Patient 8 x Parents (24/7) 1-6 Staff per bed space**
Activities		**1) Accommodating a patient needing continuous medical and nursing care using piped medical gases, vacuum and life-support system. NIV Scoliosis Patients 2) Medical and nursing procedures requiring all sides access to patient whilst 1-6 staff use specialised equipment. 3) Dispensing medication. 4) Monitoring vital physiological signs. 5) Clinical hand washing/scrubbing. 6) Parking resuscitation trolley within circulation space. 7) Dispensing chilled water.**
Design Notes		**1. Engineering services are integral to the ceiling mounted supply system & include power supply & medical gases. 2.Space required for equipment used intermittently at the bed space includes: EEG machine; mobile imaging; ultrasound/echocardiography; endoscopy (fibre-optic light source); defibrillators; invasive/non-invasive cardiac output monitoring devices haeomfiltration. Anaesthetic machine. Inovent 600 x 650 x 450mm. ECG Machine. Oscillator ventilator 750 x 750 x 1350mm. Tilt Table 2000 x 600mm CFAM Cooling blanket Second double trolley 3. Clinical information system PACS/TRAK, third arm option, project decisiion. 4. Emergency button - voice location to PICU/HDU bed number, to be audible throughout unit 5. 4No. Bed divider trolleys to be specified with lockable medicine drawer. Approximate size (1600w x 600d x 1350h) 6. Pendant outlets number and type to be specified, project decision**

	7. Thermal ceiling incompatible with the tracking hoist. **8. Vision panel required**
Adjacencies	**1.Contiguous with the rest of the Intensive Care spaces.** **2. Close to the Bulk Supplies Store** **3. Close to PICU Clean Utility**

10727	Schedule of Components by Room	B1609A

10727 Edinburgh Royal Hospital For Sick Children Critical Care/HDU/Neonatal Surgery

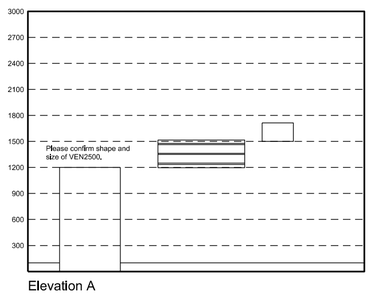
Department: **B1 PICU & HDU PICU**

Room: **Open Plan Bay (4 beds)**

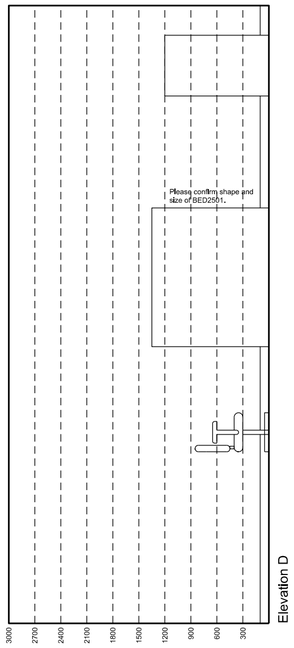
Room Number: **B1.01.B1609A** Revision: **2012/01/11**

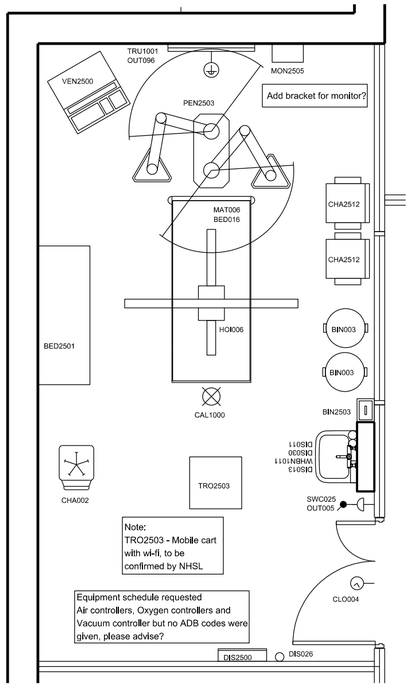
New	Tr/Ex	Qty	Code	Description	Services	Group
4		4	CAL1000	CALL, nurse call system, to specialist design/specification.	EF	1
8		8	CHA2512	CHAIR, upright, with arms, vinyl plastic, stacking		1
1		1	CLO003	CLOCK synchronous with second sweep hand, wall mounted	EF	1
4		4	HOI006	HOIST PATIENT, electric, 24V, track ceiling mounted. (Length of the track to suit the individual needs.)	EF	1
4		4	MEST1026	MEDICAL SERVICE TRUNKING, critical care bed/trolley space, to HTM 08-03 requirements.	EF PG	1
				25 No. OUT010 (1) SOCKET outlet, switched, 13 amp, twin		
				4 No. OUT096 (1) OUTLET earthing point, shrouded, wall mounted		
				4 No. OUT121 (1) SOCKET outlet, computer data, double.		
				4 No. OUT453 (1) OUTLET, 4 kPa compressed air, medical		
				4 No. OUT470 (1) OUTLET, oxygen, medical		
				4 No. OUT475 (1) OUTLET, vacuum, medical		
				1 No. OUT480 (1) OUTLET, gas scavenging (AGS), medical		
				1 No. TRU1001 (1) MEDICAL SERVICE TRUNKING, horizontal, length as drawn.		
1		1	OUT005	SOCKET outlet, switched, 13 amp, single		1
4		4	OUT206	SOCKET outlet television aerial, single, wall mounted		1
4		4	OUT215	SOCKET outlet, telephone		1
1		1	SWC025	SWITCH, light, to M&E design.		1
4		4	TEL2502	TELEPHONE handset		1
4		4	TRA1003	TRACK, curtain, bed/trolley, length and shape as drawn. Collapsible.		1
4		4	TRO2503	MOBILE CART WITH WI-FI, TO BE CONFIRMED BY NHSL		1
5		5	WHBN1011	WASH BASIN, clinical, large 60cm, with non touch panel mounted tap/s.	WA DR	1
5		5	DIS011	DISPENSER, barrier cream, disposable single cartridge, wall mounted		2
5		5	DIS013	DISPENSER, paper towel, wall mounted		2
5		5	DIS026	DISPENSER, Medical hand sanitizer, lever action, wall mounted		2

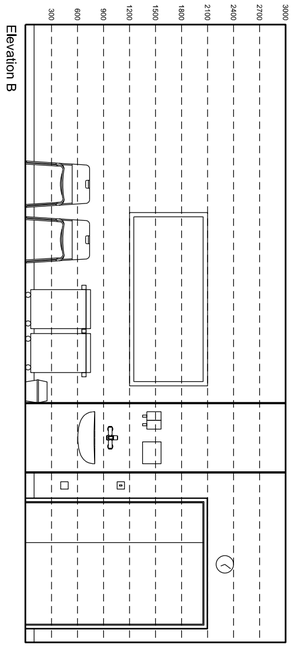
New	Tr/Ex	Qty	Code	Description	Services	Group
5		5	DIS030	DISPENSER, soap, disposable single cartridge, lever action, wall mounted		2
4		4	DIS2500	DISPENSER, danicentre, combined glove/apron.		2
4		4	BED016	BED, CCU/ITU, radio translucent rising backrest, two-way tilt, height adjustable (685-860), on castors	EP	3
4		4	BED2501	Mobile bed divider 1600W 1350H		3
10		10	BIN003	BIN, disposal, general purpose, liner, mobile		3
4		4	BIN2503	BIN, sharps disposal		3
4		4	CHA002	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors		3
8		8	INF001	INFUSION volumetric pump, 356H 178W 178D		3
4		4	MAT006	MATTRESS, ITU/CCU bed, extra care		3
4		4	MON2505	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 280H 360W 215D	EP	3
36		36	SYR2501	SYRINGE pump; battery operated; 170H 35W 75D; with docking station.		3
4		4	VEN2500	VENTILATOR; Mobile/freestanding; adjustable minute volume; 700D 700W 1200H		3

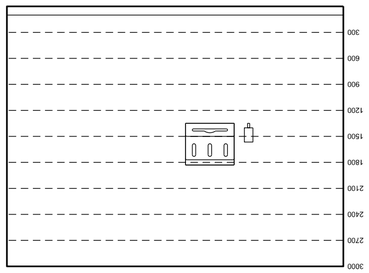


Elevation A









1:50

1 0 2 3

A43133428

PICU & HDU

Single Bed Cubicle

Briefing Code - 0

Required Area - 26.0 m²
Designed Area - 27.7 m²

Equipment Schedule

Grp	ADB No	Qty	Description
1	CAL1000	1	CALL, nurse call system, to specialist design/specification.
1	CHA2512	2	CHAIR, upright, with arms, vinyl plastic, stacking
1	HOI006	1	HOIST PATIENT, electric, 24V, track ceiling mounted. (Length of the track to suit the individual needs.)
1	OUT005	1	SOCKET outlet, switched, 13 amp, single
1	OUT096	1	OUTLET earthing point, shrouded, wall mounted
1	PEN2503	1	MEDICAL SERVICE PENDANT, critical care bed/trolley space, to HTM 08-03 requirements.
			- 1 No. CAL1000 (1) CALL, nurse call system, to specialist design/specification.
			- 50 No. OUT010 (1) SOCKET outlet, switched, 13 amp, twin
			- 8 No. OUT121 (1) SOCKET outlet, computer data, double.
			- 2 No. OUT151 (1) SOCKET outlet patient monitoring, wall/trunking mounted
			- 1 No. OUT215 (1) SOCKET outlet, telephone
			- 4 No. OUT453 (1) OUTLET, 4 kPa compressed air, medical
			- 4 No. OUT470 (1) OUTLET, oxygen, medical
			- 4 No. OUT475 (1) OUTLET, vacuum, medical
			- 1 No. OUT480 (1) OUTLET, gas scavenging (AGS), medical
			- 1 No. TEL2502 (1) TELEPHONE handset
1	SWC025	1	SWITCH, light, to M&E design.
1	TRO2503	1	MOBILE CART WITH WI-FI, TO BE CONFIRMED BY NHSL
1	TRU1001	1	MEDICAL SERVICE TRUNKING, horizontal, length as drawn.
1	WHBN1011	1	WASH BASIN, clinical, large 60cm, with non touch panel mounted tap/s.
2	CLO004	1	CLOCK battery with second sweep hand, wall mounted
2	DIS011	1	DISPENSER, barrier cream, disposable single cartridge, wall mounted
2	DIS013	1	DISPENSER, paper towel, wall mounted
2	DIS026	1	DISPENSER, Medical hand sanitizer, lever action, wall mounted
2	DIS030	1	DISPENSER, soap, disposable single cartridge, lever action, wall mounted
2	DIS2500	1	DISPENSER, danicentre, combined glove/apron.
3	BED016	1	BED, CCU/ITU, radio translucent rising backrest, two-way tilt, height adjustable (685-860), on castors
3	BED2501	1	Mobile bed divider 1600W 1350H
3	BIN003	2	BIN, disposal, general purpose, liner, mobile
3	BIN2503	1	BIN, sharps disposal
3	CHA002	1	CHAIR, height adjustable, medium back, swivel, 5 star base, on castors
3	MAT006	1	MATTRESS, ITU/CCU bed, extra care
3	MON2505	1	MONITOR, vital signs, multi-parameter, with accessories, wall mounted, 280H 360W 215D
3	VEN2500	1	VENTILATOR: Mobile/freestanding; adjustable minute volume; 700D 700W 1200H

Notes:

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No	Design Risk Register

Rev	Date	Revision Notes
-	11/01/12	First Issue

Client / Contractor

NHS Lothian

NIGHTINGALE associates architects www.nightingaleassociates.com

bmj architects www.bmjarchitects.co.uk

Project

EDINBURGH RHSC + DCN
- LITTLE FRANCE

Drawing Title

PICU & HDU

B1.01.0
Single Bed Cubicle

Job No	Date	Scale@A2
10727	11/01/2012	1:50

Status
For Information

Drawing No						Rev
Origin	Project No.	Type	Code	Level	Sequential	
NA / 10727 / R(70)1-10						-

From: McCormack Jon (NHS LOTHIAN) <jonmccormack@[redacted]
Sent: 20 January 2012 18:43
To: Freeman, Julie; Reilly, Laura; Kerr, Dennis; Lo, Milly; Rowney, David; Simpson, Dave; Theilen, Ulf; Chinchankar, Nandita; Patwardhan, Kiran
Subject: RE: Revised PICU Drawing for review and sign off

Hi Julie,

Without knowing the exact dimensions of the retrieval store the shape looks satisfactory – as we will be wanting to store 2 trolleys in there the longer rectangular shape as drawn is likely to be better than a square.

Thanks

Jon

From: Freeman, Julie [mailto:Julie.Freeman@[redacted]
Sent: 20 January 2012 18:14
To: Addison Patrick (NHS LOTHIAN); Freeman Julie (NHS LOTHIAN); jean.harper[redacted] Marshall Tom (NHS LOTHIAN); McFadzean, Jillian; McGovern Fiona (NHS LOTHIAN); Munro Fraser (NHS LOTHIAN); Reilly Laura (NHS LOTHIAN); Stewart Ken (NHS LOTHIAN); Tsirikos Thanos (NHS LOTHIAN); Wilson Brian (NHS LOTHIAN); Kerr Dennis (NHS LOTHIAN); Lo, Milly; Rowney, David; Simpson, Dave; Theilen Ulf (NHS LOTHIAN); Boyle Suzanne (NHS LOTHIAN); Chinchankar Nandita (NHS LOTHIAN); McCormack Jon (NHS LOTHIAN); Patwardhan Kiran (NHS LOTHIAN); Holmes Angela (NHS LOTHIAN); Jolly Fiona (NHS LOTHIAN); MacMillan Dorothy (NHS LOTHIAN); McCormick Jacqueline (NHS LOTHIAN); Richardson Jane (NHS LOTHIAN); Ryan Alison (NHS LOTHIAN); Shaw Kirsty (NHS LOTHIAN); Smith Pat (NHS LOTHIAN)
Subject: FW: Revised PICU Drawing for review and sign off

Hi Everybody,

I assume you are all happy with this if not let me know ASAP.

I will sign off next week.

The dimensions of the Retrieval Equipment store need clarified but I think they are OK.

Regards

Julie

From: Halcrow, Fiona
Sent: 17 January 2012 12:55
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: McDonald, Avril; McGowan, Carol; Tait, Fiona
Subject: Revised PICU Drawing for review and sign off

<<NA-10727-L(200)1-01_D.pdf>>

Following last weeks meeting please find attached updated drawing for review and final sign off.

BW

Fiona

Fiona Halcrow

RHSC Re-Provision Project Manager

Royal Hospital for Sick Children

Sciennes Road

Edinburgh

EH9 1LF

Telephone: [redacted]

Fax: [redacted]

Mobile: [redacted]

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From: Halcrow, Fiona
Sent: 20 January 2012 17:31
To: Freeman, Julie; Reilly, Laura
Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: RE: Revised PICU Drawing for review and sign off

Julie

I will feedback your comments to NA.

Did Laura hand you in a hard copy of the drawing?

If not I will get one to you on Monday for signing off.

The Reference Design Team are not accepting electronic agreement - they need a signed off drawing.

Have a good weekend.

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 20 January 2012 17:29
To: Halcrow, Fiona; Reilly, Laura
Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: RE: Revised PICU Drawing for review and sign off

Fiona,

I am happy with the 1:200 drawing.

The two comments I would make are:

Do we need the second set of doors between the X-Ray Processing and the waiting area? Are they fire doors? If so can they be automatic opening?

Can NA clarify the dimensions of the Retrieval Equipment Store?

It needs to take two retrieval trolleys of 800mm by 2000mm and have room for checking the trolleys and changing the oxygen cylinders underneath and still have room for storage as per room data sheet.

Can we see a 1:50 of the Retrieval Equipment store cupboard?

The Bulk Supply Store and the Equipment Store will need clarified at 1:50 level. I think this is already in the output notes.

Regards
Julie

From: Halcrow, Fiona
Sent: 20 January 2012 09:34
To: Freeman, Julie; Reilly, Laura
Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: FW: Revised PICU Drawing for review and sign off

Dear Both

We need to finalise this drawing and sign off.

Does the internal layout of rooms now meet your service functional operational needs?

I will deliver two hard copies of the drawing to your office Julie for final sign off.

I'm on the Rillbank site this morning.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 17 January 2012 12:55
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: McDonald, Avril; McGowan, Carol; Tait, Fiona
Subject: Revised PICU Drawing for review and sign off

<< File: NA-10727-L(200)1-01_D.pdf >>

Following last weeks meeting please find attached updated drawing for review and final sign off.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

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Sent: 20 January 2012 09:34
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Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: FW: Revised PICU Drawing for review and sign off

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Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]

From: Halcrow, Fiona
Sent: 17 January 2012 12:55
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: McDonald, Avril; McGowan, Carol; Tait, Fiona
Subject: Revised PICU Drawing for review and sign off

Following last weeks meeting please find attached updated drawing for review and final sign off.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh

EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

ALL SCHEDULED AREAS REFER TO SCHEDULE OF ACCOMMODATION VERSION 8

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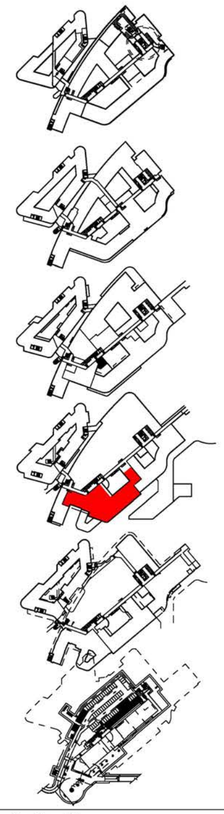
No	Design Risk Register



Rev	Date	Revision Notes
D	17.01.12	Issued for Sign Off
C	22.12.11	Issued for Sign Off
B	02.12.11	Issued for Sign Off
A	25.10.11	Amended layout following user comments

Client / Contractor

NHS Lothian

NIGHTINGALE associates architects www.nightingaleassociates.com

bmj architects www.bmjarchitects.co.uk

Project
EDINBURGH RHSC + DCN
- LITTLE FRANCE

Drawing Title
B1 PICU and HDU's - 24 Beds

Job No	Date	Scale@A2
10727	30/09/11	1:200

Status
SIGN OFF

Drawing No						Rev
Origin	Project No.	Type	Code	Level	Sequential	
NA /	10727 /		L(200)		1-01	D

A43133428

From: Halcrow, Fiona
Sent: 25 January 2012 14:25
To: Freeman, Julie
Cc: Reilly, Laura
Subject: RE: Revised PICU Drawing for review and sign off

Dear Both

Phillip or Lauren will collect the drawing.

I have had no feedback from the design team in relation to your queries but will chase up.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 25 January 2012 11:25
To: Halcrow, Fiona
Cc: Reilly, Laura
Subject: RE: Revised PICU Drawing for review and sign off

Fiona,

When would you like me to bring down the drawing? Both Laura and I have signed it with a few comments mostly about doors which are 1:50 issues.

Also would make more sense to put the two toilets together next to the staff room and the IPS next to the equipment service room although what is drawn is workable if necessary.

Also can you confirm the dimensions of the Retrieval Equipment Room?

Regards
Julie

From: Halcrow, Fiona
Sent: 20 January 2012 17:41
To: Freeman, Julie
Subject: RE: Revised PICU Drawing for review and sign off

Julie

I have send an email and hopefully will have confirmation on this query on Monday.

I actually think Jamie is up with us on Monday.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 20 January 2012 17:40
To: Halcrow, Fiona; Reilly, Laura
Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: RE: Revised PICU Drawing for review and sign off

Fiona,

Would they be able to reply to the comments with respect to the Retrieval Equipment Room on Mon?

The scale is at A2 but printed on A3. I think this means you multiply by 200 then by 3/2 but it would be better to ask the experts!

Julie

From: Halcrow, Fiona
Sent: 20 January 2012 17:36
To: Freeman, Julie; Reilly, Laura
Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: RE: Revised PICU Drawing for review and sign off

Julie

I only need one signature - I know Laura is away at the beginning of next week but if you are around it would be good to get this completed.

Bye for now

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 20 January 2012 17:34
To: Halcrow, Fiona; Reilly, Laura
Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: RE: Revised PICU Drawing for review and sign off

Fiona,

Yes she did but did give me a drawing.

If we are both to sign it will not happen till the middle of next week.

Do you need Fraser and Tom to sign it as well?

Regards
Julie

From: Halcrow, Fiona
Sent: 20 January 2012 17:31
To: Freeman, Julie; Reilly, Laura
Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: RE: Revised PICU Drawing for review and sign off

Julie

I will feedback your comments to NA.

Did Laura hand you in a hard copy of the drawing?

If not I will get one to you on Monday for signing off.

The Reference Design Team are not accepting electronic agreement - they need a signed off drawing.

Have a good weekend.

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 20 January 2012 17:29
To: Halcrow, Fiona; Reilly, Laura
Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: RE: Revised PICU Drawing for review and sign off

Fiona,

I am happy with the 1:200 drawing.

The two comments I would make are:

Do we need the second set of doors between the X-Ray Processing and the waiting area? Are they fire doors? If so can they be automatic opening?

Can NA clarify the dimensions of the Retrieval Equipment Store?

It needs to take two retrieval trolleys of 800mm by 2000mm and have room for checking the trolleys and changing the oxygen cylinders underneath and still have room for storage as per room data sheet.

Can we see a 1:50 of the Retrieval Equipment store cupboard?

The Bulk Supply Store and the Equipment Store will need clarified at 1:50 level. I think this is already in the output notes.

Regards
Julie

From: Halcrow, Fiona
Sent: 20 January 2012 09:34
To: Freeman, Julie; Reilly, Laura
Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: FW: Revised PICU Drawing for review and sign off

Dear Both

We need to finalise this drawing and sign off.

Does the internal layout of rooms now meet your service functional operational needs?

I will deliver two hard copies of the drawing to your office Julie for final sign off.

I'm on the Rillbank site this morning.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]

From: Halcrow, Fiona
Sent: 17 January 2012 12:55
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: McDonald, Avril; McGowan, Carol; Tait, Fiona
Subject: Revised PICU Drawing for review and sign off

<< File: NA-10727-L(200)1-01_D.pdf >>

Following last weeks meeting please find attached updated drawing for review and final sign off.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 30 January 2012 12:45
To: Freeman, Julie; Reilly, Laura
Subject: FW: Revised PICU Drawing for review and sign off

I thought it might be handy if you had a copy of the last drawing with comments on it (See emall below).

I also attach the new drawing, requests asked to be changed have been done.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 25 January 2012 15:13
To: 'Brady, Thomas'; 'Jamie Brewster'
Cc: 'Tom McAviney'; 'Lindsay Gibbon'; McLennan, Neil
Subject: RE: Revised PICU Drawing for review and sign off

Further to last weeks email (Friday evening) I attach the PICU signed off drawing.

Comments on drawing

- Check depth of HDU Linen Bay - can the linen trolley fit into this area allowing the doors of the trolley to open?
- Move 2nd set of doors at reception to between Data Manager and Bulk Store
- The door between Parent Relative Room and NNU corridor is not needed but if needed for fire strategy etc the doors would need to be controlled access for cleaners to use etc
- WC & IPS to be swapped around if possible
- Could we shift O/C consultant door to retrieval side please
- Family interview room door to be on ITU corridor side - although current position not bad
- Please not room numbers 15 and 16 - they are labelled as 'single bedroom' - this should be 'Single Bed Cubicle'.

If you are able to make the amendments suggested, the drawing will then need 'signed off' again.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 20 January 2012 17:34
To: 'Brady, Thomas'; 'Jamie Brewster'
Cc: 'Tom McAviney'; Lindsay Gibbon
Subject: FW: Revised PICU Drawing for review and sign off

Dear Both

I have now had feedback from Julie Freeman (Consultant Lead for PICU).

Agreement has been reached. She has a few questions (see below).

The drawing has still to be signed off and that will get done early next week.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Freeman, Julie
Sent: 20 January 2012 17:29
To: Halcrow, Fiona; Reilly, Laura
Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: RE: Revised PICU Drawing for review and sign off

Fiona,

I am happy with the 1:200 drawing.

The two comments I would make are:

Do we need the second set of doors between the X-Ray Processing and the waiting area? Are they fire doors? If so can they be automatic opening?

Can NA clarify the dimensions of the Retrieval Equipment Store?

It needs to take two retrieval trolleys of 800mm by 2000mm and have room for checking the trolleys and changing the oxygen cylinders underneath and still have room for storage as per room data sheet.

Can we see a 1:50 of the Retrieval Equipment store cupboard?

The Bulk Supply Store and the Equipment Store will need clarified at 1:50 level. I think this is already in the output notes.

Regards
Julie

From: Halcrow, Fiona
Sent: 20 January 2012 09:34
To: Freeman, Julie; Reilly, Laura
Cc: Lynch, Lauren X; Assou-Dodji, Philip
Subject: FW: Revised PICU Drawing for review and sign off

Dear Both

We need to finalise this drawing and sign off.

Does the internal layout of rooms now meet your service functional operational needs?

I will deliver two hard copies of the drawing to your office Julie for final sign off.

I'm on the Rillbank site this morning.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Halcrow, Fiona
Sent: 17 January 2012 12:55
To: Addison, Patrick; Freeman, Julie; Harper, Jean; Marshall, Tom; McFadzean, Jillian; McGovern, Fiona; Munro, Fraser; Reilly, Laura; Stewart, Ken; Tsirikos, Thanos; Wilson, Brian
Cc: McDonald, Avril; McGowan, Carol; Tait, Fiona
Subject: Revised PICU Drawing for review and sign off

<< File: NA-10727-L(200)1-01_D.pdf >>

Following last weeks meeting please find attached updated drawing for review and final sign off.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
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Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

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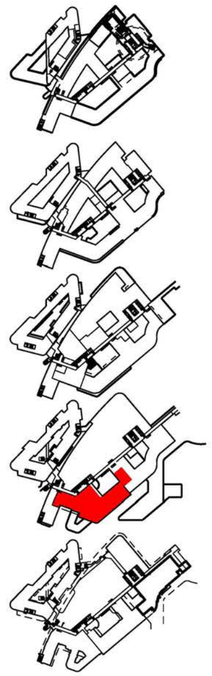
No	Design Risk Register



Rev	Date	Revision Notes
E	27.01.12	General amendments. Issued for Sign Off
		Refer to previous drawing issue for revision history.

Client / Contractor

NHS Lothian

NIGHTINGALE associates architects www.nightingaleassociates.com

bmj architects www.bmjarchitects.co.uk

Project
EDINBURGH RHSC + DCN
- LITTLE FRANCE

Drawing Title
B1 PICU and HDU's - 24 Beds

Job No	Date	Scale@A2
10727	30/09/11	1:200

Status
SIGN OFF

Drawing No						Rev
Origin	Project No.	Type	Code	Level	Sequential	
NA /	10727 /		L(200)	1-01		E

A43133428

From: Halcrow, Fiona
Sent: 31 January 2012 12:27
To: Reilly, Laura; Freeman, Julie
Subject: FW: PICU Drawing - Version F
Attachments: NA-10727-L(200)1-01_F.pdf

Dear Both

The amendments have been made to the drawing - see second email below.

This drawing is now ready for final sign off.

I need to be on another site by 16.00 hrs this afternoon and therefore need to process this through to the Design Manager prior to leaving this site.

Your help is appreciated on this matter.

BW

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: Tom McAviney [mailto:tom.mcaviney@[redacted]
Sent: 31 January 2012 10:01
To: Halcrow, Fiona
Cc: McLennan, Neil; Brady, Thomas
Subject: PICU Drawing - Version F

Dear Fiona,

Please find attached Revision E of Drawing – B1 PICU and HDU's – 24 Beds.
This drawing includes the amendments requested in your previous e-mail.
I have now uploaded this drawing to BIW. If you require any further amendments please don't hesitate to contact me.

Best Regards

Tom McAviney | Architectural Assistant
NIGHTINGALE ASSOCIATES

The Old Convent | The Walk | Cardiff | CF24 3AG

[redacted]
e: tom.mcaviney@[redacted]
w: www.nightingaleassociates.com

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From: Halcrow, Fiona [mailto:Fiona.Halcrow@[redacted]
Sent: 31 January 2012 07:43
To: Brady, Thomas; Tom McAviney; Jamie Brewster
Cc: McLennan, Neil
Subject: PICU Drawing - Version E

Dear All,

The room dimensions of the retrieval equipment store works better and makes best use of space.

We have some small labelling issues with version E.

There are 24 single bed cubicles in this area in total. They are not all marked up

The Neonatal single bed cubicle does not have a number.

There are two number 19's.

The lead for this area has asked that the **On Call** consultant room is called the **Duty Consultant** as it makes it clearer it is an office rather than a bedroom. The **SOA does label it as 'On-Call Consultant'.**

Yes, I know after all of these weeks, one would have thought this would have come up earlier. I'm not sure how locked down the labelling of rooms are at this stage and that when a preferred bidder is chosen, there is still room to change room labelling without any penalty - I don't know that answer!.

The PICU Lead Consultant has signed off the drawing and is awaiting to discuss with the CNM prior to sign off

Best Wishes

Fiona

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

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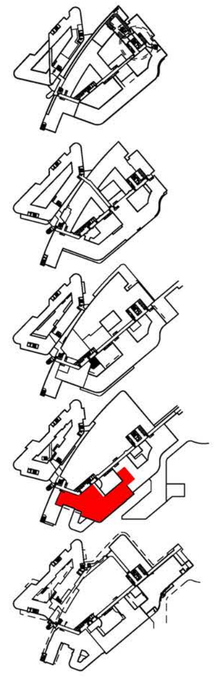
No	Design Risk Register



Rev	Date	Revision Notes
F	31.01.12	General amendments. Issued for Sign Off
E	27.01.12	General amendments. Issued for Sign Off
		Refer to previous drawing issue for revision history.

Client / Contractor

NHS Lothian

NIGHTINGALE associates architects www.nightingaleassociates.com

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Project

EDINBURGH RHSC + DCN
- LITTLE FRANCE

Drawing Title

B1 PICU and HDU's - 24 Beds

Job No	Date	Scale@A2
10727	30/09/11	1:200

Status

SIGN OFF

Drawing No						Rev
Origin	Project No.	Type	Code	Level	Sequential	
NA /	10727 /		L(200)		1-01	F

A43133428

From: Halcrow, Fiona
Sent: 07 February 2012 12:18
To: Fynn, David; Wands, Evelyn; Leonard, Paul; Hunt, Alison; Freeman, Julie; Reilly, Laura; Munro, Fraser; Bruce, Gwyneth; Burnside, Audrey; Nisbet, Jane; Niven, Hester; Haggart, John; Pringle, Audrey; Munro, Ronald; Timotheou, Susan; Calder, Carol A; Thorpe, Michele; McLellan, Ailsa; Duncan, Susan E; Fraser, Diane; McKenzie, Lesley
Cc: Gillies, Graham; McLennan, Neil; Steers, James; Mackenzie, Janice
Subject: RHSC & DCN 1.50 2nd Round of Key Room Meetings Cancelled

Dear All

Please remove the following 2nd Round 1.50 Meetings from your diary:

Cardiology and Respiratory
Sleep Lab
Emergency Department
Critical Care
DCN OPD/Therapies/Neurosphysiology
CAMHS
DCN Acute Care/In Patient Ward/PIU

As you know the Project Team are to carry out a quality assurance exercise on the drawings prior to the users seeing them to ensure all changes have been made. The drawings are not arriving in time for this to occur and therefore these meetings have been postponed.

We will be in touch soon to confirm and sign off the drawing with you, once our checks have been made and the drawing are correct for issue.

I would be grateful if you could inform any staff that was intending to come to these meetings of this cancellation.

Thank you

Best Wishes

Fiona Halcrow

Fiona Halcrow
RHSC Re-Provision Project Manager
Royal Hospital for Sick Children
Sciennes Road
Edinburgh
EH9 1LF

Telephone: [redacted]
Fax: [redacted]
Mobile: [redacted]

From: McLennan, Neil
Sent: 02 April 2014 09:44
To: Mackenzie, Janice; Halcrow, Fiona
Cc: 'MacAulay Patrick (NATIONAL SERVICES SCOTLAND)'
Subject: RE: Detailed Design Development & Equipment
Attachments: 1-50 drawing review notes.docx

Dear Both
I have added 2 bullet points

1) Detailing the definitions of the equipment groups and stating that NHSL will specify the clinical group 1 items.

2) A statement that inclusion in the RDS does does not meant that an item will be procured.

I have attached the revised draft of the crib and would be happy to talk it over with you.
Neil

Neil McLennan
Capital Projects Manager
NHS Lothian
RHSC + DCN - Little France
56 Canaan Lane
Edinburgh
EH10 4SG
[redacted]
Mobile: [redacted]
Email: neil.mclennan@[redacted]

From: Mackenzie, Janice
Sent: 02 April 2014 07:46
To: McLennan, Neil
Cc: Halcrow, Fiona
Subject: FW: Detailed Design Development & Equipment

Neil

Further to Patrick's email below have you now got the finalised crib sheet with the additions that Patrick has mentioned?

As you know the detailed design meetings have already started so it would be good to have this.

Many thanks

Janice

Janice MacKenzie
Clinical Director
RHSC + DCN - Little France

56 Canaan Lane
Edinburgh
EH10 4SG
T: [redacted]

M: [redacted]

E: janice.mackenzie@[redacted]

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---

From: MacAulay Patrick (NATIONAL SERVICES SCOTLAND) [mailto:patrick.macaulay[redacted]
Sent: 31 March 2014 14:17
To: Halcrow, Fiona; Mackenzie, Janice
Cc: McLennan, Neil
Subject: RE: Detailed Design Development & Equipment

Hi Fiona,

Please see attached. I think Neil was doing some work on this as well and was going to add these notes to your definitions for the various Groups and other points he wanted to include.

As I said in my email to Neil, some of these points may seem overly obvious but recent experience on other projects has shown that Users may feel that things can be moved around at a later date with no impact!

Regards,

Patrick

Patrick Macaulay
Senior Product Specialist, Equipping Services, Health Facilities Scotland
Procurement, Commissioning and Facilities

NHS National Services Scotland
Gyle Square
1 South Gyle Crescent
Edinburgh
EH12 9EB
Tel:- [redacted]
Fax:- [redacted]
mobile:- [redacted]
Email patrick.macaulay[redacted]
www.hfs.scot.nhs.uk

From: Halcrow, Fiona [mailto:Fiona.Halcrow@[redacted]
Sent: 31 March 2014 14:06
To: MacAulay Patrick (NATIONAL SERVICES SCOTLAND); Mackenzie, Janice
Cc: McLennan Neil (NHS LOTHIAN)
Subject: RE: Detailed Design Development & Equipment

Hi Patrick

Janice is on leave today.

Thank you for sending through your list identifying staff that may be able to attend our 1:50 meetings.

The venue is 56 Canaan Lane. The theatre meeting tomorrow starts at 08.30 hrs.

Could you send through to us the draft crib sheet as we really need it for tomorrow's meeting? Neil is on leave today as well.

That would be really helpful.

Regards

Fiona

From: MacAulay Patrick (NATIONAL SERVICES SCOTLAND) [mailto:patrick.macaulay@[redacted]
Sent: 31 March 2014 13:54
To: Mackenzie, Janice
Cc: Halcrow, Fiona; McLennan, Neil
Subject: RE: Detailed Design Development & Equipment

Hi Janice,

I have attached your timetable and highlighted who will be attending various meetings. Some of these are still provisional and we will also try to attend others, but I have not yet identified who will be able to come. For some (e.g. FM, Node Rooms, Materials Management) there is probably little we can add to the information Users will provide.

I am assuming the meetings will be held at Canaan Lane, but would be grateful if you could confirm this.

Re crib sheets, Neil had already mentioned this and I sent him some thoughts on Friday.

Thanks and Regards,

Patrick

Patrick Macaulay
Senior Product Specialist, Equipping Services, Health Facilities Scotland
Procurement, Commissioning and Facilities

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Fax:- [redacted]
mobile:- [redacted]
Email patrick.macaulay@[redacted]
www.hfs.scot.nhs.uk

From: Mackenzie, Janice [mailto:Janice.Mackenzie@[redacted]
Sent: 25 March 2014 08:13
To: MacAulay Patrick (NATIONAL SERVICES SCOTLAND)

Cc: Halcrow Fiona (NHS LOTHIAN)
Subject: RE: Detailed Design Development & Equipment

Hi Patrick

That's great, happy for you and other specialists to come along to any of the meetings as we are grateful for all help.

The other thing we discussed recently was that it would be helpful to have a crib sheet for the users attending the meeting about the process of procurement of equipment and how users will be involved in specifying that and timescales. We have a number of crib sheets covering a variety of topics e.g. infection control, manual handling that we are giving to the lead users to assist them so one on equipment would be good

Kind regards

Janice

Janice MacKenzie
Clinical Director
RHSC + DCN - Little France

56 Canaan Lane
Edinburgh
EH10 4SG
T: [redacted]
M: [redacted]

E: janice.mackenzie@[redacted]

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---

From: MacAulay Patrick (NATIONAL SERVICES SCOTLAND) [mailto:patrick.macaulay@[redacted]
Sent: 24 March 2014 21:13
To: Mackenzie, Janice
Subject: RE: Detailed Design Development & Equipment

Hi Janice,

We will be happy to attend as many of the meetings as possible, unless you feel there is no need to attend some of them, but will definitely attend those highlighted below. As we have specialists in particular areas I would propose they attend the relevant meetings (including Radiology, Labs, Dental and Sleep Lab).

Once I have checked people's availability I will let you know who will be attending.

Regards,

Patrick

Patrick Macaulay
Senior Product Specialist, Equipping Services, Health Facilities Scotland
Procurement, Commissioning and Facilities

NHS National Services Scotland
Gyle Square
1 South Gyle Crescent
Edinburgh
EH12 9EB
Tel:- [redacted]
Fax:- [redacted]
mobile:- [redacted]
Email patrick.macaulay@[redacted]
www.hfs.scot.nhs.uk

From: Mackenzie, Janice [mailto:Janice.Mackenzie@[redacted]
Sent: 20 March 2014 18:25
To: MacAulay Patrick (NATIONAL SERVICES SCOTLAND)
Subject: FW: Detailed Design Development & Equipment

Dear Patrick

As you will be aware we are about to start the detailed design development for all of the departments within the new building and following discussion with Jackie it would be really beneficial if you were able to attend some of the meetings as I appreciate you will not be able to or need to attend all of them. It would be particularly helpful if you were able to attend the meetings for the more complex departments i.e. theatres, radiology, critical care & emergency department.

Let me know if you are able to attend and if there are other departments that you would want to attend. I have attached the schedule of all of the meetings for Round 1. There will be three rounds of meetings and we are in the process of finalising the dates for Round 2 & 3 and will get these to you as soon as it is confirmed.

The morning session will be 08.30-12.30 and afternoon session 1 – 5pm.

Look forward to hearing from you.

Kind regards

Janice

Janice MacKenzie
Clinical Director
RHSC + DCN - Little France

56 Canaan Lane
Edinburgh
EH10 4SG
T: [redacted]
M: [redacted]

E: janice.mackenzie[redacted]

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Thank you for your co-operation.

RHSC & DCN Reprovision 1:50 Drawing Review Notes

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From: Mackenzie, Janice
Sent: 27 March 2014 16:14
To: Reilly, Laura; Freeman, Julie
Cc: Halcrow, Fiona; Lynch, Lauren X
Subject: Detailed Design Development 1st Round Meeting & Access to Shared Drive

Dear Both

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.

Hard copies of drawings will be left at the following collection points:-

- RHSC Departments & CAMHS – RHSC Main Reception
- DCN Departments – DCN Radiology Reception

If you require drawings to be delivered to another location and have not yet advised Lauren Lynch, our Project Administrator, can you let her know asap. The Reprovision Admin team will let you know when the drawings are available.

The shared drive has now been established and access granted for you (for those non-NHSL staff we will email you relevant information). The link to the shared drive is different dependant upon which server you are linked to e.g Shared on File Server- 'Shared Data (laura-app1)' (S:). If you have any problems please contact Lauren.

The Folder is titled RHSC & DCN Users. Lauren is in the final process of populating all of the folders as this will be completed by the end of this week

At a high level the folder contains:-

- RHSC Departments (includes CAMHS) Folder
- DCN Departments Folder
- Co-joined Departments (which includes FM)
- Template for recording user consultation (staff and patients and families)
- Generic Room Signed Off Drawings Folder & List of generic rooms already completed at 1:50 as part of the reference design
- List of key rooms already completed at 1:50 as part of the reference design

There will be hard copies of the key and generic rooms available at the detailed design meetings

The department folder is divided into:-

- 1:200 drawing
- Round 1 Meeting –signed off key rooms 1:50 reference design drawings (I apologies in advance as it maybe that you will have within your own departmental folder copies of some key rooms from other departments but this is because they were done in batches of drawings)
- Round 2 Meeting
- Round 3 meeting

Relevant material will be put in these folders prior to each meeting as well as hard copies of any drawings made available to you.

The clinical/operational output specification and equipment list and the operational design notes are also within each of the department's folders for your information.

If you have any queries please contact Lauren, Fiona Halcrow or myself.

Kind regards

Janice

Janice MacKenzie
Clinical Director
RHSC + DCN - Little France

56 Canaan Lane
Edinburgh
EH10 4SG
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E: janice.mackenzie@[redacted]

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From: Lynch, Lauren X
Sent: 04 April 2014 11:52
To: Leonard, Paul; Currie, Katy; Bruce, Christine; Duguid, Karen; Conroy, Michael; Freeman, Julie; Reilly, Laura; Thorpe, Michele; Kennedy, Valerie; Fynn, David; Juliet McCann; Smith, Linda L; Mulvihill, Alan; Lamerton, Dawn; Roebuck, Liz; Emsley, Pauline; Dickson, Kenny; Logie, Lindsay; McGill, Susan; Isabel J McCallum; Mark.Maffey@[redacted]Bruce, Gwyneth; Marshall, Kenny; Kesterton, Steve; Doyle, Edward; Muir, Michaela; (p.fitch@[redacted] ROSS-VUGTS Marije; Riding, Kay; Cameron, Sharon; Rowney, David; McPheely, Andrew; Applegath, Carrie; Rutherford, Hazel; Ward Anne; Murchie, Mary; McKenzie, Lesley; Fraser, Diane; 'Neal, Phil'; O'Neill, Teresa; Anderson, Lorna; McGirr, Gerry; McKenzie, Susan; Lamont, Carol; McKinlay, Lesley A; Milburn, Anne; McJannett, Fraser; Hamilton, Mark; McCann, James; Leslie, Jayne; Masterton, Maureen; Lawrie, Gordon; Clemitson, Wayne; Chapman, Sharon; Prior, Grace; Christie, Phil; Hyde, Sheila; Campbell, Leigh
Cc: Brown, Maureen; Stillie, David; Davidson, Stuart X; Mackenzie, Janice
Subject: Detailed Design Meeting Schedules
Attachments: Timetable of Design Meetings3rdroundwc230614.doc; Timetable of Meetings2nd round wc120514.docx

Dear All,

Please find attached the timetables for the Detailed Design Meetings with bidders.

All morning sessions are 0830 - 1230 and afternoons 1300 - 1700 unless otherwise stated on the timetable.

As per my previous emails, we will aim to have drawings delivered directly you one week prior to each meeting.

If you have any queries, please do not hesitate to contact me.

Kind regards

Lauren

Lauren Lynch

Project Administrator

RHSC + DCN - Little France

56 Canaan Lane

Edinburgh

EH10 4SG

[redacted]

email: lauren.x.lynch@[redacted]

Detailed Design Development
Timetable of Meetings – 3rd Round

	Tuesday	Wednesday	Thursday
June	**24th**	**25th**	**26th**
Week 1 (am) **W/C 23/6**	P1 – Theatres & SDCU - DCN - RHSC & SDCU	G2 – Equipment Library 8.30-9.30 D5 - Dental 9.30 -11 H1 – Child Life & Health 11-12.30	
Week 1 (pm)	As above	C5 – Classrooms 3.30 - 5	
July	**1st**	**2nd**	**3rd**
Week 2 (am) **W/C 30/6**	M1 – DCN OPD 8.30 – 10.30 R1 – Clinical Management Suites 10.30 – 12.30	A3 – PARU/Emer/Rad Shared Support A1 – Emergency Department	D2– Respiratory OPD & C4 Sleep Lab
Week 2 (pm)	D1, 8, 10 – OPD (inc Child Protection)	D7 – PDC 1- 2.30 U1 – Specialist Biochemistry Lab 2.30 - 5	S1 – 9 – FM Areas I2 – Toy & Bed Store T1 – Node Rooms
	8th	**9th**	**10th**
Week 3 (am) **W/C 7/7**	Q1 - Radiology	C1.1 – 1.6, 1.8, C2, A2 & D9 – RHSC Inpatients	B1 – PICU & HDU
Week 3 (pm)	As above	As above	As above
June	**15th**	**16th**	**17th**
Week 4 (am) **W/C 14/7**	D6 – Therapies & C3 – Special Feeds Unit	K1 – Family Support 9.30 – 12.30	F1 - CAMHS
Week 4 (pm)	D4 – Audiology 1-3pm	I1 & N1 – Main Entrances & E1 - Pod	As above

	22nd	23rd	24th
Week 5 (am) W/C 21/7	M2 – DCN Therapies 8.30 – 10.30 R2 – Health Records 10.30 – 12.30	L1, L2, M3, N2 - DCN Acute Care, Inpatients, PIU & Shared Support	
Week 5 (pm)	H3 – Clinical Education Suite	As Above	
	29th	**30th**	**31st**
Week 6 (am) W/C 28/7	H2 – Clinical Research Facility 8.30-10.30 J1 & J2 – Spiritual Care & Bereavement Suite 10.30-12.30		
Week 6 (pm)	C1.7 & M4 - Neurophysiology		

Depts not scheduled as anticipating will be signed off at Round 2 meeting if 3rd meeting required will be slotted into vacant times within the timetable

- D3 – Orthoptics

Ver2 (03.04.14)

Detailed Design Development
Timetable of Meetings – 2nd Round

	Tuesday	Wednesday	Thursday
May	**13th**	**14th**	**15th**
Week 1 (am) **W/C 12/5**	P1 – Theatres & SDCU - DCN (8.30) - RHSC & SDCU (11.30)	G2 – Equipment Library 8.30-9.30 H1 – Child Life & Health 11-12.30	D5 – Dental 8.30 - 10
Week 1 (pm)	As above	C5 – Classrooms 3.30 - 5	
	20th	**21st**	**22nd**
Week 2 (am) **W/C 19/5**	M1 – DCN OPD 8.30 – 10.30 R1 – Clinical Management Suites 10.30 – 12.30	A3 – PARU/Emer/Rad Shared Support A1 – Emergency Department	D2– Respiratory OPD & C4 Sleep Lab
Week 2 (pm)	D1, 8, 10 – OPD (inc Child Protection)	D7 – PDC 1- 2.30 U1 – Specialist Biochemistry Lab 2.30 - 5	S1 – 9 – FM Areas I2 – Toy & Bed Store T1 – Node Rooms
	27th	**28th**	**29th**
Week 3 (am) **W/C 26/5**	Q1 - Radiology	C1.1 – 1.6, 1.8, C2, A2 & D9 – RHSC Inpatients	B1 – PICU & HDU
Week 3 (pm)	As above	As above	As above
June	**3rd**	**4th**	**5th**
Week 4 (am) **W/C 2/6**	D6 – Therapies & C3 – Special Feeds Unit	K1 – Family Support 9.30 – 12.30	F1 – CAMHS 08.30 – 13.15
Week 4 (pm)	D4 – Audiology 1-3pm D3 – Orthoptics 3- 5pm	I1 & N1 – Main Entrances & E1 - Pod	

	10th	**11th**	**12th**
Week 5 (am) W/C 9/6	M2 – DCN Therapies 8.30 – 10.30 R2 – Health Records 10.30 – 12.30	L1, L2, M3, N2 - DCN Acute Care, Inpatients, PIU & Shared Support	J1 & J2 – Spiritual Care & Bereavement Suite
Week 5 (pm)	H3 – Clinical Education Suite	As Above	
	17th	**18th**	**19th**
Week 6 (am) W/C 16/6	H2 – Clinical Research Facility 8.30 – 10.30		
Week 6 (pm)	C1.7 & M4 - Neurophysiology		

Depts not scheduled:-

- Family Hotel
- Radio Lollipop

As the above meetings are with non-NHS staff to be discussed with their leads at first meeting

- On Call Suite – date to be discussed at first meeting for Round 2 if this is required

Ver2 (03.04.14)

From: Mackenzie, Janice
Sent: 14 April 2014 17:05
To: McLennan, Neil; Halcrow, Fiona
Cc: 'MacAulay Patrick (NATIONAL SERVICES SCOTLAND)'
Subject: RE: Detailed Design Development & Equipment
Attachments: 1-50 drawing review notes.docx

Thanks, we have added in a final bullet point in relation to role of HFS

Janice

Janice MacKenzie
Clinical Director
RHSC + DCN - Little France

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Edinburgh
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From: McLennan, Neil
Sent: 02 April 2014 09:44
To: Mackenzie, Janice; Halcrow, Fiona
Cc: 'MacAulay Patrick (NATIONAL SERVICES SCOTLAND)'
Subject: RE: Detailed Design Development & Equipment

Dear Both
I have added 2 bullet points

1) Detailing the definitions of the equipment groups and stating that NHSL will specify the clinical group 1 items.

2) A statement that inclusion in the RDS does does not meant that an item will be procured.

I have attached the revised draft of the crib and would be happy to talk it over with you.
Neil

Neil McLennan
Capital Projects Manager
NHS Lothian
RHSC + DCN - Little France
56 Canaan Lane
Edinburgh
EH10 4SG
[redacted]
Mobile: [redacted]
Email: neil.mclennan@[redacted]

From: Mackenzie, Janice
Sent: 02 April 2014 07:46
To: McLennan, Neil
Cc: Halcrow, Fiona
Subject: FW: Detailed Design Development & Equipment

Neil

Further to Patrick's email below have you now got the finalised crib sheet with the additions that Patrick has mentioned?

As you know the detailed design meetings have already started so it would be good to have this.

Many thanks

Janice

Janice MacKenzie
Clinical Director
RHSC + DCN - Little France

56 Canaan Lane
Edinburgh
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M: [redacted]

E: janice.mackenzie@[redacted]

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From: MacAulay Patrick (NATIONAL SERVICES SCOTLAND) [mailto:patrick.macaulay@[redacted]
Sent: 31 March 2014 14:17
To: Halcrow, Fiona; Mackenzie, Janice
Cc: McLennan, Neil
Subject: RE: Detailed Design Development & Equipment

Hi Fiona,

Please see attached. I think Neil was doing some work on this as well and was going to add these notes to your definitions for the various Groups and other points he wanted to include.

As I said in my email to Neil, some of these points may seem overly obvious but recent experience on other projects has shown that Users may feel that things can be moved around at a later date with no impact!

Regards,

Patrick

Patrick Macaulay
Senior Product Specialist, Equipping Services, Health Facilities Scotland
Procurement, Commissioning and Facilities

NHS National Services Scotland
Gyle Square
1 South Gyle Crescent
Edinburgh
EH12 9EB
Tel:- [redacted]
Fax:- [redacted]
mobile:- [redacted]
Email patrick.macaulay@[redacted]
www.hfs.scot.nhs.uk

From: Halcrow, Fiona [mailto:Fiona.Halcrow@[redacted]
Sent: 31 March 2014 14:06
To: MacAulay Patrick (NATIONAL SERVICES SCOTLAND); Mackenzie, Janice
Cc: McLennan Neil (NHS LOTHIAN)
Subject: RE: Detailed Design Development & Equipment

Hi Patrick

Janice is on leave today.

Thank you for sending through your list identifying staff that may be able to attend our 1:50 meetings.

The venue is 56 Canaan Lane. The theatre meeting tomorrow starts at 08.30 hrs.

Could you send through to us the draft crib sheet as we really need it for tomorrow's meeting? Neil is on leave today as well.

That would be really helpful.

Regards

Fiona

From: MacAulay Patrick (NATIONAL SERVICES SCOTLAND) [mailto:patrick.macaulay@[redacted]
Sent: 31 March 2014 13:54
To: Mackenzie, Janice
Cc: Halcrow, Fiona; McLennan, Neil
Subject: RE: Detailed Design Development & Equipment

Hi Janice,

I have attached your timetable and highlighted who will be attending various meetings. Some of these are still provisional and we will also try to attend others, but I have not yet identified who will be able to come. For some (e.g. FM, Node Rooms, Materials Management) there is probably little we can add to the information Users will provide.

I am assuming the meetings will be held at Canaan Lane, but would be grateful if you could confirm this.

Re crib sheets, Neil had already mentioned this and I sent him some thoughts on Friday.

Thanks and Regards,

Patrick

Patrick Macaulay
Senior Product Specialist, Equipping Services, Health Facilities Scotland
Procurement, Commissioning and Facilities

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Email patrick.macaulay@[redacted]
www.hfs.scot.nhs.uk

From: Mackenzie, Janice [mailto:Janice.Mackenzie@[redacted]
Sent: 25 March 2014 08:13
To: MacAulay Patrick (NATIONAL SERVICES SCOTLAND)
Cc: Halcrow Fiona (NHS LOTHIAN)
Subject: RE: Detailed Design Development & Equipment

Hi Patrick

That's great, happy for you and other specialists to come along to any of the meetings as we are grateful for all help.

The other thing we discussed recently was that it would be helpful to have a crib sheet for the users attending the meeting about the process of procurement of equipment and how users will be involved in specifying that and timescales. We have a number of crib sheets covering a variety of topics e.g. infection control, manual handling that we are giving to the lead users to assist them so one on equipment would be good

Kind regards

Janice

Janice MacKenzie
Clinical Director
RHSC + DCN - Little France

56 Canaan Lane
Edinburgh
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M: [redacted]

E: janice.mackenzie@[redacted]

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From: MacAulay Patrick (NATIONAL SERVICES SCOTLAND) [mailto:patrick.macaulay@[redacted]
Sent: 24 March 2014 21:13
To: Mackenzie, Janice
Subject: RE: Detailed Design Development & Equipment

Hi Janice,

We will be happy to attend as many of the meetings as possible, unless you feel there is no need to attend some of them, but will definitely attend those highlighted below. As we have specialists in particular areas I would propose they attend the relevant meetings (including Radiology, Labs, Dental and Sleep Lab).

Once I have checked people's availability I will let you know who will be attending.

Regards,

Patrick

Patrick Macaulay
Senior Product Specialist, Equipping Services, Health Facilities Scotland
Procurement, Commissioning and Facilities

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1 South Gyle Crescent
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mobile:- [redacted]
Email patrick.macaulay@[redacted]
www.hfs.scot.nhs.uk

From: Mackenzie, Janice [mailto:Janice.Mackenzie@[redacted]
Sent: 20 March 2014 18:25
To: MacAulay Patrick (NATIONAL SERVICES SCOTLAND)
Subject: FW: Detailed Design Development & Equipment

Dear Patrick

As you will be aware we are about to start the detailed design development for all of the departments within the new building and following discussion with Jackie it would be really beneficial if you were able to attend some of the meetings as I appreciate you will not be able to or need to attend all of them. It would be particularly helpful if you were able to attend the meetings for the more complex departments i.e. theatres, radiology, critical care & emergency department.

Let me know if you are able to attend and if there are other departments that you would want to attend. I have attached the schedule of all of the meetings for Round 1. There will be three rounds of meetings and we are in the process of finalising the dates for Round 2 & 3 and will get these to you as soon as it is confirmed.

The morning session will be 08.30-12.30 and afternoon session 1 – 5pm.

Look forward to hearing from you.

Kind regards

Janice

Janice MacKenzie

Clinical Director
RHSC + DCN - Little France

56 Canaan Lane
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RHSC & DCN Reprovision 1:50 Drawing Review Notes

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- Layouts and equipment provision should (unless specifically derogated) comply with current guidance, Scottish Health Planning Notes, Scottish Health Technical Memoranda etc.

From: Lynch, Lauren X
Sent: 15 April 2014 14:49
To: Bruce, Gwyneth; Reilly, Laura; Freeman, Julie; McPheely, Andrew; Bruce, Christine; Duguid, Karen; Harrison, Maureen; Rutherford, Hazel; Doyle, Edward; Muir, Michaela
Cc: Halcrow, Fiona; Mackenzie, Janice
Subject: Drawing Delivery - Detailed Design Meetings Next week

Dear All,

I just wanted to let you know that your drawings for review in advance of next week's meeting have now been delivered to the RHSC Main Reception for you to collect.

As before, they are also available on the shared drive.

Please let me know if there are any problems with this.

Kind regards

Lauren

Lauren Lynch

Project Administrator

RHSC + DCN - Little France

56 Canaan Lane

Edinburgh

EH10 4SG

[redacted]

email: lauren.x.lynch@[redacted]

RHSC and DCN at Little France
Bidders' Day 13 December 2012

Tim Davison, Chief Executive, NHS Lothian

Welcome and introduction – Slides 1 to 4

- Thank everyone for coming
- Important project for Lothian and Scotland
- The first major NPD health project
- Commitment to improving the quality and standards of care and meeting the needs of our changing population
- This project is a significant step in shaping future care in Lothian by bringing children's, maternity and adult services together on the same site
- Creating a centre of excellence and a major trauma centre
- Extensive lists of benefits, in particular allowing our teams to share experience and expertise
- Proximity to the University of Edinburgh and the BioQuarter bringing research to the bedside
- Looking for a private sector partner who shares our commitment to quality and patient care
- Programme:
    - Susan Goldsmith, Director of Finance to provide overview of the project
    - Peter Reekie, Director of Finance, Scottish Futures Trust insight into the wider NPD pipeline
      and
    - Brian Currie, Project Director, to provide you with more detail on the project, the reference design and the procurement process.

Susan Goldsmith, Director of Finance, NHS Lothian

Overview – Slides 5 - 20

Slide 5 – overview

- Overview of how we got to this point
- Putting the project into the wider context of NHS Lothian
- Commitment to safe, effective, person centered care.

Slide 6 – second largest

- NHS Lothian created in 2001 as an umbrella organisation
- Tasked with breaking down the artificial barriers that had existed between the former health authority and the region's three former NHS trusts
- Single system approach - providing coordinated care, working in partnership with local authorities
- The second largest health board in Scotland and a regional centre providing tertiary care for patients from across the south and east of Scotland.

Slide 7 – population

NHS Lothian serves a growing population of almost 850,000.

Slide 8 – primary care

82% of the population will visit their GP or practice nurse each year

Slide 9 – A&E

We have one of the busiest emergency departments in the UK, seeing almost 250,000 people each year.

Slide 10 – acute care

Around 200,000 people use our acute hospital services.

Slide 11 – maternity

Our maternity unit, the Simpson Centre for Reproductive Health, is the busiest in Scotland with around 6,500 births a year. We have the skills and facilities to respond to very complex births and to care for the most unwell neonates.

Slide 12 – staff

We have 24,000 staff across the region many of whom are highly skilled in specialist care.

Slide 13 - RHSC

- Historic and much loved 150 year old institution
- Based at its current city centre location for almost 120 years
- Site of many medical advances, leading the way in paediatric surgery from late 1800's to pioneering key-hole surgery in children at the end of the 20th century
- Provides one of Scotland's two Paediatric Intensive Care Units
- Service development constrained by the age and restrictions of the building
- Families and staff will be sad to leave but recognise the need for a new building that is designed for the healthcare of today and tomorrow.

Slide 14 - DCN

- Based at the Western General Hospital
- Provides specialist neurological care for people from across the south and east of Scotland
- Current DCN, built more than 50 years ago, bringing together neurology, neurosurgery, interventional neuroradiology into a single service
- Also pioneering - unique theatre design was considered world leading
- Tradition we are keen to continue with the new development.

Slide 15 - CAMHS

- Regional centre for child and adolescent mental health currently based at the Royal Edinburgh Hospital which is home to a range of mental health services.
- Caring for young minds
- Move recognises need to provide physical and psychological care at the same time.

Slide 16 – We need this building…..

- Bringing together maternity, children's and adult services on the same site
  - new born babies requiring an operation will no longer need an ambulance transfer across the city
  - significant benefits both in sharing technology, experience and expertise
- Providing modern healthcare in modern facilities that meet national guidelines – national policy for Paediatric Intensive Care Unit sited at two hospitals for children and young people.
- Creating a major trauma centre providing surgical specialities on the same site, for example neurosurgery and orthopedics, and again reducing the need for emergency transfers
- Providing age appropriate facilities in welcoming and therapeutic spaces - looking for an innovative building that can address the varying needs of all those who will be using it and ensure a positive environment for our staff to work in.

Slide 17 – our new building will….

- Open in 2017
- Have 233 beds and 9 theatres
- Be easy to navigate – patient flows needs to be clear to help limit waiting and transfer times and to reduce additional stress and anxiety
- Have a welcoming external landscape and provide appropriate and discrete environments for patients - each distinct service should have its

own identity within this integrated clinical facility, in which the safety of all users is paramount

- Create a long term partnership with our NPD partner – looking for a positive working relationship with joint goals that put the patient at the centre
- Build on our partnership working with the University of Edinburgh and the BioQuarter – develop further opportunities for research and learning.

Slide 18 - involving people

- Significant engagement and consultation up to this point
- Patient fora including:
  - DCN patient reference group
  - RHSC Family Council
  - Young People's group
- Clinical and support staff been involved through out
- All actively involved in shaping the reference design based on redesigned pathways of care
- Stakeholder project board has been established to keep these and other interested parties informed and this will continue to meet until the project is completed.

Slide 19 - Affordability

- In approving the outline business case SG Health and Social Care directorate confirmed terms for financial support
- Board confident that these terms can be satisfied and that this will be managed through financial planning process with revenue funding from SG and support from other NHS health boards and partners
- The project will be fully financed by the successful NPD partner inclusive of design, construction and maintenance
- However, the Board reserves the right to consider alternative financing and or contractual arrangements

- Development will be home to a number of national speciality services and will received revenue support from NHSScotland and other health boards.

Slide 20 – key milestones

- Getting to this point has taken a number of years and the project has developed during this process
- This has allowed the investment of significant time and energy in a reference design that meets our clinical needs and incorporates our aspirations for age appropriate spaces in a combined facility
- The design as it stands was granted planning permission in principle by the City of Edinburgh Council in April.
- In order to achieve our preferred option and for the project to go ahead on the site in front of us, changes have been required to the original PFI agreement for the Royal Infirmary of Edinburgh. These were agreed in the summer
- Project only progressed to OJEU once SFT completed the comprehensive key stage review. SFT have also scrutinised invitation to tender documentation.

Peter Reekie, Scottish Futures Trust to set the project in the context of the wider NPD programme. Slides 21 – 26.

Brian Currie, Project Director

The Project – Slides 27 – 49

Slide 27 – The Project

- Almost unique in the UK, as far as we know, where the intention is to develop a new NPD/PPP hospital within an existing PFI hospital and campus.
- Determined to normalise this situation and provide a site and Project and an opportunity which does not present challenges beyond what would be typically expected.

- Prior to going to market.
- Reached that point evidenced by our compliance with a rigorous governance process both internally and externally to the Board.

Presentation will highlight aspects of IM/PQQ documentation emphasising the importance of:

- Enabling and Interface Works
- Reference Design
- Sustainability + Community Benefits
- Operations (not of the medical kind!)

Presentation will expand on the programme, process and project management aspects of the project.

Slide 28 – Wider site

- North to top
- Dalkeith Road – A7 leading to A68 and The Borders
- SE Wedge – one of last remaining development zones
- Residential – Niddrie + Craigmillar to North. Moredun to South
- Emerging Bio Quarter + further housing to East
- Little France Drive – cross connection
- The Tram
- Site nestling in valley of Niddrie Burn
- Craigmiller Castle prominent to North

Slides 29 & 30 – The site

- “normalisation” process - determined to create equal opportunity for all bidders to compete on a “level playing field”.
- proposition where no one bidder is either advantaged or disadvantaged has been achieved - by specifying that although there will be a physical link between the new facility and the RIE at ground and first floor levels, in

all other respects the development will be delivered as a standalone new build facility.

- links, driven by necessity, will ensure clinical functionality and efficiencies, particularly between the emergency departments, theatres and critical care departments on site.
- minor operational links between the new facility and the RIE in respect of connecting services mainly in terms of infrastructure associated with ICT, pneumatic tube system and fire alarm systems.
- in all other respects the facility is fully autonomous with a dedicated energy centre, standby power generation and FM goods yard. Public utilities are also independent of the existing RIE PFI facility.

Slides 31-36 – Enabling Works

RIE Campus also needs enabled to accommodate the new facility. Consort Healthcare, on behalf of the Board, is undertaking certain 'enabling' works on the Little France site in preparation of the Project.

External enabling works relate to the following and are due to be substantially complete prior to financial close.

- Enhancement to Existing Flood Defences within and out with RIE
- Revision of Road Infrastructure and creation of new Bus Terminus
- Relocation of Medical Gas Plant (VIE – Vacuum Insulated Evaporator)
- Creation of Link Building to the current RIE and alterations to Existing Emergency Dept.
- Diversion of existing Trunk Sewer
- Disconnection and Removal of existing services in Car Park B.

Slide 37 – Clinical enabling

- Clinical enabling works within the RIE include changes in critical care, pharmacy and laboratory services and will be completed prior to the new facility opening.
- All required the completion of a Supplemental Agreement to modify the existing Project Agreement at the RIE with Consort Healthcare.
- This remains to be completed.

Slide 38 – Interface Works

- The new facility will interact with its neighbours both during and after construction
- The existing RIE was procured as a PFI contract (1st Generation) between the former Royal Infirmary of Edinburgh NHS Trust and Consort Healthcare (ERI) Ltd.
- The Project Agreement for the RIE was signed in August 1998 and covers a 25 year operational period until February 2028.
- The RIE was financed, designed and built by Consort Healthcare, and a range of soft and hard facilities management services are provided through the RIE Project Agreement.
- The site is leased from Scottish Ministers to Consort Healthcare for a term of 130 years, thus any site development requires Consort Healthcare approval together with appropriate changes to the RIE Project Agreement.
- The Board has concluded negotiations on a Supplemental Agreement (SA6) to the RIE Project Agreement which includes the land transfer of the site earmarked for the Project and also covers:
  - access during construction
  - wayleaves for utilities
  - land provision associated with a new sub station
  - oversail rights
  - right to connect to the RIE
- The DBFM contract will reflect these provisions.

Slide 39 – Reference design

To clarify what we really mean by a Reference Design.

What were the attractions given the departure from previous PPP/PFI projects where an “exemplar” design was the norm?:

- assists with the OBC and accuracy of pre-procurement costing.
- provides greater certainty over the final design solution.
- assists significantly in defining a quality threshold.
- optimises the input required from stakeholders and in particular clinicians and clinical management teams.
- utilises programme time available as a result of essential parallel activities prior to commencement of procurement.
- reduces risk and bidding costs to bidders, we would contend.
- shortens the competitive dialogue phase.

Slide 40 – Ground Floor site plan

A glass half full (not half empty)

Half full part is the Mandatory and Compulsory requirements, the other, empty part, the Indicative or Non Prescriptive requirements which the bidders will require to fill.

Mandatory Requirements

Comprises the information that defines Operational Functionality* and is indicated in:

- Interdepartmental Layouts (1:500)
- Departmental Layouts (1:200)
- Room Layouts (1:50) for Key and Generic Rooms

Compulsory Requirements

- Planning in Principle as granted by The City of Edinburgh Council.
- Interface, access/egress and infrastructure provisions enshrined in (SA6 + SA Enabling)

- Clinical, D+C and FM Output Specs.

The Reference Design drawings are a diagram or graphical representation of these requirements.

**We refer to Operational Functionality as opposed to Clinical Functionality since some of the mandatory areas of the Reference Design will cover non-clinical functions such as Supplies, Storage, Distribution and Waste Management (Soft FM) and ICT Requirements).*

Operational Functionality means:

- *The point of access to and within the development, buildings and departments.*
- *The adjacencies between different departments.*
- *The adjacencies between rooms within the departments.*
- *The quantity, description and areas of those rooms and spaces shown on the Schedule of Accommodation.*

Slide 41 – sections
The level of design development can be described as approximating to **RIBA Plan of Work Stage C +** (Concept Design) and covers 52% of all spaces at 1:50 scale including the key and generic rooms.

Bidders will be required to generate up to 10 other room types at 1:50 scale for final tender with the remainder being concluded before Financial Close.

Room Data Sheets
Standard format Room Data Sheets have not been prepared by the Board for the Project instead specific room requirements are detailed in a combination of the following documents:

- General Requirements
- Clinical Output Spec

- Environmental Matrix
- Schedule of Operational/Design Notes
- Equipment Schedule
- Schedule of Accommodation
- Operational Functionality elements of the Reference Design

Note: Bidders will be required to develop Room Data Sheets as part of their proposals. The full set of RDS will be completed from appointment of Preferred Bidder to Financial Close.

Schedule of Accommodation
The Schedule of Accommodation, based on the Reference Design drawn layouts, along with the Target or Model (Minimum) Schedule of Accommodation will be issued to Bidders.

This “Drawn” Schedule of Accommodation for Plant Rooms and Hard FM Rooms is indicative only and should certain other rooms vary in area terms from the Model Schedule this is acceptable on a specific room only basis.

Slide 42 – *Stacking Diagram*
Indicative Requirements
Bidders will be encouraged to propose innovative solutions in response to:

- Information that has been developed to verify the feasibility of the Reference Design in terms of architecture and engineering.

- Information developed for issue to Bidders in regard to site and servicing information.

Bidders must however refer to the Board’s Construction Requirements for the detailed requirements for all such indicative elements of the Reference Design for which they may ultimately carry the risk.

Note: The Board's Construction Requirements will always take precedence over the Reference Design for matters which do not define Operational Functionality.

Innovation

Whilst there is an absolute requirement to maintain Operational Functionality, Bidders will have latitude and will be encouraged to develop innovative solutions for the external and internal architectural expression and site layout for the facility promoting their unique approach to an appropriate architectural language and ambition.

We would hope this would consider:

- expression and representation
- order
- conformity and contrast
- integrity and honesty
- detailing and materials etc.

whilst complying with mandatory and compulsory requirements.

This should apply equally to the:

- layout and disposition of facilities
- pattern of site planning
- scale of the pieces
- relationships with differing site boundaries

but again within the mandatory and compulsory design requirements.

As an example, features such as curved walls and the external landscaping forming part of the Reference Design are indicative only given that these have no influence on the Operational Functionality.

Other Indicative elements are:

- Circulation and Communication space (however minimum dimensions specified will be treated as mandatory).
- Structural engineering solutions.
- Building Services engineering solutions.
- Architectural Expression
- Hard FM solutions and space allocations.

Bidders will be encouraged to apply a unique design strategy founded on sound architectural principles whilst complying with the mandatory elements of the Reference Design and other Compulsory Requirements.

Following the close of Competitive Dialogue, and the appointment of the Preferred Bidder, the Reference Design will be replaced with the Preferred Bidder's affordable and commercially acceptable design solution.

No Variant Bids
In accordance with the OJEU notice, Candidates should be aware that no variant bids will be permitted.

Slide 43 – Sustainability
Sustainability is a priority for the Board as it is for the NHS generally.

Bidders will be required to adhere to the extensive guidance outlined in the BCRs and to demonstrate that any proposals developed will be sustainable and in line with current policy and practice.

Bidders are required to adopt an integrated approach to the social, environmental and economic well-being of the area served, now and for future generations, as part of their approach to sustainability.

The requirements and policies of the City of Edinburgh Council will also need to be met and applied in the proposals that will be submitted for Planning Permission.

The key requirements to be met by Bidders in regard to sustainability include:

- Achieving a BREEAM 2011 rating of ‘very good’ as a minimum.
- Minimising waste during construction and operation and exploit all recycling opportunities.
- Using Greencode and implementing an Environmental Management System.
- Respect the local landscape and protect natural habitat and species.
- Avoid any design features associated with sick building syndrome.
- Achieve an energy usage rating for the facility within the stated target.

Slide 44 – Community benefits

The Board recognises the very significant training and employment opportunities delivery of this Project can create for the wider community and beyond.

The Board also recognises that the Project has the potential to drive significant initiatives relating to regeneration, sustainability and social benefits.

The Board is therefore incorporating a range of social considerations or Community Benefits Requirements into its procurement which will ultimately form contractual requirements.

The requirements consist generally of the following -:

- Targeted Recruitment and Training /Employment and Skills Plan
- Supply Chain Development in relation to SME’s and Social Enterprises.

Supply Chain Development: SMEs

- The long term sustainable development of the SME base is vital to driving sustainable economic growth within Lothian, Scotland and beyond.
- The Board recognises the need to support the development of the SME sector by developing a procurement approach which ensures their exposure to procurement opportunities related to the Project.

Supply Chain Development: Social Enterprises

- The Board supports the Scottish Government's policy on Social Enterprise and believes that Social Enterprises have a distinct and valuable role to play in helping to create a strong, sustainable and socially inclusive economy.
- As such, the procurement process must ensure that Social Enterprises are made aware of supply chain opportunities offered by the Project.
- Social Enterprises are involved in a wide range of industries, from recycling, community transport, landscaping, catering, employment and training to event management.

Other Community Benefits

Bidders will also be required to set out any additional Community Benefits that they would be willing to provide over the period of the contract, for example:

- undertake educational initiatives with community, voluntary and charitable organisations relevant to the Project
- support or contribute in some other way to the work of community, voluntary and charitable organisations associated with the Project.

Slide 45 – Traffic Management

During construction activities for the Project, the RIE shall continue to operate and function as a 24 hour working hospital facility.

Accordingly, it is of paramount importance to the Board that construction activities by Project Co at the RIE site are respectful of the existing operational needs of the RIE for safe traffic management.

The Board wishes to minimise construction traffic using Little France Crescent and intends that the primary construction access to the site will be via a dedicated construction access from Old Dalkeith Road or Little France Drive (i.e. rather than over Little France Crescent).

If such a dedicated access is not technically feasible, would not represent value for money or if construction access is otherwise required over Little France Crescent then access over Little France Crescent will be available.

However, it should be noted that where construction access is required over Little France Crescent, Bidders shall be required as part of Competitive Dialogue to prepare and submit to the Board a Traffic Management Strategy for approval.

Slide 46 - Access
Likewise, it is of paramount importance to the Board that safe vehicular and pedestrian access to the RIE is maintained at all times.

Accordingly, in addition to a traffic management strategy, where permitted works (eg, to install services) are to be undertaken out with the site and may impact upon access to RIE, Bidders shall be required, as part of the competitive dialogue, to again prepare and submit to the Board for approval an access strategy to allow for the continued access and egress of pedestrians and vehicles to and from the RIE during the relevant construction period.

Slide 47 – H&S
Project Co. will be a member of the Little France Campus Working Group and actively participate in the planning and management of Health + Safety issues

within the RIE Campus. They will be joined by NHSL, Consort Healthcare and the University of Edinburgh.

This Group will allow all partners to come together to cooperate, share information and work together to provide a safe working environment ensuring that works concerned with the Facility do not impact adversely on the day to day operation of the RIE campus.

The Group will:

- oversee the Day to Day management of Health and Safety within the RIE campus.
- monitor and review the program of works ensuring that correct procedures are adhered to, including but not limited to:
    - Local policies and procedures.
    - Method statements
    - Safe systems of work, permits etc
    - Health & Safety inductions
- liaise with clinical departments and communicate mitigation measures in the interests of maintaining operations and a safe site.

The Group will report up to the RIE Health and Safety Group who in turn report to the Acute Hospitals Health and Safety Committee.

Slide 48 – Facilities Management
Project Co will be required to provide a lifecycle replacement, hard FM service with associated helpdesk facilities including grounds maintenance, utilities procurement and management, pest control and external fabric cleaning.

It is planned that soft FM services will be provided by a combination of the Board and third party providers. There will be a number of operational interfaces not only with the Board's team but also the FM staff working within the RIE.

Slide 49 - Equipment
Project Co will be responsible for the procurement, installation, maintenance and lifecycle replacement of all Group 1 equipment and, the installation of certain Group 2 equipment.

Slides 50 – 63 - Programme, Process and Project Management
SFT has provided a suite of contractual documents, comprising a NPD Project Agreement and articles that will be adopted for use in this Project, appropriately amended for project and NHSL specific issues.

The DBFM contact between the Board and the NPD partner will reflect the SFT Standard NPD Project Agreement.

In particular, the NPD payment mechanism will be revised to reflect the fact that the facilities will be required on 24/7 basis.

Risks will be allocated as per SFT Standard NPD Project Agreement.

Slide 51 – Programme Dates

Slide 52 – Pre-qualification process

The PQQ and IM have been prepared by the Board for the purpose of providing an application procedure for Candidates interested in tendering and to assist Candidates in making their own evaluation of the potential opportunity.

The PQQ document sets out the completion and submission requirements of PQQ responses, the conditions for participation and the methodology to be used by the Board relative to the pre-qualification and selection process.

Note: Companies interested in bidding for the NPD contract have noted their interest through the Public Contracts Scotland website. The presentation and

information from this event will be uploaded there for parties unable to attend today. All queries and contact with NHS Lothian about the contract should be directed through the PCS portal, and all responses will be received through that route.

PQQ Process:

- Compliance and completeness check.
- Preliminary assessment to evaluate the "Pass/Fail" questions. (Candidates should note that the preliminary assessment will include an assessment of each remaining Candidate's financial standing submission(s) and any Candidate's PQQ submission assessed as failing the financial standing evaluation will be rejected by the Board).
- Detailed assessment to evaluate the scored questions.

Evaluation guidance is provided in the PQQ for each question that will be scored.

Unless otherwise indicated, responses to each question will be scored out of 10 and based on the degree to which the response covers the range of factors specified in the relevant evaluation guidance and as appropriate to the question, depth of understanding of the issues and/or quality of examples and experience provided.

Board intends to shortlist three Candidates who will be taken through to the competitive dialogue stage as Bidders.

Slides 53 – 57 – Competitive Dialogue
It is proposed that the competitive dialogue process will comprise of a series of five dialogue meetings prior to submission of the draft final tender.

Initially the dialogue meetings will focus on the strategic direction of the Project and development of the Candidate's proposals, including technical, financial and legal proposals.

Informal and non-evaluated submissions will be required in advance of the dialogue meetings to support the Candidate's proposals.

As the dialogue process proceeds the technical, financial and legal proposals will be looked at in more detail. This will require a more formal submission, focusing on key issues including affordability.

Feedback will be given to each shortlisted Candidate at every stage of dialogue and will inform the basis for the remaining dialogue prior to submission of the draft final tender.

Slide 58 – Programme

- 7 months to close dialogue
- Further 3 months to appoint Preferred Bidder
- Final 7 months to achieve Financial Close

Following the fifth dialogue meeting Bidders will be asked to submit their final proposals in draft form based on an agreed contractual position. Draft proposals will be reviewed for compliance and to ensure they are presented correctly to allow full evaluation to take place at the final tender stage.

Only limited dialogue is anticipated after submission of draft final tenders. This will allow the Board to engage with each Bidder to clarify, specify or fine tune their tender.

Dialogue will formally close when the Board is comfortable that one or more solutions are capable of meeting its needs. An Invitation To Submit Final Tender (ISFT) will then be issued.

Following the detailed evaluation of the final bids, a final evaluation report will be prepared to recommend the Preferred Bidder. This recommendation will be

based on the bid that represents the most economically advantageous tender* (MEAT).

It is envisaged that the Board and the Preferred Bidder shall then proceed towards a position where the DBFM contract can be entered into and signed.

At this time the Preferred Bidder shall not be entitled to make material changes to any aspect of its final bid. During this period the Preferred Bidder will apply for and obtain detailed planning approval of the detailed components of the Project, through applications for approval of matters specified in the conditions attached to the planning permission in principle.

In parallel, activity will take place to complete the full business case for the Project and gain all necessary approvals to allow financial close to take place.

** not purely one of price, it must be one of price and quality in combination. A bid with a higher price can be selected if it buys additional 'economic advantage' - in the Boards approach, this means buying additional quality as we can attach a value to that.*

Slide 59 - 62 – Team Structure
The Board has a fully resourced in-house team dedicated to the delivery of the Project, supported by a team of specialist, technical, legal and financial advisers.

NHSL members of the Core Evaluation Team – the main interface with Bidders.

Our advisers - all of these people are ably assisted by an extensive NHSL and Advisory Support Team.

A project office at 56 Canaan Lane has been up and running since April and has all necessary facilities to host the forthcoming procurement process

Slide 63 – Conclusion

Four key outcomes for the project:

We hope for good design

- Fit for purpose
- Sustainable
- Efficient
- Coherent
- Flexible
- Responsive to context
- Good looking and a clear expression of the brief

We must be able to afford it

- In these very tight economic times it is hardly surprising that more than ever the Board must work within an expenditure cap.
- This drives us strictly along a path of realising our “needs” not our “wants”
- Value for Money is everything

We expect deliverability

- We consider we have created a strong platform to spring from through the work already done on the Enabling Works + Reference Design.
- All participants should be forward looking and seek to maintain momentum at all times.
- Let’s get in built

We wish to foster and maintain a long lasting partnership with ProjectCo

We look forward to evaluating your submitted PQQ

RHSC + DCN

RE-PROVISION AT LITTLE FRANCE

A43133428

NHS Lothian

A project to re-provide services from the Royal Hospital for Sick Children, Child and Adolescent Mental Health Service and the Department of Clinical Neurosciences in a single building adjoining the Royal Infirmary of Edinburgh at Little France.

RHSC + DCN

RE-PROVISION AT LITTLE FRANCE

A43133428

NHS Lothian

“

A centre of excellence, providing a safe, comforting and healing environment which promotes recovery and meets the needs of patients and their carers.

”

1 OVERVIEW

SUSAN GOLDSMITH

DIRECTOR OF FINANCE,
NHS LOTHIAN

2 NATIONAL PICTURE

PETER REEKIE

DIRECTOR OF FINANCE,
SCOTTISH FUTURES TRUST

A43133428

3 THE PROJECT

BRIAN CURRIE

PROJECT DIRECTOR,
NHS LOTHIAN

4 PROCUREMENT PROCESS

BRIAN CURRIE

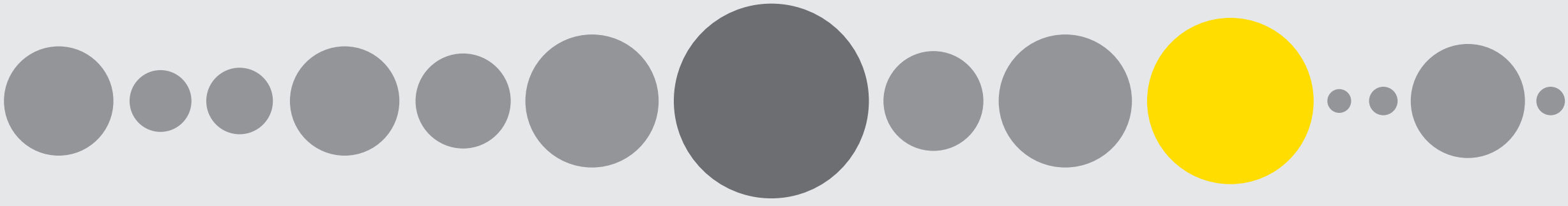
PROJECT DIRECTOR,
NHS LOTHIAN

QUESTIONS & ANSWERS

NHS Lothian

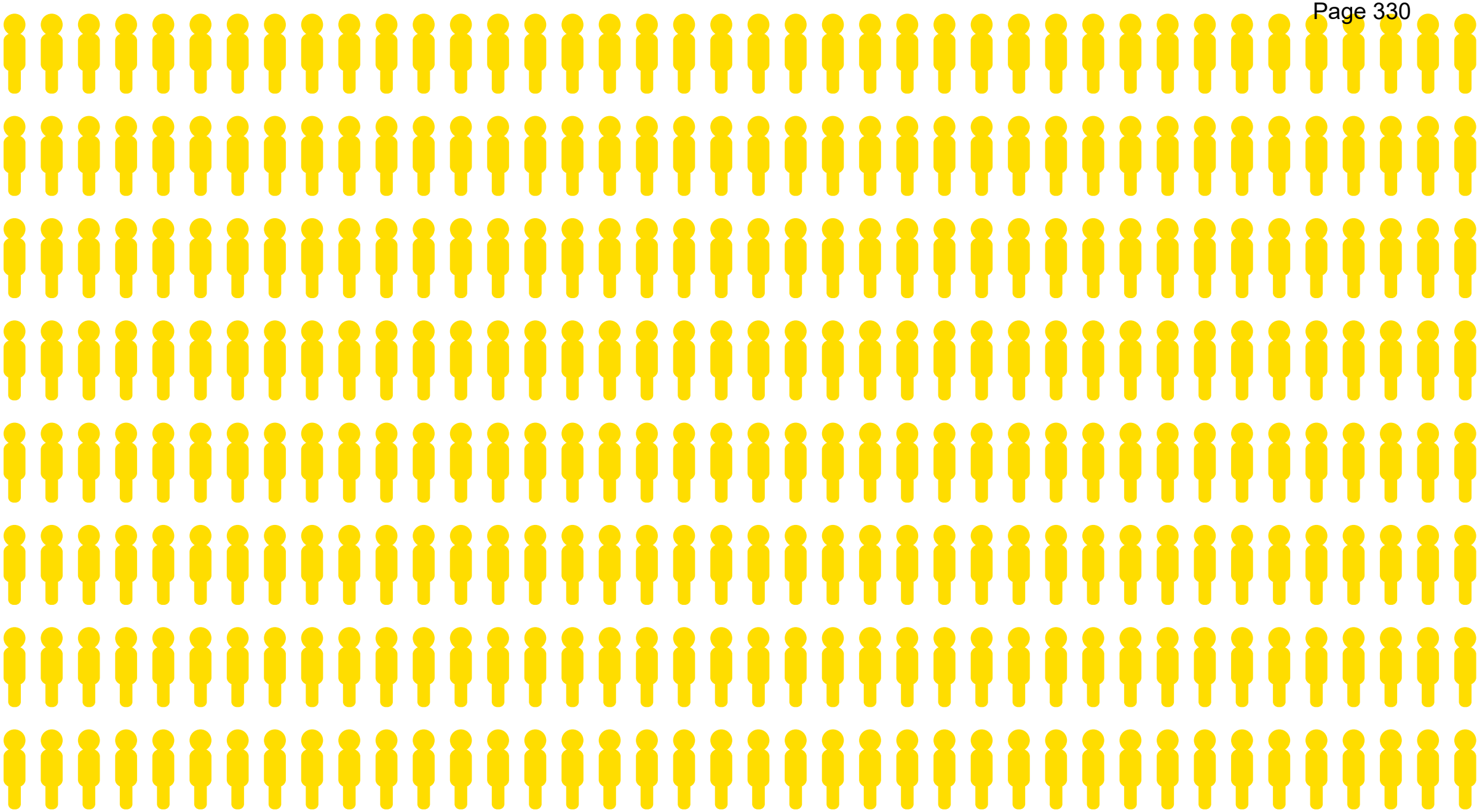
OVERVIEW

A43133428



SOURCE
GRO SCOTLAND
THE AREA OF THE
CIRLCE RELATES
TO POPULATION
A43133428

SECOND LARGEST
SCOTTISH HEALTHBOARD



SOURCE
GRO SCOTLAND
EACH ICON
REPRESENTS
2,644 PEOPLE

A43133428

846,104
2011 POPULATION

SOURCE
PTI, ISD
EACH ICON
REPRESENTS
2,644 PEOPLE

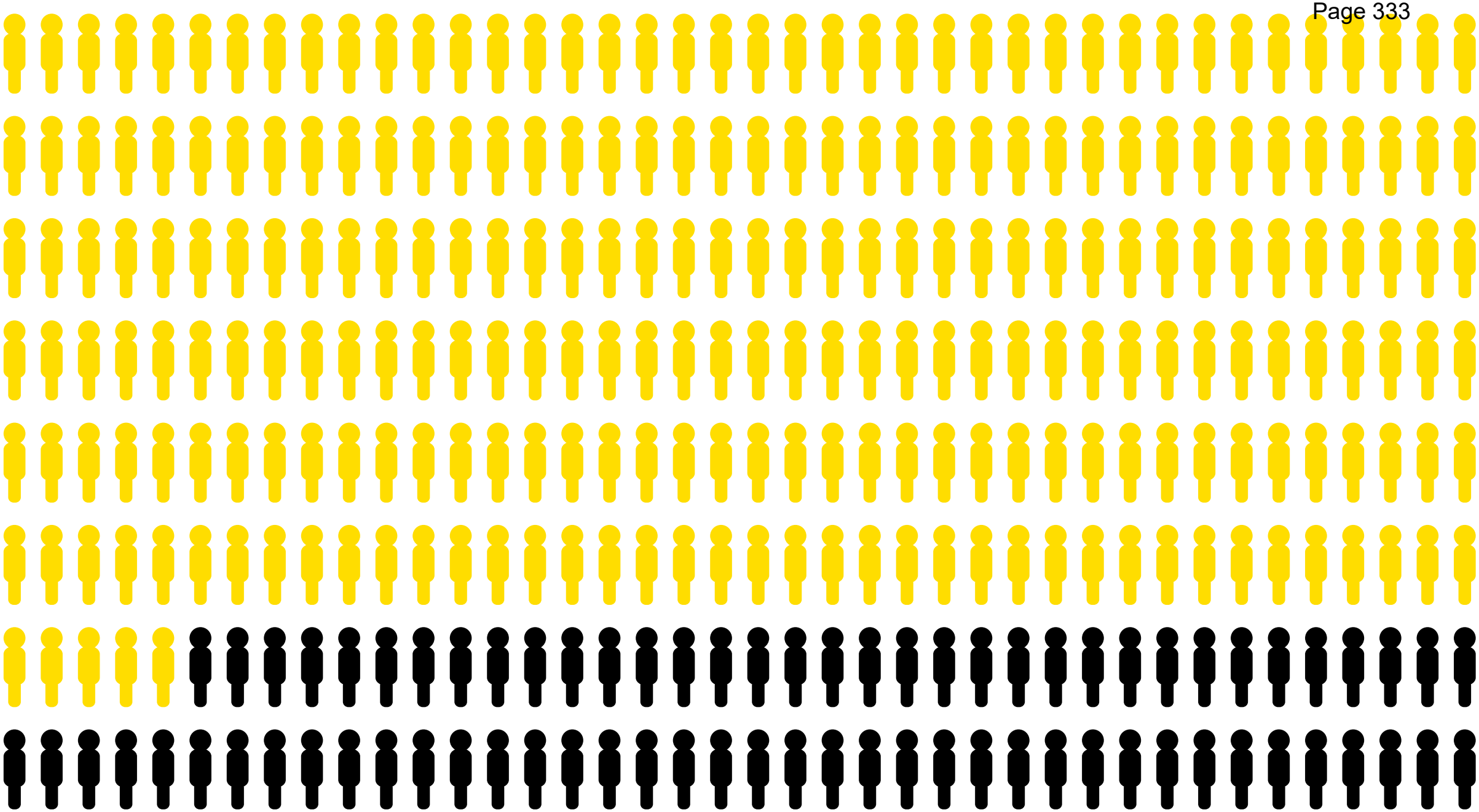
A43133428

82% PRIMARY CARE SERVICES USERS

SOURCE
TRAK, NHS LOTHIAN 2011/12

243,669
A&E ADMISSIONS

A43133428



SOURCE
TRAK, LOTHIAN

EACH ICON REPRESENTS 2,644 PEOPLE

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197,235 ACUTE SERVICE USERS

SOURCE
TRAK, NHS LOTHIAN

OVER 6,500 BIRTHS EACH YEAR

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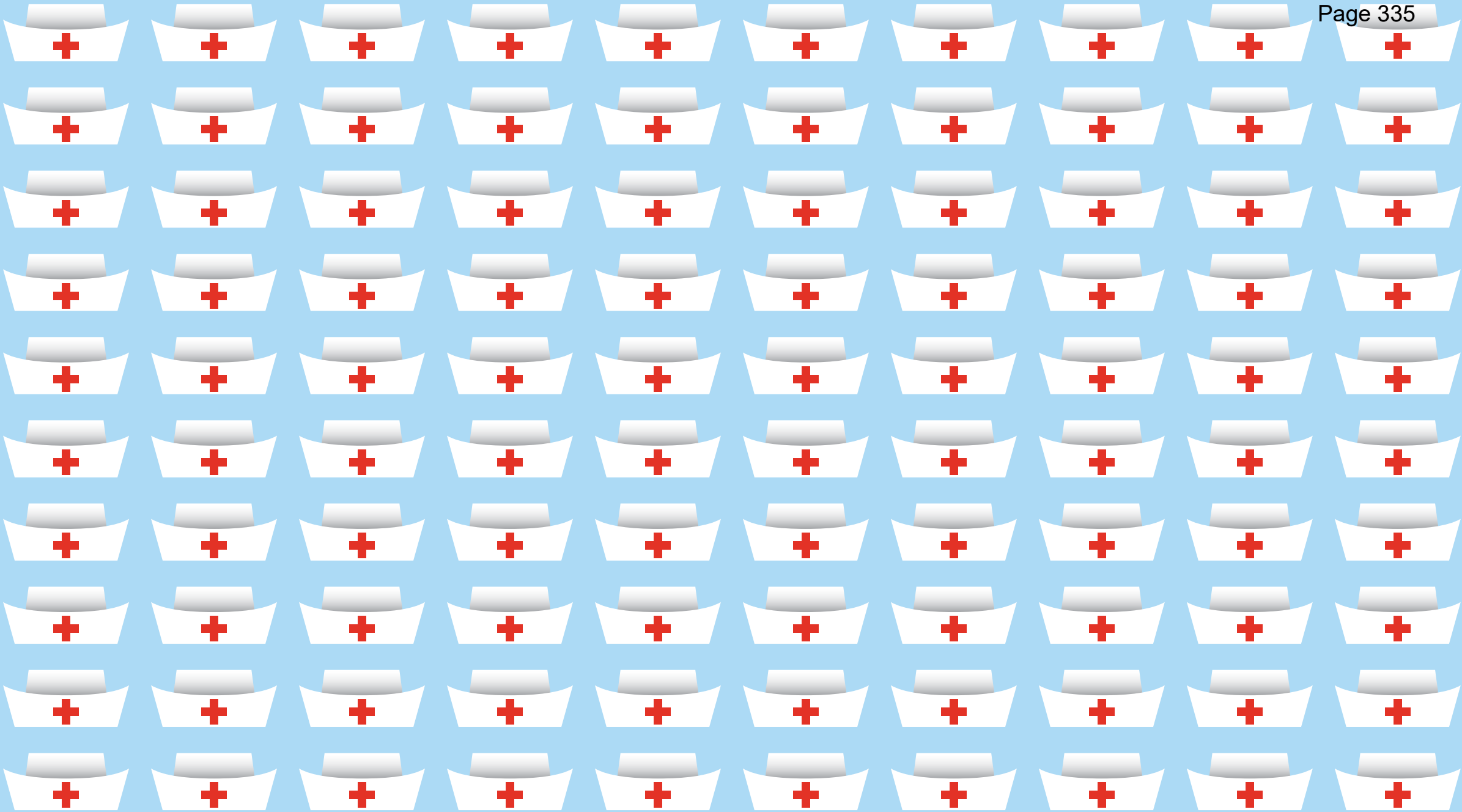


SOURCE
PECOS, LOTHIAN
EACH ICON
REPRESENTS 240
PEOPLE

A43133428

24,000 STAFF
INCL. NON-MEDICAL

150 YEARS

100 000
CHILDREN CARED FOR EACH YEAR

RHSC
ROYAL HOSPITAL FOR SICK CHILDREN

NHS Lothian

A43133428

2.8 MILLION POPULATION

25 000
PEOPLE CARED FOR EACH YEAR

A43133428

DCN
DEPARTMENT OF CLINICAL NEUROSCIENCES

NHS Lothian

29 000
APPOINTMENTS EACH YEAR

CAMHS
CHILD AND ADOLESCENT MENTAL HEALTH SERVICE

NHS Lothian

A43133428

WE NEED THIS NEW BUILDING SO WE CAN...

Bring together maternity, children's and adult services on the same site.

Provide modern healthcare in modern facilities that meet national guidelines.

Create a major trauma centre and reduce the need for emergency transfers.

Provide age appropriate facilities in welcoming and therapeutic spaces.

OUR NEW BUILDING WILL...

Open in 2017.

Have 233 beds and 9 theatres.

Be easy to navigate.

Have a welcoming external landscape and provide appropriate and discrete environments for patients.

Create a long term partnership with our NPD partner.

Build on our partnership working with the University of Edinburgh and the BioQuarter.

INVOLVING PEOPLE

A43133428

NHS Lothian

AFFORDABILITY

A43133428

PROGRESS TO DATE

MAR 12 COMPLETION OF REFERENCE DESIGN

APR 12 PLANNING PERMISSION IN PRINCIPLE

AUG 12 SA6 APPROVAL

SEP 12 OBC APPROVAL

DEC 12 SA ENABLING APPROVAL

DEC 12 PRE OJEU KEY STAGE REVIEW

DEC 12 OJEU ADVERT

SCOTTISH FUTURES TRUST

NPD Programme Perspective

Peter Reekie
Director of Finance, Scottish Futures Trust

NPD Programme

SCOTTISH FUTURES TRUST

Royal Hospital for Sick Children/Department of Clinical Neurosciences

- First health procurement within £2.5bn pipeline of revenue funded projects
- Approximately £1bn now in procurement
- One of five proposed health projects




Approach to procurement – clear and swift

SCOTTISH FUTURES TRUST

- Reference Design
- Commonalities within and across sectors
- Targeted dialogue
- Funding and financing
- PF2

A43133428

Approach to contract – simplified and pragmatic

SCOTTISH FUTURES TRUST

- NPD principles
- Minimal hard FM services
- Risk re-profile
- Flexible
- SFT oversight of commercial issues across programme

Your Response.....

SCOTTISH FUTURES TRUST

- **Pragmatic approach to dialogue and standard contract**
- **Cost reductions reflecting changes to risk transfer**
- **Addressing the need for great quality, highly sustainable facilities, delivered with maximum benefit to local communities**
- **Appropriate rate of sub-debt return for risks taken**

SCOTTISH FUTURES TRUST

Scottish Futures Trust

THE PROJECT

A43133428

THE SITE

A43133428

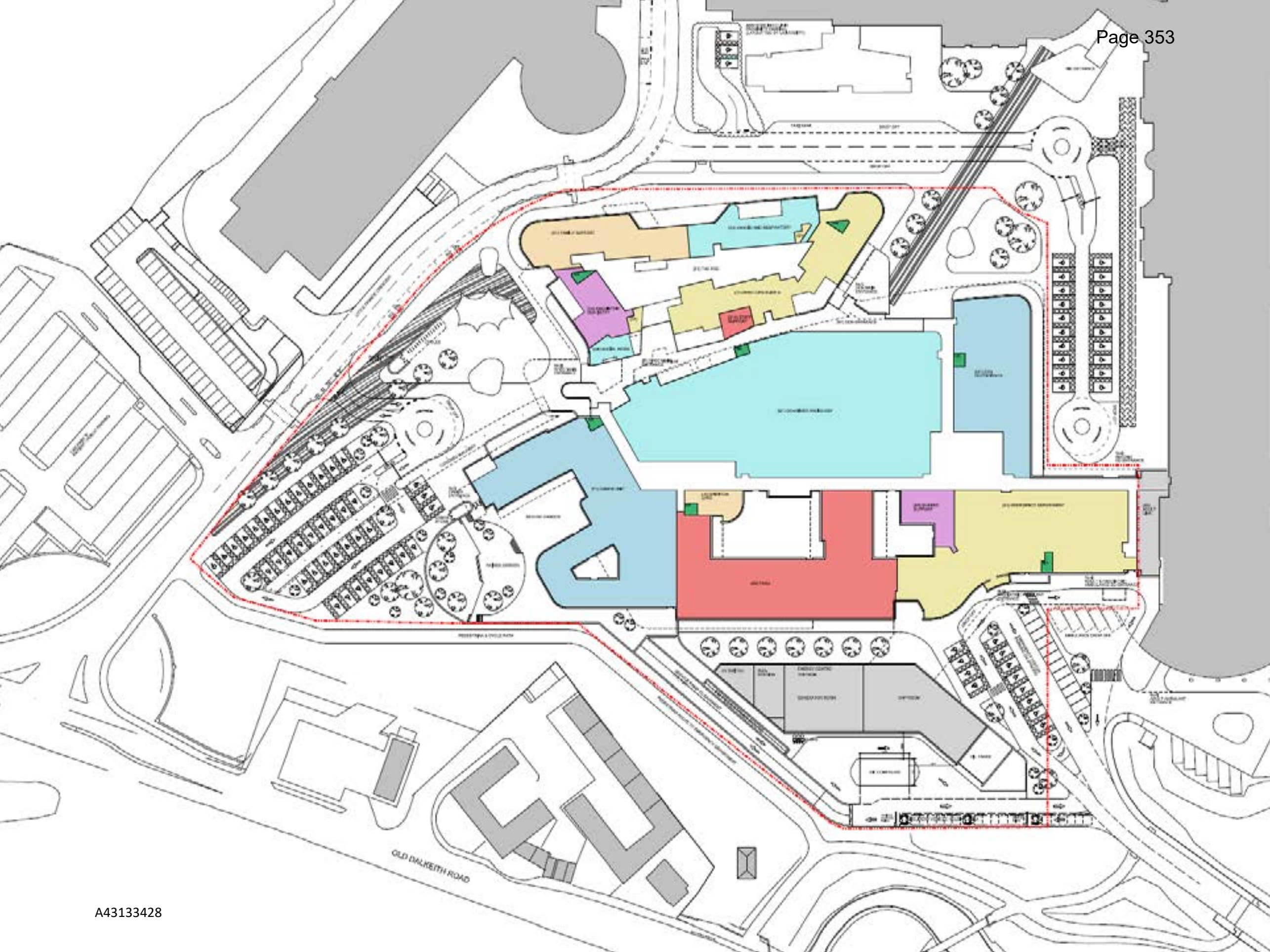
A STANDALONE BUILDING

Takes account of patient needs, their families and carers.

Has a physical link to the RIE on ground and first floor.

Has key operational links.

Has a dedicated energy centre, standby power generation and FM goods yard.


OLD DALKEITH ROAD

FLOOD PREVENTION

AWAITING PLANNING APPROVAL

A43133428

ROADS & INFRASTRUCTURE

PLANNING APPROVED

A43133428

VIE PLANT RELOCATION

PLANNING APPROVED

A43133428

A&E LINK FACILITY

PLANNING APPROVED

A43133428

SEWER DIVERSION

CONTRACTED

A43133428

EXISTING SERVICES

CONTRACTED

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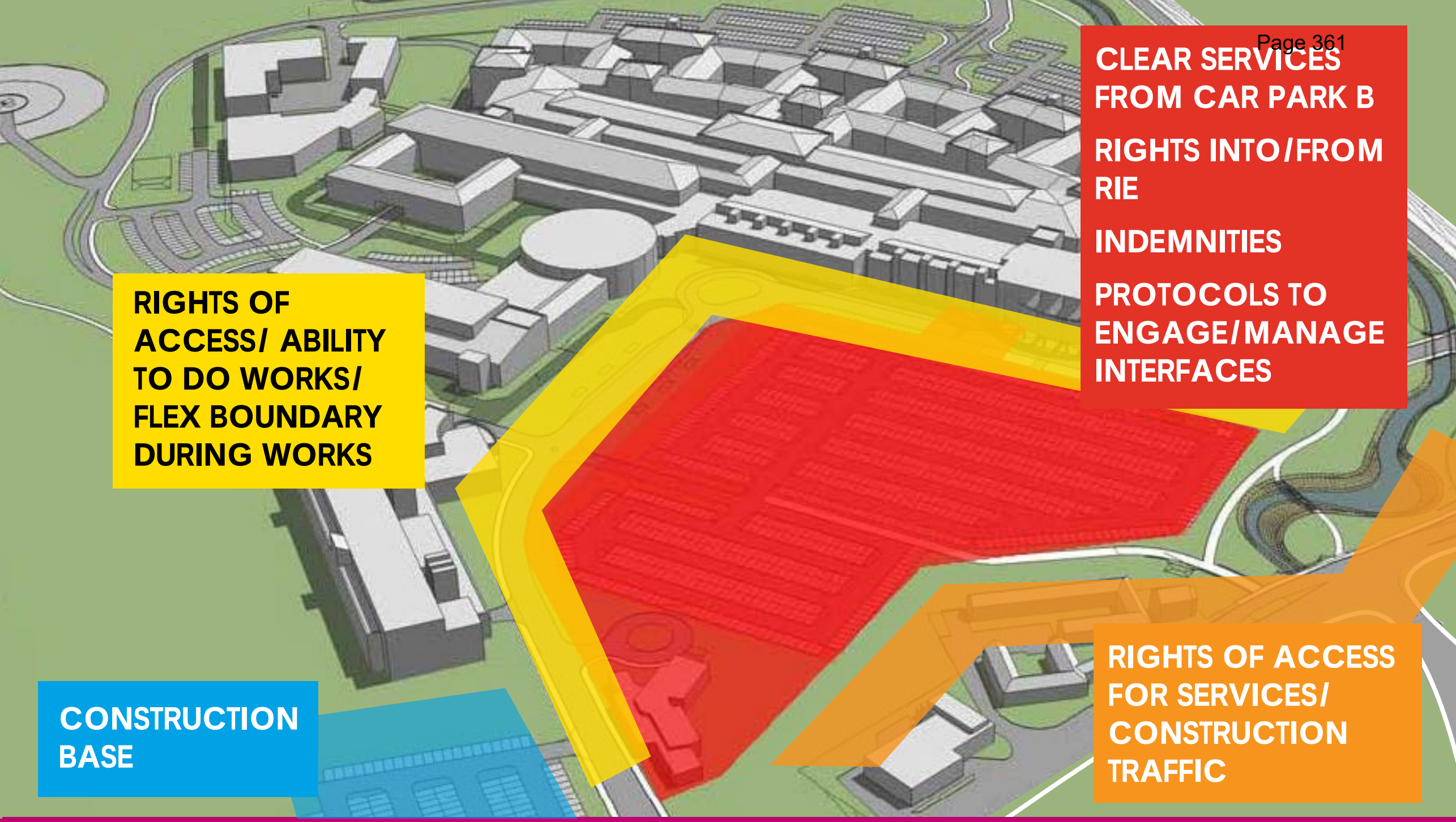
RIE - CLINICAL ENABLING

Link building.

Relocation of departments within the hospital.

Linking of PTS, Fire, Security and Data Systems.



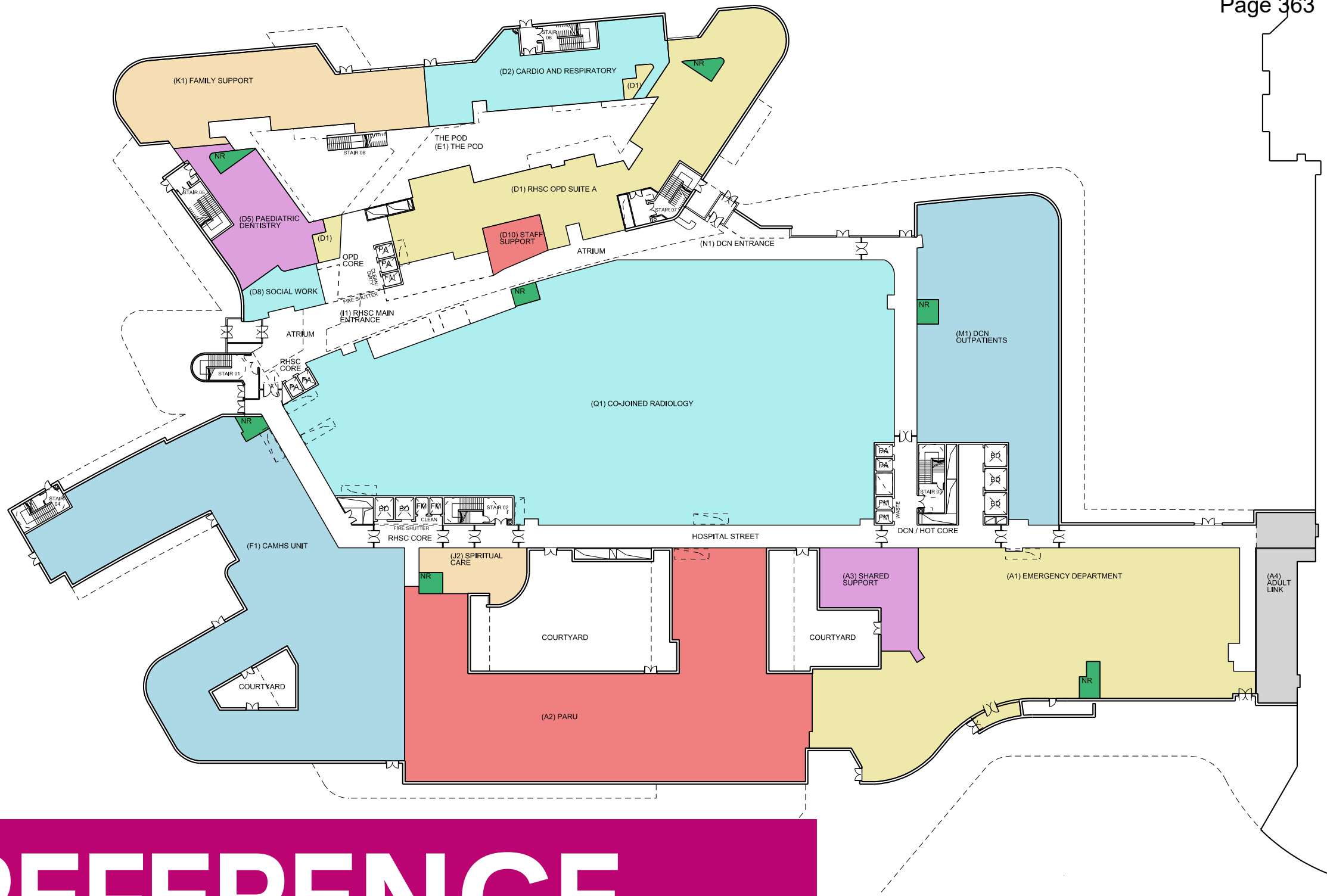
INTERFACE

SUPPLEMENTAL AGREEMENT

A43133428

REFERENCE DESIGN

NHS Lothian



REFERENCE DESIGN

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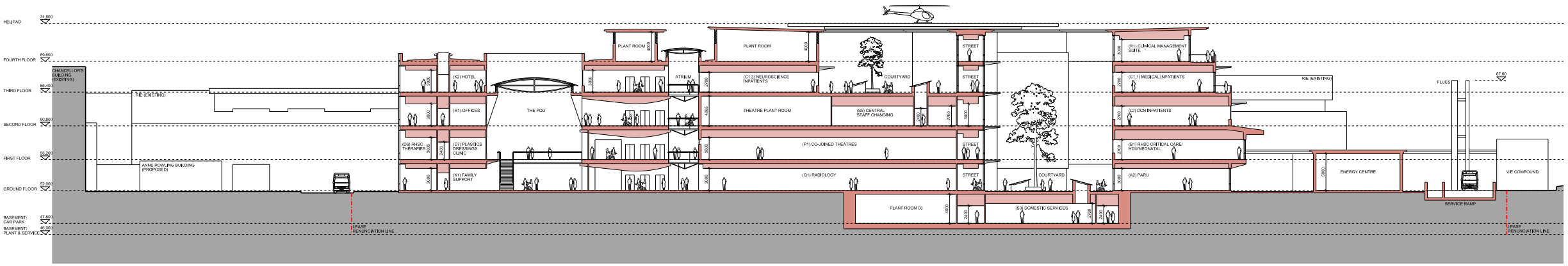
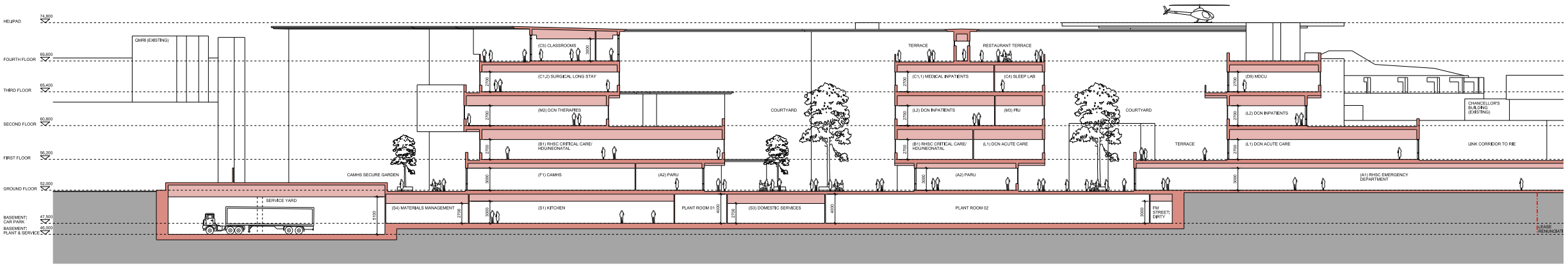
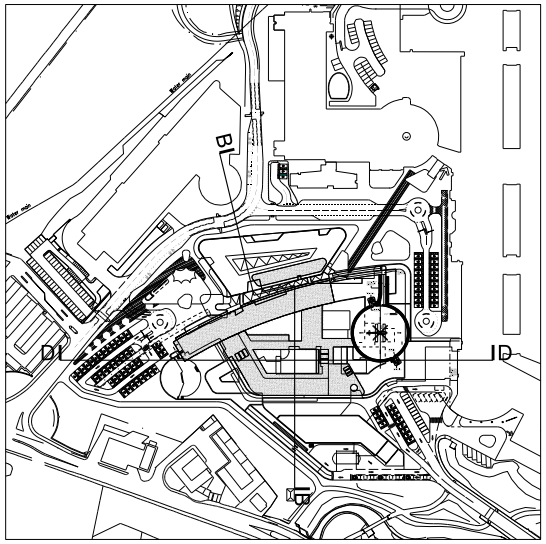


[SECTION BB] NORTH__SOUTH



[SECTION DD] WEST__EAST

[KEY PLAN] 1:1500



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REFERENCE DESIGN

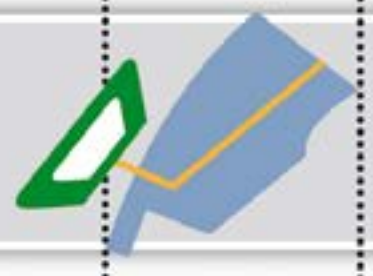
Fourth

- Plant

- Plant
- Restaurant
- Child life & health
- Access to roof-top helipad
- Clinical management suite
- Classrooms

Third

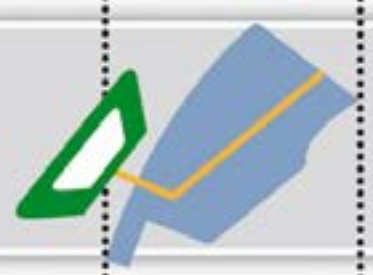
- Family hotel
- Clinical education suite



- RHSC surgical long & short stay inpatient wards
- RHSC neurosciences/haematology/oncology inpatient wards
- Paediatric neurophysiology
- Medical inpatients, medical day case unit
- Sleep labratory, special feeds unit

Second

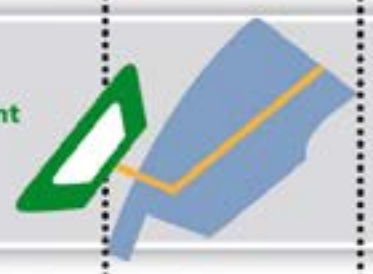
- Clinical management suite



- Theatre plant
- DCN inpatients
- Programmed investigation unit
- DCN therapies
- Health records
- Equipment library
- DCN staff support
- NHSL server
- DCN neurophysiology
- Central staff changing

First

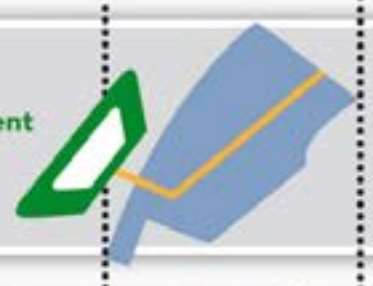
- RHSC outpatient department
- RHSC therapies



- Co-joined theatres
- RHSC critical care
- On-call suite
- DCN acute care
- Clinical research facility
- RHSC bereavement suite

Ground

- RHSC outpatients department
- RHSC family support



- Co-joined radiology
- Emergency department
- Paediatric acute receiving unit
- Children & adolescents mental health services
- DCN outpatient department
- Spiritual care

Basement

- Kitchen, bed & toy stores, estates, domestic services
- Materials management
- Service yard, plant

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SUSTAINABILITY

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COMMUNITY BENEFITS

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TRAFFIC MANAGEMENT

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ACCESS

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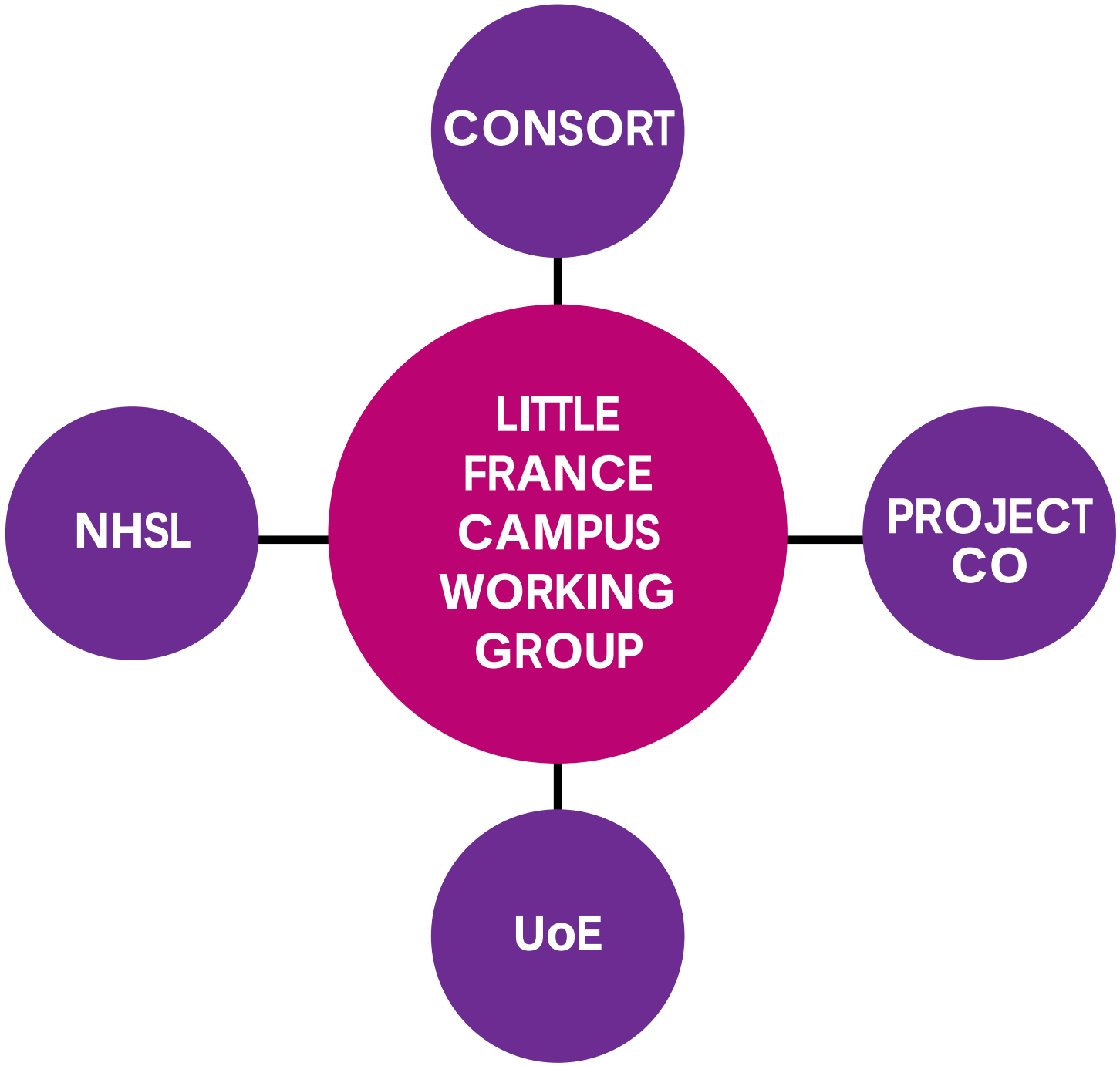

HEALTH & SAFETY

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FACILITIES MANAGEMENT

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EQUIPMENT

NHS Lothian

PROCUREMENT PROCESS

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PROGRAMME

DEC 12	OJEU ADVERT
MAR 13 - MAR 14	DIALOGUE WITH THREE BIDDERS
EARLY 14	APPOINT PREFERRED BIDDER
SUMMER 14	FINANCIAL CLOSE
AUTUMN 14	CONSTRUCTION STARTS
SPRING 17	COMMISSIONING
SUMMER 17	HOSPITAL OPENS

PRE-QUALIFICATION STEPS

STEP 1 - PASS/FAIL

STEP 2 - FINANCIAL EVALUATION

STEP 3 - EVALUATION OF SCORED QUESTIONS

The three bidders with the highest scores will be proposed for shortlisting for the Competitive Dialogue stage.

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DELIVERABLES: MEETING 1

STRATEGIC VISION, OUTCOMES, COLLABORATION.

DESIGN ARCHITECTURE AND LANDSCAPE STRATEGY. INNOVATION AND ADAPTABILITY.

EQUIPMENT APPROACH TO EQUIPMENT.

FM APPROACH TO FM.

COSTINGS APPROACH TO CAPEX & OPEX.

LEGAL KEY ISSUES IN PROJECT AGREEMENT (PA).

FINANCIAL FUNDING STRATEGY. APPROACH TO SURPLUSES/BUFFERS. RISK CAPITAL.

DELIVERABLES: MEETING 2

STRATEGIC HR, COMMUNITY BENEFITS, DESIGN & FM.

DESIGN M&E LIGHTING & ENERGY. DRAFT LAYOUT & ARCHITECTURE, BIM DEVELOPMENT.

CONSTRUCTION METHODOLOGY AND PROGRAMME.

FM QA, ENVIRONMENTAL MANAGEMENT, HEALTH & SAFETY, OUT OF HOURS WORKING.

COSTINGS CAPEX & OPEX WITH DRAFT COSTINGS.

LEGAL PA & CONTRACTUAL STRUCTURE.

FINANCIAL HEDGING. PAYMENT MECHANISM. FUNDER COMMITMENT AND DILIGENCE.

DELIVERABLES: MEETING 3

STRATEGIC CONSORTIA, PERSONNEL, ORGANISATION.

DESIGN MOVEMENT, ICT, FIRE, STRUCTURAL ENGINEERING & SITE SERVICES & UTILITIES. LAYOUT.

CONSTRUCTION METHODOLOGY & PROGRAMME.

EQUIPMENT DRAFT EQUIPMENT STRATEGY.

FM GENERAL FM. MANAGEMENT PROPOSALS.

COSTINGS CAPEX AND OPEX WITH DRAFT COSTINGS.

LEGAL PA MARK-UP AND CONTRACTUAL STRUCTURE.

FINANCIAL MODEL, TAX/ACCOUNTING, BID VALIDITY, WORKING CAPITAL.

DELIVERABLES: MEETING 4

STRATEGIC H&S. ENVIRONMENTAL MANAGEMENT.

DESIGN WAYFINDING. INTERIOR DESIGN. PLANNING PERMISSION. BREEAM.

CONSTRUCTION CONSTRUCTION. METHODOLOGY AND PROGRAMME. COMISSIONING AND HANDOVER.

EQUIPMENT REVIEW OF FINAL EQUIPMENT PROPOSALS.

FM SERVICES ELEMENTS. UNPROGRAMMED MANTENANCE.

COSTINGS CAPEX AND OPEX WITH DRAFT COSTINGS.

LEGAL PA MARK-UP AND CONTRACTUAL STRUCTURE.

FINANCIAL OTHER AREAS OF FINANCIAL SUBMISSION.

DELIVERABLES: MEETING 5

STRATEGIC FINAL REVIEW

DESIGN FINAL REVIEW

CONSTRUCTION H&S AND CDM. COMPLIANCE.
PROGRAMME, COMMISSIONING & HANDOVER.

EQUIPMENT FINAL EQUIPMENT PROPOSALS.

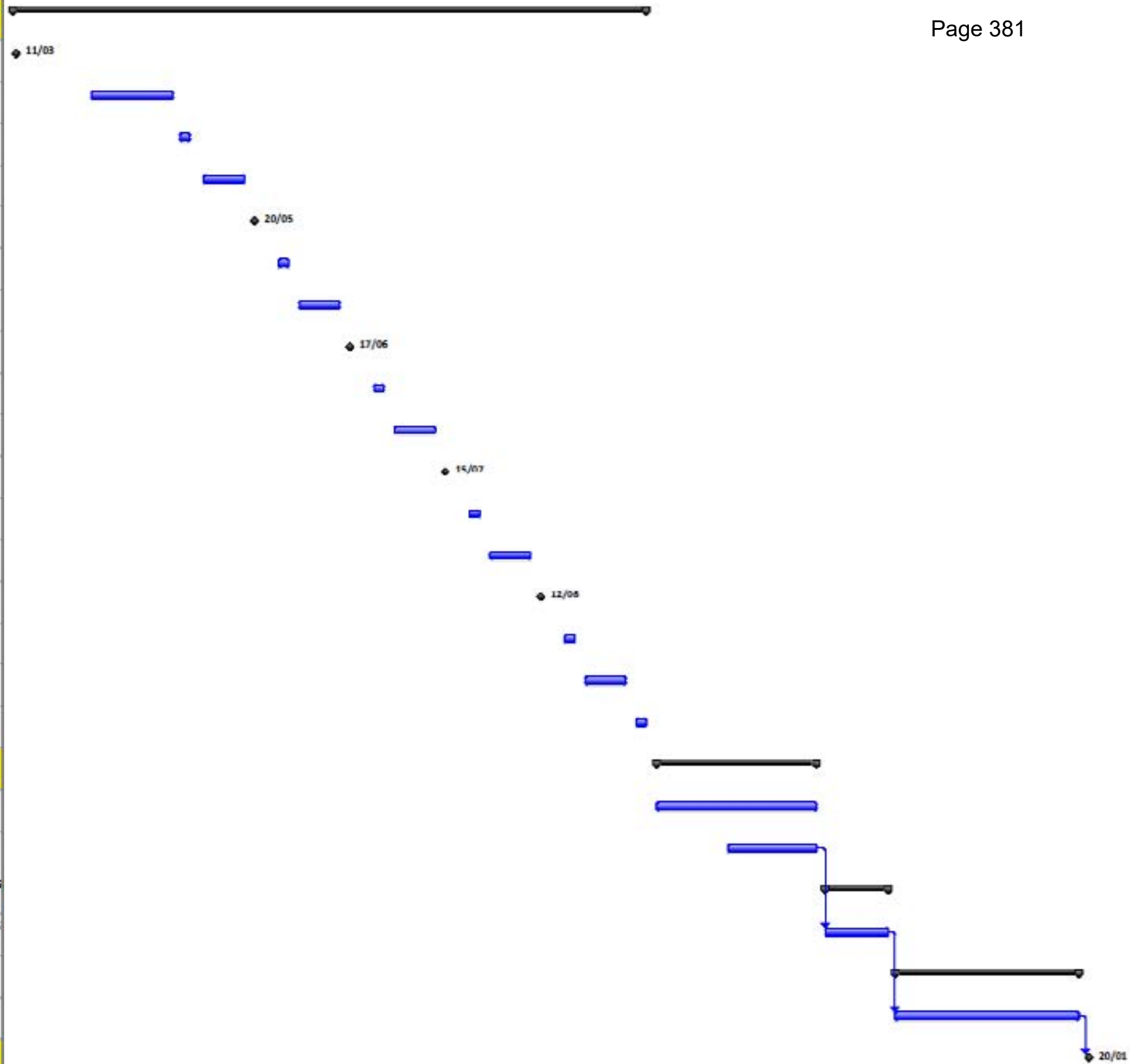
FM REVIEW AND UPDATE ON FM PROPOSALS.

COSTINGS FINALISATION OF CAPEX AND OPEX.

LEGAL PA MARK-UP AND CONTRACTUAL STRUCTURE.

FINANCIAL IDENTIFICATION OF AREAS REQUIRING DIALOGUE PRIOR TO FINAL TENDER.

Competitive Dialogue	**134 days**
Issue ITPD	1 day
Briefing Meeting / Q & A Sessions	18 days
Dialogue Meeting 1	3 days
Bidder Project Development	10 days
Issue Deliverables for Dialogue Meeting	1 day
Dialogue Meeting 2	3 days
Bidder Project Development	10 days
Issue Deliverables for Dialogue Meeting	1 day
Dialogue Meeting 3	3 days
Bidder Project Development	10 days
Issue Deliverables for Dialogue Meeting	1 day
Dialogue Meeting 4	3 days
Bidder Project Development	10 days
Issue Deliverables for Dialogue Meeting	1 day
Dialogue Meeting 5	3 days
Draft Final tender Submisson	10 days
Dialogue Meeting 6	3 days
Close Down Dialogue	**35 days**
Invitation to Submit for Final tenders	35 days
Key Stage Review No4 (pre ISFT) - Approval	20 days
Final Tender	**14.5 days**
Submission of final Tender	14.5 days
Evaluation	**40 days**
Final Tender Evaluation	40 days
Appoint Preferred Bidder	1 day
Financial Close	1 day



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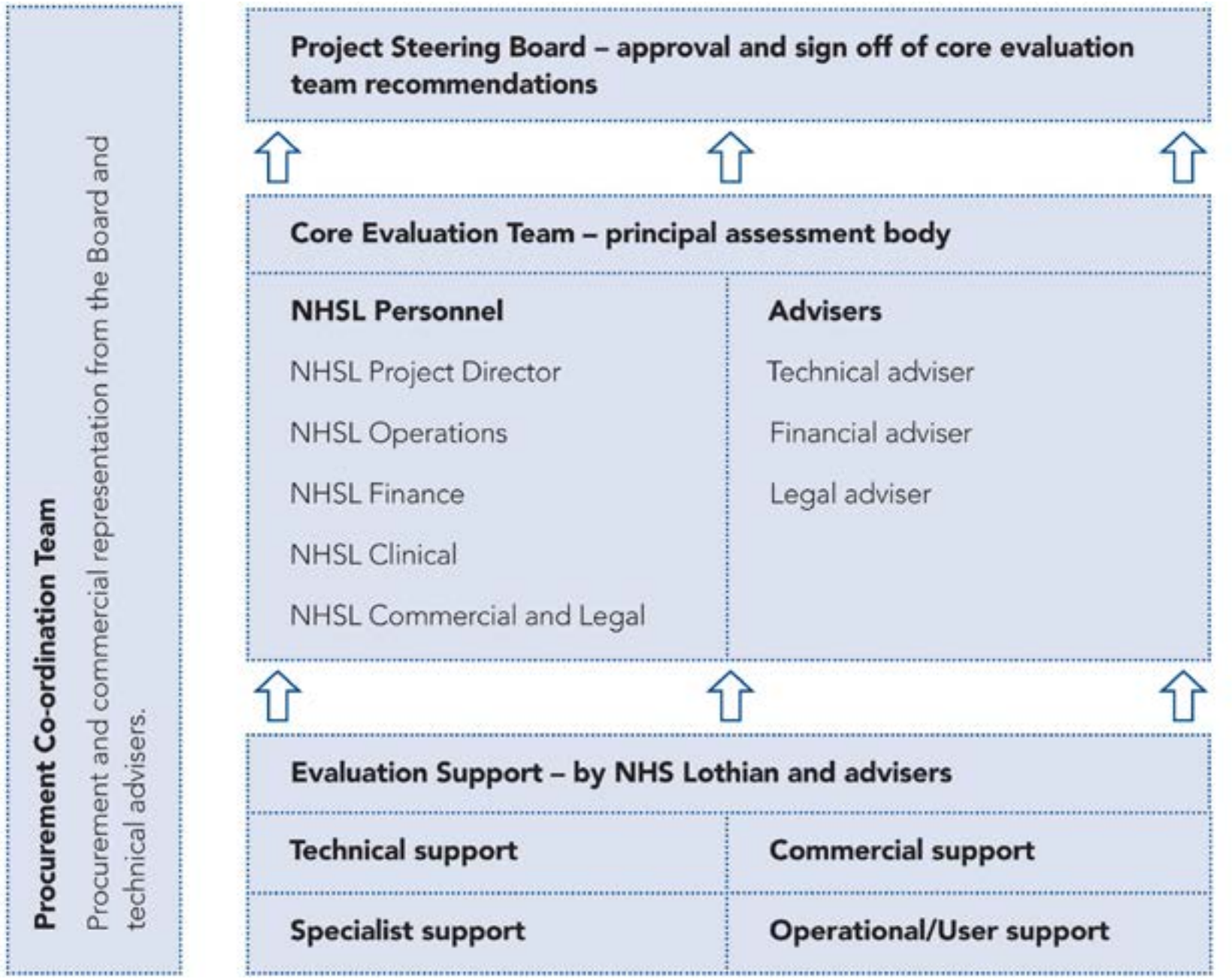
Project Steering Board – approval and sign off of core evaluation team recommendations
Core Evaluation Team – principal assessment body
NHSL Personnel
NHSL Project Director
NHSL Operations
NHSL Finance
NHSL Clinical
NHSL Commercial and Legal
Advisers
Technical adviser
Financial adviser
Legal adviser
Evaluation Support – by NHS Lothian and advisers
Technical support
Commercial support
Specialist support
Operational/User support
Procurement Co-ordination Team
Procurement and commercial representation from the Board and technical advisers.

THE TEAM

NHS Lothian

JACKIE SANSBURY
OPERATIONAL

CAROL POTTER
FINANCE

BRIAN CURRIE
PROJECT DIRECTOR

IAIN GRAHAM
LEGAL/ COMMERCIAL

JANICE MACKENZIE
CLINICAL/ USERS

CORE EVALUATION TEAM

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TECHNICAL
RICHARD CANTLAY
MOTT MACDONALD

LEGAL
ANDREW ORR
MACROBERTS

EVALUATION ADVISERS

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FINANCE
MICHAEL PRYOR
ERNST+YOUNG








EVALUATION SUPPORT TEAM

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NHS Lothian

NHS LOTHIAN
SCOTTISH HOSPITALS INQUIRY
SB1/657

1. **Bidder B Dialogue Meeting 1 Action Notes**
2. **Bidder B CD Meeting 2 Action Notes**
3. **Bidder B CD 3 Action Notes issued 120613**
4. **Bidder B Meeting 4 Action Notes updated at 190713**
5. **Bidder B 1 200 DM 4A meeting 130716**
6. **Bidder B DM 4B Action Notes**
7. **Bidder B CD Meeting 4C Action Notes**
8. **Bidder B CD Meeting 4D - Action Notes**
9. **Bidder B CD Meeting 5 Action Notes**
10. **Bidder B CD 5A Action Notes**
11. **Bidder B CD Meeting 6 Action Notes**

Competitive Dialogue Meeting 1 - Introductory Meeting Action Notes

Date: 03rd April 2013 **Time:** 09:00 – 09.45 **Location:** MacKinlay Room, 56 Canaan Lane, Edinburgh

Attendees:	Sorrel Cosens	Project Manager, NHSL
	Brian Currie	Project Director, NHSL
	Iain Graham	Commercial and Legal Lead, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Carol Potter	Financial Lead, NHSL
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	Kenny Falconer	Technical Adviser, Mott MacDonald
	Stuart Farquharson	Project Manager, Mott MacDonald
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	John Ballantyne	Brookfield Multiplex
	Paul Serkis	Brookfield Multiplex
	Brian Saunders	Macquarie
	Steve McDonald	Bouygues E&S FM
	Darren Smith	Brookfield Multiplex
	Lorraine Robertson	HLM
	Stewart McKechnie	Wallace Whittle
	Chris Mackay	Burness
	Alan Dickson	Gleeds
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Sorrel Cosens	Project Manager, NHSL
	Stuart Farquharson	Project Manager, Mott MacDonald

		Action	Target Date
1.1	No actions or agreements noted.	N/A	

Competitive Dialogue Meeting 1 – Design & Construction Action Notes

Date: 03rd April 2013 **Time:** 10:00 – 14:15 **Location:** MacKinlay Room, 56 Canaan Lane, Edinburgh

Attendees:	Brian Currie	Project Director, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Neil McLennan	Project Manager, NHS Lothian – *agenda item 3*
	David Stillie	D&C Architectural Adviser, Mott MacDonald
	Kenny Falconer	Technical Adviser, Mott MacDonald
	Colin Macrae	M&E Technical Adviser, Mott MacDonald
	Sorrel Cozens	NHS Lothian – *part time*
	Richard Cantlay	Technical Adviser, Mott MacDonald
	Jackie Sansbury	Head of Commissioning - NHSL – *part of meeting*
	Paul Serkis	Brookfield Multiplex
	Alan Dickson	Gleeds
	Darren Smith	Brookfield Multiplex
	Stewart McKechnie	Wallace Whittle
	Leslie Welch	HLM
	Andy Anderson	HLM
	Lorraine Robertson	HLM
	James Miller	Ironside Farrar
	Barry McCormack	Robert Bird
	Panya Upama	Bouygues E&S FM
	Resa Khan	Gleeds
	Anne Alexander	Bouygues E&S FM – *part time*
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	David Stillie	D&C Architectural Adviser, Mott MacDonald

		Action	Target Date
2.1	Firm dates for Planning Meetings to be issued along with submission requirements.	NHSL	17/04/13
2.2	AEDET Review dates to be agreed.	NHSL	17/04/13
2.3	Dates for submission of 1:50s to be issued by NHSL.	NHSL	17/04/13
2.4	NOTE - Confirmed Planning are aware of additional area.	N/A	
2.5	Further additional area in basement apparently over that in schedule – area now closed by shutter – NHSL to confirm.	NHSL	10/04/13
2.6	NOTE - Confirmed Reference Design pre-dates acquisition of Creche area.	N/A	
2.7	NOTE - Confirmed that NHSL do not want to see the unpicking of the agreed Operational Functionality.	N/A	
2.8	NOTE - Confirmed Pod is for exclusive use of Children's Hospital.	N/A	
2.9	NOTE - Confirmed no need to match with existing RIE in terms of elevational treatment.	N/A	
2.10	NOTE - Confirmed A&DS role is as statutory consultee only.	N/A	
2.11	NOTE - Confirmed need for flexibility of spaces to cater for both young children and older children.	N/A	
		N/A	

2.12	NOTE - Confirmed view that themed artwork based on currently popular characters may date quickly.	N/A	
2.13	NOTE - Confirmed courtyards should be as far as possible accessible.	N/A	
2.14	NOTE - Confirmed quality and longevity of façade treatment must be considered.	N/A	
2.15	NOTE - Confirmed that Planning has expressed no preference in terms of façade treatment.	N/A	
2.16	NOTE - Confirmation of Planning Department's planning condition on green roofs.	N/A	
2.17	NOTE - Confirmation that there is no need to incorporate Community use.	N/A	
2.18	NOTE - Arts – refer to NHSL's Construction Requirements.	N/A	
2.19	NOTE - Confirmed facilities in Atrium are shared facilities.	N/A	
2.20	NOTE - Confirmed Intra-operative MRI in Theatres.	N/A	
2.21	NOTE - Confirmed NHSL interested in seeing potential for horizontal expansion.	N/A	
2.22	NOTE - Confirmed that there is no potential to switch children's ward accommodation.	N/A	
2.23	NOTE - Discussion on equipment list in relation fitting into less regular room shapes. Confirmed that it is the Bidders responsibility to ensure that all rooms are capable of accommodating the scheduled equipment.	N/A	
2.24	NOTE - Confirmed that controlled access to users through NHSL including for delivery of 11 room layouts.	N/A	
2.25	Confirmed that there is potential to change the extent of Group 1 and 2 equipment whilst ensuring that the minimum quantities of Group 1 equipment set out in the ITPD documentation are maintained – IHSL to propose any suggested changes.	IHSL	21/05/13
2.26	Laboratory equipment for former shell area will be issued separately within the next week	NHSL	10/04/13
2.27	NHSL to issue current status of Planning Conditions.	NHSL	10/04/13
2.28	NOTE - Good Neighbour Agreement to be discussed during Planning meetings.	N/A	
2.29	NOTE - Confirmed that helipad location is fixed.	N/A	
2.30	NOTE - Confirmed no direct contact to be made by bidder with CEC Planning.	N/A	

Competitive Dialogue Meeting 1 – Facilities Management Action Notes

Date: 03rd April 2013 **Time:** 10:00 – 12:00 **Location:** Minns Room, 56 Canaan Lane, Edinburgh

Attendees:	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Howard Royston	Acting Head of Estates, NHSL
	Carol Thorburn	FM Adviser, Mott MacDonald
	Anne Alexander	Bouygues E&S FM
	Steve McDonald	Bouygues E&S FM
	Joanne Dorling	HLM
	Panya Upama	Bouygues E&S FM
Meeting Chair:	Jackie Sansbury	Operations and Commissioning Lead, NHSL
Action Notes:	Carol Thorburn	FM Adviser, Mott MacDonald

		Action	Target Date
3.1	IHSL agreed to provide additional information on the management of NHSL's own in house provided Soft FM helpdesk to provide a single point of contact. To be provided for dialogue meeting 3.	IHSL	21/05/13
3.2	NOTE - IHSL requested if it could access the Board Occupational Health Provider. JS confirmed that this was acceptable to the Board in principle.	N/A	
3.3	IHSL requested additional information regarding the need for separate costs for maintenance and utilities for the Family Hotel and if there were any other 3rd party providers who would require separate billing arrangements. NHSL to provide.	NHSL	16/04/13
3.4	IHSL to submit proposal for introduction of AGV's for meeting 2.	IHSL	23/04/13
3.5	NOTE - NHSL confirmed that a joint induction programme would be acceptable.	N/A	

Competitive Dialogue Meeting – Financial Action Notes

Date: 03rd April 2013 **Time:** 10:40 – 11:45 **Location:** Islay Room, 56 Canaan Lane, Edinburgh

Attendees:	Carol Potter	Financial Lead, NHSL
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Lindsey Crawford	Senior Executive, Ernst & Young
	Lucy MacArthur	Executive, Ernst & Young
	Sylvian Delion	Macquarie
	John Ballantyne	Brookfield Multiplex
Meeting Chair:	Carol Potter	Finance Lead, NHSL
Action Notes:	Lindsey Crawford	Senior Executive, Ernst & Young

		Action	Target Date
4.1	Project team to provide clarity over which funding route will be required (fully funded bids/ non funded bid) - If fully funded route then a joint session would be required with Legal to discuss PA impact of bank/bond.	NHSL	ASAP
4.2	NOTE - European Investment Bank (EIB) discussions are being progressed by SFT at this stage – no requirement for bidder to approach.	N/A	
4.3	Draft funding terms and rates to be issues by project team to be used for first submission of model.	NHSL	17/04/13
4.4	NOTE – Ongoing discussions about incorporation of charitable donations. Confirmed that any amounts provided would come through NHS Lothian and not directly from the charity. This is a cross work stream issue and will impact the other areas.	N/A	Ongoing
4.5	NHSL to confirm there would be no issue with a shorter programmed construction duration (to target date provided in ITPD)	NHSL	10/04/13
4.6	Issue clarification to confirm that if the timetable slips for FC date then inflation can be applied 3 months after the target FC date, rather than the May date referenced in the ITPD.	NHSL	10/04/13
4.7	IHSL to provide slides detailing the experience they have had in the UK PPP market over the last 15 years.	IHSL	23/04/13

Competitive Dialogue Meeting 1 – Legal Action Notes

Date: 03rd April 2013 **Time:** 10:00 – 14.45pm **Location:** Miller Room, 56 Canaan Lane, Edinburgh

Attendees:	Iain Graham	Commercial and Legal Lead, NHSL
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Lynn Pentland	Legal Adviser, MacRoberts
	Chris Mackay	Burness
	Claire Mills	Burness
	Brian Sunders	Macquarie
	John Ballantyne	Brookfield Multiplex
Meeting Chair:	Iain Graham	Commercial and Legal Lead, NHSL
Action Notes:	Lynn Pentland	Legal Adviser, MacRoberts

		Action	Target Date
5.1	Clarifications 1 and 2 are missing and require to be provided to Bidder B. Board confirmed at wrap up meeting that clarifications 1 and 2 were a test.	NHSL	Completed
5.2	Construction access: JB stated that construction access over Yellow Area posed the consortium challenges. Preferred route of construction access for Bidder B would be via the petrol station. JB suggested setting out advantages and disadvantages of the four construction points proposed by Arup. Bidder B to formally propose its preferred construction access to the Board.	IHSL	23/04/13
5.3	Cross references to Board's Construction Requirements referred to in Clauses 13A.1.1(c) and 49.1.5 to be checked and confirmed.	NHSL	17/04/13
5.4	Bidder B is interested in exploring the availability of plots on the Bioquarter Site. IG stated that if this was the case, please could Bidder B provide its proposals to the Board in the first instance given that the Board was a Bioquarter partner.	IHSL	Ongoing
5.5	In terms of the reliance letter for the Site Survey, provide a copy of the proposed contract between the Board and surveyor relating to the carrying out of the Site Survey to Burness for review.	NHSL	17/04/13
5.6	During the meeting, there was confusion in terms of the drawing number for the sewer referred to in paragraph 6.1.1 (Sewers under the Site) of the Board's Construction Requirements. A reference is made within this paragraph to a plan coloured green in drawing number AS/209592/X(52)X/01P1 entitled "Zone For Diverted Scottish Sewers to South of Site". Board requires to confirm the plan reference for this sewer.	NHSL	17/04/13
5.7	The Initial Drainage Proposal is set out as Appendix E in Board's Construction Requirements. This was recently uploaded to the Data Room. Is this a new version, does it supersede a previous version or was it simply not uploaded to the Data Room in the first place?	NHSL	17/04/13
5.8	NOTE – Refer to attached mark up of IHSL submission on Top 10 Legal Issues.	N/A	

Competitive Dialogue Meeting 1 – Wrap up Action Notes

Date: 03rd April 2013 **Time:** 15:15 – 15:25 **Location:** MacKinlay Room, 56 Canaan Lane, Edinburgh

Attendees:	Sorrel Cosens	Project Manager, NHSL
	Brian Currie	Project Director, NHSL
	Iain Graham	Commercial and Legal Lead, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Carol Potter	Financial Lead, NHSL
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	Kenny Falconer	Technical Adviser, Mott MacDonald
	Stuart Farquharson	Project Manager, Mott MacDonald
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	John Ballantyne	Brookfield Multiplex
	Paul Serkis	Brookfield Multiplex
	Brian Saunders	Macquarie
	Darren Smith	Brookfield Multiplex
	Lorraine Robertson	HLM
	Leslie Welch	HLM
	Andy Anderson	HLM
	James Miller	Ironside Farrar
	Barry McCormack	Robert Bird
	Steve McDonald	Bouygues E&S FM
	Panya Upama	Bouygues E&S FM
	Anne Alexander	Bouygues E&S FM
	Stewart McKechnie	Wallace Whittle
	Chris Mackay	Burness
	Claire Mills	Burness
	Alan Dickson	Gleeds
	Resa Khan	Gleeds
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Sorrel Cosens	Project Manager, NHSL
	Stuart Farquharson	Project Manager, Mott MacDonald

		Action	Target Date
6.1	NOTE – IHSL to design the facility to ensure that operational functionality is not compromised.	N/A	

Competitive Dialogue Meeting 2 - Action Notes

Date: 1st May 2013 **Time:** 09:00 – 16.45 **Location:** MacKinlay Room, 56 Canaan Lane, Edinburgh

Attendees:	Sorrel Cosens	Project Manager, NHSL
	Brian Currie	Project Director, NHSL
	Iain Graham	Commercial and Legal Lead, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Carol Potter	Financial Lead, NHSL
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	Kenny Falconer	Technical Adviser, Mott MacDonald
	Maureen Brown	Project Manager, Mott MacDonald
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	John Ballantyne	Brookfield Multiplex
	Paul Serkis	Brookfield Multiplex
	Brian Saunders	Macquarie
	Steve McDonald	Bouygues E&S FM
	Darren Smith	Brookfield Multiplex
	Lorraine Robertson	HLM
	Stewart McKechnie	Wallace Whittle
	Chris Mackay	Burness
	Alan Dickson	Gleeds
	Leslie Welch	HLM
	Alan Keeley	Brookfield Multiplex
	Andy Anderson	HLM
	Dave Bower	Brookfield Multiplex
	James Miller	Ironside Farrar
	Barry McCormack	Robert Bird
	Iain Buchan	Buchan Associates
	Angela Donnelly	Brookfield Multiplex
	Caron Dunlop	Brookfield Multiplex
	Anne Alexander	Bouygues E&S FM
	Mark Jaggard	Bouygues E&S FM
	Sylvian Delion	Macquarie
	Matthieu Dannoot	Bouygues E&S FM
	Reza Khan	Brookfield Multiplex
	Alistair Sansum	Brookfield Multiplex
	Claire Mills	Burness
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Sorrel Cosens	Project Manager, NHSL
	Maureen Brown	Project Manager, Mott MacDonald

	Action noted and *post-meeting updates*	Action	Target Date
1.1	IHSL will have four working days to comment / propose amendments to NHSL's Action Notes from meetings.	IHSL	Ongoing
1.2	Confirm % of available supply chain that are local.	IHSL	21/05/2013
1.3	IHSL advised to demonstrate Community Benefits strategies across whole consortium and project term.	IHSL	21/05/2013
1..4	IHSL to advise NHSL of any difficulties with contact details given in ITPD.	IHSL	21/05/2013
1.5	IHSL advised to demonstrate Community Benefits work is mindful of the projects Environmental Impact.	IHSL	21/05/2013

1.6	IHSL advised to include detailed responses to the criteria in their interim submissions for NHSL to review and feedback on progress.	IHSL	Ongoing
1.7	IHSL to note that NHSL are a Board and NOT a Trust.	IHSL	Ongoing
1.8	IHSL were advised that their FM submissions were 'light' and fail to meet all NHSL criteria.	IHSL	Note
1.9	IHSL submissions to include follow up from previous meetings where discussed in ITPD requirements.	IHSL	Ongoing
1.10	NHSL confirmed that the Service Yard and Energy Centre are included in the Construction Cost Cap, but not in GIFA.	Note	
1.11	NHSL confirmed that the Construction Cost Cap would remain the same irrespective of the final area of IHSL's design.	Note	
1.12	IHSL confirmed costs will be developed as design progresses.	IHSL	21/05/2013
1.13	IHSL reported that their FM costs were currently over the figure stated in the ITPD but these will be reviewed and updated as design develops.	IHSL	21/05/2013
1.14	IHSL confirmed their costs included everything within the Red Line Boundary.	Note	
1.15	IHSL will provide contact details for their Communications Manager by email to RHSCandDCN@nhslothian.scot.nhs.uk	IHSL	COMPLETED
1.16	IHSL to upload presentations / additional information provided at the meeting into the relevant folder in Conject.	IHSL	10/05/2013

Competitive Dialogue Meeting 2 - Design & Construction Action Notes

Date: 1st May 2013 **Time:** 10.30 – 16.00 **Location:** MacKinlay Room, 56 Canaan Lane, Edinburgh

Attendees:	Brian Currie (BC)	Project Director, NHS Lothian (NHSL)
	Janice MacKenzie (JMacK)	Clinical and Service User Lead, NHS Lothian
	David Stillie (DS)	D&C Architectural Adviser, Mott MacDonald (MM)
	Kenny Falconer (KF)	Technical Adviser, Mott MacDonald
	Colin Macrae (CM)	M&E Technical Adviser, Mott MacDonald
	Richard Cantlay	Technical Adviser, Mott MacDonald
	Jackie Sansbury (part of meeting)	Operations and Commissioning Lead, NHS Lothian
	Paul Serkis	Brookfield Multiplex
	Alan Dickson	Gleeds
	Darren Smith	Brookfield Multiplex
	Stewart McKechnie	Wallace Whittle
	Leslie Welch	HLM
	Alan Keeley	Brookfield Multiplex
	Andy Anderson	HLM
	Lorraine Robertson	HLM
	Dave Bower	Brookfield Multiplex
	James Miller	Ironside Farrar
	Barry McCormack	Robert Bird
	Iain Buchan (part of meeting)	Buchan Associates
	Angela Donnelly	Brookfield Multiplex
	Caron Dunlop (part of meeting)	Brookfield Multiplex
Meeting Chair:	Brian Currie (BC)	Project Director, NHS Lothian
Action Notes:	David Stillie (DS)	D&C Architectural Adviser, Mott MacDonald

	Action noted and *post-meeting updates*	Action	Target Date
2.1	NHSL confirmed land issues in relation to Planning	Note	
2.2	NHSL confirmed AEDET review 17th June 2013. Please refer to clarification 30 for details.	Note	
2.3	1:50 meetings confirmed between 1st July and 9th August. Please refer to clarification 30 for details.	Note	
2.4	NHSL confirmed Planning not keen on building sitting in a sea of cars	Note	
2.5	Development in the Creche area will require a new planning application	Note	
2.6	Highways issues will be managed through Planning meetings	Note	
2.7	NHSL confirmed Planning has accepted extra over area	Note	
2.8	NHSL confirmed no change permitted to the configuration to Car Park E	Note	21/05/13
2.9	Energy centre proposals outwith red line boundary are not acceptable. NHSL would like to understand the benefits to acquiring the former filling station site. IHSL to advise.	IHSL	21/05/13
2.10	Confirmed option of Energy Centre in former Creche area within red line boundary is only option presented which is currently compliant.	IHSL	21/05/13
2.11	Confirmed Health Records requires to be near a lift core	IHSL	21/05/13
2.12	Combined clean & dirty FM routes increased to reduce overall circulation.	Note	

2.13	Relocation of DCN Neorophysiology not acceptable.	IHSL	21/05/13
2.14	Where the Operational Functionality is compromised by virtue of compliance with the Board's requirements as set out in paragraph 5.2.2 of ITPD volume 1 then IHSL shall identify the specific areas affected and provide a supporting commentary. Any such changes will require discussion with and agreement by the Board. NHSL will issue a clarification to all Bidders. *NHSL are still reviewing our position on compliance (in respect of your informal submission 2 D&C proposals) and will issue a bulletin in the week commencing 06/05/13.*	IHSL	10/05/13
2.15	Confirmed DCN Therapies mainly used by inpatients	Note	
2.16	Confirmed that a mirror image of co-located departments does not compromise operational functionality	Note	
2.17	Confirmed that the solutions to non compliant issues in the Reference Design will not be shared with other bidders.	Note	
2.18	Confirmed adjustments to geometry of rooms is acceptable within the constraints of the current layouts in PICU and HDU.	Note	
2.19	Confirmed in principle that standardisation of room shapes is acceptable if it does not compromise operational functionality and the minimum areas specified in the Draft Schedule of Accommodation. ITPD Volume 1 Para 2.5.1	Note	CLOSED
2.20	NHSL to confirm that changed dimensions for bedrooms in CAMHS are acceptable. *NHSL confirm that the proposed changes are acceptable if the room area is not compromised.*	NHSL	24/05/13
2.21	NHSL confirmed mirroring of CAMHS is acceptable	Note	24/05/13
2.22	Confirmed CAMHS access to POD required.	IHSL	10/05/13
2.23	IHSL to submit proposal to move CAMHS to first floor for review by NHSL.	IHSL	
2.24	NHSL to confirm ICT provision around Patient entertainment system ie CAT6 or WiFi.	NHSL	
2.25	Confirmed helipad location must connect to hot core but within that constraint its position can be adjusted.	Note	
2.26	Confirmed that shape of Helipad is not fixed.	Note	
2.27	Completion date in March allows decanting and occupation during spring/summer. Earlier handover would force unacceptable winter occupation.	Note	21/05/13
2.28	IHSL confirmed that programme durations were achievable	Note	
2.29	IHSL to ensure programme dates reflect ITPD dates for dialogue and tender submission.	IHSL	21/05/13
2.30	NHSL preferred solution for site access should avoid use of "blue light" routes to and from the site.	IHSL	
2.31	Temporary solution to disruption of cycle route will be discussed during consultations with Planning	Note	21/05/13
2.32	Yellow areas are set aside for construction access. Reasons for not using yellow areas for construction access to be set out by IHSL in accordance with	IHSL	

	Appendix A of the BCRs.		
2.33	Confirmed Filling Station site should not be considered to be available for construction access.	Note	
2.34	Confirmed final drawings for works to existing RIE Emergency Department will be issued to Bidders by NHSL when available.	Note	21/05/13
2.35	Confirmed VIE is being relocated at the moment	Note	
2.36	Confirmation that bus stances opposite QMRI are within the red line boundary	Note	
2.37	Confirmed no access for staff to RIE – IHSL confirmed this is included in site rules.	Note	
2.38	Confirmed IHSL may discuss further options for the substation and cable routes with Scottish Power	Note	
2.39	NHSL clarified requirements in relation to substation location in Car park F and the proposed HV supply route.	Note	14/05/13
2.40	NHSL to confirm co-ordinates for FW manhole on east of Ann Rowling Building	NHSL	14/05/13
2.41	NHSL to issue Reference Design information on FW drainage calculations if available	NHSL	
2.42	Confirmed that there will be stabilisation work carried out to the berm within the yellow zone between the cottages and red line boundary under a separate contract.	Note	
2.43	NHSL confirmed shift changes at 07.00 and 19.00. Peak traffic 07.45 to 08.45 and 17.00 to 18.00.	Note	

Competitive Dialogue Meeting 2 - Facilities Management Action Notes

Date: 1st May 2013 **Time:** 10.30 – 16.00 **Location:** Minns Room, 56 Canaan Lane, Edinburgh

Attendees:	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Howard Royston	Acting Head of Estates, NHSL
	Carol Thorburn	FM Adviser, Mott MacDonald
	Anne Alexander	Bouygues E&S FM
	Steve McDonald	Bouygues E&S FM
	Carol Dunlop	Brookfield Multiplex
	Mark Jaggard	Bouygues E&S FM
Meeting Chair:	Jackie Sansbury	Operations and Commissioning Lead, NHSL
Action Notes:	Carol Thorburn	FM Adviser, Mott MacDonald

	Action noted and *post-meeting updates*	Action	Target Date
3.1	IHSL to resubmit responses to D3,D4,D5 and D6 with additional detail provided responding to all sections as discussed in the Dialogue meeting 2	IHSL	17/05/13
3.2	IHSLrequested detail of Access Times. These are detailed within the PA. IHSLto raise a query if there is any issue with this.	IHSL	17/05/13
3.3	IHSLto raise a query regarding cleaning following building works	IHSL	17/05/13
3.4	IHSLto raise a query regarding cleaning of areas out of reach	IHSL	17/05/13
3.5	NHSL to provide additional information on disposal of food waste from wards and Catering Department.	NHSL	14/05/13
3.6	NHSL to provide clarification on if there is a requirement for a cool store for food within the temporary store within the Materials Management Area	NHSL	14/05/13

Competitive Dialogue Meeting 2 - Financial Action Notes

Date: 1st May 2013 **Time:** 10.30 – 11.40 **Location:** Islay Room, 56 Canaan Lane, Edinburgh

Attendees:	Carol Potter	Financial Lead, NHSL
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Lindsey Crawford	Senior Executive, Ernst & Young
	John Ballantyne	Brookfield Multiplex
	Sylvian Delion	Macquarie
	Matthieu Dannoot	Bouygues E&S FM
	Reza Khan	Brookfield Multiplex
	Alistair Sansum	Brookfield Multiplex
Meeting Chair:	Carol Potter	Finance Lead, NHSL
Action Notes:	Lindsey Crawford	Senior Executive, Ernst & Young

	Action noted and *post-meeting updates*	Action	Target Date
4.1	NHSL will clarify where to find the SUA appendix within the Conject system *Document is within ITPD folder, Excel file titled 'Schedule Pt 14 appendix A Functional Areas and GSUs'.*	NHSL	10/05/2013
4.2	Provide updates on the following funding assumptions: - When the step up in margins occur *Bidders should assume the following in relation to margins: construction - 320 bps; operational date to January 2025 - 300 bps; January 2015 to January 2033 - 320 bps; January 2033 onwards 340 bps.* - LIBOR assumption *An assumption for LIBOR will be issued by close of play on Thursday (9th May), to include a 0.5% buffer.*	NHSL	CLOSED
4.3	IHS Lothian to provide electronic copy of the PPP presentation	IHSL	10/05/2013
4.4	Issue copy of calibration process paper prepared by Mott MacDonald	NHSL	10/05/2013
4.5	Based on information from 4.1 and 4.4, IHSLto consider calibration and revert to NHSL	IHSL	21/05/2013
4.6	Pursue with SFT possible amendment of PA to ensure consistency between payment mechanism schedule and payment provisions relating to negative invoice position *Having reviewed this, the Board do not believe that there is any inconsistency between the payment mechanism and the payment provisions in the PA.*	NHSL	CLOSED
4.7	NHSL confirmed that if IHSL wish to propose that deductions within one month over the cap were wiped clean instead of carried forward, then this would be a change to SFT Standard Form to be discussed in the Legal workstream.	IHSL	21/05/13
4.8	NHSL confirmed that an index linked junior debt solution would not be acceptable	Note	

BIDDER B

RHSC + DCN – Little France

Competitive Dialogue Meeting 2 - Legal Action Notes

Date: 1st May 2013 **Time:** 10.30 – 15.00 **Location:** Miller Room, 56 Canaan Lane, Edinburgh

Attendees:	Iain Graham	Commercial and Legal Lead, NHSL
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Lynn Pentland	Legal Adviser, MacRoberts
	Chris Mackay	Burness
	Claire Mills	Burness
	Brian Saunders	Macquarie
Meeting Chair:	Iain Graham	Commercial and Legal Lead, NHS Lothian
Action Notes:	Lynn Pentland	Legal Adviser, MacRoberts

	Action noted and *post-meeting updates*	Action	Target Date
5.1	NHSL to respond in writing to in respect of IHSL's NPD Project Agreement mark-up and commentary.	NHSL	14/05/2013
5.2	NHSL to respond in writing in respect of IHSL's draft heads of terms for both the Construction Contract and the Service Contract.	NHSL	14/05/2013
5.3	NHSL to respond in writing in respect of IHSL's draft heads of terms for the parent company guarantee.	NHSL	14/05/2013
5.4	NHSL to respond in writing in respect of IHSL's commentary on the Articles of Association.	NHSL	14/05/2013
5.5	NHSL and IHSL insurance advisers require to discuss submissions. NHSL will consider how this works within the dialogue dates. *NHSL will arrange a one hour meeting by phone for Bidders insurance advisers ahead of Dialogue Meeting 3 in the week commencing 13/05/13. The date and time will be confirmed by 08/05/13, and Bidders will be invited to submit their agenda by 10/05/13.*	NHSL	08/05/2013
5.6	NHSL to update IHSL in terms of the position reached on the reliance letter for the Site Investigation. *Details to be issued as a Clarification on 07/05/13.*	NHSL	07/05/2013

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 3 Action Notes

Date: 29th May 2013 **Time:** 09:15 – 17.00 **Location:** MacKinlay Room, 56 Canaan Lane, Edinburgh
Issued: 12 June 2013

Attendees:	Sorrel Cosens	Project Manager, NHS Lothian
	Brian Currie	Project Director, NHS Lothian
	Iain Graham	Commercial and Legal Lead, NHS Lothian
	Janice MacKenzie	Clinical and Service User Lead, NHS Lothian
	Carol Potter	Financial Lead, NHS Lothian
	Jackie Sansbury	Operations and Commissioning Lead, NHS Lothian
	Lynn Allan	Project Accountant, NHS Lothian
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	Graeme Greer	Technical Adviser, Mott MacDonald
	Maureen Brown	Project Manager, Mott MacDonald
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Rod Shaw	Cost Adviser, Thomson Gray
	John Ballantyne	Brookfield Multiplex
	Paul Serkis	Brookfield Multiplex
	Alan Dickson	Gleeds
	Darren Smith	Brookfield Multiplex
	Stewart McKechnie	Wallace Whittle
	Brian Saunders	Macquarie
	Alan Keeley	Brookfield Multiplex
	Lorraine Robertson	HLM
	Barry McCormack	Robert Bird
	Angela Donnelly	Brookfield Multiplex
	Anne Alexander	Bouyges E&S FM
	Reza Khan	Brookfield Multiplex
	Chris McKay	Burness
	Juan Miguel Custodio	Macquarie
Meeting Chair:	Brian Currie	Project Director, NHS Lothian
Action Notes:	Sorrel Cosens	Project Manager, NHS Lothian
	Maureen Brown	Project Manager, Mott MacDonald

	Actions and *Updates*	Lead	Time
1.1	IHSL to re-submit responses to criteria for NHSL review into the folders for Dialogue Meeting 4. If these are available in advance of the submission deadline then NHSL will endeavour to feedback before the meeting.	IHSL	18/06/13
1.2	Feedback to re-submissions will be provided by NHSL via Conject or in dialogue meeting 4. *Please refer to Clarification 00069. IHSL to submit information.*	IHSL	18/06/13
1.3	IHSL to confirm location of 'missing' files on Conject for NHSL to review.	IHSL	03/06/13
1.4	Planning submission for 06/06/13 meeting to uploaded to Conject by 12 noon 31/05/13.	IHSL	31/05/13

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 3 - Strategic & Management - Agenda

Date: 29th May 2013 **Time:** 10:45 – 11:15 **Location:** MacKinlay Room, 56 Canaan Lane, Edinburgh

Attendees:	Sorrel Cosens	Project Manager, NHS Lothian
	Brian Currie	Project Director, NHS Lothian
	Iain Graham	Commercial and Legal Lead, NHS Lothian
	Janice MacKenzie	Clinical and Service User Lead, NHS Lothian
	Carol Potter	Financial Lead, NHS Lothian
	Jackie Sansbury	Operations and Commissioning Lead, NHS Lothian
	Lynn Allan	Project Accountant, NHS Lothian
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	John Ballantyne	Brookfield Multiplex
	Paul Serkis	Brookfield Multiplex
	Brian Saunders	Macquarie
	Matthieu Danoot	Bouygues E&S FM
	Juan Miguel Custodio	Macquarie
Meeting Chair:	Iain Graham	Commercial and Legal Lead, NHS Lothian
Action Notes:	Sorrel Cosens	Project Manager, NHS Lothian

	Actions and *Updates*	Lead	Time
2.1	The Bidder noted that their submissions did not reflect the integration of the parties that make up IHSL, or the level of work done by the team. IHSL will develop and re-submit these responses for further feedback.	IHSL	18/06/13
2.2	IHSL were advised to structure their responses to reflect the requirements outlined in the ITPD.	IHSL	18/06/13

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 3 - Design & Construction – Action Notes

Date: 29th May 2013 **Time:** 11:30 – 16:15 **Location:** MacKinlay Room, 56 Canaan Lane, Edinburgh

Attendees:	Brian Currie	Project Director, NHS Lothian
	Janice MacKenzie	Clinical and Service User Lead, NHS Lothian
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	David Stillie	D&C Architectural Adviser, Mott MacDonald
	Graeme Greer	Technical Adviser, Mott MacDonald
	Jackie Sansbury	Operations and Commissioning Lead, NHS Lothian
	Howard Royston	Acting Head of Estates, NHS Lothian
	Carol Thorburn	FM Adviser, Mott MacDonald
	Bryan Mackay	M&E Technical Adviser, Mott MacDonald
	Ernie Bain	Estates Manager, NHS Lothian
	Fiona Halcrow	Project Manager, NHS Lothian
	John Sturgeon	eHealth Manager, NHS Lothian
	Andrew Wholley	ICT Technical Adviser, Mott MacDonald
	Wayne Clemitson	System Administrative Manger, NHS Lotia
	Iain Graham	Commercial and Legal Lead, NHS Lothian
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Lynn Pentland	Legal Adviser, MacRoberts
	Paul Serkis	Brookfield Multiplex
	Alan Dickson	Gleeds
	Darren Smith	Brookfield Multiplex
	Stewart McKechnie	Wallace Whittle
	Leslie Welch	HLM
	Alan Keeley	Brookfield Multiplex
	Andy Anderson	HLM
	Lorraine Robertson	HLM
	Dave Bower	Brookfield Multiplex
	James Miller	Ironside Farrar
	Barry McCormack	Robert Bird
	Iain Buchan	Buchan Associates
	Angela Donnelly	Brookfield Multiplex
Meeting Chair:	Brian Currie	Project Director, NHS Lothian
Action Notes:	Graeme Greer	Technical Adviser, Mott MacDonald

	Actions and *Updates*	Lead	Time
	Design		
	Approach to vertical and horizontal movement (C14)		
3.1	IHS Lothian are keeping the waste strategy as per the reference design.	Note	
3.2	IHS Lothian are keeping the adjacencies in the reference design and are only changing the geometry.	Note	
3.3	IHS Lothian to review the parking requirements during the forthcoming planning meetings.	IHSL	06/06/13
3.4	NHSL to review the BCR's with respect to the proximity parking requirements. *Confirmed that the requirements for disabled and parent and child parking are as set out in the BCRs.*	NHSL	CLOSED

	Fire Planning Strategy (C16)		
3.5	NHSL to clarify the status of recent fire related SHTM 81 Part 3. *Project Co must comply with all relevant guidance, as outlined in the BCRs.*	NHSL	CLOSED
3.6	NHSL to review the BCR's in relation to the voice evacuation announcements. *Project Co to refer to paragraph 8.10 of the BCRs (Fire Detection and Suppression Systems)*	NHSL	CLOSED
3.7	NHSL to review the BCR's in relation to coverage of the automatic sprinkler systems. *Project Co to refer to paragraph 8.10 of the BCRs.*	NHSL	CLOSED
	Approach to fire safety polices and procedures (D9)		
3.9	IHS Lothian provided an update on their fire safety policies and procedure. Further details to be provided during for next dialogue meeting.	IHSL	18/06/13
	Update on Environmental Matrix and Energy Model		
3.10	IHS Lothian provided an update on their Environmental Matrix and Energy Model. Further details to be provided for the next dialogue meeting.	IHSL	18/06/13
	Services, utilities and infrastructure proposals (C18)		
3.11	IHS Lothian confirmed they are using the services routes as per the reference design. Further details to be provided following ongoing discussions with Utility providers.	Note	
	ICT Strategy (C15)		
3.12	NHSL confirmed a revised BCR would be issued with ICT changes incorporated. Proposed BCR ICT changes verbalised within the meeting. *Refer to Clarification 00080.*	NHSL	CLOSED
3.13	NHSL confirmed they require 100% wireless coverage, IHS Lothian queried whether this included in the lifts, NHSL to confirm. *NHSL confirm that the Facility requires 100% WIFI coverage. Reference should be made to the Project Agreement Schedule Part 1, Definitions and Interpretations.*	NHSL	CLOSED
3.14	IHS Lothian provided an update on the BMS discussing how it may integrate with specialised systems within the Facilities, and confirmed the presentation will be developed and will form part of IHS Lothian proposals.	Note	
3.15	IHS Lothian proposed that revised ICT design submissions may form part of a future Dialogue meeting. IHS Lothian to review and confirm.	Note	
3.16	NHSL commented that IHS Lothian's ICT design submission / proposals should take cognisance of the requirements of the responsibilities matrix in section 9 of the BCR's Sub-Section C	IHSL	26/08/13
	Structural Design proposals		
3.17	IHS Lothian are proposing a secant bored pile wall around the perimeter for the main facility.	Note	
3.18	IHS Lothian queried whether NHSL have any experience of ground improvement by vibro. NHSL commented they had no preferential previous experience of improvement by vibro.	Note	
3.19	IHS Lothian queried whether NHSL have any experience of fire protection systems to steelwork. NHSL commented they had no preferential previous experience of fire protection systems to steelwork.	Note	
3.20	IHS Lothian queried whether NHSL have any specific requirements in relation to adaptability and flexibility. NHSL commented the structural elements of the reference design are not mandated, however there are mandated elements in the BCR's and it up to IHS Lothian to provide proposals.	IHSL	18/06/13

3.21	IHS Lothian queried CLAR-00057. NHSL confirmed it is the existing RIE drainage system does not have capacity. NHSL added the county sewer does appear to have capacity, subject to IHS Lothian obtaining the relevant agreements / approval from Scottish Water.	IHSL	18/06/13
	BIM		
3.22	Developed proposals for layout and engineering		
3.23	IHS Lothian provided a brief update on their BIM model. Further details to be provided during the next dialogue meeting.	IHSL	18/06/13
	Construction		
	Approach to construction methodology and programme (C23, C24)		
3.24	NHSL will provide a construction drawing of the enabling works at the link building when it is available. *This will be available before CD5.*	NHSL	08/07/13
3.25	IHS Lothian to provide further details on the proposed construction phasing, particularly with respect to maintaining the blue light access.	IHSL	18/06/13
	Interface		
	Acceptable Interface proposals (C31)		
3.26	IHS Lothian provided an update on their Interface proposals. Further details to be provided during the next dialogue meeting.	IHSL	18/06/13

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 3 - Facilities Management – Action Notes

Date: 29th May 2013 **Time:** 11.30 – 16:00 **Location:** Minns Room, 56 Canaan Lane, Edinburgh

Attendees:	Jackie Sansbury	Operations and Commissioning Lead, NHS Lothian
	Howard Royston	Acting Head of Estates, NHS Lothian
	Carol Thorburn	FM Adviser, Mott MacDonald
	Ernie Bain	Head of Operations NHS Lothian
	Carol Potter	Financial Lead, NHS Lothian
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Iain Graham	Commercial and Legal Lead, NHS Lothian
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Anne Alexander	Bouygues E&S FM
	Steve McDonald	Bouygues E&S FM
	Brian Saunders	Macquarie
	PanyaUpama	Bouygues E&S FM
	John Ballantyne	Brookfield Multiplex
	Sylvain Delion	Macquarie
	MatthieuDannoot	Bouygues E&S FM
	Reza Khan	Brookfield Multiplex
	Chris Mackay	Burness
	Claire Mills	Burness
Meeting Chair:	Jackie Sansbury	Operations and Commissioning Lead, NHS Lothian
Action Notes:	Carol Thorburn	FM Adviser, Mott MacDonald

	Actions and *Updates*	Lead	Time
4.1	IHSL to resubmit question 7 due to insufficient information being submitted	IHSL	18/06/13
4.2	IHSL to provide additional detail for D8.1a and provide additional information regarding liaison with NHSL	IHSL	18/06/13
4.3	IHSL to review content and layout of D10 and provide any resubmitted information in track change.	IHSL	18/06/13
4.4	IHSL to submit a paper to explain their scenario analysis with regard to payment mechanism.	IHSL	18/06/13
4.5	IHSL requested clarity regarding how NHSL would provide feedback on the draft final tenders. *Bidders will receive feedback in Dialogue Meeting 6, as per paragraph 4.6 of Volume 1 of the ITPD.*	NHSL	CLOSED

BIDDER B

RHSC and DCN –
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Competitive Dialogue Meeting 3 – Financial – Action Notes

Date: 29th May 2013 **Time:** 11:30 – 12:30 **Location:** Islay Room, 56 Canaan Lane, Edinburgh

Attendees:	Carol Potter	Financial Lead, NHS Lothian
	Lynn Allan	Project Accountant, NHS Lothian
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Lindsey Crawford	Senior Executive, Ernst & Young
	Lucy MacArthur	Executive, Ernst & Young
	Sylvain Delion	Macquarie
	Alexis Courtillon	Macquarie
Meeting Chair:	Carol Potter	Finance Lead, NHS Lothian
Action Notes:	Lindsey Crawford	Senior Executive, Ernst & Young

	Actions and *Updates*	Lead	Time
5.1	Tax and accounting review is still to be carried out by PwC	IHSL	Ongoing
5.2	Bidder will check and confirm that the O&M mobilisation costs should be part of the capex balance. This should also be reviewed by PwC for correct accounting treatment	IHSL	18/06/13
5.3	NHSL will issue updated proformas to include: • Security Package Funding • Revenue Spilt (SG/NHSL) *Refer to Clarification 00082.*	NHSL	CLOSED
5.4	Bidder to update utilities for further submissions	IHSL	Ongoing
5.5	NHSL will consider the SPC cost base date and update bidder accordingly. *After consideration our position on the cost base date remains the same as stated in the ITPD, 3.9.1 (g), All costs in the Financial Model should assume a price base date as at Financial Close (being the 7 August 2014).*	NHSL	CLOSED
5.6	Bidder to update model to add pinpoint equity	IHSL	18/06/13
5.7	For future versions of the model, IHSL may include an escalation rate but NHSL require clear visibility of the costs in real terms.	IHSL	18/06/13
5.8	NHSL hope to issue a decision on whether it will be a fully funded bid, or a PB funding competition following Project Board meeting. *Refer to Clarification 00078.*	NHSL	CLOSED

BIDDER B

RHSC and DCN –
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Competitive Dialogue Meeting 3 – Legal – Action Notes

Date: 29th May 2013 **Time:** 11:40 – 15:00 **Location:** Miller Room, 56 Canaan Lane, Edinburgh

Attendees:	Iain Graham	Commercial and Legal Lead, NHS Lothian
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Lynn Pentland	Legal Adviser, MacRoberts
	Chris Mackay	Burness
	Claire Mills	Burness
	Brian Saunders (until lunch break)	Macquarie
	John Ballantyne (after lunch break)	Project Director
	Juan Miguel Custodio	Macquarie
	Matthieu Danoot	Bouygues
Meeting Chair:	Iain Graham	Commercial and Legal Lead, NHS Lothian
Action Notes:	Lynn Pentland	Legal Adviser, MacRoberts

	Actions and *Updates*	Lead	Time
6.1	NHSL to respond in writing to IHSL in respect of IHSL's NPD Project Agreement commentary and Funder's NPD Project Agreement commentary, issued as part of its Informal Submission 3. *Please refer to Bulletin 00022.*	NHSL	CLOSED
6.2	NHSL to issue to SFT the responses referred to in item 6.1 above and 6.6 below for derogation purposes. NHSL shall feedback to IHSL any input received from SFT at Dialogue Meeting 4.	NHSL	By 26/06/13 if possible
6.3	NHSL to issue version 2 of the NPD Project Agreement to all Bidders. *Refer to Clarification 00084*	NHSL	CLOSED
6.4	NHSL to respond in writing in respect of IHSL's draft heads of terms for the parent company guarantee. *Please refer to Bulletin 00022.*	NHSL	CLOSED
6.5	IHSL to respond to NHSL in terms of item 6.1 together with an accompanying revised mark-up of the NPD Project Agreement (preferably version 2 if this has been issued by NHSL in good time prior to Dialogue Meeting 4). IHSL to collate all comments (including those of the Funder and Subcontractor) in sequential order within its NPD Project Agreement commentary.	IHSL	18/06/13
6.6	IHSL to respond in writing to NHSL in respect of NHSL's response to IHSL's Articles of Association commentary, together with any proposed drafting amendments.	IHSL	05/06/13
6.7	IHSL to provide NHSL with project specific justifications in respect of the amendments to the Independent Tester's Contact.	IHSL	05/06/13
6.8	NHSL to respond in writing in respect of IHSL's subsequent response to NHSL's response to the draft heads of terms for both the Construction Contract and the Service Contract. IHSL to submit revised HoTs (if appropriate) as part of its Informal Submission 4.	IHSL	18/06/13

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Competitive Dialogue Meeting 3 – 1:200 Design – Action Notes

Date: 29th May 2013 **Time:** 15:25 – 16:15 **Location:** Islay Room, 56 Canaan Lane, Edinburgh

Attendees:	Janice MacKenzie	Clinical and Service User Lead, NHS Lothian
	Fiona Halcrow	Project Manager, NHS Lothian
	David Stillie	Technical Adviser, Mott MacDonald
	Maureen Brown	Project Manager, Mott MacDonald
	Lorraine Robertson	HLM, Architect
	Reza Khan	Gleeds, Quantity Surveyor
	Andy Anderson	HLM, Architect
	Darren Smith	Brookfield Multiplex, Design Manager
Meeting Chair:	Janice MacKenzie	Clinical and Service User Lead, NHS Lothian
Action Notes:	Maureen Brown	Project Manager, Mott MacDonald

	Actions and *Updates*	Lead	Time
	As this was an unplanned meeting NHSL confirmed that the comments been given today were initial thoughts and they would need further time to properly review the 1:200 when these were submitted via Conject. IHSL to notify M Brown when these are uploaded	IHSL	Ongoing
3.1	Basement Plan - • IHSL are looking at further rationalisation of the area • IHSL are looking at access for FM staff to Energy Centre.	IHSL	Ongoing
3.2	Ground Floor Plan – • Access to all Courtyards to be provided from this floor. • NHSL requested IHSL review rest areas for infirm patients from DCN entrance to lift area. • Feedback had been given re CAMHS in the main D&C meeting	IHSL	Ongoing
3.3	First Floor Plan – • Access to changing areas in Theatres to be reviewed as issues with access.	IHSL	Ongoing
3.4	Second Floor Plan – • NHSL confirmed the location of Utility Support rooms/ Kitchens should not be located adjacent to bedrooms. • IHSL to review corridors to provide nurse observation from touch down bases.	IHSL	Ongoing
3.5	Third Floor Plan – • Medical Inpatient - Transitional Care Unit area requires to be a 'defined' area with a more homely feel. The sitting room is dedicated for TCU. • Sleep lab to be relocated back to the medical inpatient ward. • IHSL to review dirty utility areas, NHSL advised the current location should not be adjacent to shared adolescent room.	IHSL	Ongoing
3.6	Dirty / Clean utility room locations to be reviewed throughout.	IHSL	Ongoing

BIDDER B

RHSC and DCN –
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Competitive Dialogue Meeting 4 - Action Notes

Date: 26th June 2013 **Time:** 09:00 – 17.00 **Location:** MacKinlay Room, 56 Canaan Lane, Edinburgh
Issued: 19 July 2013

Attendees:	Sorrel Cosens	Project Manager, NHSL
	Brian Currie	Project Director, NHSL
	Iain Graham	Commercial and Legal Lead, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Carol Potter	Financial Lead, NHSL
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	Graeme Greer	Technical Adviser, Mott MacDonald
	Maureen Brown	Project Manager, Mott MacDonald
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Rod Shaw	Cost Adviser, Thomson Gray
	John Ballantyne	Brookfield Multiplex
	Paul Serkis	Brookfield Multiplex
	Brian Saunders	Macquarie
	Juan Custodio	Macquarie
	Anne Alexander	Bouygues E&S FM
	Barry McCormack	Robert Bird Associates
	Lorraine Robertson	HLM
	Angela Reid	Brookfield Multiplex
	Darren Smith	Brookfield Multiplex
	Reza Khan	Brookfield Multiplex
	Claire Mills	Burness
	Chris MacKay	Burness
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Sorrel Cosens	Project Manager, NHSL
	Maureen Brown	Project Manager, Mott MacDonald

	Action noted and *post-meeting updates*	Action	Target Date
1.1	NHSL will provide Bidders with a schedule of the enabling works and programme dates. *Please refer to Clarification 00088.*	NHSL	CLOSED
1.2	NHSL to confirm the base date Bidders should use for the draft final tender cost plan. *Q3, 2014.*	NHSL	CLOSED
1.3	NHSL to issue a clarification to Bidders about the accommodation required for the management of linen. *This will be issued in advance of CD meeting 4B.*	NHSL	22/07/13

BIDDER B

RHSC and DCN –
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Competitive Dialogue Meeting 4 - Strategic & Management - Agenda

Date: 26th June 2013 **Time:** 10.00 – 10.45 **Location:** MacKinlay Room, 56 Canaan Lane, Edinburgh

Attendees:	Sorrel Cosens	Project Manager, NHSL
	Brian Currie	Project Director, NHSL
	Iain Graham	Commercial and Legal Lead, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Carol Potter	Financial Lead, NHSL
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	Michael Pryor	Lead Financial Adviser, Ernst and Young
	John Ballantyne	Brookfield Multiplex
	Paul Serkis	Brookfield Multiplex
	Brian Saunders	Macquarie
	Juan Custodio	Macquarie
	Anne Alexander	Bouygues E&S FM
	Sylvain Delion	Macquarie
Meeting Chair:	Iain Graham	Commercial and Legal Lead, NHS Lothian
Action Notes:	Sorrel Cosens	Project Manager, NHS Lothian

	Actions and *Updates*	Lead	Time
2.1	IHSL were informed of NHSL's position on blacklisting, which is now covered by legislation, and working in Partnership with unions and staff representatives. Bidders are advised that their submission for criteria B5, staff development, should reflect their policy on such matters.	IHSL	21/10/13
2.2	NHSL confirmed that the re-submissions showed improvement in meeting the Board's requirements. IHSL were advised to ensure that their submissions clearly set out and addressed the criteria.	IHSL	21/10/13
2.3	Criteria B13: IHSL were advised to state clearly how their quality management framework would deliver management systems for quality, health and safety and environmental management. The programme will need to include time for accreditation of the bespoke management systems.	IHSL	21/10/13
2.4	Criteria B14: IHSL were advised to ensure that their submissions clearly set out and addressed the criteria.	IHSL	21/10/13
2.5	Criteria B15: IHSL were advised to show at a high-level the compatibility between the technical and commercial programmes. The detailed commercial programme around the funding competition is to be addressed in the Finance break-out meeting.	IHSL	21/10/13
2.6	Criteria B15: NHSL, with City of Edinburgh Council, will confirm planning requirements for draft and final tender submissions at Planning Meeting 3. *Agenda for Planning on 30/07/13 provided 19/07/13.*	NHSL	CLOSED
2.7	With reference to clarification 00076 on contact with charity partners, NHSL confirmed that that it was not intended to prohibit fundraising activities that the Bidders chose to engage in. IHSL confirmed their understanding of this.	Note	

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Competitive Dialogue Meeting 4 - Design & Construction Agenda

Date: 26th June 2013 **Time:** 11:30 – 16:00 **Location:** MacKinlay Room

Attendees:	Brian Currie	Project Director, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	David Stillie	D&C Architectural Adviser, Mott MacDonald
	Graeme Greer	Technical Adviser, Mott MacDonald
	Neil McLennan	Capital Planning Manager, NHSL
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Ernie Bain	Estates Manager, NHSL
	Carol Thorburn	FM Adviser, Mott MacDonald
	Iain Graham	Commercial and Legal Lead, NHSL
	Andy Orr	Lead Legal Adviser, MacRoberts
	Paul Serkis	IHS Lothian
	Alan Dickson	IHS Lothian
	Darren Smith	IHS Lothian
	Angela Reid	IHS Lothian
	Alan Keeley	IHS Lothian
	Andy Anderson	IHS Lothian
	Lorraine Robertson	IHS Lothian
	Dave Bower	IHS Lothian
	James Miller	IHS Lothian
	Barry McCormack	IHS Lothian
	Corinna Newport	IHS Lothian
	Angela Donnelly	IHS Lothian
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Graeme Greer	Technical Adviser, Mott MacDonald

	Actions and *Updates*	Lead	Time
3.1	NHSL to provide the site enabling drawings	NHSL	CLOSED
3.2	NHSL to provide a provisional sum to all Bidders for the use of Board specified Group 1 Equipment. *Clarification 00118 details Equipment Schedule version 3. NHSL will provide the provision sum for Group 1 equipment by 02/08/13.*	NHSL	02/08/13
	Feedback from the AEDET Review		
3.3	NHSL provided feedback on the AEDET review.	Note	
	Wayfinding (C6) and Interior Design (C7)		
3.4	IHS Lothian confirmed they will engage with the users on Wayfinding and interior design elements between preferred bidder stage and financial close.	Note	
3.5	NHSL confirmed that NHSL sites have to comply with Scottish Government Policy on smoking.	Note	
	Equipment (C11)		
3.6	IHS Lothian presented an update on Equipment.	Note	
3.7	NHSL to provide feedback via Conject on C11 submission. *Refer to Bulletin 00043.*	NHSL	CLOSED

3.8	NHSL commented there were elements of C11 that had not been submitted, IHS Lothian confirmed these would be submitted for Dialogue 5.	IHSL	09/09/13
	Comparison with the Reference Design (C12)		
3.9	IHS Lothian commented they were using diagrams to describe any instances where the Boards requirements cannot be delivered as a result of a specific Mandatory Reference Design Requirement. NHSL asked that IHS Lothian also use a matrix to describe any instances where the Boards requirements cannot be delivered as a result of a specific Mandatory Reference Design Requirement. The matrix would have to include detailed proposals to provide a complete audit trail	IHSL	05/07/13
3.10	IHS Lothian to provide the schedule in word format which identifies the department, room, perceived non compliance in the Reference Design, proposed solution and the requirement with which it now complies and with the following additional columns – a "comments" column and a "yes / no" column in order that NHSL can add commentary.	IHSL	15/07/13
	Civil and Structural Update		
3.11	IHS Lothian presented an update on the Civil and Structural progress.	Note	
3.12	NHSL and IHS Lothian to provide an update through Conject of recent contact with Scottish Water or Scottish Water Horizons. *IHSL contact details received; NHSL will update the Bidder at CD meeting 4B.*	IHSL and NHSL	24/07/13
	Planning		
3.13	IHS Lothian presented an update on the planning strategy.	Note	
3.14	NHSL confirmed the Connection Area, Service Strip, and Substation Access Area are described on Plan 2 of the legal plans.	Note	
3.15	IHS Lothian requested that planning is added to the next 1:200 meeting. NHSL to review the agenda.	NHSL	CLOSED
	Construction Methodology and Programme (C23 & C24)		
3.16	IHS Lothian presented an update on the construction programme.	Note	
3.17	NHSL commented there were elements of C23 & C24 that had not been submitted, IHS Lothian confirmed these would be submitted for Dialogue 5.		
3.18	NHSL to provide feedback on C23 and C24 *No information was submitted in advance of CD meeting 4.*	NHSL	CLOSED
	Construction H&S (C27) and CDM (C28)		
3.18	IHS Lothian presented an update on the Construction H&S.	Note	
3.19	NHSL commented there were elements of C27 and C28 that had not been submitted, IHS Lothian confirmed these would be submitted for Dialogue 5.	IHSL	09/09/13
3.20	NHSL to provide feedback via Conject on C27 ad C28. *Feedback will be provided at CD meeting 4B.*	NHSL	24/07/13
	QA and Environment (C26)		
3.21	IHS Lothian commented the QA and Environment accreditation would be based on the Brookfield Multiplex systems .	Note	
3.22	NHSL commented there were elements of C26 that had not been submitted, IHS Lothian confirmed these would be submitted for Dialogue 5.	IHSL	09/09/13
3.23	NHSL to provide feedback on C26 *IHSL submission for CD 4 notes that Integrating the management systems with strategies for risk mitigation is being developed for Dialogue Meeting 5.*	NHSL	CLOSED

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	BREEAM (C19)		
3.23	IHS Lothian presented an update on the BREEAM (C19)	Note	
3.24	NHSL to confirm the status of BREEAM credits that may already have been achieved as part of the reference design, specifically the BREEAM appointment letter, evidence of a user consultation plan, and art co-ordinator consultation. *Update to be provided by NHSL at meeting 4B. Full details to be available before Informal Submission 5.*	NHSL	30/08/13
3.25	NHSL to confirm through Conject whether the Secured By Design report is contained in the data room. *Update to be provided by NHSL at meeting 4B.*	NHSL	24/07/13
	Commissioning (C25)		
3.26	IHS Lothian presented an update on commissioning.		
3.27	IHS Lothian commented they would appoint a commissioning manager at preferred bidder stage.	Note	

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Competitive Dialogue Meeting 4 Facilities Management – Action Notes

Date: 26th June 2013 **Time:** 11:15 – 14.00 **Location:** Minns Room, 56 Canaan Lane, Edinburgh

Attendees:	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Howard Royston	Acting Head of Estates, NHSL
	Carol Thorburn	FM Adviser, Mott MacDonald
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Anne Alexander	Bouygues E&S FM
	Panya Upama	Bouygues E&S FM
	Sylvain Delion	IHS Lothian
	Matthieu Danoot	IHS Lothian
Meeting Chair:	Jackie Sansbury	Operations and Commissioning Lead, NHS Lothian
Action Notes:	Carol Thorburn	FM Adviser, Mott MacDonald

	Actions and *Updates*	Action	Target Date
3.1	NHSL to provide clarification on food waste storage requirements within the waste/compactor area and confirm if ventilation is required. *Food waste should be stored in the waste/compacter area as specified in the Specific Non-Clinical Requirements for Waste. This area requires ventilation. Please submit a clarification request if you have further specific questions.*	NHSL	CLOSED
3.2	NHSL to provide clarification that dirty linen could be stored within the waste/compactor area. *Dirty linen is to be stored in the Central Linen Pool (Dirty) as defined in the schedule of accommodation until it Is collected for removal.*	NHSL	CLOSED
3.3	NHSL to provide clarification on storage requirement for staff uniforms. *Staff uniforms will be transported and stored in linen trolleys in the staff changing areas. This will be addressed in 1:50 design with the Preferred Bidder.*	NHSL	CLOSED
3.4	NHSL to provide further clarification on responsibility for wall washing *NHSL estates staff are responsible for wall washing.*	NHSL	CLOSED
3.5	IHS Lothian to provide completed Appendix to Schedule Part 16 - Change Protocol	IHSL	09/09/13
3.6	IHS Lothian to review Payment Mechanism proposal and resubmit proposal which identifies calibration levers rather than drafting.	IHSL	16/07/13
3.7	IHS Lothian to clarify staffing arrangements to comply with Operational Hours between 06.00 and 22.00	IHSL	09/09/13

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Competitive Dialogue Meeting 4 Financial – Action Notes

Date: 26th June 2013 **Time:** 11.00 – 12.00 **Location:** Islay Room, 56 Canaan Lane, Edinburgh

Attendees:	Carol Potter	Financial Lead, NHSL
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Lindsey Crawford	Senior Executive, Ernst & Young
	Lynn Allan	Project Accountant, NHSL
	Sylvain Delion	IHS Lothian
Meeting Chair:	Carol Potter	Finance Lead, NHS Lothian
Action Notes:	Lindsey Crawford	Senior Executive, Ernst & Young

	Actions and *Updates*	Action	Target Date
	Timescales for financial actions, unless stated otherwise, have been changed to the rescheduled Informal Submission 5.		
4.1	VAT treatment potential PA mark up if payment in dispute. This is being captured in the legal workstream.	Note	
4.2	Issue draft funding term sheet for draft final tender submission, to include commercial bank terms and EIB terms	NHSL	30/08/13
4.3	NHSL meeting EIB on 11 July and will provide feedback to bidders. *Update will be provided at CD meeting 4B.*	NHSL	24/07/13
4.4	Issue new finance section Final Tender requirement reflecting the updated position on financing and any update the evaluation criteria.	NHSL	30/08/13
4.5	Issue draft of updates required for the capital markets/security package. Final version will be subject to SFT sign-off.	NHSL	30/08/13
4.6	NHSL to issue a bidder specific agenda ahead of the next session with any items they want to be covered.	NHSL	30/08/13
4.7	Legal workstream to cover the any mark up to the PA of termination provisions related to Mezzanine debt.	Note	
4.8	NHSL confirmed the utility proforma has been updated and issued via Conject.	Note	

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Competitive Dialogue Meeting 4 Legal – Action Notes

Date: 26th June 2013 **Time:** 11.30 – 15.30 **Location:** Miller Room, 56 Canaan Lane, Edinburgh

Attendees:	Iain Graham	Commercial and Legal Lead, NHSL
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Lynn Pentland	Legal Adviser, MacRoberts
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	Chris Mackay	IHS Lothian
	Claire Mills	IHS Lothian
	John Ballantyne	IHS Lothian
	Mathieu Dannoot	Bouygyes
	Juan Miguel Custodio	Macquarie
Meeting Chair:	Iain Graham (IG)	Commercial and Legal Lead, NHS Lothian
Action Notes:	Lynn Pentland (LP)	Legal Adviser, MacRoberts

	Actions and *Updates*	Action	Target Date
5.1	NHSL to respond in writing to IHSL in respect of IHSL's NPD Project Agreement commentary issued as part of its Informal Submission 4. NHSL shall include within its response a classification of IHSL amendments as being either minor amendments or Quantifiable Bidder Amendments.	NHSL	08/07/13
5.2	IHSL to respond to NHSL in terms of item 6.1 together with an accompanying revised mark-up of the NPD Project Agreement as part of Informal Submission 5. As agreed, a reduced NPD Project Agreement commentary would be welcomed by NHSL given the number of issues now addressed within version 2 of the NPD Project Agreement. However, please could each amendment within the revised NPD Project Agreement be accompanied by a relevant justification given that this approach shall assist with the SFT derogations process. Also, please can comments within the commentary be accompanied by drafting, for example, Schedule Part 13 (Independent Tester's Contract) was not marked up as part of Informal Submission 4.	IHSL	16/07/13
5.3	IHSL to submit their Heads of Terms.	IHSL	16/07/13
5.4	NHSL to respond to IHSL's Heads of Terms response.	NHSL	23/07/13
5.5	IHSL to provide any updates to its draft heads of terms for its parent company guarantees (if relevant).	IHSL	16/07/13
5.6	IHSL to provide its Interface Proposals as part of technical submission C31.	IHSL	16/07/13
5.7	Board to provide a detailed scope against the programme of the Key Enabling Works.	NHSL	30/08/13
5.8	IHSL to arrange a technical meeting with Scottish Power to establish Scottish Power's wayleave requirements and requirements for the Project.	IHSL	16/07/13
5.9	Board to contact SFT in relation to the VAT issue which has been raised by IHSL in respect of the standard form VAT drafting. *NHSL has referred this issue to SFT and awaits feedback. This will be closed by CD meeting 5.*	NHSL	02/09/13
5.10	NHSL to issue a clarification in relation to whether it or Project Co shall be carrying out the first clinical clean of the Facilities.	NHSL	02/08/13

	Project Co will be required to complete a clinical clean before handover. Details of the requirements will follow CD meeting 4B. .		

BIDDER B

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Competitive Dialogue Meeting 4 – Insurance – Action Notes

Date: 2nd July 2013 **Time:** 14:15 – 14.45 **Location:** Islay Room, 56 Canaan Lane, Edinburgh

Attendees:	Brian Currie	Project Director NHSL
	Lynn Pentland	Legal Adviser, MacRoberts
	Beverley Bracey (dialling in)	NHSL Insurance Adviser, Willis
	Brian Saunders	IHSL
	Claire Mills	IHSL Legals / Burness Paull
	Louise Mercer	IHSL Insurance / JLT
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Lynn Pentland	Legal Adviser, MacRoberts

	Action noted and *post-meeting updates*	Action	Target Date
	Insurance has been postponed from the agenda of CD meeting 4B. NHSL to advise rescheduled date.		
1.	**Schedule Part 15 (Insurance Requirements)** Section 5: IHSL to confirm whether the standard form Broker's Letter of Undertaking is acceptable or whether another form of Broker's Letter of Undertaking is preferable. IHSL also to confirm whether any limit of liability shall apply to its preferred Broker's Letter of Undertaking. It was noted on the call that IHSL's insurance adviser did confirm they wished to use the form of Broker's Letter of Undertaking agreed between JLT and HMT. Liability will not be limited.	IHSL	16/07/13
2.	**Cost Matrices** IHSL to re-submit the insurance cost matrices given that "Insurances required by law" has been given the same values as the "Contractors' All Risks".	IHSL	16/07/13
3.	**Contamination** IHSL to put forward its Contamination proposal pursuant to Clause 10.3 *(Responsibility for Contamination)* of the NPD Project Agreement and consider whether such proposal requires further project specific insurance pursuant to Schedule Part 15 *(Insurance Requirements)*.	IHSL	16/07/13.
4.	**Clauses 53.4.5 and 53.8** As discussed during Dialogue Meeting 4, SFT rejected the amendments to these clauses. IHSL to consider.	IHSL	16/07/13
5.	**Clause 54.1** As discussed, IHSL believes that most indirect losses would flow from physical damage, such damage being insurable. However, if indirect losses did not flow from physical damage such losses would not be insurable. Therefore as currently drafted, Clause 54.1 would result in a potential residual liability for NHSL. NHSL to consider proposing a cap (that is, a fixed number) in respect of uninsured losses as a means of addressing this potential residual liability.	NHSL	30/08/13

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Extraordinary Meeting – 1:200 Design & Planning – Action Notes

Date: 16th July 2013 **Time:** 10:00 – 17:00 **Location:** Islay Room, 56 Canaan Lane, Edinburgh

Attendees for 1:200:	Janice MacKenzie	Clinical and Service User Lead, NHS Lothian
		Project Manager, NHS Lothian
	Fiona Halcrow	Technical Adviser, Mott MacDonald
	David Stillie	Project Manager, Mott MacDonald
	Maureen Brown	
		HLM, Architect
	Andy Anderson	Brookfield Multiplex, Design Manager
	Darren Smith	HLM, Architectural Assistant
	Jo Dorling	
Attendees for Planning Meeting:		Clinical and Service User Lead, NHS Lothian
	Janice MacKenzie	Technical Adviser, Mott MacDonald
		Project Manager, Mott MacDonald
	David Stillie	Project Director, NHS Lothian
	Maureen Brown	
	Brian Currie (15:30-17:00)	
	Andy Anderson	HLM, Architect
	Darren Smith	Brookfield Multiplex, Design Manager
	Patrick Clark (Dialling in)	HLM, Architect
	Jim Miller	Planner
Meeting Chair:	Janice MacKenzie	Clinical and Service User Lead, NHS Lothian
		Project Manager, Mott MacDonald
Action Notes:	Maureen Brown	

		Action	Date
	1:200 DRAWING REVIEW, 10:00-15:30		
1.0	NHSL confirmed Brief Change for DCN & Theatres issued as clarification last week to be discussed at 14:30 today.	NHSL/ IHSL	Note
2.0	Two month extension to programme confirmed by clarification last week to allow further discussion and work on 1:200. NHSL confirmed DM next week will concentrate on 1:200 (with 1:200 FM review in the afternoon to discuss pathways/ lifts etc.). IHSL to consider what should be discussed at meeting next week.	IHSL	Note
3.0	**Social Work** • Location of Social Work department now embedded in Dental department, this is not ideal.	IHSL	On-going
4.0	**Paediatric Dentistry** • Clean utility - shape of room to be reviewed for functionality • Multi-Disciplinary - shape of room to be reviewed for functionality	IHSL	On-going
5.0	**Family Support** • Back of house access to Radio Lollipop. • Two stores can be combined as opposed to being separate. • Nappy Change to be located centrally within department • Review floor areas of rooms that are undersized.	IHSL	On-going
6.0	**Cardiology / Respiratory** • Exercise / tolerance - Shape of room currently a concern. 1:50	IHSL	On-going

	drawing to be issued to prove functionality. • Daylight to rooms to be reviewed.		
7.0	**OPD** • Review location of Orthotics (Inc. Consultant rooms), to be located closer to Radiology. • Meeting room to be located more centrally to serve all departments. • Waiting room to be relocated opposite catering • DCN reception area – not easy for wheel chair access. • Patient Flows/ pathways to be produced for 1:200/ FM meeting for next week.	IHSL	On-going
8.0	**Audiology/ / Orthoptics** • Review shape of rooms in Audiology for functionality. • Waiting area – shape of area currently not working. • Shape of Staff office currently too long and thin. • The two stores can be combined as opposed to separate. •	IHSL	On-going
9.0	**OPD B – out patients** • Reception desk to be located closer to Audiology/ Orthoptics to act as main reception. • Treatments rooms need to be nearer consultant examination rooms • One of the treatment rooms needs to be adjacent to the shower. • Disposal hold to be located closer to entrance/ exit. • General Equipment store floor shape to be reviewed.	IHSL	On-going
10.0	**Plastics** • Assisted bathroom needs to have direct access from dressing's room. • Telephone booth room to be renamed 'Dictation room' and also to be enclosed.	IHSL	On-going
11.0	**Therapies** • Review daylight for treatment rooms. • Changing Rooms outside the large rehab impacting on ward. • Review floor areas throughout ward. • Review functionality of the rooms. • Store areas can be combined. (the one located around rehab area to stay).	IHSL	On-going
12.0	**Clinical Management Suite** • Review 40m rule between accessible WCs • Disposal Hold to be located closer to entrance/ exit. • Store areas to be located beside Printer/ Photocopier rooms. • Private corner in open plan area to be removed. • Beverage bays to be balanced within suite.	IHSL	On-going
13.0	**Clinical Management Education Suite** • Computer carrels to be located at entrance of department	IHSL	On-going
14.0	**Family Hotel** • External walkways will need to be enclosed. • Remove external walkway providing another access to Hotel. • Review floor areas – several undersized. • Review shape of Laundry room. • NHSL confirmed Ronald MacDonald have reviewed – points were discussed during this meeting. • Disposal Hold – should be located close to entrance/ exit.	IHSL	On-going
15.0	**Staff Support, Third Floor** • Review shape of Seminar room and floor area – currently undersized.	IHSL	On-going

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16.0	**Child, Life & Health, Fourth Floor** • Location of photocopier to be reviewed.	IHSL	On-going
17.0	**Classrooms, Fourth Floor** • External access required for Classrooms. • Upper primary and primary to have a foldable wall separating them from one another. •	IHSL	On-going
18.0	**Clinical Management Suite, Fourth Floor** • Review floor shapes of two meeting rooms and prove functionality.	IHSL	On-going
19.0	**Restaurant, Fourth Floor** • Review floor area • Disposal hold and storage dishwashing to be reviewed. • Servery location to be confirmed. • Accessible WC required in this area **(NHSL to amend brief)**	IIHSL IHSL/NHSL	On-going On-going
20.0	**Health Records, Fourth Floor** • Receipt/ dispatch counter needs to be relocated to entrance of department and near the records library • Review shape of trolley area – too narrow.	IHSL	On-going
21.0	**Helipad** • Ensure stretcher access on staircases from Helipad.	IHSL	On-going
22.0	**Staff Support, Second Floor** • Review floor shape of rooms.	IHSL	On-going
23.0	**Clinical Research, First Floor** • Clean & Dirty utility should not be next to one another.	IHSL	On-going
24.0	**PICU, First Floor** Drawing not issued prior to meeting, however NHSL discussed with IHSL during meeting. IHSL to formally issue drawing for review and further discussion.	IHSL	
25.0	IHSL to uploaded the following drawings to Conject for NHSL review in folder 4.0B Dialogue Meeting: • Accident & Emergency • PARU • CHAMS • DCN Acute • Critical Care • Theatres • Sleep Lab • Long / short Stay Surgical • Oncology/ Haematology	IHSL	
	PRE-PLANNING MEETING REQUIREMENTS, 15:30 -16:00:		
26.0	Draft agenda discussed ahead of meeting. Yet to be formally issued by NHSL.	Note	
27.0	Cycle route high priority of all stakeholders. To be designed to link in with other tracks with in the areas.	Note	
28.0	Proposed Elevations provided and discussed.	Note	
29.0	Examples of 'shared surfaces' to be uploaded to Conject to allow discussion at next week's 1:200 meeting.	Note	
30.0	Drawings to be updated with legal orange boundary and issued to NHSL in advance of the Planning meeting. Note, this drawing need not be issued to Planners.	Note	

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31.0	Show flues for Energy Centre on plans and elevations and external elevational graphics.	Note	

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Competitive Dialogue Meeting 4B - Action Notes

Date: 24th July 2013 **Time:** 09:00 – 17:15 **Location:** MacKinlay Room
Issued: 6th August 2013

Attendees:	Brian Currie	Project Director, NHSL
	Sorrel Cosens	Project Manager, NHSL
	Iain Graham	Commercial and Legal Lead, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Graeme Greer	Technical Adviser, Mott MacDonald
	Andrew Orr	Lead Legal Adviser, MacRoberts
	John Ballantyne	Brookfield Multiplex
	Paul Serkis	IHS Lothian
	Brian Saunders	Macquarie
	Juan Miguel Custodio	Macquarie
	Steve McDonald	IHS Lothian
	Darren Smith	Bouygues E&S FM
	Lorraine Robertson	IHS Lothian
	Andy Anderson	IHS Lothian
	Anne Alexander	IHS Lothian
	Angela Donnelly	Bouygues E&S FM
	Chris Liddle	IHS Lothian
		HLM
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Sorrel Cosens	Project Manager, NHSL

	Actions and *Updates*	Lead	Time
1.1	New NHSScotland guidance on Waste Management requires to be incorporated into the project. NHSL to share CEL and any updates to specification.	NHSL	07/08/13
1.2	NHSL to share draft agenda for CD meeting 4C.	NHSL	CLOSED
1.3	IHSL to respond to draft agenda and confirm whether there are specific criteria that they wish to resubmit for discussion at meeting 4C or 4D. Also to confirm attendees for each part of the meeting.	IHSL	02/08/13
1.4	SFT have released a further schedule of changes to the standard form PA; NHSL will incorporate these into the next draft.	NHSL	30/08/13
1.5	NHSL to provide changes to linen specification. *Refer to Clarification 00123.*	NHSL	CLOSED
1.6	The contractor will be expected to conduct a clinical clean before handover; this will be added to the completion criteria and issued as a clarification.	NHSL	07/08/13
1.7	NHSL to provide provisional sum for group 1 equipment. *Refer to Clarification 00126.*	NHSL	CLOSED
1.8	Scottish Water has confirmed that the January 2012 report is currently valid, and also that this situation will not run indefinitely.	Note	
1.9	IHSL received feedback on the H&S a submission B12 recommending that they develop the delivery and management roles and responsibilities and expand on the H&S management strategy.	IHSL	21/10/13

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1.10	NHSL to provide evidence of NHSL related BREEAM credits. *Refer to Clarification 00128.*	NHSL	CLOSED
1.11	Bidders are expected to progress Secured By Design requirements in line with the BCRs and BREEAM requirements.	Note	
1.12	EIB's initial meeting with the Board was very positive. EIB are undertaking a strategic review of the project in order for their Board to consider supporting it at their 13/11/13 meeting. EIB Board approval could mean up to 50% of senior debt, which would be progressed with the Preferred Bidder. No commitment can be given before November, but EIB are happy to be contacted by Bidders. The EIB lead for this project is Federico Rizzi, f.rizzi@[redacted]	Note	
1.13	Construction Skills funding would be available for the successful contractor to assist with training and development.	Note	
1.14	IHSL have issued a draft schedule of enabling works; NHSL will confirm details of these works as soon as possible.	NHSL	30/08/13
1.15	NHSL to provide reports on Site Investigations.	NHSL	09/08/13

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Competitive Dialogue Meeting 4B – Design Review Action Notes

Date: 24th July 2013 **Time:** 10.00 – 16.30 **Location:** MacKinlay Room

Attending:	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Maureen Brown	Project Manager, Mott MacDonald
	Fiona Halcrow	Project Manager, NHSL
	David Stillie	Technical Adviser, Mott MacDonald
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Howard Royston	Acting Head of Estates, NHSL
	Sorrel Cosens	Project Manager, NHSL
	Brian Currie	Project Director, NHSL
	Paul Serkis	IHS Lothian
	Chris Liddle	IHS Lothian
	Darren Smith	IHS Lothian
	Lorraine Robertson	IHS Lothian
	Andy Anderson	IHS Lothian
	Anne Alexander	IHS Lothian
	Angela Donnelly	IHS Lothian
Meeting Chair:	Janice MacKenzie	Project Director, NHSL
Action Notes:	Maureen Brown	Project Manager

	Actions and *Updates*	Lead	Time
	Horizontal & Vertical Movement Strategy		
2.1	FM lift feeding ground level to Helipad has increased in size.	Note	
2.2	Passenger lifts do not go down to basement level.	Note	
2.3	Reference Design has clean lifts grouped together and ditto with Dirty on each floor, as opposed to have a clean and dirty lift at each end of the floor plan. IHSL querying opportunity to change. NHSL to review. *NHSL Head of Infection Control has confirmed that there is not a requirement to have separate Clean & Dirty FM lifts. Bidders should consider this in the context of their strategy for managing the segregation of clean and dirty flows.*	NHSL	CLOSED
2.4	IHSL to provide individual drawings/ PowerPoint presentation showing each FM route (with room layouts/ departments) as opposed to all on the same drawing. - Highlighting fire lifts / passenger lifts	IHSL	06/08/13
2.5	IHSL to consider providing visible accessible staircases.	IHSL	On-going
2.6	DCN outpatients – Ground Level, respite areas required throughout corridor.	IHSL	On-going
2.7	Vertical and horizontal movement (including FM) to be discussed at Dialogue Meeting 4C.	IHSL	15/08/13
	Design Review		
2.8	**Ground Floor, Emergency Department** - Pneumatic room to be amended to read station and not room. - IHSL to review reference design in relation to ambulant entrance/	IHSL	On-going

	wait area and functionality.		
2.9	**Ground Floor, PARU** - Swap interview room and clinical coordinator. - Isolation bedroom to be reviewed with regards to observation. -	IHSL	On-going
2.10	**Ground Floor, CAMHS** - Quiet room is a room not a cupboard. - Service shaft/ cupboard room in Quiet room to be reviewed based on security. - IHSL to review reference design regarding key room adjacencies and groups associated with the distinct services within CAMHS (review clinical output spec). - Control viewing room into group rooms – IHSL to review based on reference design. - Review corridor areas and 'lock down' of departments.	IHSL	On-going
2.11	**Level 01, DCN Acute Care** - Revised floor plan drawing issued to NHSL during meeting for further review. - IHSL to review 2 options for 4 bed layout plans.	IHSL	On-going
2.12	**Level 01, PICU/ HDU/Critical Care/ NICU** NHSL confirmed this drawing had been reviewed by Critical Care Leads, the following comments were made: - IHSL to ensure pendants work with location of beds in room. - 1:50 drawings for 4 bed 'options' presented by IHSL during meeting and issued to NHSL for review and discussion with Critical Care Lead. - Bulk equipment store and equipment store require to be adjacent and in central location. - Bulk store to be located centrally to department. - Door between HDU to PICU currently clashes with clean utility room. - Staff base in HDU to be reviewed in relation to linen trolley area – currently clashes. - Play base and pantry milk base rooms are to be swapped over. - Clean utility in HDU to be open area as reference design. - Bed buggy store missing.	IHSL	On-going
2.13	**Level 02, DCN Inpatients** - Floor shape of Kitchen to be reviewed, IHSL to issue 1:50 floor plan proving functionality. - Location of Node room to be reviewed, IHSL to consider moving to the periphery of ward. - Double touch down base located centrally to be reviewed - Linen bay and resuscitation trolley to be located centrally in ward. - X-ray bay to be located centrally in ward. - Interview room floor shape to be reviewed. - IHSL to identify WCs (note staff WCs ideally should not be located centrally to ward and directly outside patient rooms). - PTS location and information to be reviewed by NHSL and feedback to Bidders. *NHSL confirm the location of the PTS in DCN Inpatients (2nd Floor), it is in the Clinical Supplies Room 2-L2-067.* - IHSL to confirm quantity of Interview Rooms – 2 required.	IHSL NHSL	On-going CLOSED
2.14	**Level 03, Surgical Short Stay** - Dining Play area to be relocated to Clean utility and treatment room - Review location of assisted bath - Second touchdown base at end of ward to be shown on drawing. - Noted DSR size had not increased as per the Schedule of Adjustments, IHSL to ensure this is done for all DSRs - Shared adolescent facilities to be in medical inpatients and not Surgical Long Stay.	IHSL	On-going

2.15	**Level 03, Medical In Patients** - Review kitchen floor shape. - IHSL to review Ward kitchen and equipment store at either side of dining play - 4 bed areas could be located together – IHSL to consider options. - Dining play to be centrally located. - Consider position of Ward Manager's office	IHSL	On-going
2.16	**Level 03, Sleep Lab** NHSL confirmed this department had not yet been discussed with Department Lead. - IHSL to review area on an observation basis. - IHSL to issue a 1:50 drawing proving functionality. - Equipment alarms to be feedback to touch down base.	IHSL	On-going
2.17	**Level 03, Haematology** - Doors off hospital corridor to external area to be locked. - IHLS to review adolescent access from ward to external area. - IHSL to review use of external area and how this will be segregated	IHSL	On-going
2.18	**Level 04, Child Life and Health** IHSL discussed revised floor plan during meeting, IHSL to upload drawing via Conject to allow NHSL to review. Initial NHSL comments: - NHSL confirmed the lockers are to be used by Students (circa 60 students). - Photocopier room to be swapped with DSR i.e. photocopier room to be located beside admin office.	IHSL	On-going
2.19	**Theatres** IHSL discussed revised floor plan (based on new design brief) during meeting, IHSL to upload drawing via Conject to allow NHSL to review. Paper copy issued to NHSL during meeting. Initial NHSL comments: - IHSL noted this floor plan is yet to be reviewed by their Fire Officers. - NHSL confirmed feedback will be issued back to IHSL by w/e 26th July 2013.	IHSL NHSL	On-going CLOSED
2.20	IHSL to issue schedule to NHSL confirming rooms of 'irregular' shape.	IHSL	06/08/13
2.21	**Ground Level, Paediatric Dentistry/ Social Work** IHSL discussed revised floor plan during meeting, IHSL to upload drawing via Conject to allow NHSL to review.	IHSL	On-going
2.22	**Level 01, Audiology** IHSL discussed revised floor plan during meeting, IHSL to upload drawing via Conject to allow NHSL to review.	IHSL	On-going
2.23	**Level 02, Clinical Management** IHSL discussed revised floor plan during meeting, IHSL to upload drawing via Conject to allow NHSL to review.	IHSL	On-going
2.24	**Family Hotel** IHSL discussed revised floor plan during meeting, IHSL to upload drawing via Conject to allow NHSL to review.	IHSL	On-going
2.25	IHSL requested discussion of response toC.20 User Interface to be issued as 'draft' for DM4C.	IHSL	06/08/13
2.26	IHSL propose presenting all drawings at DM4C. Audit trail/ commentary will be produced for each Department.	IHSL	06/08/13
2.27	1:50 Pod – IHSL to produce own 'vision' as to how this will operate.	IHSL	29/07/13
2.28	**External Areas** IHSL to confirm area of each external space and what department they envisage will access these spaces	IHSL	06/08/13

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	Design Criteria Submissions C1 – C5		
2.29	**C1 – Meeting Stakeholder Requirements** - IHSL to provide more examples of stakeholder involvement. - Focus of facilities for staff. - Provide more details on relationship between RHSC and DCN.	IHSL	On-going
2.30	**C2 – Robustness and quality of approach** - NHSL reconfirmed Scottish Water sewer does have capacity. - IHSL confirmed Scottish Water Impact Assessment currently out of date (supply of water). IHSL to issue dialogue period query via Conject 25/07/13.	IHSL IHSL	On-going 25/07/13
2.31	**C3 – Quality of Architectural Design** - Site masterplan – IHSL to superimpose legal boundary on all drawings, IHSL confirmed their Planning Submission drawings include this boundary. - Provide information on what / where charities/ funding groups can integrate. - C3.2, Link response back to deliverables.	IHSL	On-going
2.32	**C4 - Delivering Innovation** - C4.2, Provide information on good practice	IHSL	On-going
2.33	**C5 - Adaptability and Flexibility** - Provide information on future expansion. - Link to specific proposals. -	IHSL	On-going
2.34	NHSL confirmed the RHSC & DCN will provide services for: - Edinburgh & Lothian / South East of Scotland and National services for Scotland.	Note	
2.35	Brief BIM model presentation given.	Note	

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Competitive Dialogue Meeting 4B - Legal Action Notes

Date: 24th July 2013 **Time:** 10.30 – 16.45 **Location:** Islay Room

Attendees:	Iain Graham	Commercial and Legal Lead, NHSL
	Lynn Pentland	Legal Adviser, MacRoberts
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Howard Royston	Acting Head of Estates, NHSL
	John Ballantyne	Brookfield Multiplex
	Steve MacDonald	IHS Lothian
	Chris MacKay	IHS Lothian
	Claire Mills	IHS Lothian
	Anne Alexander	IHS Lothian
Meeting Chair:	Iain Graham	Commercial and Legal Lead, NHSL
Action Notes:	Lynn Pentland	Legal Adviser, MacRoberts

	Actions and *Updates*	Lead	Time
3.1	NHSL to respond in writing to IHSL in respect of IHSL's NPD Project Agreement commentary issued as part of its Informal Submission 4B.	NHSL	CLOSED
3.2	IHSL to respond to NHSL in terms of item 3.1 together with an accompanying revised mark-up of the NPD Project Agreement as part of Informal Submission 5.	IHSL	09/09/13
3.3	NHSL to respond to IHSL's mark-up of the Board's Construction Requirements submitted as part of Informal Submission 4B.	NHSL	30/08/13
3.4	NHSL to respond to IHSL's mark-up of the EPC Heads of Terms submitted as part of Informal Submission 4B.	NHSL	02/09/13
3.5	ISHL to submit any further amendments to the FM Heads of Terms.	IHSL	09/09/13
3.6	NHSL to review Key Enabling Works matrix produced by IHSL.	NHSL	30/08/13
3.7	IHSL to liaise with Scottish Power in relation to availability of Little France substation for the Project.	IHSL	Ongoing
3.8	NHSL to keep IHSL appraised in terms of developments to purchase the petrol station.	NHSL	Ongoing
3.9	IHSL to upload correct versions of Informal Submission 4B to Conject.	IHSL	CLOSED
3.10	NHSL to provide feedback to IHSL in respect of values for any Quantifiable Bidder Amendments.	NHSL	30/08/13
3.11	SFT have provided feedback in relation to the VAT query raised by IHSL relating to Clauses 35.5 and 35.7.2 of the NPD Project Agreement, such clauses being stated to be particularly disadvantageous to the project company in the event that the Board wished to dispute the VAT liability of supplies made to it. SFT are not aware of this having been raised as an issue before. For example, it has not come up on other projects in the NPD programme and the drafting has been in the standard form NHS contract for a number of years. Please would IHSL provide details of the recent case that has given rise to IHSL's concerns.	IHSL	02/08/13

	FM: Change Protocol		
3.12	IHSL setting out its commercial approach to the Change Protocol for FM workstream.	Note	
3.13	NHSL to review IHSL's commercial approach to the Change Protocol, including population of the Catalogue submitted as part of Informal Submission 4B.	NHSL	30/08/13

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Competitive Dialogue Meeting 4C Action Notes

Date: 15th August 2013 **Time:** 09:00 – 16:30 **Location:** MacKinlay Room
Issued: 30 August 2013

Attendees:	Brian Currie	Project Director, NHSL
	Sorrel Cosens	Project Manager, NHSL
	Iain Graham	Commercial and Legal Lead, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Graeme Greer	Technical Adviser, Mott MacDonald
	Anne Alexander	IHSL
	Dave Bower	IHSL
	Juan Custodio	IHSL
	Angela Donnelly	IHSL
	Brian Saunders	IHSL
	Darren Smith	IHSL
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Sorrel Cosens	Project Manager, NHSL

	Action Notes and *Updates*	Lead	Time
1.1	Enabling works programme will be shared with all Bidders once it is available from the contractor. NHSL hope to provide this in advance of the deadline for Informal Submission 5.	NHSL	30/08/13
1.2	Discussions on the filling station site purchase are ongoing; Bidders will be informed of the outcome. Again, NHSL hope to provide this in advance of the deadline for Informal Submission 5.	NHSL	30/08/13
1.3	Clinical clean is to be included in the completion criteria and documentation to support this will be issued to all Bidders. *Refer to Clarification 00136.*	NHSL	CLOSED
1.4	NHSL are meeting with the council highways department re: construction access early in September; Bidders will be updated at CD meeting 5.	NHSL	17/09/13
1.5	NHSL are reviewing proposed Quantifiable Bidder Amendments and will provide their response in advance of the deadline for Informal Submission 5. *Refer to Bulletin 00070.*	NHSL	CLOSED
1.6	IHSL will confirm if they wish to take the opportunity for legal drafting alongside CD meeting 4D.	IHSL	23/08/13
1.7	IHSL will submit any requests for commercial clarification in advance of CD meeting 5 as a Dialogue Period Query on Conject.	IHSL	09/09/13

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Competitive Dialogue Meeting 4C – Strategic & Management

Date: 15th August 2013 **Time:** 09.15 – 10.25 **Location:** MacKinlay Room

Attendees:	Brian Currie	Project Director, NHSL
	Sorrel Cosens	Project Manager, NHSL
	Iain Graham	Commercial and Legal Lead, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Graeme Greer	Technical Adviser, Mott MacDonald
	Anne Alexander	IHSL
	Dave Bower	IHSL
	JuanCustodio	IHSL
	Angela Donnelly	IHSL
	Brian Saunders	IHSL
	Darren Smith	IHSL
Meeting Chair:	Iain Graham	Commercial & Legal Lead, NHS Lothian.
Action Notes:	Sorrel Cosens	Project Manager, Project Manager NHS Lothian.

	Action Notes and *Updates*	**Lead**	**Time**
2.1	IHSL submissions are work in progress still in development. IHSL to advise if they wish to re-submit any criteria for discussion at a meeting before Draft Final Tender, otherwise the timescale for completion of these actions is 21/10/13.	IHSL	22/08/13
	Understanding the policy framework (B1) and the Board's vision and associated performance management regime (B2)		
2.2	NHSL noted that the submissions were work in progress and advised IHSL to demonstrate understanding of the policy framework and Board's vision by the SPV at a strategic level as there was no longer an opportunity to provide detailed feedback in dialogue.	IHSL	21/10/13
	Management of design development including integration with the Board, its partners and Post Preferred Bidder stage (B14 & C20)		
2.3	IHSL were advised to approach B14 from the 'top down' or strategic level first.	IHSL	21/10/13
2.4	Submission C20 will be uploaded with Informal Submission 4D. In particular, IHSL requested feedback on the proposed groupings of departments and stakeholders for design development. This will be provided in meeting 4D.	IHSL NHSL	22/08/13 03/09/13
2.5	IHSL noted that they had specific questions for NHSL about the programme. IHSL to highlight in their submission for 4D what they required clarification on.	IHSL	22/08/13
	Programme from Preferred Bidder to Financial Close (B15)		
2.6	NHSL are sharing IHSL's proposals for fully- or partially-funded bids with SFT. NHSL will provide the requirements for draft and final financial tenders in advance of Informal Submission 5. *Refer to Clarification 00140.*	NHSL	CLOSED
2.7	IHSL noted the challenging timescales between Draft Final Tender and Final Tender.	Note	
2.8	NHSL will provide Bidders with a report on their Draft Final Tenders in advance of CD meeting 6. This will form the basis of the agenda for meeting 6, and there will be no additional submission required of Bidders.	Note	

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Competitive Dialogue Meeting 4C – Design & Construction Action Notes

Date: 15th August 2013 **Time:** 10.30 – 16.00 **Location:** Islay Room

Attendees:	Brian Currie	Project Director, NHSL
	Graeme Greer	Technical Advisor, Mott MacDonald
	Colin MacRae	M&E Technical Adviser, Mott MacDonald.
	Iain Graham	Commercial and Legal Lead, NHSL
	Andy Anderson	IHS Lothian
	Jo Dorling	IHS Lothian
	John Bushfield	IHS Lothian
	Dave Bower	IHS Lothian
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Graeme Greer	Technical Adviser, Mott MacDonald

	Action Notes and *Updates*	Lead	Time
	IHSL queries on recent clarifications		
3.1	NHSL to review the notes of meeting from the planning meeting. *Refer to Bulletin 00060/ Bulletin Response-20.*	NHSL	CLOSED
3.2	IHSL to provide marked up drawings of their interpretation of the Schedule Part 27 Planning Drawings and the ITPD requirements with respect to the interface arrangements.	IHSL	21/10/13
	C31 Interface Proposals		
3.3	IHSL to review the methodology for the traffic management entering and the existing site.	IHSL	21/10/13
3.4	IHSL to review the areas where the cranes will free sail over existing buildings, particularly TC4 and TC5.	IHSL	21/10/13
3.5	IHSL to review the methodology for works taking place in the service strip.	IHSL	21/10/13
3.6	NHSL to review to wayleave requirements for the proposed Scottish Power cable through the service strip. *There is an expectation for an electrical cable running through the service strip. We await Bidder proposals for the electrical supplies and arrangements to the site but any wayleave requirements of Scottish Power will be the subject of normal property agreements*	NHSL	CLOSED
3.7	NHSL to provide feedback via the legal workstream on the "COMMENTS ON SECTION 3 OF THE BOARD'S CONSTRUCTION REQUIREMENTS, APPENDIX A INTERFACE WITH CAMPUS SITE AND/OR CAMPUS USERS ETC".	NHSL	30/08/13
3.8	NHSL to review the phasing drawing at the connection point with the RIE. AL00(03) *No change to the drawing. Please submit a query via Conject if you require clarification.*	NHSL	CLOSED
3.9	IHSL to provide further detail with respect to the written response to C31 – Interface Proposals.	IHSL	21/10/13
	C23 – Programme		

3.13	IHSL to provide further detail with respect to the written response to C23 – Programme.	IHSL	12/10/13

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Competitive Dialogue Meeting 4C – Continuation of 1:200 Design Action Notes

Date: 15th August 2013 **Time:** 10.30 – 14.25 **Location:** MacKinlay Room

Attendees:	Janice MacKenzie	Clinical & Service User Lead, NHSL
	Fiona Halcrow	Project Manager, NHSL
	Brian Currie	Project Director, NHSL
	David Stillie	D&C Architectural Adviser, Mott MacDonald
	Kamil Kolodziejczyk	Assistant Project Manager, Mott MacDonald.
	Carol Thorburn	Facilities Management, Mott MacDonald
	Howard Royston	Acting Head of Estates, NHSL
	Darren Smith	Brookfield Multiplex
	Andy Anderson	IHS Lothian
	Jo Dorling	IHS Lothian
	Dave Bower	IHS Lothian
	Brian Saunders	IHS Lothian
Meeting Chair:	Janice MacKenzie	Project Director, NHSC.
Action Notes:	Kamil Kolodziejczyk	Assistant Project Manager, Mott MacDonald.

	Action Notes and *Updates*	Lead	Time
	GROUND FLOOR		
4.0	**Emergency Department** • Move Lobby to Enclosed Garden to come off to main wait area, potential to swap with nappy change	IHSL	22/08/13
4.1	**PARU Shared Support 100 % complete (P5)**	Note	
4.2	**PARU 100% complete (P5)**	Note	
4.3	**Spiritual Care** • Office to be swapped with Interview Room	IHSL	22/08/13
4.4	**CAMHS** • Reception needs visibility into the Waiting Area	IHSL	22/08/13
4.5	**Radiology** • Nappy Change – IHSL to review the position and locate the room in more visible location • Play Area is separated from main waiting area by main corridor which is not ideal from a supervision perspective. IHSL to review	IHSL	22/08/13
4.6	**DCN Outpatient 100% complete (P5)**	Note	
4.7	**OPD (Outpatient D1 area) Suite A 100% complete (P5)**	Note	
4.8	**Cardiology and Respiratory** • The layout of rooms to be reviewed, the shape of the Exercise Tolerance Test Room to be reviewed, the equipment layout needs to be shown on 1:50	IHSL	22/08/13
4.9	**Family Support** • The shape of 4 person Office to be reviewed, K1-024 • Glazed screen onto the pod required in Radio Lollipop	IHSL	22/08/13

4.10	**Dental** • NHSL will review the shape/layout shown on the tabled 1:50 drawing and respond to IHS Lothian	NHSL	03/09/2013
4.11	**Social work 100% complete (P5)**	Note	
4.12	**RHSC Entrance 100% (P5)**	Note	
4.13	**DCN Entrance 100% (P5)**	Note	
	FIRST FLOOR		
4.14	**DCN Acute Care** • NHSL queried access for a bed into the treatment room, IHSL confirmed there was sufficient access • Intensive Treatment Room to be moved closer to Single Rooms 1 and 2 • MDO to be swapped with Single Room 1 • Stationery Store – shape to be reviewed • Prove functionality of the split Equipment Store. • Staff Room - IHSL to ensure that suitable sound attenuation is incorporated between Staff Room and Bedrooms • Bedrooms 3,4,5,6 to be VTM enabled rooms	Note IHSL IHSL IHSL IHSL IHSL Note	 22/08/13 22/08/13 22/08/13 22/08/13 22/08/13
4.15	**Revised layout PICU being presented at the meeting, to be reviewed by NHSL and feedback presented at next round of meeting. IHSL to upload the drawing by next Thursday (22/08/2013)**	NHSL / IHSL	
4.16	**On Call 100% complete (P5)**	Note	
4.17	**Clinical Research 100% complete (P5)**	Note	
4.18	**Theatres presented at the meeting. NHSL to review and provide feedback at the next meeting. IHSL to upload the drawing by next Thursday (22/08/2013)** **Two options have been tabled for consideration – NHSL to provide feedback at the next meeting**	IHSL NHSL	22/08/13 03/09/13
4.19	**Surgical Day Case Unit** NHSL confirmed that the drawing had been discussed with the Charge Nurse for this area • Need to consider wayfinding and patient flow through the department • Patient Changing Cubicles – to be located before Pre -Theatre Wait Area • One of the WCs off the Waiting Area should be accessible type • The Plaster Store – is associated with RHSC Theatres move nearer to theatres area but can be on the periphery • The Nursing Office can move from current position *Post meeting note – patient journey within SDCU is as follows*:- 1. *Patient arrives at reception* 2. *Patient shown to wait/play area (reception staff need to view this area from their desk)* 3. *Patient then attends one of the following rooms next – interview rooms/CER/* 4. *Patient attends Measurement bay* 5. *Patient goes to the changing cubicle undresses, valuables placed in locker* 6. *Patient can return to wait/play area* 7. *Patient then goes to pre theatre wait area* 8. *Patient then goes to theatre* 9. *Patient goes to recovery area 1 from theatre* 10. *Patient moves through into recovery area 1* 11. *Patient moves through into recovery area 2 (SDCU)* 12. *Patient moves to discharge lounge/play area – close connection with pharmacy dispensary*	IHSL	22/08/13

4.20	**Outpatients Suite B** • Clean Utility Room 013 – IHSL to review the shape and functionality • 028 Physical Measurement – needs to be closer to the entrance of the department • The shape of Multidisciplinary Consultants Office 016 to be reviewed to prove functionality	IHSL	22/08/13
4.21	**RHSC Therapies 100% complete (P5)**	Note	
4.22	**Plastics Dressings Clinic 100% complete (P5)**	Note	
4.23	**Orthotics 100% complete (P5)**	Note	
4.24	**Audiology 100% complete (P5)**	Note	
	SECOND FLOOR		
4.25	**DCN Inpatients** IHSL confirmed that they are still working on this area and will upload drawing by next Thursday (22/08/2013) NHSL confirmed the following • The area is split into 24 Bedded and 19 Bedded Ward • PIU needs to be located in 19 Bedded Ward • Interview Room 077 location to be confirmed by IHSL as not shown on current drawing	Note	
4.26	**DCN Therapies 100% complete (P5)**	Note	
4.27	**Equipment Library** • Separate entrances for the Clean and Dirty Equipment to be investigated. If not possible then the area is 100% complete (P5)	Note	
4.28	**DCN Neurophysiology 100% complete (P5)**	Note	
4.29	**S2 Core Server Room 100% complete (P5)**	Note	
4.30	**Clinical Management Suite 100% complete (P5)**	Note	
4.31	**S5 Central Staff Changing 100% complete (P5)**	Note	
	THIRD FLOOR		
4.31	**Medical Day Case 100% complete (P5)**	Note	
4.32	**Special Biochemistry 100% complete (P5)**	Note	
4.33	**C2 Ward Support 100% complete (P5)**	Note	
4.34	**Haematology and Oncology** • Swap Patient Interview Room with Complementary Therapies Room	IHSL	22/08/13
4.35	**Neurosciences 100% complete (P5)**	Note	
4.36	**Paediatric Neurophysiology 100% complete (P5)**	Note	
4.37	**Special Feeds Unit** • Hand wash basin in the corridor to be shown as per reference design	IHSL	22/08/13

4.38	**Shared Support 100% complete (P5)**	Note	
4.39	**Family Hotel 100% complete (P5)**	Note	
4.40	**Clinical Education 100% complete (P5)**	Note	
	FOURTH FLOOR		
4.41	**Staff Restaurant** • NHSL to check number of toilets stated in the SoA version 14 *Confirmed that no of Toilets to be 3 Ambulant WC's and 1 Accessible*	NHSL	CLOSED
4.42	**Helipad Support** • IHSL tabled revised drawing showing there was clear access to the stairwell, based on this area is 100% complete. IHSL to upload revised drawing on conject.	IHSL	22/08/13
4.43	**Clinical Management Suite** • The shape of the Meeting Rooms (003 and 007) to be reviewed by IHSL • Remove external access to terrace from Conference Room	IHSL	22/08/13
4.44	**C5 Classrooms 100% complete (P5)**	Note	
4.45	**H1 Child Life & Health** • No direct visibility of the Waiting Area from Admin Office – resolved in layout tabled during the meeting • The location of the printer / photocopier to be confirmed by NHSL	IHSL	22/08/13
4.46	**Health Records 100% complete (P5)**	Note	
	BASEMENT		
4.47	**S4 Materials Management 100% complete (P5)**	Note	
4.48	**S1 Kitchen 100% complete (P5)**	Note	
4.49	**S3 Domestic Services** • Mis-named sanitary bin area to be relabelled - Curtain Store	IHSL	22/08/13
4.50	**S6 Estates** • Toilet to be relocated into Estates area	IHSL	22/08/13
4.51	**SI2 Bed Store** • Roadshow Equipment Store needs easy access to loading bay and lifts	IHSL	22/08/13
4.52	The space for the compactor to be in accordance with Schedule Part 6 Section 3 Sub-Section E. IHSL to demonstrate the functionality of the basement at Competitive Dialogue Meeting 5 in FM Workstream. Dimension of external spaces also to be submitted by IHSL by Thursday 22/08/2013	IHSL	22/08/13
4.53	For the next meeting (4D taking place on 03/09/2013) IHSL to submit the areas / departments not discussed at today's meeting by Thursday 22/08/2013.	IHSL	22/08/13

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 4D Action Notes

Date: 3rd September 2013 **Time:** 09:00 – 15.00 **Location:** MacKinlay Room
Issued: 16th September 2013

Attendees:	Brian Currie	Project Director, NHSL
	Sorrel Cosens	Project Manager, NHSL
	Iain Graham	Commercial and Legal Lead, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Graeme Greer	Technical Adviser, Mott MacDonald
	Darren Smith	Design Manager, IHS Lothian
	Lorraine Robertson	Architect, IHS Lothian
	Andy Anderson	Architect, IHS Lothian
	John Ballantyne	Bid Director, Brookfield Multiplex
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Sorrel Cosens	Project Manager, NHSL

		Lead	Time
1.1	Dialogue Period Query 00029: NHSL to provide enabling works scope and programme once available from incumbent PFI operator at RIE.	NHSL	13/09/13
1.2	NHSL to respond to IHSL's mark-up of the Board's Construction Requirements.	NHSL	06/09/13
1.3	Dialogue Period Query 00036: NHSL to respond to request for UPS load requirements. *Refer to Dialogue Period Query Response: Query-00036/Query Res-35.*	NHSL	CLOSED
1.4	Dialogue Period Query 00037: NHSL to respond to query on Scottish Water connections *Refer to Dialogue Period Query Response: Query-00037/Query Res-36.*	NHSL	CLOSED
1.5	Dialogue Period Query 00038: NHSL to respond to request for data for IHSL to undertake lifts analysis. *Refer to Dialogue Period Query Response: Query-00038/Query Res-37.*	NHSL	CLOSED
1.6	NHSL confirmed that they were meeting with CEC highways department on 10/09/13 about access proposals and would be in a position to update Bidders at CD meeting 5. *Refer to Clarification 00148.*	NHSL	CLOSED
1.7	IHSL will contact NHSL Legal Advisers directly to discuss contamination issues in advance of CD meeting 5.	IHSL	19/08/13

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 4D – Continuation of 1:200 Design Action Notes

Date: 3rd September 2013 **Time:** 09.30 – 11.45 **Location:** MacKinlay Room

Attendees:	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Fiona Halcrow	Project Manager, NHSL
	Maureen Brown	Project Manager, Mott MacDonald
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Howard Royston	Estates Manager, NHSL
	Stuart Davidson	Contracts Manager, NHSL
	Darren Smith	Design Manager, IHS Lothian
	Lorraine Robertson	Architect, IHS Lothian
	Andy Anderson	Architect, IHS Lothian
	John Ballantyne	Bid Director, Brookfield Multiplex
Meeting Chair:	Janice MacKenzie	Clinical & Service User Lead, NHS Lothian
Action Notes:	Maureen Brown	Project Manager, Mott MacDonald.

		Lead	Time
2.1	**Domestic Services, 21/08/13 (P6 Version):** - Clean and Dirty Linen Pool rooms requires an in and out flow.	IHSL	17/09/13
2.2	**Kitchen, 21/08/13 (P6 Version):** - Wall in pre-wash area (012) to be removed.	IHSL	17/09/13
2.3	**Estates, 21/08/13 (P6 Version):** - Mislabelling of rooms 013 and 014 to be amended.	IHSL	17/09/13
2.4	IHSL to indicate FM traffic flows on GA plans. - Second Compactor Unit/Skip may be required pending wastage policy. Space and appropriate utility support will need to be factored in pending NHSL policy.	IHSL	17/09/13
2.5	**Restaurant, 21/08/13 (P6 Version):** - 3 ambulant WCs (single sex) to be located in this area and 1 accessible WC 70 seats with tables and 30 soft seating to be confirmed and shown on plan. - Review corridor width feeding restaurant, based on public users (with buggies) and flow of dirty and clean trolley traffic. IHSL to review this giving consideration as to whether a n additional route is required.	IHSL	17/09/13
2.6	**Helipad Support, 21/08/13 (P6 Version):** - WHB and Sluice area to be added to Hospital Street, 4-CORR-07 - Clarification on Helipad feasibility study with CAA to be issued by IHSL.	IHSL	17/09/13
2.7	**Emergency Department, 100% complete as drawing issued 21/08/13 (P6 Version)**	Complete	
2.8	**Spiritual Care, 100% complete as drawing issued 21/08/13 (P6 Version).**	Complete	

2.9	**CAMHS, 21/08/13 (P6 Version).** - Reception area and waiting area to be reviewed based on observation.	IHSL	17/09/13
2.10	**Radiology, 100% complete as drawing issued 21/08/13 (P6 Version).**	Complete	
2.11	**Cardiology and Respiratory, 100% complete as drawing issued 21/08/13 (P6 Version).** - 1:50 issued to NHSL for room 014 for review.	Complete	
2.12	**Family Support, 100% complete as drawing issued 21/08/13 (P6 Version).** - 1:50 issued to NHSL for room K1-024 for review.	Complete	
2.13	**Dental, 100% complete as drawing issued 21/08/13 (P6 Version).**	Complete	
2.14	**DCN Acute Care, 21/08/13 (P6 Version):** - Staff Room 052 to be relocated to periphery (scope to swap with DSR?). - Mobile x-ray 065 to be relocated closer to the hospital main street . - Stationary Store, 1:50 required to prove functionality. - Ward Kitchen 054, 1:50 required to prove functionality. - Equipment Rooms 066 has been split into two areas, 1:50 required to prove functionality.	IHSL	17/09/13
2.15	**Critical Care, 21/08/13 (P6 Version):** - ECG bay (059), Mobile X-Ray Bay (058), and X Ray Processing Bay (057) - 1:50 required to prove functionality. - Seminar Room and Staff room – accoustics will need to be considered.NHSL noted that Relative Sitting room has no day light. This had been discussed with Leads for this area who have stated whilst natural daylight would be desirable they did not want to affect the clinical functionality of the current design. Agreed that at Post Preferred Bidder Stage the interior design for this area would need to ensure light was enhanced.	IHSL	17/09/13
2.16	**Theatres, 21/08/13 (P6 Version):** - Procedures Room 094 and Machine Room 056 to be swapped. - Hatch required from corridor into sterile supplies room 095. - Locker Bay Room 173 needs to be located before pre theatre wait, possible swapping with DSR 163. - Physical measurement bay 002, 1:50 required to prove functionality.	IHSL	17/09/13
2.17	**Out Patients Suite B, 100% complete as drawing issued 21/08/13 (P6 Version), noting:** - Clean Utility Room, 1:50 issued to NHSL for review. - Consultant Multi-Disciplinary Examination Room 016, 1:50 issued to NHSL for review.	Complete	
2.18	**DCN Inpatients, 21/08/13 (P6 Version):** - Assisted bathroom 080, needs to be on the periphery between the two wards. - Ward Kitchen 078, 1:50 issued to NHSL for review.	IHSL	17/09/13
2.19	**PIU, 100% complete as drawing issued 21/08/13 (P6 Version).**	Complete	
2.20	**Equipment Library, 100% complete as drawing issued 21/08/13 (P6**	Complete	

	Version).		
2.21	**Medical Inpatients, 21/08/13 (P6 Version):** - Observation from staff base required into Dining Play Area 021. - Single Bedroom (no. 5 on hand drawing) currently isolated from inpatient accommodation. - Mobile X-ray bay needs to be located on Hospital Main Street as per reference design. - Door required between Treatment room and Clean Utility room.		
2.22	**Sleep Laboratory, 21/08/13 (P6 Version):** - 1:50 Control Room and Patient Bedrooms issued to NHSL for review. Comments to be issued to IHSL for action. - IHSL stated that the proportions of WC accessible rooms in reference design do not allow for full functionality but the shape of their rooms this is improved.	NHSL Note	CLOSED
2.23	**Haematology and Oncology, 100% complete as drawing issued 21/08/13 (P6 Version).**	Complete	
2.24	**Special Feeds Unit, 100% complete as drawing issued 21/08/13 (P6 Version).**	Complete	
2.25	**Clinical Management Suite – 4th Floor, 100% complete as drawing issued 21/08/13 (P6 Version).** - 1:50 Meeting Rooms issued to NHSL for review.	Complete	
2.26	**Child Life and Health, 21/08/13 (P6 Version).** - Printer / photocopier to be located closer to the admin office.	IHSL	17/09/13
2.27	IHSL to confirm dimensions of all external areas.	IHSL	17/09/13
2.28	NHSL asked for an update on IHSL progress with their justifications for changes to the mandatory reference design. IHSL stated that this was progressing well	IHSL	21/10/13

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 4D –Design & Construction Action Notes

Date: 3rd September 2013 **Time:** 13.00-14.30 **Location:** Islay Room

Attendees:	Brian Currie	Project Director, NHSL
	Graeme Greer	Technical Advisor, Mott MacDonald
	Darren Smith	Design Manager, IHS Lothian
	John Ballantyne	Bid Director, Brookfield Multiplex
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Graeme Greer	Technical Advisor, Mott MacDonald

	Planning Update	Lead	Time
3.6	~~NHSL noted no further submission requirements before PB announced.~~ **C20 Acceptable post Preferred Bidder stage design development proposals and design programme**		
3.1	NHSL to review the draft schedule of accommodation for rooms that are potentially too small to accommodate the required equipment. *The risk allocation associated with the project requires that the Bidder / Project Co takes responsibility for making sure that the rooms are sufficiently sized for the Board to carry out their activities, including fitting in the equipment which will be installed (and as such the room areas in the Draft Schedule of Accommodation are minimum sizes). Therefore, Bidders should be sizing the rooms accordingly and basing the financial proposals on this.* *If equipment which is currently scheduled in the Board's equipment list (groups 2A, 2B and 3) cannot fit into the rooms as designed then this is the Bidders / Project Co's risk. If the Board change their equipping requirements, resulting in this issue arising then this would be the Board's risk.* *For avoidance of doubt, the Bidder / Project Co are responsible for the quantities of group 1 equipment as set out in Section 2.15 Equipment of Volume 1 and therefore this would be a Bidder / project Co risk (unless the Board changed the minimum quantities they have specified for Group 1) .* *However, in order to understand the extent of your concerns can you please confirm which rooms you clarification relates to.*	NHSL	CLOSED
3.2	Following a request from an NHSL radiologist for IHSL to visit St Johns, NHSL to respond to the NHSL radiologist to confirm this visit is not currently required.	NHSL	CLOSED
3.3	NHSL to review IHSL definition of design change in C20 response . NHSL noted examples such as; • review dates, • resource availability (noted users will attend a shorter day than that noted by IHSL)	NHSL	13/09/13
3.4	Not specific to C20, IHSL will provide examples of quality from previous projects.	IHSL	21/10/13
	C3 Landscaping Proposals		
3.5	NHSL to review the Hospital Square Works definition in the BCR's.	NHSL	13/09/13

	Method of Measurement Discussion		
3.7	IHSL confirmed there were net room areas that do not comply with the draft schedule of accommodation.	Note	
3.8	NHSL to review the Method of Measurement Clarification. *Further to the Bidder B query on the measurement of areas at Competitive Dialogue Meeting 4D, please note the following comments from NHSL.* *As stated in section 2.5.1 of the ITPD - Schedule of Accommodation and Reference Design Schedule of Accommodation.* *"Bidders are required to meet the minimum floor areas specified in the Draft Schedule of Accommodation however the Reference Design Schedule of Accommodation contains rooms where the area is less than the minimum requirements set out in the Draft Schedule of Accommodation. If Bidders cannot achieve the minimum floor areas for these rooms then it is acceptable, subject to agreement with the Board, for the rooms to be provided at the size achieved in the Reference Design."* *NHSL is not intending to change its approach to the above statement.* *NHSL reiterates that it is the net areas in the Draft Schedule of Accommodation that are NHSL's default requirement, and the net areas in the Reference Design Schedule of Accommodation should only be used "subject to agreement with the Board".* *NHSL acknowledges that due to the level of development of the Reference Design, there are instances in the Reference Design that were not measured in accordance with SHPN 04-01. The expectation from NHSL is that Bidders will develop the mandatory elements of the ITPD into a compliant solution. Bidder B should comply with SHPN 04-01 when measuring areas.* *With respect to Operational Functionality, the Board will only accept proposals that satisfy the Board's requirements in respect of Operational Functionality (ref Clause 12.5 of the Project Agreement)."*	NHSL	CLOSED

BIDDER B

RHSC and DCN –
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Competitive Dialogue Meeting 5 Action Notes

Date: 17th September 2013 **Time:** 09:00 – 17:00 **Location:** MacKinlay Room

Attendees:	Brian Currie	Project Director, NHSL
	Sorrel Cosens	Project Manager, NHSL
	Iain Graham	Commercial and Legal Lead, NHSL
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Jackie Sansbury	Operations and Commissioning Lead, NHSL
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	Graeme Greer	Technical Adviser, Mott MacDonald
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Maureen Brown	Project Manager, Mott MacDonald
	Lynn Pentland	Legal Adviser, MacRoberts
	John Ballantyne	IHS Lothian
	Paul Serkis	IHS Lothian
	Juan Custodio	IHS Lothian
	Anne Alexander	IHS Lothian
	Mark Bradshaw	IHS Lothian
	Darren Smith	IHS Lothian
	Dave Bower	IHS Lothian
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Sorrel Cosens	Project Manager, NHSL

		Lead	Time
1.1	Outstanding action for NHSL to provide enabling works scope and programme once available from contractor. *Refer to Clarification 00157.*	NHSL	CLOSED
1.2	Trunk sewer diversions are progressing as planned, however Bidders should note that Scottish Water have currently requested minimum cover requirements of 1.5m for all parts of the sewer diversion, as per the requirements in Sewers for Scotland. Bidders are reminded that certain parts of the completed sewer diversions remain within the site (former car park B).	Note	
1.3	NHSL are only accepting generic changes to the BCR's output specification that will apply to all Bidders, NHSL have therefore rejected the IHSL changes to the BCR's, noting that IHSL can submit input information in their proposals for review by NHSL.	Note	
1.4	Bidders should be aware that NHSL requires future proofing of the Facilities for a potential future District Heating Mains connection; the District Heating Mains being provided by a third party. There is currently limited information related to the proposed District Heating Mains from the third party (the proposals are in the Feasibility stages) and in respect of the competitive dialogue stages of this project, NHSL are likely to inform an additional plant area allowance (for future plant requirements (plate heat exchangers, pumps, sleeves, valving) which the Bidder shall allow for in their Draft and Final Tender Submissions. The Board will confirm these requirements before the end of September.	NHSL	07/10/13
1.5	Drafting of Processing Agreement with CEC is underway; to be confirmed to Bidders. *Refer to Clarification 00158.*	NHSL	CLOSED

BIDDER B

RHSC and DCN – Little France

1.6	NHSL to respond to IHSL's request for drainage survey information in dwg format. *Refer to Dialogue Period Query Response 38.*	NHSL	CLOSED
1.7	NHSL confirmed that the revenue funding agreed by Scottish Government is fixed and any gap created by exceeding the construction cap would require to be covered by NHSL. Revenue savings through energy proposals and/or lifecycle costs could offset higher construction costs; the financial evaluation will account for this.	Note	
1.8	NHSL reserves the right to disqualify a bidder or bidders on the grounds of unaffordability.	Note	
1.9	IHSL to upload their proposals for cleaning at handover, based on experience on other projects, for NHSL to consider clinical / handover clean requirements.	IHSL	24/09/13

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 5 – Paymech Action Notes

Date: 17th September 2013 **Time:** 10:45– 11:30 **Location:** Islay Room

Attendees:	Jackie Sansbury	Operations & Commissioning Lead, NHSL
	Carol Thorburn	FM Adviser, Mott MacDonald
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Iain Graham	Commercial and Legal Lead, NHSL
	Juan Custodio	HIS Lothian
	MatthiueDannoot	HIS Lothian
	Chris Mackay	HIS Lothian
Meeting Chair:	Jackie Sansbury	Operations & Commissioning Lead, NHSL
Action Notes:	Carol Thorburn	FM Adviser, Mott MacDonald

		Lead	Time
2.1	NHSL advised IHS Lothian that the revised threshold % proposal was not acceptable to the Board. NHSL advised that they would accept a revision to the Threshold and would deal with it via risk adjustment at the bid stage. IHSL to discuss with their TA potential dates for a face to face meeting with NHSL and Mott MacDonald to review IHS Lothian calibration model.	IHSL	27/09/2013
2.2	NHSL advised IHS Lothian that the revised threshold time periods over which notices would accrue were not acceptable.	Note	

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 5 – Costs

Date: 17th September 2013 **Time:** 11:00– 12:00 **Location:** Islay Room

Attendees:	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	Rod Shaw	Commercial Adviser, Thomson Gray
	James Gibson	Commercial Adviser, Thomson Gray
	Maureen Brown	Project Manager, Mott MacDonald
	John Ballantine	IHS Lothian
	Alistair Sansum	IHS Lothian
	Alan Dickson	IHS Lothian
	Mark Bradsaw	IHS Lothian
	Reza Khan	IHS Lothian
Meeting Chair:	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
Action Notes:	Maureen Brown	Project Manager, Mott MacDonald

		Lead	Time
3.0	**Area:** • IHSL concerned on area, GIFA now sitting at 52,527m2 (including mandatory area changes). • Basement GIFA – 4,153m2 + 1,700m2 (external) • IHSL to comply with 'area 'clarification. • IHSLs cost/ m2 currently matching reference design, however due to area, budget currently £4M over budget (currently sitting at £156,457,000).	Note	
3.1	**Artwork:** • Information not yet available/ issued by NHSL (£100K currently in IHSL cost plan to cover 'Arts'). Due to uncertainty IHSL suggesting a Provisional Sum is issued to all three Bidder. *Bidders are to submit their proposals for arts; there will be no provisional sum issued.*	NHSL	CLOSED
3.2	**Group 1 Equipment:** • IHSL happy they have dealt with this clarification. • Board Provisional Sums and Equipment costs total almost £6.0m. (£2.72m Group 1 + £3.27m provisional sum)	Note	
3.3	**Utilities and external works** • Electrical supply quote now revised and received from SP Networks; reducing to £50K (including associated cabling). On-going resilience discussions on-going. • Area of external works does not include anything out with the redline site boundary.	Note	

3.4	**TG confirmed IHSL cost plan m2 rate reads correctly advising IHSL to review the area.**	Note	
3.5	**NHSL to confirm if submitted tendered cost is over budget if it is a disqualification.** *NHSL confirm that tenders exceeding the construction cost cap will be evaluated to assess the overall revenue costs of the proposal. Energy and FM life cycle proposals may offset a gap in construction costs.*	NHSL	CLOSED
3.6	**NHSL to confirm construction inflation, is it 3Q14 or 1Q15?** *Bidders should use Q4 2014 as the base date for cost plans.*	NHSL	CLOSED
3.7	**Helipad design** • NHSL confirmed Helipad is a requirement.	Note	

BIDDER B

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Little France

Competitive Dialogue Meeting 5 – Design & Construction Action Notes

Date: 17th September 2013 **Time:** 10:45 – 16.00 **Location:** Islay Room

Attendees:	Brian Currie	Project Director, NHSL
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	Graeme Greer	Technical Advisor, Mott MacDonald
	David Stillie	D&C Architectural Adviser, Mott MacDonald
	Janice MacKenzie	Clinical and Service User Lead, NHSL
	Robin Reid	Health & Safety Technical Adviser, Turner Townsend
	Howard Royston	Estates Manager
	Carol Thorburn	FM Adviser, Mott MacDonald
	Jackie Sansbury	Operations & Commissioning Lead, NHSL
	Neil McLennan	Project Manager, NHSL
	Paul Serkis	IHS Lothian
	Alan Keeley	IHS Lothian
	Dave Bower	IHS Lothian
	Darren Smith	IHS Lothian
	Angela Donnelly	IHS Lothian
	Phil Davies	IHS Lothian
	John Bushfield	IHS Lothian
	Alex Jolly	IHS Lothian
Meeting Chair:	Brian Currie	Project Director, NHSL
Action Notes:	Graeme Greer	Technical Advisor, Mott MacDonald

		Lead	Time
	Summary of Assumptions		
4.1	NHSL requested that if the reference design Schedule of Derogations are applicable to IHSL's design, then IHSL should include these reference design Schedule of Derogations within their submission to C30. NHSL added that IHSL's Schedule of Derogations should include all IHSL's Derogations, and IHSL should not assume that reference design related Derogations are already accepted.	IHSL	21/10/13
	Interface (C31)		
4.2	NHSL to issue the traffic management plan that provides the peak traffic times at the Facility. *Refer to Clarification 160.*	NHSL	CLOSED
4.3	IHSL to ensure that their interface proposals account for all the requirements as set out in Appendix A of the Boards Construction Requirements.	IHSL	21/10/13
4.4	IHSL to include details on how they will manage the access to the site including the use of permits and how they transfer staff from car park E to the Site.	IHSL	21/10/13
4.5	IHSL commented MH ST09 is not shown in any of the ITPD documents. NHSL confirmed the MH ST09 is indicated on the utility drawings and in the Arup drainage report contained in the data room. IHSL to provide query through conject if there are any further queries.	Note	

	Approach to meeting stakeholder requirements in design (C1)		
4.6	IHSL to provide further detail to Sections C1 (iii) and (iv).	IHSL	21/10/13
4.7	IHSL to update the text to reflect the NHSL clarification relating 100 % adult single rooms.	IHSL	21/10/13
	Approach to design quality (C2)		
4.8	IHSL to provide further detail for Section 2.2.	IHSL	21/10/13
4.9	IHSL to link the response to C2 to the NBS specifications.	IHSL	21/10/13
4.10	IHSL confirmed that at draft final tender and final tender stage that IHSL's submission shall specify products and materials, noting that IHSL will have an "equal and approved" comment beside each item in the specifications.	IHSL	21/10/13
	Architectural and Landscape Design (C3)		
4.11	IHSL to provide further evidence to support statements in their architectural and landscape design proposals.	IHSL	21/10/13
	Approach to delivering innovation (C4)		
4.12	IHSL to provide further evidence for section 4.4.	IHSL	21/10/13
	Approach to adaptability and flexibility (C5)		
4.13	IHSL to review this section to expand on areas of the Facility that have adaptability and flexibility in the design.	IHSL	21/10/13
	Design Life Proposals (C22)		
4.14	NHSL commented IHSL could provide further information to support the Design Life Proposals.	IHSL	21/10/13
	Construction programme and approach to monitoring (C23)		
4.15	NHSL commented IHSL should provide further information around programme of the interface works with the RIE, works in the orange area	IHSL	21/10/13
4.16	NHSL to expand on the planning outputs section.	IHSL	21/10/13
	Quality of Construction Methodology (C24)		
4.17	NHSL commented C24.1 has a limited response that only covers the management team and their roles. IHSL to provide further detail particularly around the phasing works.	IHSL	21/10/13
4.18	NHSL C24.2 provides limited detail, IHSL to review the BCR requirements, and any matters of non-compliance should be added to the schedule of derogations for NHSL review.	IHSL	21/10/13
4.19	NHSL commented C24.5 and 24.6 are limited responses, IHSL to review.	IHSL	21/10/13
4.21	NHSL commented that no details on the temporary utility supplies for the site accommodation have been provided for C24.8 IHSL to review.	IHSL	21/10/13
4.22	NHSL commented that no specific details on the area(s) for storage of the materials have been provided for C24.9, IHSL to review.	IHSL	21/10/13
4.23	NHSL commented there was no response submitted for C24.10, IHSL to review.	IHSL	21/10/13

4.24	IHSL confirmed there are no working hours restrictions included in the Planning application in Principle. NHSL to consider whether there any working hours restrictions. *NHSL anticipate no construction outside the hours of 0700 to 2000 unless agreed with the Board. The Planning department may impose additional restrictions.* *The BCR's will be updated to reflect the above requirement.*	NHSL	CLOSED
	Utilities Update		
4.25	NHSL confirmed that all services must go through the services strip. IHSL commented that Scottish Water are currently requesting the supply as detailed in the reference design.	Note	
4.26	NHSL confirmed the PTS system is separate from the existing RIE system.	Note	
4.27	IHSL to review the rev 0C of the BCR's that has an updated ICT section.	IHSL	21/10/13
4.28	IHSL to check the data room for the Scottish Water Horizons report.	IHSL	21/10/13
4.29	NHSL to pass on any Scottish Water contacts relating to the water supply. *Scottish Water Horizons Contact:* *Kerry.Smith@[redacted]* *Senior Project Manager* [redacted]	NHSL	CLOSED
4.30	*Further to a NHSL clarification on the PTS loading, NHSL to review the PTS loading requirements.* *Refer to NHSL response to Dialogue Period Query 00022.*	NHSL	CLOSED
	H&S Management (C27)		
4.31	C27 .1 ii IHSL to provide details of their subcontractors, designers and suppliers accreditation.	IHSL	21/10/13
4.32	C27.1 iv Occupational Health – IHSL have stated that they intend to use the services of an external dedicated occupational health provider - accreditation should be provided. eg ISO18001.	IHSL	21/10/13
4.33	C27.1.v Bidder B have stated that they will fully develop their project health & safety plan prior to commencement of construction operations (some evidence has been provided in C24 submission).	IHSL	21/10/13
4.34	C27.1 vi Safety in design – IHSL have stated that they have a developed procedure for dealing with the requirements of safety in design. If referencing key roles and responsibilities under CDM 2007 regulations then the bidder should review responsibilities statements to align with the CDM 2007 regs and ACOP. Although they have stated that this process has already commenced - evidence should be provided.	IHSL	21/10/13
4.35	C27.1.viii IHSL have stated that they will hold a risk workshop as part of the project launch. IHSL should add any evidence of health and safety workshops held to date.	IHSL	21/10/13
4.36	C27.1.ix Below ground services and unknowns – IHSL have stated that they have instigated an external report and they await its findings -report available?	IHSL	21/10/13
	CDM Regulations (C28)		
4.37	IHSL to add evidence of early involvement of their CDMC including the output actions and consequences from any of the design meetings.	IHSL	21/10/13

4.38	IHSL to add the supply chain	IHSL	21/10/13
4.39	Pre-construction information should be added.	IHSL	21/10/13
4.40	Project specific information should be included.	IHSL	21/10/13
	Environmental Management Systems (C26)		
	Commissioning and Handover (C25)		
4.41	NHSL commented section (i) focuses on the interface with RIE rather than the Board and Board contractors, IHSL to review all interfaces.	IHSL	21/10/13
4.42	NHSL commented sections (iii), (iv) and (vi) were light in detail and IHSL to provide further information in relation to these sections.	IHSL	21/10/13
4.43	IHSL to provide information on how BIM model will be included in the Commissioning and Handover stage.	IHSL	21/10/13
	Bi-fold Door Discussion		
4.44	NHSL to review IHSL's proposal in relation to the twin door over the bi-fold door. IHSL requested this information is commercially sensitive. *NHSL can confirm that they will accept this door design providing it will meet the functionality requirements for the room.*	NHSL	CLOSED
	Equipment Proposals & Group 1 Equipment (C11)		
4.45	NHSL acknowledge that IHSL comments have been included in the issued version 3 of the Equipment Schedule, and these comments should be included their submission.	Note	
4.46	IHSL to provide feedback on the version 3 of the Equipment Schedule	IHSL	21/10/13
4.47	NHSL confirmed that only the Board specified Group 1 Equipment items are included in the Provisional Sum.	Note	

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 5 – Finance Action Notes

Date: 17th September 2013 **Time:** 11:30 – 12.45 **Location:** Islay Room

Attendees:	Iain Graham	Commercial and Legal Lead, NHSL
	Lynn Pentland	Legal Adviser, MacRoberts
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Lucy MacArthur	Executive, Ernst & Young
	Lynn Allan	Project Accountant, NHSL
	John Ballantyne	IHS Lothian
	Juan Custodio	IHS Lothian
	Chris Mackay	IHS Lothian
	Chris Horsley	IHS Lothian
Meeting Chair:	Iain Graham	Commercial and Legal Lead, NHSL
Action Notes:	Lucy MacArthur	Executive, Ernst & Young

		Lead	Time
5.1	NHSL to provide a term sheet for the draft final tender which will be on EIB and commercial bank solution at 50% each. *Refer to Clarification 00156 for actions 5.1, 5.2, 5.4, 5.5 and 5.6;*	NHSL	CLOSED
5.2	NHSL will review questions in Section B and F1 to F7 to ensure the relationship between the two sets of questions are appropriate	NHSL	CLOSED
5.3	NHSL will continue to update the construction caps with any index movements.	NHSL	
5.4	NHSL will updated the text in the ISFT to ensure it notes that bidders should continue to explore other funding options without the EIB inclusion	NHSL	CLOSED
5.5	NHSL will raise with SFT the possibility of the Bidders not taking the risk on the EIB security package and confirm the position with Bidders.	NHSL	CLOSED
5.6	NHSL have noted IHSL point raised on the VAT disagreements. NHSL will go back to SFT for further clarity and confirm the position with Bidders.	NHSL	CLOSED
5.7	IHSL will review the VAT disagreement further and provide more detail if available	IHSL	21/10/13

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 5 – Legal Action Notes

Date: 17th September 2013 **Time:** 13.00-16.50 **Location:** Islay Room

Attendees:	Iain Graham	Commercial and Legal Lead, NHSL
	Lynn Pentland	Legal Adviser, MacRoberts
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Lindsey Crawford	Senior Executive, Ernst & Young
	Lynn Allan	Project Accountant, NHSL
	Jackie Sansbury	Operational & Commissioning Lead, NHSL
	Carol Thorburn	FM Adviser, Mott MacDonald
	John Ballantyne	IHS Lothian
	Juan Custodio	IHS Lothian
	Chris Mackay	IHS Lothian
	Chris Horsley	IHS Lothian
	Matthieu Danoot	IHS Lothian
	Mark Bradshaw	IHS Lothian
Meeting Chair:	Iain Graham	Commercial and Legal Lead, NHSL
Action Notes for 2.0:	Lindsey Crawford	Senior Executive, Ernst & Young
Action Notes for 3.0:	Lynn Pentland	Legal Adviser, MacRoberts

		Lead	Time
6.1	NHSL to respond in writing to IHSL in respect of IHSL's NPD Project Agreement commentary issued as part of its submission for Dialogue Meeting 5. *Refer to Bulletin 00085.*	NHSL	CLOSED
6.2	NHSL to arrange a conference call with IHSL to discuss outstanding drafting issues post Dialogue Meeting 5. *Refer to email from L Pentland, 19/09/13.*	NHSL	24/09/13
6.3	IHSL to issue a revised NPD Project Agreement commentary and NPD Project Agreement mark-up to NHSL following conference call referred to in item 3.1 above.	IHSL	30/09/13
6.4	NHSL to issue to SFT the response referred to in item 3.2 above for derogation purposes. NHSL shall feedback any input received from SFT as soon as it has been made available by SFT.	NHSL NHSL	02/10/13
6.5	NHSL to respond in writing to IHSL in respect of its parent company guarantees issued as part of its submission for Dialogue Meeting 2. *Refer to Bulletin 00094.*	NHSL	07/10/13
6.6	NHSL to confirm whether insurance call on 25 September should be with insurance advisers only as opposed to other legal and commercial representatives.	NHSL	CLOSED

6.7	In terms of SFT's response to the VAT paper issued by IHSL, IHSL to consider this response and confirm whether this remains an issue at this stage of the project. At the same time, NHSL shall endeavor to find out whether further rationale can be provided from SFT in relation to their response.	IHSL NHSL	20/09/13 20/09/13
6.8	NHSL to provide to IHSL a list of key enabling works and timings for completion of such works in order for IHSL to ascertain which of such works shall impact upon the Site.	NHSL	
6.9	NHSL to exhibit final form of Reliance Letter in respect of the Site Investigation to IHSL.	NHSL	07/10/13
6.10	NHSL to confirm whether Schedule Part 29 is acceptable and IHSL to confirm whether this Schedule has been updated to reflect the latest Montagu Evans report.	NHSL IHSL	27/09/13 20/09/13
6.11	IHSL to issue a paper to NHSL outlining the structure of Macquarie.	IHSL	30/09/13
6.12	IHSL to respond to NHSL's response to the FM and D&C Heads of Terms issued to IHSL on 13.09.13.	IHSL	30/09/13
6.13	IHSL to issue a paper to NHSL outlining details of the D&C guarantor.	IHSL	21/10/13
6.14	***Change Protocol*** The commercial rationale in relation to IHSL's amendments to the Change Protocol was discussed once again.	Note	
6.15.1	IHSL to issue a revised paper relating to the Change Protocol setting out the correct margins to be applied.	IHSL	23/09/13
6.15.2	NHSL to confirm to IHSL how the Catalogue is to be evaluated.	NHSL	07/10/13
6.15.3	NHSL to consider whether specific items for Low Value Changes during the Construction Phase can be set out in the Catalogue in order that these can be bid back by all Bidders.	NHSL	07/10/13
6.15.4	NHSL to confirm whether IHSL's approach to the Change Protocol is acceptable.	NHSL	07/10/13
6.15.5	NHSL to confirm whether the use of the DTI Pubsec Index is preferable to an uplift of rates based upon a 5 year market review.	NHSL	07/10/13

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 5A Action Notes

Date: 25th September 2013 **Time:** 09:00 – 11:00 **Location:** MacKinlay Room

Attendees:	Janice MacKenzie	Clinical and Service User Lead, NHSL
	David Stillie	D&C Architectural Advisor, Mott MacDonald
	Kamil Kolodziejczyk	Assistant Project Manager, Mott MacDonald
	Brian Currie	Project Director, NHSL
Attendee for item 8.0: (10:20 –11:00)	Jackie Sansbury	Operations & Commissioning Lead, NHSL
	Stuart Davidson	Contract Manager, NHSL
Bid Team Attendees:	Paul Serkis	IHSL
	Lorraine Robertson	IHSL
	Alex Jolly	IHSL
	Andy Anderson	IHSL
	Brian Saunders	IHSL
Meeting Chair:	Janice MacKenzie	Clinical and Service User Lead, NHSL
Action Notes:	Kamil Kolodziejczyk	Assistant Project Manager, Mott MacDonald

		Lead	Time
1.0	**Level -1 Basement Floor General Arrangement Plan (P7) 100% complete** • Kitchen is 100% complete • Materials Management is 100% complete • Domestic Services is 100% complete • Estates is 100% complete		**Complete**
2.0	**Level 0 Ground Floor General Arrangement Plan (P7) is 100% complete** • CAMHS is 100% complete		**Complete**
3.0	**Level 1 First Floor General Arrangement (P7)** • DCN Acute – swap DSR with Ward Managers Office, otherwise 100% complete • Critical Care is 100% complete • Theatres is 100% complete	IHSL	Ongoing
4.0	**Level 2 Second Floor General Arrangement (P7)** • DCN Inpatients - Sterile Supply Store 067 to be moved to more central location. Touchdown Base 116 is not required. Daylight if possible to Ward Manager's Office	IHSL	Ongoing
5.0	**Level 3 Third Floor General Arrangement (P7)** • Sleep Lab is 100% complete • Medical Inpatient – add touchdown base next to 2 single rooms	IHSL	Ongoing
6.0	**Level 4 Fourth Floor General Arrangement (P7)** • Child Life &Health -the DSR to be relocated or accessed from the main corridor • Restaurant – NHSL confirmed 70 seats at tables and 30 soft seats are required • Helipad is 100% complete • Clinical Management Suite is 100% complete	IHSL	Ongoing
7.0	**Submission of Revised Drawings** • IHSL plan to submit revised hand drawings for those departments where changes were required and will aim to do this by the end of the week. NHSL will provide feedback via Conject.	IHSL	27/09/13
8.0	**Movement Strategy**		
	• IHSL discussed their movement strategy and it was agreed that they needed to show flows to Linen Bays, Stores and Dirty Utility Rooms in	IHSL	Ongoing

	wards/departments, Clean and Dirty Trays in Theatres. • Also show flows for DCN Inpatients to Café and Shop		

BIDDER B

RHSC and DCN –
Little France

Competitive Dialogue Meeting 6 – Action Notes

Date: 20th November 2013 **Time:** 09:00 – 17:00 **Location:** MacKinlay Room, 56 Canaan Lane, Edinburgh

Attendees

Board:	Brian Currie	Project Director, NHS Lothian
	Iain Graham	Commercial and Legal Lead, NHS Lothian
	Janice MacKenzie	Clinical and Service User Lead, NHS Lothian
	Jackie Sansbury	Operations and Commissioning Lead, NHS Lothian
	Lynn Allan	Project Accountant, NHS Lothian
	Sorrel Cosens	Project Manager, NHS Lothian
	Howard Royston	FM Lead, NHS Lothian
	Stuart Davidson	Contracts Manager, NHS Lothian
	Neil McLennan	Capital Project Manager, NHS Lothian
	Richard Cantlay	Lead Technical Adviser, Mott MacDonald
	Graeme Greer	Technical Adviser, Mott MacDonald
	David Stillie	Architectural Adviser, Mott MacDonald
	Maureen Brown	Project Manager, Mott MacDonald
	Andrew Orr	Lead Legal Adviser, MacRoberts
	Lynn Pentland	Legal Adviser, MacRoberts
	Michael Pryor	Lead Financial Adviser, Ernst & Young
	Lynsey Crawford	Financial Adviser, Ernst & Young
	Carol Thorburn	FM Technical Adviser, Mott MacDonald
	Simon Todd	Technical Adviser, Mott MacDonald
	Rod Shaw	Cost Adviser, Thomson & Gray
Bidder:	John Ballantyne	IHSL
	Paul Serkis	IHSL
	Mike Sharples	IHSL
	Alan Keeley	IHSL
	Dave Bower	IHSL
	Darren Smith	IHSL
	Angela Donnelly	IHSL
	Brian Saunders	IHSL
	Juan Miguel Custodio	IHSL
	Sam Southall	IHSL
	Sylvain Delion	IHSL
	Lorraine Robertson	IHSL
	Iain Buchan	IHSL
	Ed McIntyre	IHSL
	Stewart McKechnie	IHSL
	John Bushfield	IHSL
	Barry McCormack	IHSL
	Phil Davies	IHSL
	Steve McDonald	IHSL
	Matthieu Danoot	IHSL
	Alan Dickson	IHSL
	Reza Khan	IHSL
	Chris Horsley	IHSL
	Louise Martin	HCP
	Wallace Weir	HCP
Meeting Chair:	Brian Currie	Project Director, NHS Lothian
Action Notes:	Sorrel Cosens	Project Manager, NHS Lothian

BIDDER B

RHSC and DCN –
Little France

		Lead	Time
1.	NHSL plan to close current queries and issue these actions by 25/11/13.	NHSL	CLOSED
2.	IHSL has until 29/11/13 to submit any remaining queries before close of dialogue.	IHSL	29/11/13
3.	NHSL plan to close dialogue on 06/12/13 with the issue of Invitation to Submit Final Tender (ISFT). Closing dialogue is dependent on SFT approval through a Key Stage Review.	Note	
4.	The electronically submitted final tender will take precedence over the hard copies.	Note	
5.	ISFT detail will confirm submission requirements, including: - physical model encompassing adjoining buildings (specification to follow); - four hard copies of the submission for each technical criteria; - one hard copy of the commercial submissions; - one hard copy each of AP1.1 design deliverables (specifics to be confirmed) and AP1.2 specifications	NHSL	06/12/13
6.	No tracker / mark-up of changes to Draft Final Tender will be required.	Note	
7.	Conject folders will be established and available for Final Tender upload from the issue of the ISFT. The board will not accept hard copy submissions in advance of the day of the Final Tender submission deadline.	Note	
8.	Bidder to confirm if they wish to collect any of the Draft Final Tender hard copies. NHSL will retain one for records and destroy the rest.	IHSL	CLOSED

	Strategic and Management Approach		
9.	Criteria B1 – Bidder advised to include the good information from their presentation to the meeting in the submission.	Note	
10.	Criteria B2 – Bidder advised to develop KPIs for tangible targets, and to refresh their knowledge of NHSL clinical strategy.	Note	
11.	Criteria B3 – Bidder advised to include the good information from their presentation to the meeting in the submission.	Note	
12.	Criteria B4 – Bidder advised to address relationships between partner organisations on campus at a strategic level.	Note	
13.	Criteria B10 – Bidder advised to include the good information from their presentation to the meeting in the submission. IHSL expanded on proposal for contact point for the SPV.	Note	
14.	Criteria B12 – traffic management should be developed. Fully completed sections were to a satisfactory standard.	Note	
15.	Criteria B13 – the Board found this response difficult to read; signposting and further development required as well as missing information fleshing out.	Note	
16.	The Bidder confirmed that they understood the Board's requirements for Strategic and Management Approach.	Note	

	Approach to Design and Construction		
17.	Criteria C1 – NHSL stressed that DCN is a major component of the facility that should be given equal status. Branding for distinct entrances for RHSC and DCN discussed.	Note	
18.	Criteria C8 – Bidder advised to address induction loops which are critical in terms of privacy.	Note	
19.	Criteria C8 – Bidder confirmed they understood the issues concerning points a) to f) from the Compliance and Feedback Report and will address for the Final Tender. Bidder advised to provide information of the mixture of natural and artificial lighting, for example no mention of the LED lights in DFT submission.	Note	
20.	Criteria C8 –NHSL to provide Eurocode for European Emissions Standards.	NHSL	09/12/13
21.	Criteria C8 – Bidder B assured that the substation standalone building is not required and incorporated the substation within their energy centre building.	Note	
22.	Criteria C10 – NHSL could not correlate the output from the compliance model with the information in the financial model. A dynamic and thermal model is a requirement that was not submitted.	Note	
23.	Criteria C10 – a) Template room matrix should reflect actual room usage for individual specialist areas rather than "generic" application of NCM "ward" template. "Ward" template may be appropriate for open ward areas however.	Note	
24.	Criteria C10 – b) The submission report listed some of the design parameters but no system efficiencies. Actual assumptions (numerical values) should be included rather than a statement of "chillers to be used" etc. List of efficiencies and assumptions within the report to be used to check if the design submission matches the energy model. The files for the energy model not to be uploaded as zipped files. CAB files are acceptable. Two separate sets of models to be submitted for C10.1 and C10.2	Note	
25.	Criteria C10 – c) Bidder to include kWh outputs from compliance model in addition to derived utility costs in their submission for transparency	Note	
26.	Criteria C10 – d) Compliance with C10.1 "general requirement" regarding cost/energy impact of specific measures/innovations has to be submitted	Note	
27.	Criteria C10 – e) Derogation to be submitted in terms of 20% renewables if the Bidder does not achieve the target.	Note	
28.	Criteria C10 – f) C10.2 model should represent the "real hospital", giving realistic appraisal of the hospital building energy use. This model can be based in part on the C10.1 model, but with additional input of group 2 equipment, actual operation hours of the building etc. to demonstrate "real use" of the building. Bidder to refer to appendix F. Software package or numerical/degree days analysis can be used for the model, or combination of both. Statement to be included which option was used.	Note	
29.	Criteria 11.3 – IHSL to confirm how quality would be achieved.	Note	
30.	Criteria 11.4 – Bidder to confirm how quality would be achieved and managed. IHSL to consider providing evidence on how this process is managed and how the board is involved.	Note	
31.	Criteria 11 – Quality document submitted by IHSL on 19th November 2013 – NHSL fed back that they were not keen on the proposals in this document for en-suite's and reception desks. IHSL to consider different options.	Note	

32.	Criteria 11 – IHSL to consider relating equipment list to floor layouts, thus highlighting operational functionality.	Note	
33.	Criteria 11 – IHSL to consider how Board equipment will be installed i.e. MRI Scanner.	Note	
34.	Criteria 11 – IHSL confirmed that they would provide early access to the Board for the installation of Board Equipment.	Note	
35.	Criteria C12 – area compliance has now been achieved.	Note	
36.	Criteria C13 – Bidder advised to reinforce their submission in terms of planning response for the final tender.	Note	
37.	Criteria C17 – Bidder to provide report / letter stating that gas protection measures are not required.	Note	
38.	Criteria C17 – Bidder confirmed that they uploaded specifications as requested in ITPD. Bidder to use signposting for the documents they refer to within the submission.	Note	
39.	Criteria C17 – Details of road markings, signage and lining to be provided for the FT.	Note	
40.	Criteria C25 – in addition to the Board's response in the Compliance and Feedback report, IHSL were advised to consider infection control and HAI-SCRIBE in this submission.	Note	
41.	Criteria C27 – Bidder advised to review and address comments from Dialogue Meeting 5.	Note	
42.	Criteria C28 – Bidder advised to review and address comments from Dialogue Meeting 5.	Note	
43.	Criteria C30 – All derogations and assumptions related to the Bidders proposal for design and construction must be logged in the response. E.g. renewable energy target derogation. This response must include any derogations that may have been previously included in the Reference Design, e.g. the proposal for the parent beds in four-bedded rooms should be highlighted. The Board confirmed that there is no proforma for responding to this criteria. The purpose of one of the spreadsheets submitted was unclear.	Note	
44.	Criteria C31 – Bidder advised to address legal interface alongside the operational proposals. Bidder to respond to Appendix C(iv) in their Final Tender.	Note	
45.	NHSL informed the Bidder of a correction to the Compliance and Feedback Report section AP1.2: this should read "equal and approved", not "equal or approved".	Note	
46.	NHSL confirmed that missives have been concluded for the former filling station site however the final contract is to be concluded. Project Co will be required to carry out work and hand back to the Board as retained estate. The scope of use of the ground is restricted. Board confirmed requirement for Project Co to consider this land in their proposals. Details to follow on confirmation of purchase. **Post meeting note:** Settlement date has been confirmed as 27/11/13. *Refer to Clarifications 00179 and 00180.*	NHSL	CLOSED

47.	Where sections were 'under development' the Board cannot comment on IHSL's submission. The level of incomplete information caused considerable anxiety in a draft of final tender. NHSL will not review further submissions at this stage, however for sections submitted as part of Draft Final tender that the Board could not locate, IHSL are to confirm the title and location of the documents in Conject for the team to review. The Bidder will be informed if any such submissions do not meet the Board's requirements. *The Board has reviewed the additional sections highlighted and has no comment on the information provided.* The Board agreed to provide specific feedback in respect of Acoustic submissions at Ap1.1 Item 10. a) Elaborate up the additional information required. *Examples of materials and components proposed: for example suspended ceiling, partition build-up (plasterboard type and thickness, stud type and depth, insulation, typical headers and interface details) for various acoustic performances.* b) Ambient site sound levels and final room relationships will set the criteria from which specifications for components will be finalised, and thus offering best value for the project. This information pursuant to acoustic requirement will be included within all the relevant NBS material specifications. Please advise if the Board requires an alternate approach. *The bidder should provide example components for typical façade and room relationships, for example adjoining consulting rooms, treatment rooms etc, and example NBS specifications incorporating acoustic requirements.* c) Elaborate upon the additional information required *The bidder may state any assumptions used to select the example components and materials.*	IHSL NHSL NHSL	CLOSED CLOSED CLOSED
48.	The Bidder confirmed that they understood the Board's requirements for Approach to Design and Construction.	Note	

	Technical Costs		
49.	Criteria C29 – NHSL do not require to see the quotations that IHSL have received, but the submission should indicate where this has informed costs.	Note	
50.	Criteria D14 – FM costs – Bidder advised that the cost proforma are required to be completed in full.	Note	

	Approach to Facilities Management		
51.	Criteria D14 – NHSL to issue clarification to the specification re: grounds maintenance	Note	
52.	Criteria D15 – Bidder advised to provide programme and CVs as required in the submission.		
53.	Bidder opinion is that the thresholds are aggressive but they have developed proposals to point of being comfortable; they note some risk of funders being uncomfortable. NHSL need to know that Bidder is accepting the proposed thresholds.	Note	
54.	Change Protocol catalogues – Schedule Part 16. NHSL confirmed that the board will evaluate submissions to generate any potential equalisation adjustment. Bidders will be asked to provide rates to be applied to notional quantities and this will generate a figure to be incorporated into the price evaluation. Clarification to follow. *Refer to Clarification 00177.*	NHSL	CLOSED

	Finance		
55.	Criteria F2 – as SFT wish to be closely involved in the Funding Competition as joint decision-makers with the Preferred Bidder; NHSL will revise the protocol for Bidders to review and strengthen their proposal as necessary.	NHSL	06/12/13
56.	NHSL to confirm EIB involvement for ISFT. *Refer to Clarification 00169.*	NHSL	CLOSED
57.	Equity bridge loans – NHSL to update the term sheet for ISFT.	NHSL	06/12/13
58.	Criteria F10 – NHSL to confirm proforma for ISFT.	NHSL	06/12/13
59.	Rates – NHSL to provide assumptions for the Bidders to submit rates figures at Final Tender.	NHSL	06/12/13
60.	IHSL to submit a query via Conject with tax issues for the Board to respond to with a call between advisers.	IHSL	25/11/13

	Legal		
61.	SFT change to Standard Form with regard to Energy will be communicated. Also related changes to service level specification. *Refer to Clarification 00178.*	NHSL	CLOSED
62.	IHSL could not find the requirement for appendix H in the ITPD. NHSL will confirm this in ISFT.	NHSL	06/12/13
63.	Bidder to provide marked-up Project Agreement.	IHSL	CLOSED

	Conject		
64.	IHSL to confirm document title and location of Draft Final Tender submissions on Conject that the Board could not find.	IHSL	CLOSED
65.	A second Conject account has been allocated to each Bidder to assist with upload of Final Tender.	Note	
66.	All legal communications to be carried out through Conject. IHSL to add the historical information shared by email between lawyers.	IHSL	25/11/13

Reference Design – update on requirements for Operational Functionality

Date: 8th April 2013

Through Dialogue Meeting 1 it became evident that the understanding of Operational Functionality required further clarification. Feedback was given to Bidders on their specific proposals.

As a result of these discussions, the Board have agreed to relax the requirements in relation to a limited number of departments whose location within the RHSC and DCN is less critical. These departments do not impact on the ability of the Board to deliver its clinical and non-clinical services within the Facilities to the same extent as other mandated areas; therefore they do not need to be included in the agreed definition of Operational Functionality. Bidders should note that while the location of these spaces in the Reference Design can be assumed to be flexible, the specification for them in the Board's Construction Requirements and supporting documents must be adhered to.

1. Classrooms (C5)
2. Equipment library (G2)
3. Child Life and Health (H1)
4. Bed/toy store (I2)
5. Clinical management suite (R1)
6. Health records (R2)
7. All soft facilities management accommodation, including external spaces for deliveries and removal of waste (S1, S3, S4, S8)
8. Staff changing (S5)
9. The Board's hard FM workshop (S6 NHSL)
10. Restaurant (S7)
11. eHealth infrastructure (S2, T1)

Updates to reflect this position in ITPD Volume 1 and the Board's Construction Requirements, along with adjustments to the relevant Specific Non-Clinical Requirements documents, will be made available by 15 April 2013.

We would emphasise that in relation to all other areas the requirements of Operational Functionality apply in full. For the avoidance of doubt, this means that all departmental adjacencies and room adjacencies within each department, as drawn in the Reference Design, need to be maintained.

SCOTTISH HOSPITALS INQUIRY:
RESPONSE BY NHS NATIONAL SERVICES SCOTLAND TO PROVISIONAL POSITION PAPERS 1, 2, and 3

1. Please find below the response of NHS National Services Scotland ("NSS") to each of the three Provisional Position Papers. Some of the matters raised may already be known to the Inquiry Team, but NSS has included them for the avoidance of doubt.

Provisional Position Paper 1: The Reference Design utilised for the Royal Hospital for Children and Young People and Department for Clinical Neurosciences

2. Para. 2.1 states that: "The RHSC was initially to be delivered through Scottish Government (SG) capital funding, using the Framework Scotland procurement programme and the NEC standard form contract." In fact, the standard NEC3 Engineering and Construction Contract was amended for use with Frameworks Scotland.

3. Para. 3.30 states that: ". . . SG policy was for all new NHS buildings to achieve the standard of BREEAM Healthcare 'Excellent'." The policy was actually: ". . . that all new builds above £2m obtain a BREEAM Healthcare (or equivalent) 'Excellent' rating. . ." [underline added, quote taken from CEL 19 (2010) at page 14 para. 6].

4. Para. 3.45 states that: "A later AEDET Review was undertaken on 8 March 2012. The author of this review is given as 'DH Estates and Facilities'." DH Estates and Facilities published AEDET Evolution 14, which applied from 2010-2012. But they were an English body and did not conduct the relevant review.

Provisional Position Paper 2: The Environmental Matrix for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences

5. Para. 4.3 states that: "SHTM03-01 was not in place in the early stages of the project. It was first issued in October 2011. Prior to that, the relevant Scottish Guidance was set out in SHTM2025 (which did not include an equivalent of Table A1 in SHTM 03-01, which sets out environmental parameters for rooms or departments requiring specialised ventilation)." This is correct, but Table A1 was, in general, a collation of existing information rather than containing new information. In general, that information would have been available prior to the publication of Table A1.

6. Para. 7.1 states that: "NHS bodies could choose one of these PSCPs rather than conducting a lengthier, standalone, procurement exercise." To expand upon this, they would "choose" by way of an appointment via the Frameworks Scotland mini-competition process.

7. Para. 7.2 states: "NSHL and BAM negotiated the contract for the delivery of stages 3 and 4 of the project . . ." Of course, stage 4 was ultimately not entered into.

8. Para. 12.3 refers to "Liane Edwards of MML". In fact, NSS understands that Liane Edwards worked for Multiplex.

Provisional Position Paper 3: The Procurement Process for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences

9. Para. 18.3 states that: "Patrick MacAulay from HFS was invited, and agreed, to attend meetings with NHSL on detailed design development, specifically for the more complex departments such as theatres, radiology, critical care and emergency department." To expand upon this, Patrick MacAulay and the HFS Equipping Team were invited, and agreed, to attend meetings with NHSL on detailed design development with regard to equipment provision and requirements and 1:50 room layouts, including for the more complex departments such as theatres, radiology, critical care, and emergency.

NHS National Services Scotland
1 February 2023

RESPONSE BY MOTT MACDONALD LIMITED

to

SCOTTISH HOSPITALS INQUIRY PROVISIONAL POSITION PAPER 1 – The Reference Design utilised for the Royal Hospital for Children and Young People and Department for Clinical Neurosciences

1. Mott MacDonald Limited ("MML") has identified the following potential inaccuracies or misunderstandings in PPP1.

Purpose and Status of Environmental Matrix ("EM")

2. At para 3.68 it is suggested, under reference to Revision J of the "Approach to Reference Design" paper, that the EM "was intended to be mandatory for bidders". However, as is noted at para 3.53, the "Approach to Reference Design" paper was an internal document that was not issued to bidders. There were a number of iterations of the document, reflecting the evolution of the plan for the procurement process. Although it is correct to conclude that internal consideration was being given to the EM being mandatory for bidders, this was not the final position, nor was it the position that was communicated to bidders. That position is to be found in the ITPD documentation itself. ITPD volume 1 at clause 2.5 clearly sets out the mandatory elements of the reference design: the EM is not included in those mandatory elements. As is noted at para 3.87, section C8.3 of ITPD volume 1 described the EM as a "draft" and stated that bidders could propose changes. Providing the EM to bidders on the basis that it was not mandatory was consistent with the overall decision to make use of the design work that had already been undertaken. The EM would provide information which the bidders could use but which they were not bound to follow. MML would invite the Inquiry to conclude that it was made clear to bidders that the EM provided to bidders was not mandatory. This is supported by the fact that IHSL made changes to the EM.

3. Para 3.85 correctly notes that the EM did not feature in Appendix E as a mandatory or indicative element. However, clause 2.6 of ITPD volume 1 expressly stated that "Building

services engineering solutions" were included as part of the "Indicative Elements of the Reference Design". "Building services engineering solutions" would include the EM. The status of the EM was clear from clauses 2.5 and 2.6 and section C8.3.

4. Para 3.91 refers to a "departure" between the language used in ITPD volume 1 and the language used in ITPD volume 3. The change in terminology is explained by the different purposes served by the two volumes. ITPD volume 1 provided instructions to bidders. ITPD volume 3 contained provisions that were to be included in the final contract to be entered into in due course with the preferred bidder. Volume 1 referred to the draft EM provided to bidders, which was not part of the mandatory elements of the design. Volume 3 was intended to refer to the EM that had been finalised by the preferred bidder prior to the contract being concluded. It was that finalised version that was intended to be mandatory.

5. MML contends that para 5.1.34 reflects a misunderstanding regarding the purpose and status of the EM. For the reasons set out above, the purpose and status of the EM at each stage of the project was clear: a draft was provided to the bidders which was indicative, but the finalised version produced by the preferred bidder prior to financial close was intended to form a mandatory element of the Project Agreement.

6. Insofar as there are references elsewhere in the PPPs to the EM representing NHSL's specifications or requirements, this is not an accurate representation of the purpose and status of the EM.

Activity Database ("ADB")

7. At para 5.14, it is stated that "ADB would automatically comply with guidance and legislation applicable in England". This seems to follow from the wording of the Design Quality Policy set out at para 3.14. However, in MML's experience, it is an oversimplification to conclude that spaces designed using ADB automatically comply with English guidance and legislation. The ADB does not provide environmental data for all

room types. During the development of a specific project, there may be rooms or spaces that would not immediately align with the rooms included in the ADB. In those circumstances, the designer would require to make manual adjustments to the information obtained from ADB. In any event, the ADB incorporates data from HTMs, not from SHTMs, which may be different. A design engineer using the ADB in Scotland would therefore use the initial template document from the ADB but then manually enter project-specific environmental requirements with reference to the SHTMs. As Stephen Maddocks noted in his report, ABD sheets are a "starter for ten". There remains scope for error while using them.

Environmental Matrix

8. MML accepts that para 5.1.31 is technically accurate in its description of the EM provided with the ITPD. However, this paragraph is perhaps incomplete insofar as it makes no reference to Guidance Note 15, which stipulated "Critical Care areas - Design Criteria – SHTM 03-01 – esp Appendix 1 for air change rates – 10ac/hr Supply…" MML acknowledges that the Inquiry is well aware of this point given the terms of PPP2.

Clyde & Co (Scotland) LLP

3 February 2022

RESPONSE BY MOTT MACDONALD LIMITED

to

SCOTTISH HOSPITALS INQUIRY PROVISIONAL POSITION PAPER 2 – The Environmental Matrix for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences

1. Mott MacDonald Limited ("MML") has identified the following potential inaccuracies or misunderstandings in PPP2.

Purpose and Status of Environmental Matrix ("EM")

2. MML contends that para 13.1.25 reflects a misunderstanding regarding the purpose and status of the EM. This is addressed in more detail in MML's response to PPP1.

3. At para 5.4, the Inquiry Team notes that it is not clear why an EM was issued to prospective tenderers given the terms of the BCRs and CEL 10. MML has sought to clarify this matter in its response to PPP1. In short, the BCRs were included in ITPD volume 3, which contained provisions that were to be included in the final contract to be entered into in due course with the preferred bidder. At the ITPD stage, the EM was issued in draft to bidders: the preferred bidder was then required to produce a finalised version, and RDSs, prior to the contract being concluded. The stipulation in the BCRs regarding compliance with CEL 19 was intended to (and did) form part of the Project Agreement that was ultimately concluded. It was therefore envisaged that Project Co would require to produce RDSs in compliance with CEL 19.

Activity Database ("ADB")

4. At para 2.6, the paper notes that there is "scope for error" in the creation of an EM: the tenor of the preceding paragraphs is that there is no such scope for error when using ADB to populate RDSs. This leads to the "provisional view" expressed at para 5.9 that the EM was not of similar quality to RDSs produced using the ADB system. However, this may

involve an oversimplification. This is addressed in more detail in MML's response to PPP1.

Use of Environmental Matrices

5. At para 2.7 reference is made to the evidence of Stephen Maddocks and his concerns regarding the use of an environmental matrix. This paragraph gives the impression that the use of an environmental matrix in the present case was exceptional. However, in order to place his opinion in context, it should be noted that, in his oral evidence, Mr Maddocks could not recall having used an environmental matrix in practice. On the other hand, Richard Cantlay's evidence was that he has seen them being used on "numerous projects."

NEC Terminology

6. For the sake of clarity, it should be noted that the terms "Project Manager" and "Supervisor" (as referred to at para 7.3) are defined roles in the NEC contract.

Clyde & Co (Scotland) LLP
3 February 2023

RESPONSE BY MOTT MACDONALD LIMITED

to

SCOTTISH HOSPITALS INQUIRY PROVISIONAL POSITION PAPER 3 – The Procurement Process for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences

1. Mott MacDonald Limited ("MML") has identified the following potential inaccuracies or misunderstandings in PPP3.

Purpose and Status of Environmental Matrix ("EM")

2. MML contends that para 23.1.30 reflects a misunderstanding regarding the purpose and status of the EM. This is addressed in more detail in MML's response to PPP1.

3. The wording of para 23.1.25 could be taken to imply that the EM stipulated NHSL's mandatory requirements. For the reasons set out in response to PPP1, that is not an accurate representation of the purpose and status of the EM.

Tender Evaluation

4. Para 6.6.26 states that C8 and C10 are the elements that relate to bidders' proposals for ventilation design. It should perhaps be noted that mechanical and electrical issues were also taken into account in relation to other criteria such as C4, C5, C9, C15, C18 and C19. This also has a bearing on the conclusion at para 23.1.15.

5. At para 15.15, the quote from the C30 feedback sheet for Bidder B gives the impression that the two paragraphs are taken from comments made by David Stillie. Mr Stillie's recollection is that the first of the quoted paragraphs (commencing "As IHS Proposals") was taken directly from IHSL's submission and is related to the architectural content of the C30 submission. It is only the second of the quoted paragraphs (commencing "This bidder has adopted") that contains Mr Stillie's comments.

6. In relation to para 15.16, Mr Stillie's position is that he would not have expected to comment on anything related to the EM.

IHSL's Tender Submission

7. Para 23.1.34 should perhaps make it clear that IHSL did not propose any changes to the EM "in its tender submission".

Clyde & Co (Scotland) LLP
3 February 2023

Public Inquiry: Queen Elizabeth University Hospital, Glasgow and the Royal Hospital For Children and Young People and Department of Clinical Neurosciences, Edinburgh ("The Inquiry" Or "SHI")

Response on behalf of IHS Lothian Limited to the Inquiry's Provisional Position Papers 1, 2 and 3 relating to the Royal Hospital for Children and Young People and Department of Clinical Neurosciences ("RHCYP/DCN")

1. INTRODUCTION

1.1 This document forms the response ("**Response**") on behalf of IHS Lothian Limited ('**IHSL**') to the Inquiry's documents entitled:

1.1.1 Provisional Position Paper 1 'The Reference Design utilised for the Royal Hospital for Children and Young People and Department for Clinical Neurosciences' ("**PPP1**");

1.1.2 Provisional Position Paper 2 'The Environmental Matrix for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences' ("**PPP2"**); and

1.1.3 Provisional Position Paper 3 'The Procurement Process for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences' Volumes 1 and 2 ("**PPP3**").

These are collectively referred to in this Response as the "**PPPs**".

1.2 The Inquiry has advised Core Participants ("**CPs**") that the PPPs outline the Inquiry Team's understanding of certain matters and that, in due course, the Chair is likely to be invited by the Inquiry Team to make findings of fact based on the contents of the PPPs. The Inquiry has further advised CPs that the PPPs are provisional in nature and that the PPPs do not constitute any findings of the Chair of the Inquiry. The Inquiry has invited CPs to seek to correct and/or contradict the contents of the PPPs and, unless that is done, the Chair is likely to be invited by Counsel to the Inquiry to make certain findings of fact.

1.3 In this Response IHSL provides comments on the PPPs. As invited by the Inquiry, IHSL's comments are limited to matters where IHSL might seek to correct and/or contradict the contents of the PPPs and the provisional conclusions reached therein (rather than simply providing opinion or general commentary on the PPPs). That said, there are certain matters in the PPPs where IHSL have sought to provide some further explanation and context (which may not necessarily amount to a contradiction or correction of those matters). We have sought to identify and distinguish in this Response those matters where IHSL seek to correct and/or contradict the contents of the PPPs from those matters where IHSL have sought to provide some further explanation and context.

1.4 IHSL's comments on the PPPs are also limited given IHSL's role on the Project during procurement. The tender consortium known as IHSL prior to Financial Close was made up of Macquarie Capital

Group Limited (UK Branch) ("**Macquarie**"), Brookfield Multiplex Construction Europe Limited ("**MPX**") and Bouygues E&S FM UK Limited ("**BYES**") (who together formed the "**Tender Consortium**"). The members of the Tender Consortium undertook their own specific roles throughout the competitive dialogue phases up to the award of Preferred Bidder and then on to Financial Close. Macquarie (as sponsor) would not, therefore, have been directly involved in matters concerning the design and construction of the Project. Reference is made to (i) IHSL's Response submitted to the Inquiry on 22 July 2021 and (ii) IHSL's Response to the Inquiry's "Narrative concerning the Reference Design of the Royal Hospital for Sick Children and Department of Clinical Neurosciences" and IHSL's Response to the Inquiry's "Comparison across versions of the Environmental Matrix in relation to SHTM 03-01 up to Financial Close (13 Feb 2015)" both dated 12 September 2022 for more detailed discussion of the Tender Consortium members' respective roles. The contents of the PPPs are to a large extent outside IHSL's scope of knowledge. IHSL has sought to limit its comments in this Response only to matters of which it has any direct knowledge.

1.5 This Response is structured as follows.

1.5.1 Section 2 contains IHSL's general introductory comments on the PPPs.

1.5.2 Part 1 (consisting of Section 3) sets out IHSL's comments on PPP1.

1.5.3 Part 2 (consisting of Section 4) sets out IHSL's comments on PPP2.

1.5.4 Part 3 (consisting of Section 5) sets out IHSL's comments on PPP3.

1.6 IHSL recognises that the issues addressed by the Inquiry Team in PPPs 1, 2 and 3 often overlap. IHSL has, however, sought to avoid duplicating its comments in this Response in so far as possible by making reference to earlier comments made in the Response where appropriate rather than repeating them.

2. GENERAL INTRODUCTORY COMMENTS TO THE PPPS

2.1 The PPPs concern the use of a Reference Design for the RHCYP/DCN, the development of the Environmental Matrix and the Procurement Period up to Financial Close. The PPPs are, therefore, necessarily concerned with the time period up to Financial Close on 14 February 2015.

The provisional conclusions in the PPPs which IHSL considers to be particularly relevant

2.2 The Inquiry has identified certain issues and arrived at certain provisional conclusions in the PPPs which IHSL considers are particularly relevant. Those key issues and conclusions in IHSL's view are as follows (adopting the Inquiry Team's text from the relevant PPP):

2.2.1 Hulley & Kirkwood ("**H&K**") produced the original environmental matrix for the project [which at that stage was for a standalone Royal Hospital for Sick Children] on 9 September 2010 (paragraph 13.1.10 of PPP2) when the project was being procured as

a capital funded project instead of Room Data Sheets prepared using ADB (paragraph 5.1.27 of PPP1).

2.2.2 NHSL decided that a Reference Design should be used for the RHCYP/DCN Project (paragraph 5.1.6 of PPP1) which mandates elements that a tenderer must comply with (paragraph 5.1.7 of PPP1).

2.2.3 A reason for choosing a reference design approach was to retain as much of the design work already undertaken before the Project switched to a different funding model. Amongst the design work already in development was an environmental matrix prepared by H&K (paragraph 6.4.2 of PPP3 Volume 1).

2.2.4 According to the Contract Control Order dated 11 July 2011 appointing the Reference Design Team, Room Data Sheets were categorised as a deliverable that would mandate and fix 'Operational Functionality' (paragraph 3.3 of PPP1).

2.2.5 NHSL instructed Nightingales to cease production of Room Data Sheets by a Contract Control Order dated 17 May 2012 (paragraph 3.66 of PPP1).

2.2.6 An environmental matrix was used as part of the procedure for NHSL to brief prospective tenderers on its technical requirements for the ventilation system (paragraph 13.1.6 of PPP2).

2.2.7 The change in the funding model occurred at a point where significant design work had already been undertaken. The Inquiry Team has seen no documentation which suggests that NHSL, or its design team, re-appraised whether an environmental matrix was the correct approach for the revised project when the design team was re-appointed (paragraph 8.8 of PPP2).

2.2.8 The environmental matrix was not produced using ADB (paragraph 13.1.13 of PPP3) but was created by H&K by figures being manually input into a spreadsheet (paragraph 13.1.14 of PPP2).

2.2.9 CEL 19 mandates that all NHS Scotland Bodies use the English Department of Health's Activity Database (ADB) as a tool for briefing, design and commissioning. Where ADB is deemed inappropriate for a particular project, and an alternative is used, the NHS Scotland Body is required to demonstrate that the alternative is of equal quality and value to ADB in its application (paragraph 13.1.2 of PPP2).

2.2.10 The Inquiry has seen no documentation demonstrating: (i) why NHSL determined to deviate from using ADB as a briefing tool; and (ii) why it considered that the alternative

approach that it adopted was of equal quality and value to ADB (paragraph 13.1.8 of PPP2).

2.2.11 The 16 March 2012 confirmation [from H&K and the other Reference Design Team members to MML] was the only occasion, prior to the conclusion of the contract with the preferred bidder, where 'environmental information' set out in the Reference Design concerning the proposed ventilation system for the hospital – including air changes per hour and pressure regimes – was formally and reviewed and signed-off for compliance with published healthcare guidance including SHTM 03-01 (paragraph 13.1.17 of PPP2).

2.2.12 Health Facilities Scotland (HFS) is a division of NHS National Services Scotland. It is the NHS's centre of expertise on technical aspects of facilities and the healthcare built environment. HFS is responsible for developing, publishing and maintaining technical standards (paragraph 3.18 of PPP3). HFS could be called upon, on an *ad hoc,* basis to advise on specific issues e.g. any queries related to published guidance such as SHTMs (paragraph 3.19 of PPP3). The Inquiry Team understands that HFS was not called upon to advise on, or review, technical information relating to the ventilation system for the RHCYP/DCN prior to a preferred bidder being identified by NHSL (paragraph 3.20 of PPP3).

2.2.13 The environmental matrix provided with the ITPD contained environmental information that was inconsistent with the guidance set out in SHTM 03-01. In particular, values inserted in the environmental matrix for certain critical care areas did not comply with the guidance in SHTM 03-01 (paragraph 13.1.18 of PPP2).

2.2.14 The version of the environmental matrix issued with the ITPD had a 'Room Function Reference Sheet' (paragraph 13.1.20 of PPP2) which had a 'room function' of "HDU" (High Dependency Unit) and a room function of multi-bed ward (paragraph 13.1.21 of PPP2). No room in the environmental matrix was designated as having the Room Function "HDU". This included rooms in critical care areas (paragraph 13.1.22 of PPP2). Mult-bed rooms in critical care areas of the hospital were assigned the Room Function of 'multi-bed ward'. The values inserted in the environmental matrix for these rooms, including air changes per hour, were inconsistent with those set out in SHTM 03-01 for critical care areas of a hospital (paragraph 13.1.23 of PPP2).

2.2.15 ITPD Volume 1, Section 2.5.3, stated that tenders were required to use the environmental matrix and other Room Information documents to form the basis of Room Data Sheet production (paragraph 13.1.24 of PPP2).

2.2.16 Section 2.3 [of ITPD Volume 3] provides that "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. These requirements include that bidders shall in relation to all SHTM ….ensure that the Facilities comply with the requirements of such SHTM…. and adopt as mandatory all recommendations and preferred solutions contained in such SHTM…. (paragraph 3.95 of PPP1).

2.2.17 IHSL did not seek to change any of the values set out in the environmental matrix either at competitive dialogue stage or when it submitted its final tender (paragraph 13.1.26 of PPP2).

2.2.18 IHSL's room data sheets for certain critical care areas set out environmental information, including air changes per hour, that complied with the information in the environmental matrix (paragraph 13.1.34 of PPP2).

2.2.19 The Inquiry Team has seen no information or documentation that suggests the potential divergence from published guidance (namely SHTM 03-01) in the room data sheets for critical care areas was spotted by NHSL or its advisers when tenders were assessed or in the period prior to Financial Close (paragraph 12.61 of PPP2).

2.2.20 Bidder C did propose changes to the Environmental Matrix including air changes per hour in critical care rooms (paragraph 23.1.35 of PPP3). It is not clear to the Inquiry Team whether this was discussed by NHSL and its advisers (paragraph 10.25 of PPP2).

2.2.21 The meeting and action notes from the period during the competitive dialogue with IHSL and after the issue of IHSL's draft Final Tender do not reflect any detailed discussion taking place regarding ventilation of the critical care 4 bedded rooms or consideration of the Environmental Matrix (paragraphs 11.14 to 11.43.1 of PPP3).

Additional introductory comments

The Bid Process

2.3 PPP3 (and to a lesser extent PPPs 1 and 2) address the Competitive Dialogue phase up to the award of Preferred Bidder status and beyond to Financial Close. IHSL considers it may be useful to provide some limited general comments on this bid process and in particular the dynamic between the relevant parties involved in such a process.

2.4 The primary purpose of a bidding party's participation in any bid process is to achieve success for its bid. The bidding party needs to ensure that its bid complies with the tendering authority's tender requirements as comprehensively as possible. In this case NHSL specified its requirements in the

Invitation to Participate in Dialogue ("ITPD") and Invitation to Submit Final Tenders ("ISFT"), through the competitive dialogue meetings with bidders and then with IHSL through the Preferred Bidder phase.

2.5 In any bid process, it is the general rule that the procuring authority is the party which commands the bid process which the bidders must follow. This dynamic is perhaps illustrated by the quotation at paragraph 3.60 of PPP1 from NHSL's Project Director which states that: "*We need to be more assertive here and just state what we will be doing… we will be controlling the process and agenda not the bidder…."*

2.6 In addition to the typical authority/bidder dynamic noted above, there were other specific circumstances regarding the procurement of the RHCYP/DCN that had a particular bearing on the bid process which the Inquiry Team have identified in the PPPs.

2.7 The project for the standalone RHCYP was first discussed by NHSL in 2005 and early capital design work was undertaken from 2008 to 2010 (paragraph 2.1 of PPP1). The project had originally been procured by NHSL as a capital funded project. The procurement for the original project was so far developed that the Inquiry has heard that NHSL were close to executing a construction contract with BAM. The Scottish Government decided to change the funding structure for the project to an NPD funding model in November 2010.

2.8 The change in the funding model occurred at a point where significant design work had already been undertaken. Consequently, NHSL adopted the use of a Reference Design, elements of which bidders were required to comply with. This was an unusual approach in publicly procured Public Private Partnership projects in Scotland (indeed the Inquiry notes in PPP1 that NHSL and SFT sought to engage in dialogue with their peers in Northern Ireland who had prior experience of using mandated reference designs in procurement). Historically, exemplar designs had been used for Public Private Partnership projects in Scotland (paragraph 5.1.8 of PPP1).

2.9 PPP3 Vol 2 (paragraph 6.4.2) states that with the use of a mandated Reference Design NHSL was able to retain as much of the design work already undertaken (which design had been developed with clinicians and clinical user groups) before the Project switched to the NPD funding model. This approach would have reduced the level of engagement required from clinicians during the Competitive Dialogue phase and significantly shorten the time periods for the bid process. The Inquiry Team notes that NHSL and SFT had a desire to keep the procurement process as short as was reasonably practicable (paragraph 23.1.20 of PPP3 Vol 2).

2.10 The use of a mandated Reference Design also gave NHSL the confidence to adopt a 60:40 weighting of price versus quality (paragraph 6.6.8 of PPP3 Vol 2).

2.11 The bidders would have been aware, therefore, of the following unique factors when they embarked upon the bid process and NHSL brought the RHCYP/DCN project to market:

2.11.1 The procurement of the project had been underway for many years before the decision was taken by the Scottish Government to adopt the NDP model and before parties were invited to participate in dialogue in March 2013;

2.11.2 NHSL had prepared a Reference Design and that one of the reasons for doing so was to retain as much of the design work already undertaken before the Project switched to a different funding model;

2.11.3 That the Reference Design had been prepared with significant clinical input so there would be limited clinical user group engagement through the bid process; and

2.11.4 The bid process would be undertaken under compressed timescales.

2.12 The bidders in IHSL's view would have understood that NHSL expected compliance with the Board's Construction Requirements which were issued with the ITPD and ISFT. The Board's Construction Requirements included the Environmental Matrix. This is demonstrated by the quality evaluation criteria included within the ITPD (referred to at paragraphs 6.6.21 and 6.6.22 of PPP3 Vol 2). The 'Approach to Design and Construction' was made up of 31 separate criteria, of which 12 were scored and the rest assessed on a Pass/Fail basis. C12 'Compliance with Mandatory Reference Design Requirements' and C21 'Compliance with the Board's Construction Requirements' were both assessed on a Pass/Fail basis. This was further reinforced by Appendix A which set out the requirement and scoring for C21 which stated: "*Bidders must confirm their compliance with the Board's Construction Requirements. If as their design has been developed there are specific areas of the Board's Construction Requirements that Bidders would seek to change, these shall be scheduled and provided in support of the statement. The Board shall not be required to accept any proposed amendments*."

2.13 In other words, had a bidder not complied with the Board's Construction Requirements, for example by deviating from the Environmental Matrix, that bidder ran the risk of its bid being held non-complaint and its bid being struck out. No bidder would have set out to submit a non-compliant bid in a competitive dialogue process or taken the risk of submitting a non-complaint bid.

2.14 NHSL's attitude to full compliance with its requirements is also demonstrated by the Reviewer's comments on IHSL's final tender (paragraph 15.9 of PPP3 Vol 2). C8.3 of the Board's Construction Requirements stated that: "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 acceptance basis." The PPP notes that that IHSL did not provide a marked up environmental matrix but in their submission has noted that: "no changes proposed at this time nor envisaged in the future". The Reviewers concluded that the brief have been achieved and commented: "Good response".

2.15 The Inquiry draws certain provisional conclusions with regards to NHSL's concerns about the project programme to Financial Close. As noted above, NHSL and SFT had a desire to keep the procurement process as short as was reasonably practicable. PPP3 Vol 1 (at paragraph 6.5.8) covers NHSL's discussions around a compressed programme which allowed some 155 days to close dialogue compared to the originally intended 209 days and which envisaged the announcement of preferred bidder in early 2014 with financial close and contract award taking place in summer 2014. When it came to the evaluation of final tenders, NHSL, SFT and SGHD adopted a compressed programme with tender evaluation duration shortened from 75 days to 39 days. The award of Preferred Bidder was issued on 5 March 2014. Financial Close was achieved on 13 and 14 February 2015. In IHSL's experience a period of 11 months for the Preferred Bidder phase to Financial Close is not unusual and given the complexity of the Project was certainly not excessive.

2.16 The Inquiry also arrives at certain provisional conclusions with regards to "Reviewable Design Data". This is a concept which is commonly adopted in PFI/PPP/NPD contracts and was not unique to the RHCYP/DCN. The Inquiry is correct to the note that the Environmental Matrix was identified as being included as part of the Reviewable Design Data as at Financial Close because some of its contents remained to be agreed. As a consequence, many of the Room Data Sheets remained incomplete as at that date. The Inquiry has identified in the PPPs that a disagreement arose between NHSL and the Tender Consortium prior to Financial Close regarding the air pressure regime in single bedrooms (and the use of mixed mode ventilation). This was one of the issues which led to the Environmental Matrix being identified as part of the Reviewable Design Data (because its terms on the air pressure regime in single bedrooms had not at that date been finalised). As it happened, the disagreement between the parties on the air pressure in single bedrooms continued for a significant period after Financial Close and was ultimately resolved by the execution of SA1.

2.17 IHSL considers it worth highlighting to the Inquiry Team that the issue of air changes in multi-bed rooms was not identified as an outstanding issue in the Environmental Matrix prior to Financial Close and it was not one of the reasons why the Environmental Matrix was included in the Reviewable Design Data. Similarly, the issues in the Environmental Matrix that were outstanding at Financial Close were not ones that subsequently led to the delayed opening of the RHCYP in July 2019.

Settlement Agreement No.1

2.18 The findings of the Inquiry Team in the PPPs, as highlighted above, shed some light on (i) the development of the Reference Design and the Environmental Matrix and (ii) the circumstances surrounding the potential inconsistency between the Environmental Matrix and the guidance contained in SHTM 03-01 regarding the air change rate in multi-bed rooms in Critical Care.

2.19 The reason why the hospital did not open as planned is because the then Cabinet Secretary for Health & Sport announced on 4 July 2019 that there were issues with the ventilation system within the critical care department which did not meet necessary national standards. That was further taken

to refer to the fact that a certain number of critical care bedrooms in the hospital had been constructed to have an air change rate of 4 ac/hr when SHTM 03-01 recommends 10 ac/hr.

2.20 Whilst the Inquiry Team has focussed on the period up to Financial Close in February 2015 in the PPPs (and IHSL understands why the Inquiry Team has sought to approach the issues in the Inquiry by dividing the Project into relevant time slices) IHSL considers that it is important to keep the full span of the Project in mind so that the most relevant issues can be fully understood in their broader context.

2.21 The Inquiry Team will be aware from IHSL's previous submissions to the Inquiry (namely those dated 16 December 2020 and 12 October 2021) that a dispute arose between the parties during the construction of the RHCYP/DCN. IHSL has previously provided to the Inquiry the Court papers which it received from NHSL in 2018 and which identified the nature of the dispute. This dispute did not concern the issue of air changes in critical care bedrooms but rather concerned whether IHSL was obliged to design and construct a ventilation system for the single and multi-bed rooms so that they achieved a balanced or negative pressure relative to the adjacent corridor. It was only in July 2019, when IOM raised the matter as part of their independent inspection, that the issue of the number of air changes was raised by NHSL as a material issue of compliance: NHSL's continued focus had been on the pressure regime.

2.22 The parties engaged in a lengthy period of negotiation during the construction period which resolved not only the issue of whether the single and multi-bed rooms should achieve a balance or negative pressure relative to the adjacent corridor but also all other ongoing disputes between the parties on the design and construction of the RHCYP/DCN (none of those other disputes related to the air change rates in the Critical Care rooms).

2.23 Those discussions culminated in Settlement Agreement No.1 ("SA1") being executed by the parties on 22 February 2019. SA1 resolved and clarified NHSL's requirements for the RHCYP/DCN. In relation to 4 bed ventilation, the resolution contained within the Technical Schedule to SA1 is that 14 No. 4 bed rooms were to be balanced or negative to the corridor at 4 ac/hr. The 14 No. 4 bed rooms included 4 which were within Critical Care.

2.24 IHSL and its main contractor, MPX, delivered the hospital which was specified by NHSL as per SA1. This was signed off by the Independent Tester and in relation to which a Certificate of Practical Completion was issued on 22 February 2019.

2.25 IHSL note that the Inquiry Team wishes to explore certain matters at the hearing scheduled to commence on 24 April 2023 (the "**April Hearing**") with regards to the Environmental Matrix which include the following:

2.25.1 How the creators of the Environmental Matrix (H&K) chose the 'Room Function' in the Room Function Reference Sheet where the Room functions 'Multi-bed ward" and "HDU" were equally applicable (paragraph 8.15 of PPP2);

2.25.2 Why values were inserted into the Environmental Matrix that did not conform to the statements made in the Guidance Notes (paragraph 8.22 of PPP2);

2.25.3 Whether NHSL and its advisers discussed Bidder C's proposals to depart from the Board's Construction Requirements by changing the air change rates for single bed cubicles and open plan bays in the Paediatric Intensive Care Unit from 4 ac/hr to 10 ac/hr.

2.26 IHSL agrees that these are important issues for the Inquiry Team to explore at the April Hearing. IHSL does not know why NHSL's requirements regarding air change rates set out in the Environmental Matrix appeared to be inconsistent with the guidance set out in SHTM 03-01. The Environmental Matrix had been developed and finalised by NHSL and their Technical Advisers over a period of years and in consultation with NHSL clinicians. The Inquiry Team also indicates in PPP1 (at paragraph 3.11) that the project would have been required to achieve a certain rating under BREEAM[1] 2011 which was likely to incur significant design and cost implications for the project. IHSL anticipates that the Inquiry Team will, when considering the issues noted above at the April Hearing, explore the extent to which NHSL's requirements as set out in the Environmental Matrix were influenced by other competing design issues, such as energy performance, efficiency and costs. It is important in IHSL's view, however, for the Inquiry Team to bear in mind that whilst the Inquiry's focus is currently on the genesis of the Environmental Matrix and NHSL's requirements which were set out therein, NHSL's requirements in relation to ventilation for the relevant Critical Care rooms (and air change rates in particular) were also later reiterated in SA1.

[1] Building Research Establishments Environmental Assessment Method

PART 1 – THE REFERENCE DESIGN USED AT RCHYP/DCN

3. RESPONSE TO PPP1

3.1 This Part 1 of the Response sets out IHSL's comments on PPP1.

3.2 IHSL makes some limited comments on the contents of PPP1 below before making limited comments on certain provisional conclusions identified by the Inquiry Team in PPP1.

Paragraph 3.96 of PPP1 – Hierarchy of Standards

3.3 This is a point on which IHSL wishes to provide further explanation and context.

3.4 Paragraph 3.96 of PPP1 refers to Section 2.5 of ITPD Volume 3 (demonstrated in the extract below).

> 3.96 Section 2.5 'Hierarchy of Standards' provided that:
>
> "where contradictory standards/advice are apparent…then…(1) the most onerous standard/advice shall take precedence…The Board shall be entitled to make the final decision regarding the standards/advice to be used for the Facilities..."

3.5 The full quotation from the second paragraph of Section 2.5 is as follows:

"*Where contradictory standards/advice are apparent* ***within the terms of this Section 3 of Schedule Part 6 (Construction Matters) and the Appendices*** *then subject to the foregoing paragraph then (1) the most onerous standard/advice shall take precedence and (2) the most recent standard/advice shall take precedence. When the more onerous requirement is to be used the Board will have the right to decide what constitutes the more onerous requirement."*

3.6 The second paragraph of Section 2.5 is concerned with any contradictions in the "standards/advice" apparent within Section 3 of Schedule Part 6 and its Appendices. This appears to refer to contradictory standards and advice which may be apparent from the publications referred to in Section 3 e.g. the raft of NHS standards referred to in Section 2.3 and 2.4.

3.7 IHSL wishes to highlight the full drafting of the second paragraph in section 2.5 in order to more accurately reflect the application and scope of that provision.

3.8 The Inquiry may be aware that the proper interpretation of the equivalent provision to section 2.5 contained in the Project Agreement (i.e. paragraph 2.5 of Schedule Part 6 Section 3) formed part of the dispute between the parties referred to at paragraph 2.21 of this Response (above). IHSL do not propose to address the terms of the Project Agreement in this Response, however. IHSL understands that the terms of the Project Agreement will be subject to a separate PPP being prepared by the Inquiry Team.

IHSL's Requested Action: IHSL respectfully requests the Inquiry Team to adopt the full quotation of section 2.5.

Provisional conclusion at paragraph 5.1.13 of PPP1: "CEL19 mandated that all NHS Scotland Bodies use the English Department of Health's Activity Database (ADB) as a tool for briefing, design and commissioning"

3.9 This is a point on which IHSL wishes to provide further explanation and context.

3.10 The Inquiry Team reaches the provisional conclusion at paragraph 5.1.33 of PPP1 that: "CEL 19 mandated that all NHS Scotland Bodies use the English Department of Health's Activity Database (ADB) as a tool for briefing, design and commissioning. Where ADB was deemed inappropriate for a particular project, and an alternative tool was used, the NHS Scotland Body was required to demonstrate that the alternative was of equal quality and value to ADB in its application."

3.11 IHSL understands the Inquiry's provisional conclusion in paragraph 5.1.33 regarding the mandated use of ADB to be correct.

3.12 The Inquiry Team reach the following further provisional conclusions:

3.12.1 NHSL did not use ADB as a tool for briefing and design stages relating to the environmental information for the RHCYP/DCN project (Paragraph 5.1.16);

3.12.2 the Inquiry has seen no documentation demonstrating why NHSL determined to deviate from using ADB (Paragraph 5.1.17);

3.12.3 an 'environmental matrix' was used as part of the procedure for NHSL to brief prospective tenderers on its technical requirements for the ventilation system (Paragraph 13.1.6 of PPP2);

3.12.4 the environmental matrix was not produced using ADB (Paragraph 13.1.13 of PPP2) but was created by figures being manually input into a spreadsheet (Paragraph 13.1.14 of PPP2); and

3.12.5 the environmental matrix provided with the ITPD contained environmental information that was inconsistent with the guidance set out in STHM 03-01 (Paragraph 13.1.18 of PPP2).

3.13 Whilst IHSL understands that the use of the ADB was mandated by CEL 19 as a tool for briefing, design and commissioning (unless an alternative of equal value was adopted), that is not to say that the *pro forma* content/data generated by the ADB was made mandatory by Scottish Government policy. That is clear, for example, from the terms of Annex A to CEL 19 (2010) which envisaged changes to the ADB content to reflect project specific briefs and designs and changes required to reflect Scottish guidance and requirements. Annex A to CEL 19 (2010 states:

> "*Spaces designed using ADB data automatically comply with English planning guidance (such as Health Building Notes (HBNs) and Health Technical memoranda (HTMs) as ADB forms an integral part of the English guidance publication process**. Whilst Scottish users can create their own project-specific briefs and designs using ADB's extensive library of integrated graphics and text which includes room data sheets**, room layouts and departmental room schedules, extreme care should be taken to ensure that such data generated by the package are consistent and compliant with Scottish-specific guidance such as Scottish Health Planning Notes, Scottish Health Facilities Notes (SHFNs) and Scottish Health Technical Memoranda (SHTMs) as published by Health Facilities Scotland."* (emphasis added)

3.14 The ADB generates Room Data Sheets based on the options selected from the ADB menus. Once generated, the Room Data Sheets can then be adapted to accommodate specific comments from the NHS body regarding the specific uses for which the room may be used (e.g. clinicians may specify types of procedures to be undertaken in the room which may dictate changes to the Room Data Sheet). The Room Data Sheets are therefore refined and tailored to reflect the NHS body's specific room requirements. In the case of the RHCYP/DCN project NHSL conveyed those requirements to the tenderers in the Environmental Matrix.

3.15 The distinction between mandating the use of ADB as a tool for briefing and design and mandating its generated content is a significant one. This is demonstrated by the terms of the ITPD for the RHCYP/DCN project. Section 2.5.3 of ITPD Volume 1, titled 'Room Data Sheets' (quoted at Paragraph 3.81 of PPP1), stated: "Bidders will be required to develop Room Data Sheets incorporating Room Information". The "Room Information" was detailed in the Board's Construction Requirements and the Environmental Matrix (which was identified specifically in Section 2.5.3 but in any event also formed part of the Board's Construction Requirements).

3.16 In order to comply with CEL 19, bidders were therefore required to use the ADB (or an alternative of equal value) in order to create Room Data Sheets. However, in preparing those Room Data Sheets the bidders were obliged to tailor the content to reflect NHSL's specific requirements as set out in the Environmental Matrix (and the other Board's Construction Requirements).

IHSL's Requested Action: IHSL respectfully requests the Inquiry Team to reflect at paragraph 5.1.33 that whilst ADB was mandated by CEL 19 as a briefing tool (unless an alternative of equal value was adopted), that is not to say that the *pro forma* content/data generated by the ADB was made mandatory by Scottish Government policy.

Provisional conclusion at paragraph 5.1.33 of PPP1: "ITPD, Volume 3, Section 2.3 required tenderers to comply with SHTMs"

3.17 This is a point which IHSL seeks the Inquiry Team to correct.

3.18 The Inquiry Team's provisional conclusion at paragraph 5.1.33 states as follows: "*ITPD, Volume 3, Section 2.3 required tenderers to comply with SHTMs*."

3.19 IHSL understands that this provisional conclusion is derived from paragraph 3.95 of PPP1 where the reference to Section 2.3 of ITPD Volume 3 is quoted more fully. Paragraph 3.95 states as follows:

3.95 Section 2.3 'NHS Requirements', provides that:

> "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".

These requirements include, at 2.3.v, that bidders shall:

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> "in relation to all SHTM…ensure that the Facilities comply with the requirements of such SHTM…and adopt as mandatory all recommendations and preferred solutions contained in such SHTM…"

3.20 It is evident from the extract Section 2.3 provided in paragraph 3.95 of PPP1 that the obligation on the bidders to comply with "NHS Requirements" (which definition include SHTMs) is qualified in a very significant way. Section 2.3 expressly sets out that bidders are to comply with SHTMs "*unless the Board has expressed elsewhere in the Board's Construction Requirements a specific and different requirement."*

3.21 In other words, it is expressly provided that the guidance in SHTM 03-01 gives way to NHSL's particular requirements.

3.22 The significance of the qualification in Section 2.3 can hardly be overstated given the comments attributed to NHSL in PPP1 noted below.

3.23 Paragraphs 3.90 – 3.92 of PPP1 explains the "Board's Construction Requirements" (extracts noted below).

3.90 ITPD Volume 3 consisted of Part 6 Section 3 Sub-Sections A to E of the Schedule to the Project Agreement, otherwise called 'the Board's Construction Requirements'. These set out the key design criteria for the project, with the successful tenderer needing to satisfy all the requirements therein.

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3.91 This volume departs from the language of 'mandatory and non-mandatory/indicative' elements and 'Operational Functionality' as used in the Reference Design and ITPD Volume 1. Instead, 'mandatory' refers to requirements contained in certain SG guidance and regulations, such as SHTM 03-01.

3.92 At the 'Definitions and Abbreviations' section, 'Environmental Matrix' is defined as meaning:

> "the Environmental Matrix, which details the room environmental condition requirements of the Board required within each department/unit/space/area…as set out in Appendix C of this Section 3…(as varied, amended or supplemented from time to time in accordance with the Project Agreement)".

3.24 The Board's Construction Requirements therefore specifically included the Environmental Matrix (it formed Appendix C of the Board's Construction Requirements).

3.25 It is against those specific provisions of the ITPD and ISFT documents (discussed above) that IHSL note the following comments attributed to NHSL in the PPPs:

3.25.1 "*NHSL maintains that tenders required to produce room data sheets using ADB and to ensure compliance with CEL 19 and published guidance including SHTM 03-01.*" (Paragraph 5.10 of PPP 2); and

3.25.2 "*NHSL considers that it specified compliance with SHTM 03-01 as a minimum engineering standard and it was for the successful bidder to either develop the M&E design to that standard or otherwise seek a derogation from SHTM 03-01.*"

3.26 IHSL also note the Inquiry Team's provisional conclusion at paragraph 5.1.31 of PPP1 which states:

> 5.1.31 The Environmental Matrix provided with the ITPD contained environmental information that was inconsistent with healthcare guidance, namely SHTM 03-01, which outlines ventilation requirements in a hospital. In particular, values inserted in the Environmental Matrix for certain critical care areas did not comply with the guidance in SHTM 03-01.

3.27 IHSL's position with regards to compliance with SHTMs is more fully set out in its "Response to Request for Information No.2" which was submitted to the Inquiry on 12 October 2021.[2] The Inquiry Team is referred in particular to paragraph 3.27 of that submission which IHSL considers might also be helpful in the current context. It states as follows:

"*In summary, therefore, SHTMs give comprehensive advice and guidance on the design, installation and operation of building and engineering technology used in the delivery of healthcare. They are provided for guidance purposes (i.e. they are not mandatory) as they do not provide the detail on how to design, not being intended for that purpose. In short, whilst there are clear requirements in various places to comply with SHTM 03-01 within the Project Agreement, that document is for guidance purposes only and, depending on a variety of factors, it is perfectly acceptable for the health boards to agree designs that deviate from SHTMs, often by way of derogations from SHTMs (which often contain contradictory requirements) to meet particular environmental and clinical needs. Such derogations can also be introduced as a result of Site conditions and affordability issues in terms of capital costs and ongoing operational expenditure."*

3.28 As noted above, the Environmental Matrix issued by NHSL with the ITPD did contain values for certain critical care areas that were different to those contained in SHTM 03-01. The Environmental Matrix departed from the guidance in SHTMs in a number of respects, however. Those departures were not limited to the issue of air change rates in critical care rooms. As noted above, however, it is open for health boards to agree designs that deviate from SHTMs.

3.29 In addition to the departures from SHTM guidance contained in the Environmental Matrix itself, the Inquiry has also referred to an example at paragraph 14.30 of PPP3 Vol 2 where NHSL agreed to departures from SHTM03-01 with one of the bidders during the competitive dialogue meetings. Paragraph 14.30 refers to a statement in Bidder C's final tender that in order to maximise energy efficiency they had proposed a lower air flow rate in certain areas "*(which have been agreed in dialogue meetings, despite being lower than those specified in SHTM 03-01)".*

3.30 This statement from Bidder C's final tender illustrates that NHSL had agreed to certain departures from its Board Construction Requirements regarding air change rates proposed by Bidder C despite those revised agreed rates being lower than those specified in SHTM 03-01. This indicates the NHSL

[2] Reference is also made to IHSL's 'Response to the Inquiry's "Narrative concerning the Reference Design of the Royal Hospital for Sick Children and Department of Clinical Neurosciences" which was submitted to the Inquiry on 12 September 2022 which provides further comment on the relevant provisions of the ITPD documents.

was confident during the competitive dialogue phase to agree requirements which departed from the guidance contained in SHTM 03-01.

3.31 It is inaccurate then for the provisional conclusion at paragraph 5.1.33 to state in isolation that Section 2.3 required tenderers to comply with SHTMs. Section 2.3 requires to be read in full and in particular with the text "*unless the Board has expressed elsewhere in the Board's Construction Requirements a specific and different requirement*".

IHSL's Requested Action: IHSL respectfully requests the Inquiry to correct the drafting and to reflect the full text of Section 2.3 in the provisional conclusion at paragraph 5.1.33.

Provisional conclusion at paragraph 5.1.34 of PPP1: "There was a lack of clarity in the procurement documents in relation to: (i) the purpose of the Environmental Matrix; and (ii) whether compliance with the Environmental Matrix was mandatory."

3.32 This is a point which IHSL seeks the Inquiry Team to correct.

3.33 IHSL notes the Inquiry's Team provisional conclusion at paragraph 5.1.34 of PPP1. IHSL seeks to address both limbs (i) and (ii) below.

Lack of clarity in relation to the purpose of the Environmental Matrix

3.34 First, with regards to the Inquiry Team's provisional conclusion that there was a lack of clarity in the procurement documents in relation to the *purpose* of the Environmental Matrix, IHSL note that this issue is addressed comprehensively by the Inquiry Team in both PPP1 and PPP2. This is highlighted in the following paragraphs from those documents.

3.34.1 Paragraphs 3.15 and 3.16 of PPP1 narrate the origins of the Environmental Matrix. Those paragraphs state that the Environmental Matrix was first produced by H&K for the standalone project (then known as the RHSC) in September 2010. The purpose of the Environmental Matrix was stated in e-mail correspondence between H&K and BAM in 2010 as being a spreadsheet for each room type which would be an easier tool to replace room data sheets prepared using the ADB.

3.34.2 Paragraph 3.18 of PPP1 states that the Environmental Matrix was issued to bidders with the Reference Design. Paragraph 3.19 of PPP1 states that Guidance Note 1 of the Environmental Matrix issued to bidders stated that it had been prepared as an easier reference tool to replace ADB room data sheets for the environmental criteria elements described in those sheets.

3.34.3 Paragraph 3.18 of PPP1 quotes Section 2.5.3 of ITPD Volume 1 which is titled 'Room Data Sheets'. Section 2.5.3 states that standard format room data sheets have not been prepared by NHSL for the Project but that NHSL's specific room requirements (defined

as the "Room Information") are detailed in (amongst others) the Board's Construction Requirements and the Environmental Matrix.

3.34.4 Paragraph 3.82 of PPP1 notes that Section 2.5.3 of ITPD Volume 1 required bidders to develop Room Data Sheets incorporating the Environmental Matrix and other Room Information.

3.34.5 Paragraph 3.92 of PPP1 contains the definition of "Environmental Matrix" taken from ITPD Volume 3 which 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 Appendix C of this Section 3….*"

3.34.6 Paragraph 5.1 of PPP2 states the Inquiry's understanding that: "*NHSL did not utilise room data sheets, created using ADB, as a tool for briefing of prospective tenderers on its requirements for the ventilation system. The Inquiry Team understands that the EM was utilised as a substitute at the procurement stage.*"

3.35 In light of the above, it is not clear to IHSL why the Inquiry Team would provisionally conclude that there was a lack of clarity in the procurement documents in relation to the *purpose* of the Environmental Matrix or on what basis such a finding in fact could be made. On the contrary, the *purpose* of the Environmental Matrix is clear in the procurement documents as noted in the paragraphs above.

IHSL's Requested Action: IHSL respectfully requests the Inquiry Team to delete limb (i) of paragraph 5.1.34 because PPP1 does not appear to provide a basis for concluding as a matter of fact that there was a lack of clarity in the procurement documents regarding the purpose of the Environmental Matrix.

Lack of clarity in relation to whether compliance with the Environmental Matrix was mandatory

3.36 Second, with regards to the Inquiry Team's provisional conclusion that there was a lack of clarity in the procurement documents in relation to whether compliance with the Environmental Matrix was mandatory, IHSL note that this issue is also addressed comprehensively in both PPP1 and PPP2. This is highlighted in the following paragraphs from those documents.

3.36.1 Paragraph 3.86 of PPP1 quotes Section C8.1 of ITPD Volume 1, Appendix A titled 'Submission Requirements' which provided that bidders must submit proposals setting out the engineering services design for each element of the scheme in sufficient detail to demonstrate compliance with the Board's Construction Requirements (which included the Environmental Matrix).

3.36.2 Paragraph 3.87 of PPP1 quotes Section C8.3 which states that whilst bidders were required to undertake their own design, NHSL 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.

3.36.3 Paragraph 3.93 of PPP1 which refers to Section of ITPD Volume 3 which states that Project Co shall provide the Works to comply with the Environmental Matrix.

3.36.4 Paragraph 3.94 of PPP1 which states the Inquiry's view that in ITPD Volume 3 the terms of the Environmental Matrix are framed as the Board's Construction Requirements as opposed to being indicative.

3.36.5 As noted in section 2 of this Response, the Environmental Matrix formed part of the Board's Construction Requirements. The 'Approach to Design and Construction' contained in the quality evaluation criteria included within the ITPD (referred to at paragraphs 6.6.21 and 6.6.22 of PPP3 Vol 2) was made up of 31 separate criteria, of which 12 were scored and the rest assessed on a Pass/Fail basis. C21 'Compliance with the Board's Construction Requirements' was to be assessed on a Pass/Fail basis.

3.37 In light of the above, it is not clear to IHSL why the Inquiry Team would provisionally conclude that there was a lack of clarity in relation to whether compliance with the Environmental Matrix was mandatory. From the provisions of the ITPD documents quoted above (and discussed more fully elsewhere) it is apparent that bidders were required to comply with the Environmental Matrix. It may be premature perhaps for the Inquiry Team to arrive at the provisional conclusion set out in the second limb of paragraph 5.1.34 until the evidence has been heard at the April Hearing.

IHSL's Requested Action: IHSL respectfully requests the Inquiry Team to delete limb (ii) of the provisional conclusion at paragraph of paragraph 5.1.34 because PPP1 does not appear to provide a basis for concluding as a matter of fact that there was a lack of clarity in the procurement documents in relation to whether compliance with the Environmental Matrix was mandatory.

PART 2 – ENVIRONMENTAL MATRIX AT RHCYP/DCN

4. RESPONSE TO PPP2

4.1 This Part 2 of the Response sets out IHSL's comments on PPP2.

4.2 IHSL makes some limited comments on the contents of PPP2 below before making limited comments on certain provisional conclusions identified by the Inquiry Team in PPP2.

Paragraph 12.60 – discrepancies in the room data sheets when compared to SHTM 03-01

4.3 This is a point on which IHSL would seek to provide clarification and context.

4.4 At paragraph 12.60 of PPP2, the Inquiry Team refers to potential discrepancies in the draft Room Data Sheets prepared by the IHSL bidding consortium (which replicated the environmental data contained in the Environmental Matrix) when compared to STHM 03-01 and queries how these discrepancies could have arisen if room data sheets were produced using ADB.

4.5 IHSL was not involved in the preparation of the Room Data Sheets. However, IHSL would refer to the discussion above (at paragraphs 3.17 to 3.31) in relation to PPP1 which highlights that SHTM 03-01 was to be complied with unless the Board has expressly stated in the Board's Construction Requirements a specific and different requirement. The Environmental Matrix (which formed part of the Board's Construction Requirements) did specify different requirements from those contained in SHTM 03-01. The bidders were obliged to prepare Room Data Sheets which complied with the Environmental Matrix (and the other Room Information). This would necessarily require bidders to refine the Room Data Sheets generated using ADB by incorporating NHSL's specific requirements.

4.6 The Inquiry Team's provisional conclusion at paragraph 13.1.24 is that "*ITPD Volume 1, Section 2.5.3 states that the tenderers were required to use the environmental matrix and other Room Information documents to form the basis of Room Data Sheet production*."

4.7 The Inquiry Team's provisional conclusion at paragraph 13.1.18 is that "*the environmental matrix provided with the ITPD contained environmental information that was inconsistent with the guidance set out in SHTM 03-01. In particular, values inserted in the environmental matrix for certain critical areas did not comply with the guidance in SHTM 03-01.*"

4.8 It follows, therefore, that Room Data Sheets which required to reflect the Room Information (including the Environmental Matrix) would necessarily contain values which differed from the guidance in SHTM 03-01.

IHSL's Requested Action: IHSL respectfully requests the Inquiry Team to refer to the provisional conclusion at paragraph 13.1.24 when considering any apparent discrepancies in the room data sheets prepared by IHSL when compared to STHM 03-01.

Paragraph 12.64 – the derogation register

4.9 This is a point on which IHSL would seek to provide clarification and context.

4.10 At paragraph 12.64 of PPP2, the Inquiry Team states that "*as at Financial Close, the derogation register did not identify any proposed derogation by IHSL from SHTM 03-01 in relation to air change rates, pressure regimes and filtration within Critical Care*."

4.11 The Inquiry Team explains at paragraph 12.62 that the Project Agreement provided a mechanism, known as a derogation register, by which IHSL could highlight to NHSL "***any proposed derogations from the Board's Construction Requirements (BCRs)*** *so that they could be agreed by NHSL*." (emphasis added)

4.12 As noted above in relation to the discussion on PPP1, bidders were required to comply with SHTM 03-01 unless the Board expressed in the Board's Construction Requirements a specific and different requirement. Taking the example of the air change rate of 4 ac/hr identified in the Board's Construction Requirements (in the Environmental Matrix) and the 10 ac/hr identified in SHTM 03-01, the Board's Construction Requirements clearly identified a different requirement from SHTM 03-01. On that basis, it would have been unnecessary for IHSL to have sought a derogation from SHTM 03-01 in relation to air changes because the Board's Construction Requirements had already identified a specific and different requirement to the guidance contained in SHTM 03-01.

4.13 The circumstances in which IHSL would have been obliged to have sought a derogation from NHSL would have been where IHSL had proposed to depart from the Board's Construction Requirements had they specified something different from the guidance in the SHTMs and had IHSL proposed to adopt the guidance set out in SHTM 03-01 instead. So, for example, the Inquiry Team refers (at paragraph 11.16 of PPP3 Vol 1) to Bidder C's submission on C8 and C10 which contained the following statement: "*Only move away from the Reference Design where we see real benefit to NHS Lothian in terms of: reduced energy usage; better system resiliency; ease of operation; improved maintenance; or whether it is non-compliant with relevant design guidance."* In other words, a derogation would require to be agreed if a bidder departed from NHSL's express requirements and adopted the relevant design guidance instead.

IHSL's Requested Action: IHSL respectfully requests the Inquiry Team to reflect in its comments at paragraph 12.64 that IHSL would not have required to have sought a derogation from SHTM 03-01 in the circumstances where the Board's Construction Requirements had specified a different requirement to the guidance in SHTM 03-01.

Provisional conclusion at paragraph 13.1.2 of PPP2: "CEL19 mandates that all NHS Scotland Bodies use the English Department of Health's Activity Database (ADB) as a tool for briefing, design and commissioning"

4.14 Please see comments at paragraphs 3.9-3.16 above in relation to PPP1.

Provisional conclusion at paragraph 13.1.5 of PPP2: "There was a lack of clarity in the procurement documents in relation to: (i) the purpose of the environmental matrix; and (ii) whether compliance with the environmental matrix was mandatory."

4.15 Please see comments at paragraphs 3.32-3.37 above in relation to PPP1.

Provisional conclusion at paragraph 13.1.30 of PPP2: "Given the disconnect between the values in the environmental matrix (issued with the ITPD) and SHTM 03-01, it is not clear why IHSL's tender was deemed by NHSL to comply with the published requirements."

4.16 This is a point on which IHSL seeks to provide further explanation and context.

4.17 This provisional conclusion is concerned with the reasons why IHSL's tender was deemed to comply with the published requirements given the apparent disconnect between the values in the environmental matrix issued with the ITPD and SHTM 03-01. The question of why NHSL deemed IHSL's tender to comply with the published requirements is a matter for NHSL to address.

4.18 Nevertheless, IHSL would wish to highlight to the Inquiry Team the full text of Section 2.3 of ITPD Volume 3. This is discussed fully at paragraphs 3.17 to 3.31 in relation to PP1 above. Section 2.3 of ITPD Volume 3 expressly provided that the guidance in SHTM 03-01 gives way to NHSL's particular requirements as set out in the Board's Construction Requirements.

4.19 IHSL respectfully suggests that this qualification on compliance with SHTM 03-01 (and others) might help explain what *prima facie* might appear to be a disconnect between the values in the environmental matrix and SHTM 03-01. There is no such disconnect when Section 2.3 is read in full. The guidance in SHTM 03-01 applied unless NHSL set out a different requirement in the Board's Construction Requirements. In the case of the air changes per hour in the multi-bed rooms, NHSL did express a different requirement to that set out in SHTM 03-01. The bidders were required to comply with the Board's Construction Requirements which in many instances departed from the guidance contained in SHTMs.

IHSL's Requested Action: IHSL respectfully requests the Inquiry Team to refer to the full text of Section 2.3 of ITPD Volume 3 (which provides that the guidance in SHTMs give way to NHSL's particular requirements set out in the Board's Construction Requirements) when considering any purported disconnect between the values in the Environmental Matrix and STHM 03-01 and any question why IHSL's tender was deemed to comply with the published requirements.

PART 3 – THE PROCUREMENT PROCESS FOR RHCYP/DCN

5. RESPONSE TO PPP3

5.1 This Part 3 of the Response sets out IHSL's comments on PPP3.

5.2 IHSL makes some limited comments on the contents of PPP3 below before making limited comments on certain provisional conclusions identified by the Inquiry Team in PP3.

Paragraph 21.5 – NHSL making payments at Financial Close

5.3 This is a point which IHSL invites the Inquiry Team to correct.

5.4 Paragraph 21.5 of PPP3 narrates that the contract documents including the Project Agreement were signed on 13 and 14 February 2015 marking Financial Close." Paragraph 21.5 continues by stating that: "*After this date the **Board began making payments to IHSL** and IHSL required to commence construction."*

5.5 The statement highlighted in italics is not factually correct. It is not clear what payments the Inquiry Team is referring to in paragraph 21.5. The Inquiry will be aware, however, that under the NPD Model (which was an evolution of the PFI procurement model) NHSL did not make regular payments to IHSL for the construction of the RHCYP/DCN during the construction period unlike in a traditional capital funded project (although NHSL did pay some payments to IHSL for the costs of changes to the Works which NHSL had instructed during construction). Under the NPD model, IHSL funded the design and construction of the project through borrowed project finance (from Senior Lenders and from Investors). NHSL pays IHSL for delivery of the services provided at RHCYP/DCN throughout the service period by way of payment of the Unitary Charge. During the service period IHSL repays the Senior Lenders and the Investors funders for those loans (the loan repayments being made from the income stream obtained from the service payments made by NHSL).

5.6 The payments made by NHSL to IHSL for delivery of the services did not commence until practical completion of RHCYP/DCN in February 2019 (not after Financial Close as stated in paragraph 21.5.)

IHSL's Requested Action: IHSL respectfully requests the Inquiry Team to correct paragraph 21.5 by clarifying that NHSL did not begin to make payments at Financial Close but rather NHSL's payments are made to IHSL for delivery of the services through the Unitary Charge which begins at practical completion.

Paragraph 22.3 – the Public Interest Director

5.7 This is a point which IHSL seeks to clarify with the Inquiry Team.

5.8 Paragraph 22.3 of PPP3 refers to the accounting standard ESA 10 and states that "*Changes were made to the role of the public sector director with the introduction of an independent expert"*.

5.9 It is not clear to IHSL what is meant by an "independent expert" in reference to the role of the public sector director (sometimes referred to as the "Public Interest Director" or "PID").

5.10 As the Inquiry will be aware, one of the key differences with the NPD model is that there is enhanced stakeholder involvement in the management of projects. The public interest is represented in the governance of the NPD structure through the appointment of a Public Interest Director. This is intended to increase transparency and accountability and to facilitate a more proactive and stable partnership between public and private sector parties.

5.11 The appointment of an independently nominated PID to the Project Company's board is a key feature that is specific to the NPD model. It is Scottish Futures Trust ("SFT") that nominates a PID for each NPD project which until 2021 was an SFT employee. That was also the case for the RHCYP/DCN i.e. the PID was nominated by SFT and was an SFT employee. The PID was a suitably qualified employee of SFT with the appropriate expertise who was independent of Project Co. It is not clear if it this description which the Inquiry Team seek to capture with the reference to an "independent expert".

5.12 IHSL is aware that ESA 10 instigated the introduction of certain changes to the PID role by removing certain specific powers and responsibilities that the PID role had previously held on earlier NPD projects. It is not clear to IHSL if it is these changes that the Inquiry Team had in mind when referring to ESA 10.

IHSL Requested Action: IHSL respectfully requests the Inquiry Team to clarify (i) what is meant by the reference to an "independent expert" and (ii) what changes introduced by ESA 10 are being referred to.

Provisional conclusion at paragraph 23.1.22 of PPP3: "CEL19 (2010) made it a mandatory requirement for all NHS bodies in Scotland engaged in the procurement of both new-build and refurbishment of healthcare buildings to use and properly utilise the England Department of Health's Activity Database (ADB) as an appropriate tool for briefing, design and commissioning."

5.13 Please see comments at paragraphs 3.9 to 3.16 above in relation to PPP1.

Provisional conclusion at paragraph 23.1.29 of PPP3: "ITPD, Volume 3, Section 2.3 required tenderers to comply with SHTMs"

5.14 Please see comments at paragraphs 3.17 to 3.31 (above) in relation to PPP1.

Provisional conclusion at paragraph 23.1.29 of PPP3: "There was a lack of clarity in the procurement documents in relation to: (i) the purpose of the environmental matrix; and (ii) whether compliance with the environmental matrix was mandatory."

5.15 Please see comments at paragraphs 3.32 to 3.37 above in relation to PPP1.

Provisional conclusion at paragraph 13.1.30 of PPP2: "Given the disconnect between the values in the environmental matrix (issued with the ITPD) and SHTM 03-01, it is not clear why IHSL's tender was deemed by NHSL to comply with the published requirements."

5.16 Please see comments at paragraphs 4.16 to 4.19 (above) in relation to PPP2.

3 February 2023

Public Inquiry: Queen Elizabeth University Hospital, Glasgow and the Royal Hospital For Children and Young People and Department of Clinical Neurosciences, Edinburgh ("The Inquiry" Or "SHI")

Response on behalf of IHS Lothian Limited to the Inquiry's Provisional Position Paper 4 relating to the Royal Hospital for Children and Young People and Department of Clinical Neurosciences ("RHCYP/DCN")

1. INTRODUCTION

1.1 This document forms the response ("**Response**") on behalf of IHS Lothian Limited ("**IHSL**") to the Inquiry's document entitled 'Draft Provisional Position Paper on the Project Agreement' ("**PPP4**").

1.2 The Inquiry Team has advised Core Participants ("**CPs**") that PPP4 outlines the Inquiry Team's understanding of the key provisions of the Project Agreement which bear, or may bear, on the ventilation system. Furthermore, the Inquiry Team are likely in due course to invite the Chair to make findings which take account of the understanding of the Project Agreement set out in PPP4.

1.3 IHSL notes the Inquiry Team's comment (at paragraph 4 of PPP4) that it is no part of the Inquiry's function to rule on any party's civil liability and the Inquiry Team's purpose in setting out the terms of the Project Agreement is not to lead up to any determination about the correct interpretation of the Project Agreement or any liabilities under it. Rather, the purpose of PPP4 is "*to understand the Project Agreement that the parties reached as the culmination of the procurement process and as the basis of the works, insofar as those matters bear upon the Inquiry's Terms of Reference*".

1.4 In this Response IHSL provides comments on PPP4. As invited by the Inquiry, IHSL's comments are limited to matters where IHSL might seek to "supplement or challenge" the contents of PPP4. Bearing in mind the Inquiry Team's purpose in preparing PPP4 (described above), IHSL refrains from making submissions in this Response regarding the proper interpretation of the provisions of the Project Agreement identified in PPP4 or the parties' rights and obligations thereunder. That said, there may be some instances where, in the course of supplementing or challenging the contents of PPP4 in this Response, there will inevitably be some discussion required on the relevant provisions of the Project Agreement which might touch upon IHSL's views on their interpretation. Nevertheless, the comments in this Response are intended to assist the Inquiry Team to understand the relevant terms of the Project Agreement in line with the Inquiry Team's purpose in drafting PPP4.

1.5 The Inquiry Team alludes (at paragraph 9 of PPP4) to the risks associated with either paraphrasing relevant provisions of the Project Agreement or discussing them in isolation of their proper context. As PPP4 makes clear, the determination of the correct interpretation of the Project Agreement is a matter for the courts and the courts have identified the relevant principles to be applied in properly construing the terms of a commercial contract such as the Project Agreement. The consideration of

any of the provisions of the Project Agreement requires to be approached very carefully (as do the subjective opinions of any particular individual).

1.6 The Inquiry Team will also be aware that the proper interpretation of certain provisions of the Project Agreement was subject to some discussion and disagreement between NHSL and IHSL/MPX (IHSL's construction contractor) during the construction phase of the Project. The discussion and disagreement around those terms arose mainly in the context of the dispute that concerned whether IHSL (and in turn MPX) was obliged to design and construct a ventilation system for the single and multi-bed rooms so that they achieved a balanced or negative pressure relative to the adjacent corridor (i.e. the dispute did not cover the air changes in the multi-bed rooms). That matter (and other disputed matters) was ultimately resolved by Settlement and Supplemental Agreement 1 ("**SA1**") although subsequently amended in part by Supplemental Agreement 2. Nevertheless, the Inquiry Team should be alive to the fact that the parties may still hold differing views on the interpretation of some of the provisions of the Project Agreement identified in PPP4.

1.7 There is also a risk in identifying terms of the Project Agreement in isolation of the underlying factual context to which they may relate. This in turn may lead to impressions or assumptions that may not be entirely accurate.

1.8 This Response is structured as follows.

1.8.1 Section 2 contains a summary of IHSL's comments in this Response.

1.8.2 Section 3 contains general introductory comments in relation to PPP4.

1.8.3 Section 4 contains IHSL's suggestions of some other potentially relevant provisions of the Project Agreement.

1.8.4 Section 5 contains IHSL's response to the contents of PPP4. Those comments are set out using the same headings as those adopted by the Inquiry Team in PPP4.

2. EXECUTIVE SUMMMARY

2.1 The Inquiry Team has in PPP4 outlined its understanding of the key provisions of the Project Agreement which bear, or may bear, on the building system which the Inquiry's investigations have focused upon so far: the ventilation system. Subject to the comments made in this Response IHSL agrees that the Project Agreement provisions highlighted in PPP4 may be relevant to the Inquiry's investigations into the ventilation system.

2.2 PPP4 only addresses the provisions of the Project Agreement. The Project Agreement was at the centre of a much wider legal framework of documents which framework was instituted at Financial Close: it should be considered in the wider project context. This is addressed at paragraphs 3.9 to 3.16 of this Response. Crucially, given its status as a special purpose vehicle incorporated only for

the purposes of the Project, IHSL's design and construction obligations under the Project Agreement were sub-contracted on a "back to back" basis to its main contractor (MPX) under the Construction Contract. The Project Agreement should again be understood in that context.

2.3 The Project Agreement was executed by NHSL and IHSL at Financial Close in February 2015. It is important to note that Financial Close only takes place when all the relevant project documents are ready to be executed and all parties to the Project have undertaken (and completed) their due diligence (albeit there may be a number of significant factors that will influence the decision when to fix the date for Financial Close, such as the activity of the financial markets). At Financial Close, the construction costs for the Project become fixed as do IHSL's costs of borrowing (by reference to the financial markets specifically at that date) and the financial model, which will bear upon the payments to be made by NHSL for the provision of the Services, will be concluded. The Project Agreement and its technical schedules were sufficiently well developed to allow Financial Close to take place.

2.4 There were certain items which were identified as Reviewable Design Data (a concept which was not unique to the Project but was included in SFT's standard form project agreement) at Financial Close. Certain elements of those items were subject to further development following Financial Close. Those items included Room Data Sheets and the Environmental Matrix, elements of which required to be progressed through the review procedure before construction of those elements could commence (the elements of the Environmental Matrix outstanding at Financial Close did not include the air change rates for multi-bed rooms in Critical Care). The parties would not have anticipated that the development of those elements of the Environmental Matrix or the remaining Room Data Sheets (either by their volume or their nature) would have had any material impact on the cost and risk profile accepted at Financial Close. There is perhaps an inference in PPP4 that the design at Financial Close was materially incomplete or undeveloped, but in IHSL's view that was not the case.

2.5 The Inquiry's earlier PPPs (and IHSL's previous responses to the Inquiry) highlighted the relevant provisions of the ITPD documents which were issued to bidders, the development of the Environmental Matrix and Reference Design and the procurement phase to Financial Close. There appears to be contrasting views between certain CPs around the status of the Environmental Matrix and whether or not bidders were required to comply with it. IHSL have highlighted in previous submissions to the Inquiry the provisions of the ITPD documents which it considers required bidders to comply with the Environmental Matrix. Furthermore, those submissions highlighted that the bidders' tenders were scored for compliance with the Environmental Matrix and bidders' tenders were assessed for compliance with the Board's Construction Requirements (which included the Environmental Matrix) on a Pass/Fail rating. The Inquiry has identified in earlier PPPs some of the opportunities to identity the discrepancy between the Environmental Matrix and the guidance set out in SHTM 03-01 which may have been missed prior to Financial Close. IHSL understands from PPP4 that one of the Inquiry's considerations is whether any potential risk of adverse impacts on patient safety and care were caused by inadequacies in the contractual specification (e.g. errors or ambiguities) or by other inadequacies in the contracts (such as the mechanism for review of designs).

2.6 IHSL does not consider that status of the Environmental Matrix to be ambiguous. IHSL understood that it was obliged to comply with the Environmental Matrix and the requirements set out therein. However, it became evident through the course of the construction period that there were some elements of the Environmental Matrix which were open to differing interpretations. NHSL took a different view on certain requirements which IHSL had hitherto considered to be clearly understood. That is demonstrated by the fact that parties disagreed through the construction period on a number of matters e.g. the issues of the ventilation in the single bedrooms and the air pressure regime in the multi-bed wards. The requirements of the Environmental Matrix it transpired were ambiguous in parts. It is not unusual, however, for lengthy and complex contracts to contain ambiguities and inconsistencies. Often the determining factor in the success of any project is the parties' behaviours in addressing the challenges presented by those ambiguities and inconsistencies.

2.7 Those disputed matters which arose during the construction period were resolved by SA1. In so far as the air change rates in the multi-bed rooms in Critical Care were concerned, the requirements which IHSL (and its main contractor MPX) had to meet were confirmed in SA1. The Independent Tester certified Practical Completion of the Works as meeting the completion criteria set out in the Project Agreement in February 2015 and as amended by SA1.

2.8 As a consequence of the positions taken by IOM and HFS following the delayed opening of the RHCYP/DCN, NHSL instructed a Change to the Works (as had already been clarified by SA1) which required the multi-bed rooms in Critical Care to have a positive pressure (i.e. the reverse of the position insisted upon by NHSL through the construction period) and an air change rate of 10ac/hr (a matter that until SA1, to the best of IHSL's knowledge, had not been discussed between the parties). This change was implemented pursuant to Supplemental Agreement 2. It was because of this change to what had been previously confirmed in SA1 that IHSL sought specific assurances from NHSL and its technical advisers in Supplemental Agreement 2 that NHSL's requirements had been definitively addressed.

2.9 To summarise the shifting circumstances around the ventilation issues: prior to Financial Close an issue arose around the ventilation requirements in the singled bedrooms and the use of natural ventilation (notwithstanding that natural ventilation had been envisaged by NHSL's design team from the outset) but this issue was resolved; during construction an issue arose around the air pressure regime in multi-bed rooms which NHSL insisted upon being negative or balanced to the adjacent corridor; parties executed SA1 which confirmed that 14 of the 20 were to be balanced or negative to the corridor at 4 ac/hr; HVC 107 instructed a Change to the effect that the multi-bed rooms in Critical Care were to be positive pressure with an air change rate of 10ac/hr.

3. GENERAL INTRODUCTORY COMMENTS TO PPP4

3.1 This Section of the Response contains general introductory comments to PPP4 and seeks to provide the Inquiry Team with some relevant background to the Project Agreement and the context in which it was agreed and executed.

The standard form project agreement issued by SFT

3.2 It is a key feature of the NPD model that the Authority (in this case NHSL) will contract with a Special Purpose Vehicle (or "**SPV**") which is also referred to as "Project Co". The contract between those parties is the Project Agreement.

3.3 The Project Agreement between NHSL and IHSL was the contract not only for the construction and delivery of the RHCYP/DCN project (the "**Project**") but also for its finance and maintenance through the provision of the Services. As PPP4 acknowledges, the Project Agreement is a lengthy and complex contract incorporating a Schedule which consists of 32 different Parts (and many of the individual Parts themselves consist of lengthy and technical documents and data).

3.4 It is significant for the Inquiry Team to note (particularly in light of the 'Issues for the Chair to Consider identified in paragraphs 115 to 122 of PPP4) that the Project Agreement adopted the 'Standard Form Project Agreement' for use on a project adopting the NPD model which was issued by Scottish Futures Trust ("**SFT**"). SFT issued two different standard form project agreements: one for use on a hub DBFM project and one for use in a project adopting the NPD model. The starting point for the Project Agreement was not the parties own set of terms, therefore, but SFT's standard form (appropriate for use with the NPD model) which (by 2015) would have reflected over a decade's worth of learning and experience of procuring public projects using the PFI/PPP model.

3.5 SFT's 'Standard Project Agreement User's Guide' updated in October 2013 (the "**Guide**") (therefore the relevant edition prior to Financial Close in 2015) provided guidance around the use of the standard form project agreement. The Guide stated (at page 2) that:

> "*SFT's approach has been:*
>
> - *to promote maximum value for money through commercially reasonable risk transfer consistent with the principles outlined above;*
> - *to adhere to the hub DBFM structure and NPD principles approved by Scottish Ministers;*
> - *to simplify the documents as far as possible consistent with a robust commercial structure and financeability;*
> - *to minimise transaction costs with a standard that should be reasonably acceptable by contractors, investors and funders as well as procuring authorities*."

3.6 The Guide recognises that the NPD model standard project agreement will require to be tailored to the requirements of any specific project and that its terms (and their impact) should be reviewed and

analysed so that they are clearly understood by the procuring authority. All changes to the standard form project agreement required SFT's approval. The Guide explains that normally that approval will only be given to changes required for project specific reasons or to reflect changing guidance or demonstrable changing market circumstances. The procuring authority, when requesting approvals for derogations from the standard project agreement, was required to provide its amended version of the standard project agreement and to provide explanations of the proposed amendments in footnotes with its amended document.

3.7 SFT did not expect to see the standard project agreement amended to any individual party's house style which explains the format of the Project Agreement. Consequently, clause and paragraph numbering in the project agreement required to be preserved through the use of lettered additions (rather than additional numbering) and "Not Used" text (rather than deleted numbering). The Inquiry Team will note, therefore, that the words "Not Used" often appear against some of the numbered paragraphs or sections of the Project Agreement (and in the Construction Contract) and some numbered paragraphs have lettered additions (e.g. clause "8A").

3.8 As anticipated in the Guide, SFT's standard form project agreement was subject to discussion between NHSL and the IHSL bidding consortium through the procurement phase of the Project (particularly through the Preferred Bidder period). Project specific amendments to the standard form project agreement and the parts to the Schedule were agreed between NHSL and IHSL and so it was tailored for the RHCYP/DCN Project. Those discussions culminated in the execution of the Project Agreement at Financial Close when the terms were finalised and agreed. As described below, the Project Agreement was one of a number of documents executed at Financial Close.

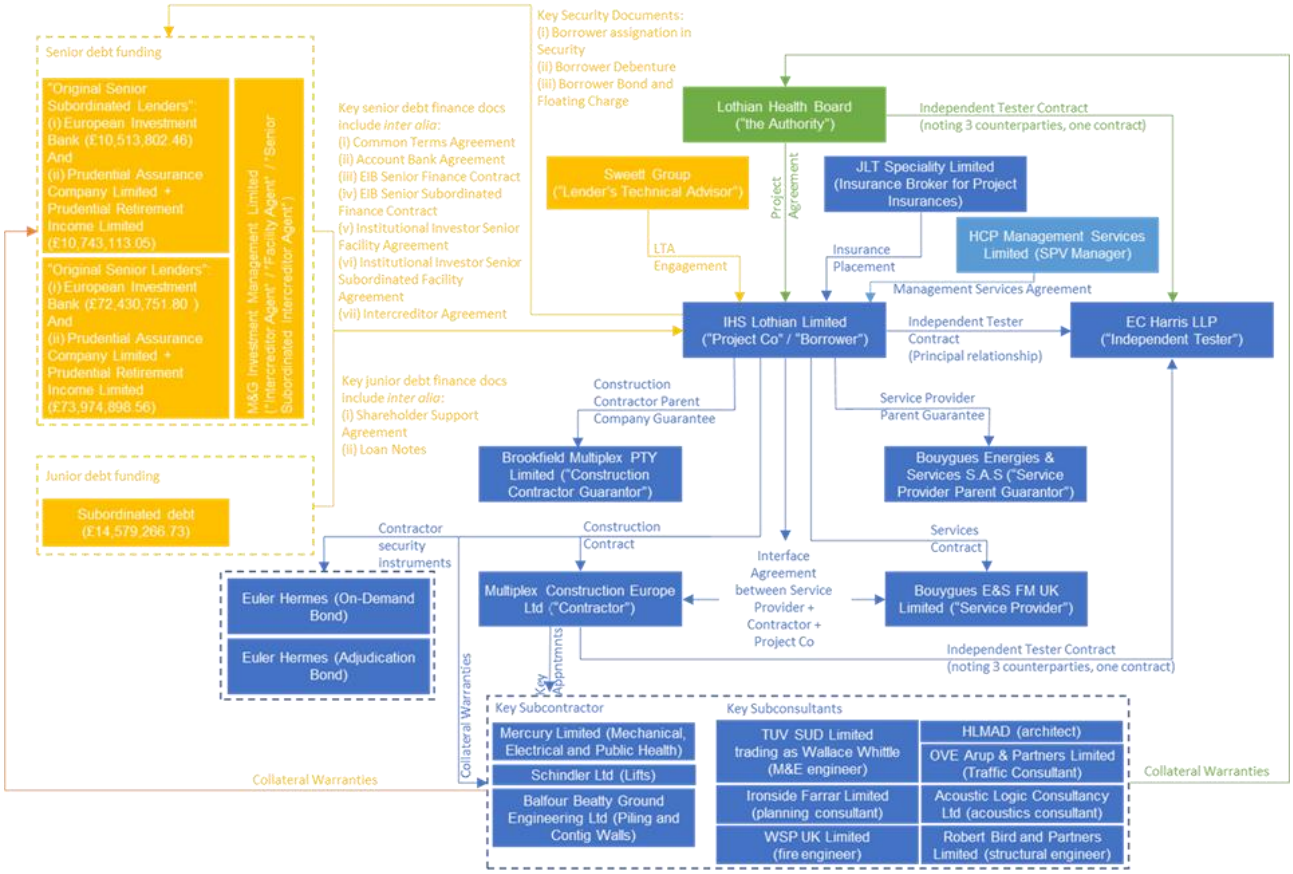
The Project Agreement in the wider Project context

3.9 The Project Agreement was not only based on a tightly controlled standard form document issued by SFT (with any changes requiring SFT approval) it was also subject to the due diligence of many different parties involved in the Project. The execution of the Project Agreement at Financial Close ought to be considered in the wider Project context.

3.10 The occurrence of Financial Close is of course a crucial milestone in the procurement of any publicly procured Public Private Partnership project. However, it was not solely the contractual relationship between NHSL and IHSL which was created (and not only the Project Agreement which was executed) at Financial Close. The Project Agreement is one contract at the heart of a complex project structure which involved the execution of a number of contracts and legal documents between various different parties at Financial Close.

3.11 Reference is made to IHSL's previous submissions to the Inquiry dated 30 October 2020 and 22 July 2021 for more detailed discussion around the Project structure. It may be helpful for the Inquiry Team, however, if Figure 1 from IHSL's submission dated 30 October 2020 was reproduced in this

Response. This diagram (reproduced below) illustrates the contractual structure that was put in place at Financial Close for the purposes of delivering the hospital and raising long term finance into the Project through the SPV funding vehicle. It gives a sense of the multiplicity of contracts that would have been executed to realise that structure.



3.12 The diagram above demonstrates that Financial Close is not solely concerned with NHSL and IHSL and the Project Agreement. Rather, the occurrence of Financial Close was the culmination of a lengthy and complex procurement and negotiation period which involved a large number of different parties. The following is a non-exhaustive list of matters demonstrated at Financial Close:

3.12.1 NHSL had obtained authority to execute the Project Agreement (and all other associated Project documentation);

3.12.2 IHSL was incorporated as a limited company (it was previously the name of a bidding consortium made up of three different members) and was established as “Project Co”;

3.12.3 IHSL had secured and agreed the terms of the necessary funding for the Project with the Senior Debt Funders, thereby allowing the finance documents to be executed;

3.12.4 IHSL had agreed the terms of junior debt financing with the equity holders allowing execution of the shareholder agreements;

3.12.5 the terms of the Construction Contract had been agreed with Brookfield Multiplex Construction Europe Limited ("**MPX**") allowing execution of the Construction Contract and MPX had procured the necessary security guarantees;

3.12.6 MPX had agreed the terms of its own sub-contractor and design sub-consultant appointments;

3.12.7 MPX and its sub-contractors and sub-consultants had agreed the terms of the Direct Agreements and collateral warranties respectively which were to be granted to NHSL;

3.12.8 the terms of the Services Contract had been agreed with Bouygues E&S FM UK Limited ("**BYES**") allowing execution of the Services Contract;

3.12.9 IHSL, MPX and BYES had agreed the terms of the relationship *inter se* allowing execution of the Interface Agreement;

3.12.10 the complex insurance arrangements had been put in place; and

3.12.11 NHSL and IHSL had agreed the terms of the joint instruction of an independent tester allowing the execution of the Independent Tester's Appointment.

3.13 The Project Agreement could only move towards execution if, and when, all the other key Project elements were agreed and ready for execution. Financial Close only occurred when the full suite of contracts and documents was ready to be put in place and parties had completed their due diligence on those contracts to ensure that the Project was "bankable". For this purpose, the due diligence undertaken by NHSL not only concerned the terms of the Project Agreement but also extended to the Construction Contract and the pass down of Project Co's design and construction obligations thereunder to MPX. For clarity, when IHSL refers in this Response to NHSL and/or the Lenders (and their Technical Advisers) undertaking "due diligence" on the Project documents this is not to suggest that the due diligence was a design check. This due diligence would not be at the level that was approving or verifying the design's compliance with SHTMs, for example. The due diligence would have been undertaken to ensure that the Project had been structured in such a way that ensured that it was suitable for financing and there was sufficient security in place to protect creditors.

3.14 This context is relevant for the Inquiry when it comes to consider issues regarding the Reviewable Design Data. The reality is that, at Financial Close: the costs of constructing the Project became fixed (and fixed between IHSL and MPX under the Construction Contract with any cost increases strictly controlled under the contract provisions); construction of the Works was ready to commence on site; and the Lenders were satisfied to provide finance to IHSL to fund the Project and IHSL's funding costs become fixed and its debt service obligations commenced. The parties involved in the Project had agreed the risk and cost profile achieved through the contract documents, including the Project Agreement.

3.15 There were certain matters that constituted Reviewable Design Data at Financial Close and therefore required further review and approval prior to construction. However, that was not unusual in a publicly procured project such as the RHCYP/DCN (bearing in mind that the concept of Reviewable Design Data is contained in SFT's standard from project agreement and not unique to the Project Agreement). Those issues fell to be addressed through the proper exercise of the RDD procedures under the Project Agreement. However, those issues would not have been ones that parties would have considered to have had a significant impact upon the risk and cost profile agreed at Financial Close. The matter relating to the number of air changes that the Inquiry is investigating was not an item that was passed in to RDD.

3.16 It is against this background that IHSL would challenge any impression that the Inquiry Team might have formed that the project documentation regarding the design and construction of the Works was materially incomplete or undeveloped at Financial Close.

The Construction Contract with MPX

3.17 As noted above, the Project Company is an SPV which is incorporated solely for the purpose of providing a vehicle for non-recourse project finance and delivering the Project. Project Co is majority owned and controlled by the private sector investors. One of the key distinguishing features of the NPD model, however, is that the procuring authority will own a "golden share" in the SPV which gives the authority certain controls that ensure that the core NPD principles, and governance structure, are protected. The SPV's articles of association must incorporate the mandatory NPD articles of association (produced by the SFT) that enshrine the fundamental principles of the NPD model. Project Co is prohibited from carrying out any other business other than delivering the Project.

3.18 Consequently, Project Co as a non-recourse funding vehicle requires to procure the design and construction of the Project and the delivery of the Services throughout the relevant Service Period through entering into two key sub-contracts in order to raise long term debt for the Project: the Construction Contract and the Services Contract. Project Co is not a corporate entity capable of delivering those functions itself and the "bankability" of the Project relies *inter alia* on these two sub-contracts.

3.19 IHSL, therefore, entered into the Construction Contract with MPX in order to sub-contract its design and build obligations in the Project Agreement. The Construction Contract was procured on what is best described as a "back to back" basis with the terms of the Project Agreement i.e. on a directly flowed down basis. For example, the core clauses on design and construction (set out in Part 3 of the main body of the Project Agreement) and referred to at paragraphs 11 onwards of PPP4 are passed down into the Construction Contract.

3.20 The Construction Contract was executed at Financial Close. It's terms too were subject to the due diligence undertaken by NHSL (and its technical advisers) and the Lenders (and their technical

advisers) principally to ensure that the SPV as the vehicle set up receive the Project funding had put in place a contract structure that was bankable. The Project parties had full visibility of the pass-down from Project Co to MPX.

3.21 PPP4 is only concerned with the terms of the Project Agreement. However, a full understanding of the Project Agreement can only be gained when it is considered in the wider Project context and on the basis that Project Co's (as an SPV) design and construction obligations are necessarily passed down to its Construction Contractor through the Construction Contract.

4. OTHER RELEVANT PROVISIONS

4.1 The Inquiry Team has invited CPs (at paragraph 8 of PPP4) to identify any relevant sections of the Project Agreement which the Inquiry Team may have omitted. IHSL identifies in this Section 3 some further provisions of the Project Agreement which may be relevant to the Inquiry.

Clause 5.2.4

4.2 Clause 5.2 (entitled 'General Standards') states that Project Co shall at its own cost be solely responsible for procuring that the "Project Operations" (which includes the "Works" meaning the design and construction of the RHCYP/DCN) are at all times performed:

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

4.3 The term "NHS Requirements" is defined in the Project Agreement at Schedule Part 1 as meaning in relation to the Works "*Health Building Notes and Health Technical Memoranda and such other requirements as are designated as NHS Requirements in the Board's Construction Requirements*".

4.4 This echoes the drafting in the Board's Construction Requirements, namely at paragraph 5.3 of Section 3 of Schedule Part 6 to the Project Agreement.

Clause 6.1

4.5 Clause 6.1 states that Project Co shall not engage in any business or activity other than the business or activities related to, and conducted for, the purpose of the Project Operations.

4.6 This is reflective of the fact that Project Co is an SPV, established solely for the purpose of delivering the Project.

Clauses 8.10 – 8.13

4.7 Clauses 8.10 to 8.13 address another distinguishing feature of the NPD model.

4.8 The Inquiry Team will already be aware that the NPD model mandates that one of Project Co's directors will be appointed by SFT. That director is known as the "Public Interest Director" (or "**PID**"). The purpose of the PID is to bring an independent voice to Project Co's board and to ensure a greater degree of transparency and accountability.

4.9 In addition to the PID, however, clauses 8.10 to 8.13 provided for a "Board Observer". The Board Observer was a representative from NHSL who was entitled to attend all Project Co board meetings and to receive the agendas and supporting papers circulated to board members in advance of the board meetings (subject to Project Co's rights to exclude the Board Observer in the circumstances set out in clause 8.12).

4.10 The purpose of the Board Observer was again to provide greater transparency. The role of the Board Observer was originally undertaken by Brian Currie during the construction period and subsequently undertaken by Mike Pryor from around June 2019 onwards.

Clause 33 and Schedule Part 16

4.11 Clause 33 states that the provisions of Schedule Part 16 shall have effect in respect of Changes except as otherwise expressly provided in the Project Agreement.

4.12 Schedule Part 1 defines "Change" by reference to Schedule Part 16 which, in turn, defines it as a "*a change in the Works, the Facilities and/or Services or additional works and/or services or a change in the Board's Policies that may be made under Clause 33 or this Schedule Part 16.*"

4.13 Schedule Part 16 identifies that a Change is to be assessed in one of three ways: (i) as a High Value Change; (ii) as Medium Value Change; or (iii) as a Low Value Change.

4.14 IHSL does not propose to address the details of Schedule Part 16 in this Response. The provisions of Schedule Part 16 are relevant, however, when considering Supplemental Agreement 2 (which is discussed further below).

5. RESPONSE TO PPP4

5.1 Section 4 of this Response sets out IHSL's comments on PPP4. The headings used by the Inquiry Team in PPP4 are adopted in this Section. The underlined paragraph references below are the relevant paragraph numbers from PPP4.

'Introduction'

Paragraph 7

5.2 Paragraph 7 states that the "*Project Agreement provides at least two measures by which the Inquiry may determine that building systems were defective..."* and then sets out those two measures in limbs (a) and (b).

5.3 IHSL has three key concerns with paragraph 7.

5.4 *First*, paragraph 7 states that the Project Agreement provides the two measures set out in limbs (a) and (b) but it does not identify the source in the Project Agreement for this position. The Project Agreement contains a definition of "Defects" in Schedule Part 1: it may be that the Inquiry Team have sought to paraphrase that definition in articulating limb (a). However, IHSL does not understand the source (from the Project Agreement) relied upon by the Inquiry Team for articulating the measure identified in limb (b) and it does not agree that the Project Agreement sets out such a measure on which it could be determined that building systems were defective.

5.5 IHSL does not accept that if the "contractual specification" (which IHSL understands to be a reference to the Board's Construction Requirements) "*was itself deficient (measured against other applicable standards) or what the Board intended to achieve"* that could somehow lead to a finding that the systems were defective under the Project Agreement. IHSL was contractually obliged to deliver the Project so that it complied with the Board's Construction Requirements. If, for whatever reason, the Board's Construction Requirements were deficient (when measured against applicable standards) or if they somehow did not accurately convey what NHSL intended them to, that would not provide any basis for concluding that the systems were defective under the Project Agreement. As for what NHSL "intended to achieve", IHSL would have no other measure of knowing what NHSL intended to achieve other than what NHSL had set out in the Board's Construction Requirements.

IHSL would request the Inquiry Team to clarify which part of the Project Agreement it relies upon in articulating the measure in limb (b).

5.6 *Second*, IHSL does not understand the Inquiry Team's use of the term "defective" in paragraph 7. This confusion perhaps stems from the concerns highlighted in the first point above.

5.7 If the Inquiry intends to explore whether the Board's Construction Requirements were deficient when measured against (i) other applicable standards (i.e. NHSL should not have required what they did when objectively measured) or (ii) what NHSL intended to achieve (i.e. NHSL failed to accurately convey their requirements) it does not follow that any conclusion can be drawn that the building systems were "defective" under the Project Agreement.

5.8 It appears to IHSL that paragraph 7 uses the term "defective" when applied to limbs (a) and (b) in two potentially different ways. In limb (a), the term appears to be used in the contractual context (bearing in mind the position set out in paragraph 4 of PPP4 which confirms that the Inquiry's purpose in setting out the terms of the Project Agreement is not to lead up to any determination about any liabilities under it). Whereas with limb (b), the term "defective" appears to be used in a broader sense i.e. whether the building systems might be considered to be "deficient" in some way due to an underlying failure or error in the Board's Construction Requirements. This is perhaps reinforced in paragraph 16 of PPP4 which states that the "*two sources understood by the Inquiry to be of particular importance in the potential deficiencies in the ventilation system are…."*

5.9 In any event, IHSL is concerned with the lack of clarity and specificity in the use of the term "defective" in paragraph 7.

IHSL would request the Inquiry Team to clarify the use of the term "defective".

5.10 *Third*, IHSL is concerned that paragraph 7 might indicate that the Inquiry Team is embarking on an assumption that the building systems were "defective" and that this might be the Inquiry's current working hypothesis.

5.11 IHSL has addressed the position in its previous submissions to the Inquiry but it may be useful to briefly summarise that position again here.

5.12 The Inquiry's previous position papers, PPPs 1, 2 and 3, highlighted the relevant provisions of the ITPD and ISFT documents which required compliance with NHSL's Environmental Matrix. That document had originally been prepared when the Project was to be procured on a capital funded basis. The Environmental Matrix was prepared by NHSL and its design team as an alternative to preparing Room Data Sheets generated using ADB.

5.13 It is a matter of record that the Environmental Matrix issued with the ITPD as far as multi bed rooms were concerned provided for a supply air change rate of 4 ac/hr notwithstanding that four of those multi bed rooms were in Critical Care. The Environmental Matrix formed part of the Board's Construction Requirements issued with the ITPD and ISFT documents. The bidders' tenders were evaluated on the basis of, *inter alia,* compliance with the Environmental Matrix (on a scored basis) and with the Board's Construction Requirements (on a Pass/Fail basis). Furthermore, the submission requirements in Appendix A (ii) to Volume 1 stated (at C8.3) that bidders must confirm acceptance of the Board's Environmental Matrix highlighting any proposed changes on an exception basis.

5.14 The Environmental Matrix included with the Project Agreement reflected the Environmental Matrix which was included in the ITPD in that for multi-bed rooms (including those in Critical Care) the air change rate was noted as being 4 ac/hr.

5.15 IHSL does not know why the Environmental Matrix originally prepared by NHSL's design team and issued with the ITPD documents did not identify different air change requirements for the multi bed rooms in Critical Care. IHSL understands that this will form part of the Inquiry's focus at the April Hearing.

5.16 The Inquiry Team are aware that a dispute arose between the parties during the construction of the RHCYP/DCN. IHSL has previously provided to the Inquiry the Court papers which it received from NHSL in 2018 and which identified the nature of the dispute. This dispute did not concern the issue of air changes in critical care bedrooms but whether IHSL was obliged to design and construct a ventilation system for the single and multi-bed rooms so that they achieved a balanced or negative pressure relative to the adjacent corridor. Following a lengthy period of negotiation, the parties resolved that dispute and all other going disputes between the parties on the design and construction of the RHCYP/DCN (none of which related to the air change rates in the Critical Care rooms) through the execution of SA1.

5.17 SA1 is supplemental to and amends the Project Agreement. In relation to 4 bed ventilation, the resolution contained within the Technical Schedule to SA1 is that 14 No. 4 bed rooms were to be balanced or negative to the corridor at 4 ac/hr. The 14 No. 4 bed rooms included 4 which were within Critical Care.

5.18 The Independent Tester issued a Certificate of Practical Completion on 22 February 2019 confirming that the works as built had met the requirements of the Project Agreement as amended by SA1.

5.19 It was only in July 2019, when IOM raised the matter as part of their verification inspection, that the issue of NHSL's requirements (previously confirmed in SA1) failing to comply with SHTMs with regards to the number of air changes in the 4 bed rooms in Critical Care was raised by NHSL: NHSL's continued focus prior to that had been on the pressure regime.

5.20 NHSL subsequently issued High Value Change 107 which was implemented through Supplemental Agreement 2 which increased the air change rate in Critical care Rooms to 10 ac/hr (full details of all changes are provided in HVC 107 and Supplemental Agreement 2). Supplemental Agreement 2 supplemented and amended the Project Agreement which had previously been supplemented and amended by SA1. This is addressed in greater detail below.

'Project Agreement: core provisions on design and construction'

Paragraphs 16 and 17

5.21 Paragraph 16 notes that the Board's Construction Requirements required compliance with both the Environmental Matrix and the Room Data Sheets.

5.22 Paragraph 17 states that:

"*compliance with the Environmental Matrix was a requirement of the Board may be significant when considering the difficulties that later arose. It may have contributed to its ambiguous status: it was simultaneously a requirement of the Board and… both an item of Reviewable Design Data which it was Project Co's responsibility to revise, and (at least in the eyes of the Board), an item of Disclosed Data for which, under the Project Agreement, the Board carried no responsibility."*

5.23 The Inquiry Team refers here to the "ambiguous status" of the Environmental Matrix. IHSL does not consider that the status of the Environmental Matrix was ambiguous – it understood that it was obliged to comply with it. It did subsequently transpire through the construction period, however, that NHSL's differing interpretations of some of the requirements exposed potential ambiguities in the contents of the Environmental Matrix. It is correct to note that the Board's Construction Requirements required compliance with the Environmental Matrix whilst at the same time the Environmental Matrix was identified as being an item of Reviewable Design Data. It is important to bear in mind, however, that there was one clear issue identified in the Environmental Matrix at Financial Close which required to be addressed by the RDD procedure after Financial Close. That issue related to the pressure regime in the single bedrooms. The vast majority of the Environmental Matrix had been agreed at Financial Close. The fact that there was a short list of points in the Environmental Matrix rendered the document an item of Reviewable Design Data. However, that did not impugn its status as a requirement of the Board's Construction Requirements once it had been agreed.

5.24 The particular use of the Environmental Matrix in the Project was unusual in IHSL's experience. Typically, the Schedule of Accommodation is prepared which is then followed by the preparation of Room Data Sheets (informed by ADB Sheets). Once the Room Data Sheets have been prepared it is not unusual in IHSL's experience for an Environmental Matrix to be prepared which acts as a single format summary of the room environmental requirements contained in the large volume of Room Data Sheets. Here, however, the Environmental Matrix was originally prepared by NHSL in substitution for Room Data Sheets and used as the tool for communicating its requirements. Bidders were then obliged to prepare their Room Data Sheets to comply with the requirements set out in the Environmental Matrix.

5.25 As for NHSL's suggestion that the Environmental Matrix was an item of Disclosed Data for which NHSL carried no responsibility, this is addressed at paragraphs 5.39 to 5.48 below.

Paragraph 22

5.26 This states that:

"*The Board's Construction Requirements also required compliance with CEL 19 (2010) "A Policy for Design Quality for NHS Scotland 2010 revision… This mandated the use of the Department of Health's Activity DataBase (ADB) as an appropriate tool for briefing, design and commissioning but noted that care was needed to ensure compliance with Scottish*

specific guidance such as SHTMs. ADB was a source of room data sheets which automatically complied with English guidance (including HTMs).”

5.27 Whilst the use of the ADB was mandated by CEL 19 as a tool for briefing, design and commissioning (unless an alternative of equal value was adopted), that is not to say that the *pro forma* content/data generated by the ADB was made mandatory by Scottish Government policy. That is clear, for example, from the terms of Annex A to CEL 19 (2010) which envisaged changes to the ADB content to reflect project specific briefs and designs and changes required to reflect Scottish guidance and requirements. Reference is made to IHSL’s ‘Response to the Inquiry’s Provisional Position Papers 1, 2 and 3’ dated 3 February 2023 (particularly paragraphs 3.9 to 3.16.)

5.28 The Room Data Sheets generated by ADB can be tailored to accommodate the NHS body’s specific room requirements. In the case of the RHCYP/DCN, NHSL conveyed its environmental requirements to the bidders in the Environmental Matrix. It was a requirement of the ITPD documents (Section 2.5.3 of Volume 1) that bidders developed Room Data Sheets incorporating the ‘Room Information’ which included the Environmental Matrix. The content of the Room Data Sheets generated using ADB required to be tailored to reflect NHSL’s specific room requirements.

Paragraph 30

5.29 Paragraph 30 states that the Schedule of Accommodation was also an element of Reviewable Design Data. The Schedule of Accommodation is one of the earliest documents to be produced by NHSL and its design team (including its healthcare planners). The Schedule of Accommodation set out the spaces and the number of rooms, wards and theatres etc. to be accommodated in the RHCYP/DCN. To the extent that there were any elements of the Schedule of Accommodation still to be developed and finalised as at Financial Close (thus rendering it an item of Reviewable Design Data) it is worth the Inquiry having in mind to the materiality of matters that were subject to confirmation through RDD both in terms of the overall gross floor area and the materiality of their function.

Paragraph 32

5.30 This paragraph recognises that NHSL’s entitlement to withhold approval through the Reviewable Design Data procedure was only on limited grounds. In so far as they relate to Reviewable Design Data submitted pursuant to clause 12.6 of the Project Agreement, those grounds are set out in Schedule Part 8, paragraphs 3.1 and 3.3.

5.31 Whilst the grounds for making comments may be limited under Schedule Part 8, the Reviewable Design Data process is not without ambiguity in itself and it is not uncommon in IHSL’s experience for procuring authorities to use the Reviewable Design Data procedure as a means for asserting their interpretation of the requirements and preferences which may stray beyond the specific entitlements to make comments or withhold approvals.

Paragraph 34

5.32 The Inquiry Team identifies an issue in footnote 8 over whether the Room Data Sheets and Environmental Matrix were Reviewable Design Data in their entirety or only to a more limited extent. The Inquiry Team sets out as a provisional view that they were not Reviewable Design Data in their entirety but only to the extent set out in Section 5 of Schedule Part 6.

5.33 Paragraph 1.2 of Schedule Part 8 states that "*each submission under this Schedule Part 8 shall be accompanied by a copy of the proposed document to be reviewed (including, where applicable, any Reviewable Design Data) or a statement of the proposed course of action (the entire contents of a submission being referred to in this Schedule Part 8 as a "**Submitted Item**").* This tends to suggest that it is the whole document that constitutes the Submitted Item and not just particular parts of it. However, where it is identified that only particular items of the document are subject to review, IHSL would expect that if the whole document was submitted as a Submitted Item the authority would only comment on those items to be reviewed. IHSL agrees with the Inquiry Team's provisional view that in practice the Submitted Item would not be re-opened each time it was submitted for comment so that it was subject to review in its entirety. In effect, therefore, the Environmental Matrix and the Room Data Sheets were not Reviewable Design Data in their entirety but only to the extent that outstanding comments were identified in Section 5 of Schedule Part 6 (those being the only points on which IHSL would anticipate NHSL to comment upon).

Paragraph 36

5.34 Paragraph 36 identifies that the review process under Schedule Part 8 allowed NHSL to make comments and raise objections on grounds that were wider than simply "Operational Functionality". The Inquiry Team refers specifically to paragraph 3.3.3(b) (see footnote 9 of paragraph 36) of Schedule Part 8 which entitled NHSL to raise objections or make comments on the ground that the Submitted Item was inconsistent with the guidance contained in any current NHS Requirement etc.

5.35 It should be highlighted, however, that this was not a general right. Rather, it arose only in the specific scenario identified in paragraph 3.3.3. i.e. where the item of Reviewable Design Data comprised a 1:50 scale Room Layout Drawing in respect of which there was no corresponding generic 1:50 scale Room Layout Drawings for the relevant room type (which had previously been reviewed and commented upon by the Board's Representative under Schedule Part 8).

5.36 In that specific scenario (i.e. where the 1:50 scale Room Layout Drawing had no corresponding approved generic Room Layout Drawing) NHSL was entitled to make comment under paragraph 3.3.3(b). The Inquiry Team observes that the review process may therefore have presented the Board with an opportunity to detect deficiencies in the design such as, for example, non-compliance with ventilation standards. The Inquiry Team may have in mind here, when referring to deficiencies in design such as non-compliance with ventilation standards, the issue of the air change rates for

multi-bed rooms in Critical Care being stated in the Environmental Matrix as 4 ac/hr. If so, it is evident from PPPs 1, 2 and 3 previously issued by the Inquiry Team that the air change rates for all multi-bed rooms had been incorporated into the Environmental Matrix (for whatever reason) from the outset i.e. it was issued with the ITPD documents as being a requirement which bidders had to comply with, bidders did comply with it such that as at Financial Close the Environmental Matrix (which required to be complied with by the Board's Construction Requirements) contained the requirement for multi-bed rooms to have an air change rate of 4ac/hr. In those circumstances, such non-compliance with ventilation standards would not be a "deficiency in the design".

'Independent Tester and Commissioning'

5.37 IHSL makes no comments on paragraphs 38 to 47 which address the Project Agreement provisions regarding the Independent Tester and Commissioning.

5.38 It is perhaps worth highlighting, however, that the Project Agreement terms were amended and supplemented by SA1. The Independent Tester, therefore, certified Practical Completion when satisfied that the Facilities had met the Completion Criteria by reference to the Project Agreement as amended by agreement between the parties by SA1.

'Disclosed Data'

Paragraph 48

5.39 Paragraph 48 specifically refers to the witness statement of Brian Currie (provided to the Inquiry in connection with the hearings in May 2022) in which Mr Currie referred to the Environmental Matrix which was issued to bidders as part of the ITPD documentation as being an indicative element of the reference design and issued to bidders for information only. Paragraph 48 continues by stating that Mr Currie also explained his view that the Environmental Matrix constituted Disclosed Data and was therefore subject to the provisions of clause 7.2 of the Project Agreement.

5.40 IHSL does not intend to directly address Mr Currie's witness evidence in this Response. It is appropriate, however, that IHSL makes some limited comments in response to paragraph 48.

5.41 As a point of general principle, the Inquiry Team will be aware that the subjective opinions of any individual are irrelevant when construing the terms of the Project Agreement or considering the contractual status of any particular document contained in the Project Agreement. IHSL has concerns that a factual witness has not only been asked to provide an opinion on the legal interpretation of the Project Agreement terms but also that attention has been drawn to this opinion in PPP4.

5.42 In any event, Mr Currie's view that the Environmental Matrix was an indicative element of the reference design which was issued to bidders for information appears to be at odds with (i) the express provisions of the ITPD and ISFT documents and (ii) the tender evaluation criteria.

5.43 First, the comments made in Mr Currie's witness statement and paraphrased at paragraph 48 appear to IHSL to be at odds with the express provisions of the ITPD and ISFT documents which have been referred to by the Inquiry Team in the earlier PPPs. For example:

5.43.1 Sub-Section 2.4.1 of Volume 1 of the ITPD stated that: "*The Board's Construction Requirements are set out in Section 3 of Volume 3 of the ITPD and will ultimately form Section 3 of Schedule Part 6 (Board's Construction Requirements) of the NPD Project Agreement."* The Environmental Matrix was included at Appendix C to Section 3 of Volume 3.

5.43.2 Sub-Section 2.5.3 of Volume 1 of the ITPD stated: "*During Dialogue Bidders will be required to develop Room Data Sheets, incorporating the Room Information, for those rooms for which 1:50 layout drawings have been prepared."* The Room Information included the Environmental Matrix.

5.43.3 Paragraph 3.86 of PPP1 quotes Section C8.1 of ITPD Volume 1, Appendix A titled 'Submission Requirements' which stated that bidders must submit proposals setting out the engineering services design for each element of the scheme in sufficient detail to demonstrate compliance with the Board's Construction Requirements. The Board's Construction Requirements included the Environmental Matrix.

5.43.4 Section C8.3 of ITPD Volume 1, Appendix A stated that whilst bidders were required to undertake their own design, NHSL had provided a draft Environmental Matrix as part of the ITPD documentation. Bidders were required to confirm acceptance of the Board's Environmental Matrix, highlighting any proposed changes on an exception basis.

5.43.5 Section 8 of Sub-Section C of ITPD Volume 3 stated that Project Co shall provide the Works to comply with the Environmental Matrix.

5.43.6 Sub-Section 2.6 of Volume 1 of the ITPD defined the "Indicative Elements of the Reference Design*".* These elements, listed at items (i) – (v) were issued to bidders "*for 'information only' so that they may understand the intent of the Reference Design".* These elements did not include the Environmental Matrix or the Room Information.

5.44 Second, the comments made in Mr Currie's witness statement and paraphrased at paragraph 48 appear to IHSL to be at odds with the tender review requirements and NHSL's quality evaluation criteria.

5.44.1 Paragraphs 6.6.21 and 6.6.22 of PPP3 Vol 2 refer to the quality evaluation criteria included within the ITPD. The 'Approach to Design and Construction' was made up of 31 separate criteria, of which 12 were scored and the rest assessed on a Pass/Fail basis.

5.44.2 C8 'Clarity, robustness and quality of M&E engineering design proposals' was a scored criteria with a Quality Evaluation Criteria Weighting of 1.06. C8.3 was the criteria that specifically identified that Bidders must confirm acceptance of the Board's Environmental Matrix, highlighting any proposed changes on an exception basis.

5.44.3 C21 'Compliance with the Board's Construction Requirements' was assessed on a Pass/Fail basis. This was further reinforced by Appendix A which set out the requirement and scoring for C21 which stated: "*Bidders must confirm their compliance with the Board's Construction Requirements. If as their design has been developed there are specific areas of the Board's Construction Requirements that Bidders would seek to change, these shall be scheduled and provided in support of the statement. The Board shall not be required to accept any proposed amendments*." As noted above, the Environmental Matrix was contained in Appendix to Board's Construction Requirements. Had a bidder submitted a bid which did not meet the requirements of the Environmental Matrix (which formed part of the Board's Construction Requirements) it risked its bid being rejected as being non-compliant.

5.45 The comments made in Mr Currie's witness statement and paraphrased at paragraph 48 also appear to IHSL to be at odds with Mr Currie's own involvement in the assessment of bidders' proposals.

5.45.1 Paragraphs 6.6.2 and 6.6.5 of PPP3 Vol 1 state that Mr Currie led the Core Evaluation team which assessed bidders' proposals. Some of the bid submission requirements are noted at paragraphs 5.44 and 5.45 above.

5.45.2 Paragraph 15.3 of PPP3 Vol 2 states that Mr Currie led the evaluation of Section C (Approach to Design and Construction) and was supported by MML. As noted at paragraph 5.45 above, compliance with the Environmental Matrix was scored in terms of C8 of the submission requirements and compliance with the Board's Construction Requirements was assessed on a Pass/Fail basis. That is, had IHSL failed to comply with the Environmental Matrix it would have been at risk of its bid being rejected as non-compliant.

5.45.3 If the Environmental Matrix had been issued to bidders for information only it seems odd that NHSL's Core Evaluation Team were required to score and rate the bidders' bids on whether nor not their bids complied with it.

5.46 In light of the above, it is not clear to IHSL why NHSL would consider the Environmental Matrix to have been issued to the bidders as an indicative element and for information only.

5.47 IHSL's bid submissions required to comply with the Environmental Matrix. Upon agreement of the Project Agreement terms and execution of Financial Close, the requirements of the Environmental Matrix as it had developed through the bid phase would have been embedded in IHSL's proposals.

The Environmental Matrix was identified as an element of Reviewable Design Data at Financial Close because certain limited elements of it still required to be commented upon by NHSL. Nevertheless, paragraph 8 of the Board's Construction Requirements contained in the Project Agreement required compliance with the Environmental Matrix: as at Financial Close that meant as it had been developed and agreed through the procurement process but subject to the outstanding items identified in Section 5 of Schedule: after Financial Close, once those outstanding items had been addressed through the review procedure, that would have meant compliance with Environmental Matrix in its entirety.

5.48 On that basis, it is not clear to IHSL why NHSL would consider the Environmental Matrix to have been issued as an item of Disclosed Data or seek to avail itself of the provisions protecting NHSL under clause 7 of the Project Agreement (notwithstanding that the definition of "Design Data" may have been wide enough to have described the Environmental Matrix).

Paragraph 53

5.49 IHSL concur with the Inquiry's comments at paragraph 53. Given the Environmental Matrix is part of the Board's Construction Requirements, it's status or otherwise as Design Data is beside the point: it would still mark the specification which Project Co was required (and entitled) to deliver. Clause 12.1 of the Project Agreement did, after all, oblige IHSL to carry out the Works so as to procure satisfaction of the Board's Construction Requirements.

Paragraph 54

5.50 At paragraph 54 the Inquiry Team set out an alternative view on the Environmental Matrix and refers to the Environmental Matrix "*supplied by the Board at financial close.*" As referred to in PPP2, the earlier versions of the Environmental Matrix were prepared by NHSL and its design team and then a version was issued to bidders with the ITPD. This conveyed NHLs' room environmental requirements to bidders. The later versions which were developed prior to Financial Close were revised by the IHSL consortium (MPX and its design sub-consultants) through discussion and development with NHSL. The Environmental Matrix as at Financial Close was agreed between the parties subject to its status as an item of Reviewable Design Data as set out in Section 5 of Schedule 6. It is not entirely accurate then to describe the Environmental Matrix as being supplied by the Board at Financial Close.

Dispute Resolution

5.51 IHSL has no comments to add to paragraphs 55 to 57 of PPP4.

Miscellaneous

5.52 IHSL has no comments to add to paragraphs 58 to 62 of PPP4.

Schedules

Paragraph 66

5.53 This paragraph identifies Schedule Part 3 ('Key Works Personnel'). Clause 8.9 of the Project Agreement states that Project Co's Key Works Personnel are identified in Schedule Part 3 and Project Co is obliged, as far as it was within its control, to ensure that the Key Works Personnel retained their involvement in the Works.

5.54 The Key Works Personnel identified in Schedule Part 3 are all MPX personnel. This further demonstrates the essential nature of the pass down of Project Co's design and construction obligations under the Project Agreement to MPX through the Construction Contract.

Paragraph 67

5.55 This paragraph queries whether energy efficiency requirements for the building had an influence on the ventilation specification. It has been highlighted by the Inquiry Team in earlier PPPs that energy efficiency was clearly a significant factor in the ventilation specification. The Project required to achieve a certain BREEAM rating and the extent to which this was an influence on the terms of the Environmental Matrix may be addressed at the April Hearing. Energy efficiency also has an impact on the costs of running the ventilation system: the design of the system would have a significant impact on operating costs.

'Supplemental Agreement 2'

5.56 The Inquiry Team discusses Supplemental Agreement 2 at paragraphs 95 to 109 of PPP4.

5.57 As a preliminary point, IHSL notes that throughout those paragraphs the Inquiry Team refers interchangeably to the agreement as "Supplemental Agreement 2" or "Settlement Agreement 2". Paragraph 95 of PPP4 identifies the title of the agreement as "***Supplemental Agreement Number 2****……"* which is the correct reference to the agreement. As noted at paragraph 97 of PPP4, that agreement gave effect to NHSL's High Value Change Notice 107 dated 5 December 2019 ("**HVC107**"). HVC107 instructed a Change to the Works pursuant to Schedule Part 16 of the Project Agreement. Supplemental Agreement 2 was not a "settlement agreement" in the sense of settling any dispute between the parties: it recorded NHSL's instructed Change. Supplementary Agreement 2 can, therefore, be contrasted with SA1 which was both supplemental to the Project Agreement but also settled various disputed issues between the parties (hence its title 'Settlement and Supplemental Agreement 1').

5.58 IHSL refers to Supplemental Agreement 2 throughout this Response and respectfully requests the Inquiry Team to amend any references to "Settlement Agreement 2" in PPP4 to correctly refer to "Supplementary Agreement 2".

Background to Supplemental Agreement 2

5.59 IHSL notes (from paragraph 96 of PPP4) that the Inquiry does not intend to cover Supplemental Agreement 2 at the hearing commencing on 24 April 2023 (the "**April Hearing**") but that Supplemental Agreement 2 "*is mentioned in PPP4 only to assist in understanding the aspects of the Project Agreement which were in due course revised by it".*

5.60 Consequently, IHSL does not intend to address Supplemental Agreement 2 in any depth in this Response. However, it may be of use to the Inquiry Team for IHSL to set out a brief summary of the relevant background. Reference is also made to IHSL's submission to the Inquiry dated 12 October 2021 (in particular, IHSL's response to Question 11) where this summary of the background is drawn from.

5.61 Following the decision by the Scottish Government that the RHCYP/DCN was not to open in July 2019, all parties engaged in discussions to agree what works required to be carried out to allow the hospital to open fully. NHSL subsequently issued a HVC 107 dated 5th December 2019. HVC 107 instructs changes to the ventilation system in Paediatric Critical Care and Haematology/ Oncology including the following:

5.61.1 Ensuring that single bedrooms and multi-bedrooms as listed therein in the Paediatric Critical Care achieved 10 air changes per hour at +10pa (positive pressure);

5.61.2 For Isolation Rooms in Paediatric Care, designing and installing a ventilation system for a positive pressure ventilated lobby PPVL Single Bedroom Isolation Suite with a lobby air supply terminal with a HEPA filter, as per SHTM 03-01 and SHPN 04-01, Supplement 1: Isolation Facilities in Acute Settings (Version 1.0 September 2008 Table 1) to the bedrooms listed there (with various options listed on ensuring single point failure for each isolation room with each having its own supply and extract, but with NHSL recognising the practicalities of this given space constraints);

5.61.3 Ensuring that single bedrooms and multi-bedrooms as listed therein in the Haematology and Oncology department achieved 10 air changes per hour at +10pa (positive pressure);

5.61.4 For Isolation Rooms in Haematology and Oncology, designing and installing a ventilation system for a positive pressure ventilated lobby PPVL Single Bedroom Isolation Suite with a lobby air supply terminal with a HEPA filter, as per SHTM 03-01 and SHPN 04-01, Supplement 1: Isolation Facilities in Acute Settings (Version 1.0 September 2008 Table 1) to the bedrooms listed there (with various options listed on ensuring single point failure for each isolation room with each having its own supply and extract, but with NHSL recognising the practicalities of this given space constraints); and

5.61.5 Ventilation Works and Services – otherwise carrying out works to ensure that all environmental requirements for all spaces in the Facilities served by or affected by the Ventilation Works and Services systems shall be met and maintained – including but not limited to ventilation, temperature and control, lighting levels, noise and humidity; and all to "fully comply with SHTM 03-01 requirements which includes, without limitation, implementation of the Ventilation Works and Services so that the system installation, finishes and maintenance regime shall be in accordance with SHTM 03-01 requirements", together with certain clinical requirements set out therein.

5.62 NHSL agreed to pay for these additional and varied works specified in HVC 107 as they were a deemed change to the contractual requirements.

5.63 As stated in Recital E, the purpose of Supplemental Agreement 2 was to amend and supplement the Project Agreement pursuant to HVC107 to enable the design, construction, testing and commissioning and completion of the Ventilation Works (which were defined by reference to HVC107) and to amend the Services which Project Co were obliged to deliver at the Facilities as required because of the Ventilation Works.

5.64 The Inquiry Team has set out some of the relevant provisions of Supplemental Agreement 2 at paragraphs 97 to 109 of PPP4. In particular, the Inquiry Team refers (at paragraph 104 of PPP4) to clause 6.2 of Supplemental Agreement 2 (and the letters contained in Schedule Part 9) which gives an insight into the context in which Supplemental Agreement 2 was entered into. IHSL required those assurances from NHSL's technical advisers precisely because NHSL's interpretation of its requirements for the ventilation system had been ambiguous and subject to change. By way of brief recap: prior to Financial Close an issue arose around the ventilation requirements in the singled bedrooms and the use of natural ventilation (notwithstanding that natural ventilation had been envisaged by NHSL's design team from the outset) but this issue was resolved; during construction an issue arose around the air pressure regime in multi-bed rooms which NHSL insisted upon being negative or balanced to the adjacent corridor; parties executed SA1 which confirmed that 14 of the 20 were to be balanced or negative to the corridor at 4 ac/hr; HVC 107 instructed a Change to the effect that the multi-bed rooms in Critical Care were to be positive pressure with an air change rate of 10ac/hr.

5.65 During the discussion on HVC107 there was even a suggestion by Hoare Lea (Imtech's designers) that the air change rate in the multi-bed rooms might in fact be 15 ac/hr. Because of the challenges IHSL had faced previously (discussed above), it required those assurances in Supplemental Agreement 2 from NHSL and its technical advisers that the changes instructed in HVC 107 truly represented NHSL's requirements leaving no further room for any doubt (or change) in future.

5.66 It should also be noted that the works instructed under HVC107 and agreed under Supplemental Agreement 2 were not the only works instructed by NHSL following delayed opening of the

RHCYP/DCN. When IHSL was overseeing the performance of the works instructed under HVC107 by its subcontractor Imtech, NHSL requested additional works including Fire Enhancement Works in several areas of the hospital and modifications to the Child and Adolescent Mental Health Service (CAMHS) department (collectively referred to as Supplemental Agreement 4 (SA4), which comprised of 5 Medium Value Changes). Latterly, NHSL also requested enhancements to the ventilation within an area of the Accident and Emergency department to deal with implications of COVID-19 (referred to as MVC 157).

SA1

5.67 Whilst PPP4 refers to Supplemental Agreement 2 IHSL notes that it makes no reference to SA1. In light of the discussion above, we provide to the Inquiry below some contextual considerations between Supplemental Agreement 2 and SA1.

5.68 The Inquiry Team is aware from IHSL's previous submissions to the Inquiry (namely those dated 16 December 2020 and 12 October 2021) that a dispute arose between the parties during the construction of the RHCYP/DCN. IHSL has previously provided to the Inquiry the Court papers which it received from NHSL in 2018 and which identified the nature of the dispute. This dispute did not concern the issue of air changes in critical care bedrooms. It concerned whether IHSL was obliged to design and construct a ventilation system for the single and multi-bed rooms so that they achieved a balanced or negative pressure relative to the adjacent corridor. NHSL's contention was that the rooms did require to have a balanced or negative pressure relative to the adjacent corridor and set out its requirements in the draft Summons prepared in March 2018.

5.69 The parties engaged in a lengthy period of negotiation during the construction period which resolved not only the issue of whether the single and multi-bed rooms should achieve a balance or negative pressure relative to the adjacent corridor but also all other ongoing disputes between the parties on the design and construction of the RHCYP/DCN (none of those other disputes related to the air change rates in the Critical Care rooms).

5.70 Those discussions culminated in the execution of SA1 on 22 February 2019. SA1 supplemented and amended the requirements of the Project Agreement. SA1 resolved and clarified NHSL's requirements for the RHCYP/DCN. In relation to 4 bed ventilation, the resolution contained within the Technical Schedule to SA1 is that 14 No. 4 bed rooms were to be balanced or negative to the corridor at 4 ac/hr. The 14 No. 4 bed rooms included 4 which were within Critical Care.

5.71 IHSL and its main contractor, MPX, delivered the hospital which was specified by NHSL as per SA1. This was signed off by the Independent Tester and a Certificate of Practical Completion was issued on 22 February 2019.

5.72 Throughout the construction period and as was set out in the draft Summons which NHSL issued to IHSL in March 2018, NHSL interpreted its requirements and SHTM 03-01 as requiring a pressure

regime in the 4-bed rooms which was to be negative/balanced to the corridor. In July 2019, however, IOM and HFS stated that SHTM 03-01 required the pressure regime to be positive to the corridor for the 4-bed rooms. This gives weight to the fact that SHTMs are open to interpretation.

5.73 Supplemental Agreement 2 and HVC 107 gave effect to the position taken by IOM and HFS (which differed from the position confirmed by the parties' agreement in SA1). This required a Change to the Works which had been constructed and completed in accordance with SA1. In other words, Supplemental Agreement 2 changed the position set out in SA1 which amended the Project Agreement.

'The Environmental Matrix and Published Guidance'

Paragraph 110

5.74 Paragraph 110 identifies certain factors which the Inquiry Team indicate might give rise to some ambiguity (or at least some room for argument) about the contractual status of the contents of the Environmental Matrix.

5.75 As noted earlier in this Response, IHSL does not consider the status of the Environmental Matrix to be ambiguous – it understood it was obliged to comply with it. It transpired, however, that the parties had different interpretations of certain requirements which identified that the content of the Environmental Matrix was not free from ambiguity. The content of the Environmental Matrix and the guidance contained in the SHTMs were open to differing interpretations. This is most clearly illustrated by the fact that throughout the construction period NHSL insisted upon the multi-bed rooms having an air pressure regime which was balanced or negative to the adjacent corridor whereas IOM and HFS required the pressure regime to be positive to the adjacent corridor.

5.76 Given its size and complexity, it is unsurprising that the Project Agreement contained ambiguities and inconsistencies. This is not uncommon in public projects procured under the PFI/PPP model. The challenge for parties is how those ambiguities and differences are addressed and overcome. This is largely driven by the parties' behaviours and attitudes which can have a significant impact upon the success (or otherwise) of a project.

Paragraph 111

5.77 Paragraph 111 notes that there are provisions of the Project Agreement which specify (or might at least be argued to specify compliance) with SHTMs and with CEL 19 (2010). The Inquiry Team poses the question of how the Project Agreement made provision for addressing any conflict between the Environmental Matrix and the guidance contained in STHMs.

5.78 IHSL has already highlighted (at paragraph 4.2 above) clause 5.2.4 of the Project Agreement which obliged Project Co to procure that the Project Operations were at all times performed in compliance

with all applicable NHS Requirements "*except to the extent expressly stated to the contrary in the Board's Construction Requirements".*

5.79 This echoes the position set out in the Board's Construction Requirements contained in Schedule Part 6 Section 3. Paragraph 2.3 thereof provides that the Facilities shall, "*unless the Board has expressed elsewhere in the Board's Construction Requirements a specific and different requirement"* comply with the listed NHS Requirements which include SHTMs.

5.80 In so far as the position prior to Financial Close was concerned, the ITPD documents contained a similar provision to paragraph 2.3 above. Section 2.3 of Sub-Section C of Section 3, Volume 3 ('NHS Requirements') stated: "*In addition to the standards listed in paragraph 2.4 of this Sub-Section C, **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; ……"*

5.81 These provisions state that the guidance in SHTMs gives way to NHSL's particular requirements as set out in the Board's Construction Requirements.

5.82 When the provisions are read in in the round it is not clear what potential conflicts between the Environmental Matrix and the guidance in SHTMs the Inquiry Team has in mind.

Paragraph 112

5.83 This paragraph identifies the possible spectrum along which the Environmental Matrix may sit. IHSL have responded to the view that the Environmental Matrix was no more than Disclosed Data elsewhere in this Response.

Paragraph 113

5.84 This paragraph refers to paragraph 2.5 of the Board's Construction Requirements which contains a 'Hierarchy of Standards' provision. IHSL agrees with the Inquiry Team's tentative comments regarding the scope and interpretation of that provision. Paragraph 2.5 is concerned with any contradictions in the "standards/advice" apparent within the terms of the Board's Construction Requirements. This appears to refer to contradictory standards and advice which may be apparent from the publications referred to in the preceding paragraphs (e.g. the raft of NHS standards referred to in paragraphs 2.3 and 2.4) and not to any conflicts between published guidance and a specific requirement laid down by the Board. In any event, as noted above the relevant provisions of the Project Agreement state that the guidance in HTMs/STHMs gives way to any specific requirement of the Board. IHSL concurs with the Inquiry Team's comment that where the Board's requirements include a specific parameter for a specific room which differs from generalised guidance "*it is not obvious that this falls to be construed as a 'conflict': a more natural interpretation may be that the*

Board has specified a departure from the generalised guidance." That is certainly an interpretation that is consistent with the provisions of the Project Agreement.

Paragraph 114

5.85 Paragraph 114 notes that the Inquiry Chair may require to consider whether the relevant provisions of the Project Agreement provided an incomplete specification and/or were ambiguous and thereby open to conflicting interpretations.

5.86 There is evidence from the Project history that the requirements of the Project Agreement were ambiguous in certain parts and open to conflicting interpretations. This was evident from the parties' dispute relating to the air pressure regime in the multi-bed rooms (which was resolved in SA1). The fact that the Project Agreement requirements were open to conflicting interpretations was reinforced by the fact that the IOM and HFS took a different review of the guidance in SHTMs resulting in the re-amendment of the Project Agreement as amended by agreement between the parties by SA1.

'Issues for the Chair to Consider'

5.87 IHSL notes the Inquiry Team's comments at paragraphs 115 to 122 regarding the 'Issues for the Chair to Consider'.

5.88 Paragraph 121 states that "*at this stage, it may be possible to begin to develop tentative and provisional views about the extent, if any, to which the relevant risk of adverse impacts on patient safety and care were caused by inadequacies in the contractual specification (such as errors, ambiguities, omissions or its incomplete state); or by other inadequacies in the contracts (such as in the mechanism for review of designs".*

5.89 The Inquiry Team has already provided detailed position papers on the Reference Design (PPP1), the Environmental Matrix (PPP2) and the procurement exercise (PPP3). Those earlier PPPs together with the issues to be addressed at the April Hearing may shed further light on: (i) how the Environmental Matrix issued to the bidders with the ITPD documents came to convey a requirement for all multi-bed rooms (including those in Critical Care) to have an air change rate of 4 ac/hr; and (ii) how the ITPD documents came to incorporate the Environmental Matrix as a Board Construction Requirement with which bidders required to comply (in light of NHSL's understanding that the Environmental Matrix was issued to bidders for information only).

5.90 Those issues will presumably shape the future direction of the Inquiry and will impact upon any consideration of the adequacies (or inadequacies) of the Project Agreement mechanisms to identify any deficiencies contained in the contract specification. It appears to IHSL, however, that the requirement for the air change rate for multi-bed rooms in Critical Care was incorporated into the contract specification at the very outset when it was conveyed to the bidders as an NHSL requirement with the ITPD documents. The accuracy or sufficiency of that initial contract specification is not

something that would have been reviewed ordinarily through the mechanisms contained in the Project Agreement. If the original error or flaw in the contract specification had not been identified following Financial Close through the Project Agreement review procedures, this would not, in IHSL's view, necessarily indicate that the terms of the Project Agreement themselves were somehow at fault. The Inquiry's earlier PPPs have identified the opportunities to identify the discrepancy between the Environmental Matrix and the SHTM guidance during the development of the Reference Design and Environmental Matrix and during bid phase which may have been missed.

10 March 2023

Provisional Position Paper 1

Commented [AG1]: This paper includes comments by SFT. The comments are intended to assist the Inquiry and reflect SFT's understanding. The absence of any comment does not indicate endorsement or acceptance by SFT of any element of the paper which does not refer to SFT's role or activity. SFT is content with the paper where it refers to SFT's role, subject to the comments
and suggested amendments included below.

The Reference Design utilised for the Royal Hospital for Children and Young People and Department for Clinical Neurosciences

Purpose of the Paper

This Provisional Position Paper has been produced to assist the Chair in addressing the Terms of Reference. It outlines the Inquiry Team's understanding of the means by which a 'reference design' was adopted for the Royal Hospital for Children and Young People and the Department for Clinical Neurosciences (RHCYP/DCN) and the reasons for that approach.

An earlier draft of this paper was circulated to some Core Participants (CP) for consideration and comment. Those comments have been considered by the Inquiry Team and taken into account in finalising this paper.

The paper focusses on the period from November 2010 to January 2015. The paper explores:

- The contextual factors leading to the decision to produce a Reference Design;
- The agreed scope and purpose of the Reference Design;
- The procedures for reviewing the Reference Design;
- The provision of the Reference Design to tenderers; and
- The adoption of the Reference Design by the preferred bidder.

In due course, the Chair is likely to be invited by the Inquiry Team to make findings in fact, based on the content of this paper. The Inquiry Team does not presently intend to lead further detailed evidence on the matters outlined in it, though inevitably some of those matters will be touched upon to a greater or lesser extent in the hearing set to commence on 24 April 2023. In addition, it is open to any CP – through evidence or submissions – to seek to correct and/or contradict it. It is therefore possible that the Inquiry's understanding of matters set out in the paper may change, and so the position set out in this paper remains provisional. If it is the case that the Inquiry Team's understanding does change significantly, a revised edition of this paper may be published in due course.

Contents

1 Introduction

1.1 The purpose of issuing this Provisional Position Paper (PPP) is to set out the Inquiry Team's provisional assessment of why the mechanism of a 'Reference Design' was adopted for the Royal Hospital for Children & Young People/Department of Clinical Neurosciences (RHCYP/DCN), how it was developed and its role in the procurement exercise for the hospital. In particular, this PPP is concerned with the reasons why NHS Lothian (NHSL) mandated aspects of the RHCYP/DCN's design and why an Environmental Matrix containing environmental information was provided to prospective tenderers.

1.2 The terms of the PPP have been informed by comment from CPs and reflect the Inquiry Team's understanding of the evidence it has available to it. It is intended to assist CPs, as well as informing CPs and the general public of the findings that the Chair may be invited to make by Counsel to the Inquiry. If CPs wish to dispute, or supplement, what appears in the PPP, the Inquiry Team invites them to do so either by way of witness statements or through submissions. In the absence of such notice, the Chair may adopt some or all of what appears in the PPP for the purposes of addressing the Terms of Reference without necessarily considering further evidence.

1.3 The scope of this paper focusses on the period from November 2010 to ~~January 2015~~5 March 2014. This covers the period when design work conducted under the capital funding model was carried forward for producing a Reference Design under a Non-Profit Distribution (NPD) funding model, to when Integrated Health Solutions Lothian (IHSL) was appointed as preferred bidder and the Reference Design was superseded by work developed by IHSL.

Commented [AG2]: This date should be changed to reflect when IHSL was appointed preferred bidder.

Alternatively, the Inquiry should refer to this as the period when IHSL was "awarded the contract" and change the date from January 2015 to February 2015.

1.4 Section 2 of this paper narrates the Inquiry Team's understanding of the principal steps whereby NHSL, with the advice of Mott MacDonald Limited (MML), adopted the concept of a Reference Design as a component within the procurement process for the RHCYP. Section 3 identifies what the Inquiry Team understands to be key documents produced during the procurement process which relate to the Reference Design and which record how its purpose was understood and how it was put to use. Section 4 identifies what the Inquiry Team understands to be the practical implications on the RHCYP/DCN project as a result of adopting a Reference Design approach. Section 5 sets out the Inquiry Team's provisional conclusions from the evidence set out in Sections 2 to 4.

2 Background to the Reference Design

2.1 The need for a new children's hospital was first discussed by NHSL in 2005. The preferred site was adjacent to the Royal Infirmary Edinburgh (RIE). Once this site was approved, the Royal Hospital for Sick Children (RHSC) project developed through the Outline Business Case (OBC) stage, and early capital design work, from 2008 to 2010. The RHSC was initially to be delivered through Scottish Government (SG) capital funding, using the Framework Scotland procurement programme and the NEC standard form contract.

2.2 During this phase, MML was appointed by NHSL as NEC supervisor. Davis Langdon was appointed separately by NHSL as the NEC Project Managers, and BAM Construction (BAM) was appointed as the Principal Supply Chain Partner. A design was to be produced by BAM and the following design team:

- Nightingale Associates (Concept Architects);
- BMJ Architects (Clinical Architect);
- Hulley & Kirkwood (Services Engineer);
- Arup (Civils, Structural, Traffic and Transport, Acoustics and Fire Engineering); and
- Tribal (Health Planners).

2.3 On 17 November 2010, SG decided to change the funding structure. SG announced that the new RHSC would be funded by a non-profit distributing (NPD) model. This provided for private capital to be used for public projects with a capped return provided to the private sector partner. With the change in funding, it was also decided that the Department of Clinical Neurosciences (DCN) would be co-located with the RHSC and form part of the same project. The combined project was what became the RHCYP/DCN.

2.4 NHSL's Director of Finance (Susan Goldsmith) and Chief Operating Officer (Jackie Sansbury) prepared a report for the NHSL Finance & Performance Review Committee meeting on 12 January 2011. The report provided an update on the RHCYP/DCN reprovision project. The Committee was invited to:

"Approve progressing with a detailed reference design for a combined project as a key component of the NPD procurement route utilising either the current Framework Contract with BAM or by procuring the design team through the Office of Government Commerce (OGC) procurement solution."

2.5 The same report further advised:

"The project and design team currently engaged through HFS Frameworks for the standalone RHSC have effectively been 'stood down' awaiting confirmation of a future role... All knowledge and information produced through the standalone RHSC design process is being captured for future use and consists of all design data at point of suspension, technical validation information, briefing data, cost data and construction information."

2.6 The reasons given in the report for pursuing this Reference Design approach included: "an objective to minimise both the delay to the programme...and the abortive and on-going costs". To achieve this outcome, it was proposed to utilise: "the existing design team to complete the design process". The Board of NHSL appointed MML as Technical Advisor for the revised project with the new funding model on 22 March 2011. The Reference Design Team were appointed under the Contract Control Order (CCO) between MML and NHSL dated 11 July 2011. The Reference Design Team was constituted of the same design team set out at paragraph 2.2 of this paper.

2.7 A review meeting took place on 23 December 2010, including the Scottish Futures Trust (SFT) and SG. Following consideration, NHSL concluded that the ~~recognised~~ preferred route for NPD procurement was to take a 'reference design' to the market. However, as at 9 February 2011, the level of detail had yet to be determined.

Commented [AG3]: SFT are not aware of a recognised approach for NPD procurement since it had not been widely used before. SFT's evidence is that SFT and SG supported the reference design approach and it should therefore be described as 'preferred'.

2.8 A draft Advisory Paper produced by MML for the Board of NHSL in February 2011 advised that: "for the NPD procurement process, a Reference Design is required to be developed on behalf of the Board". This position was amended in a later MML paper to reflect the fact that Reference Designs had been: "promoted by the Scottish Futures Trust and the Scottish Government". In responding to an earlier draft of this paper, MML have told the Inquiry that although there are differences in the wording used in the papers, the intention was the same. Namely, that it was ~~a requirement of~~promoted by SFT and SG that a Reference Design be used in all NPD Procurements.

Commented [WV4]: In Peter Reekie's May 2022 Witness Statement (paragraph 109), he confirmed that SFT promoted the use of the Reference Design. The statement that the Reference Design was a 'requirement of SFT' does not accord with SFT's position or Peter Reekie's recollection.

2.9 The draft Advisory Paper by MML noted that further development of the design was required. In the absence of formal guidance, the Board of NHSL required to decide the extent of the development and precisely how a Reference Design would be used.

2.10 The draft Advisory Paper by MML drew a comparison with 'Exemplar Designs' in ~~Public Private Partnership (PPP)~~ Private Finance Initiative (PFI) projects, which were described as similar to the NPD model from a technical and whole life cost perspective. An Exemplar Design was defined as a design that represented just one example or solution to the output specification. By contrast, a Reference Design was defined as a design representing a specific solution, ~~the key features~~ specified~~ialist~~ features of which the procuring

Commented [AG5]: SFT observes that both the previously used "Private Finance Initiative" approach and the "Non-Profit Distributing" approach are forms of Public Private Partnership. SFT has suggested changes to reflect this understanding.

Commented [AG6]: The key point is whether aspects of the design were specified to be mandatory or non-mandatory. It is not accurate to describe them as key features.

authority wished to see in the final design. The draft Advisory Paper by MML noted that: "Both an Exemplar Design and a Reference Design represent a springboard for Bidders to develop their own designs however the level of prescription and fixity in the case of a Reference Design is greater."

2.11 The draft Advisory Paper by MML advised that, historically, the standard approach on ~~PPP~~PFI projects in England was to develop a robust Exemplar Design. In Scotland, Exemplar Designs were used for indicative purposes only. Bidders were encouraged to develop their own ideas in response to the output specification rather than simply adopt the Exemplar Design. In Northern Ireland, bidders were expected to adopt and develop Exemplar Designs, effectively rendering them mandatory and to be used as a baseline for bidders.

2.12 The draft Advisory Paper by MML noted that the initial view of the Board of NHSL was to pursue a Reference Design approach under NPD more in line with the Northern Irish Exemplar Design approach under ~~PPP~~PFI projects. The reasons for this included:

- The significant amount of design work already completed by BAM, resulting in a design that user groups were satisfied with. Although reworking was required to account for the addition of DCN, this was considered marginal compared to the levels of engagement required if three bidders were developing separate designs – with the risk that none of the bidder designs would be considered as effective as the Reference Design;
- NHSL wished to retain control over certain elements of the design. Pursuing a Reference Design was considered the most appropriate way of achieving this; and
- A Reference Design approach was considered the simplest and most cost effective route.

In responding to an earlier draft of this paper, NHSL have told the Inquiry that there had to be a greater level of prescription and fixity beyond an exemplar design because the RHCYP/DCN had to be adjoined to the existing RIE at Little France. The RIE was an existing Private Finance Initiative (PFI) site run by Consort Healthcare Ltd (Consort). NHSL and Consort had to agree and resolve issues such as (i) the interface between RHCYP/DCN with the RIE, and (ii) access/egress to RIE. NHSL's reference design provided bidders with an architectural representation of one possible concept design but which critically illustrated the mandatory requirements imposed on the Board of NHSL as a result of the pre-existing arrangements with Consort.

2.13 In light of this envisaged Reference Design approach, Donna Stevenson, Associate Director of SFT, suggested, in a Project Discussion of 1 February 2011, that contact be made with John Cole in Northern Ireland to learn from work done there concerning Reference Designs.

2.14 An Approach to Reference Design paper produced by MML in 2012 and discussed more fully in Section 3 of this paper summarised the perceived benefits offered by the use of a Reference Design in NPD projects. The paper considered that a Reference Design would reduce procurement costs and timescales, reduce the amount of clinical user consultation required during the Competitive Dialogue phase, provide greater cost certainty at OBC, and provide greater certainty over the eventual design solution.

2.15 In the draft Advisory Paper by MML, the suggested level of development for the Reference Design was informed by The Design Development Protocol for PFI Schemes (the DD Protocol), an approach to the design development process agreed between the Department of Health, NHS Estates, NHS trusts, the Health and Safety Executive, the Royal Institute of British Architects and the Major Contractors Group.

2.16 In 2007, the DD Protocol was revised as a consultative document to take account of the competitive dialogue procedure. According to the draft Advisory Paper by MML, Section 2 of the DD Protocol advised that a common theme for developing a Reference Design was to define and mandate the 'Clinical Functionality' of the design. 'Clinical Functionality' was defined at Appendix A of the draft Advisory Paper. It concerned the following issues but only in so far as each of these matters related to clinical use:

- the points of access to and within the development site and the buildings;
- the relationship between buildings;
- the adjacencies between different hospital departments;
- the adjacencies between rooms within the hospital departments;
- the quantity, description and spatial areas of those rooms;
- the location and relationship of equipment, furniture, fittings; and
- the location of and the inter-relationships between rooms within departments.

2.17 Appendix B of the draft Advisory Paper by MML set out a list of suggested 'deliverables' for the Reference Design. These suggested 'deliverables' largely

reflect the deliverables later agreed for the Reference Design in the CCO appointing the Reference Design Team and discussed more fully at paragraph 3.1 of this paper.

2.18 The Project Working Group discussed how rigid the scope of the Reference Design should be. At a meeting on 26 May 2011, the Project Working Group recognised that: "defining things too rigidly may compromise the design quality". The Project Working Group appreciated that NHSL would need to be clear with bidders on the scope for flexibility. At a Project Working Group of 2 June 2011, a Procurement Options paper was tabled and discussed at length by all the parties present from NHSL, SFT, MML and Davis Langdon. Responses from Core Participants to a previous draft of this paper have indicated that the Procurement Options paper in question bears the issue date of 16 June 2011 and was prepared for NHSL by MML and Davis Langdon.

2.19 It was stated in the introduction to the paper that NHSL was in discussions with SFT: "to determine the shortest possible procurement route. The procurement process options, and their associated timescales, are directly linked to the approach adopted on the reference design". The paper considered four approaches to the Reference Design, along with their benefits and drawbacks.

2.20 Option A was to mandate the design so far as it related to Clinical Functionality. This had the perceived benefit of keeping the risk transfer profile intact, insofar as ~~Clinical Functionality risk already sat with the Procuring Authority~~the standard form project agreement already included confirmation by the Procuring Authority that the design satisfied its requirements for Clinical Functionality (or Operational Functionality as it is defined in the Project Agreement), ~~while all other design risk remained with the private sector~~, while all other design risk remained with the private sector. It was also suggested that Option A raised few issues with the Reference Design Team members subsequently joining bid teams. The approach was described as more encouraging of bidder innovation in terms of the architectural, services and structural solutions than other options, whilst allowing a greater level of certainty upfront over the clinical solutions than with an exemplar approach. The large part of the design to be developed was seen as an opportunity for potential bidders to use their expertise thus potentially increasing the attractiveness to the market. It was also considered to be the most cost-effective option. In terms of drawbacks, it was noted that mandating elements of the design would limit innovation to an extent, and involve a more detailed and longer competitive dialogue period than Options B and C to enable bidders to develop the design. The level of clinical engagement was also considered greater than Options B and C.

Commented [AG7]: SFT consider further explanation is necessary here.

SFT have suggested this wording to reflect that the acceptance by the Procuring Authority of Clinical Functionality risk followed the risk allocation in the standard form contract; rather than that the risk "already sat" with the Authority.

2.21 Option B was to mandate the full design. It was believed this would reduce the time required for competitive dialogue, as well as reducing to a minimum the level of engagement required between bidders and clinical user groups. It was also believed that Option B would give a greater degree of certainty over affordability of the project. The drawbacks of Option B were that it might require a longer period for the design stage before launching the procurement process, it raised risk transfer issues for the private sector (in that for the private sector to accept design risk, they would require a full due diligence exercise on the design), it was more costly to NHSL than Option A, and limited innovation to the extent that procurement became a competition based mostly around pricing.

2.22 Option C was described as the same as Option B, but involved novation of the Reference Design Team to the successful bidder. This option was noted as a new approach not done before on ~~PPP~~PFI or NPD type projects, requiring detailed analysis to understand the extent to which it was deliverable. Nevertheless, it was noted that this option, in reducing bid costs, was potentially more attractive to potential bidders than Options A and B. It was also noted that novation of the Reference Design Team would allow design risk (excluding Clinical Functionality) to be transferred in full to the private sector.

2.23 Option D was to develop an Exemplar Design – referred to as the: "approach typically used in previous health PPP/PFI projects". This was noted to be less costly than Options A, B and C and would transfer full design risk to the private sector (excluding Clinical Functionality) – however intensive clinical input throughout the bid period was anticipated, requiring the longest period for competitive dialogue.

2.24 Option A was selected and agreed as the favoured route at the aforementioned Project Working Group of 2 June 2011.

2.25 Another draft report titled 'Procurement Strategy' explained that Option A was a departure from what normally happened in a PPP type project. In response to an earlier draft of this paper, MML have told the Inquiry that this dates to July 2011. The report advised there was increasing precedent for Procuring Authorities to undertake a degree of design work in the early stages of a project and pass it to bidders either as mandatory or as an exemplar. The report comments that the Board of NHSL's advisors had contact with potential bidders and this led them to the view that Option A would be acceptable to the market.

2.26 In response to an earlier draft of this paper, NHSL have told the Inquiry that it agreed to proceed on the basis of Option A since it adopted the principle of using a reference design (and therefore utilised some of the work done to date) while having advantages around risk transfer, innovation, market interest

and cost of design without resulting in an unacceptable programme or overly onerous clinical user involvement requirements through the procurement process.

3 Key Documents Relating to the Reference Design

CONTRACT CONTROL ORDER APPOINTING THE REFERENCE DESIGN TEAM (THE CCO)

3.1 The CCO appointing the Reference Design Team, dated 11 July 2011, set out the 'Deliverables' the Team had to deliver, and provided whether these would be mandatory for bidders to adopt.

3.2 In response to an earlier draft of this paper, MML have told the Inquiry that the purpose of the CCO was limited to appointing the Reference Design Team to develop design deliverables.

3.3 Room Data Sheets were categorised as a deliverable ~~that would mandate and fix 'Clinical Functionality'~~to fix elements of Clinical Functionality (as defined at paragraph 2.16 of this paper). The Room Data Sheets were to be mandatory for bidders.

Commented [AG8]: SFT do not know the source of this statement, however having reviewed the Position Papers SFT's understanding is that not everything that fell within RDS was intended to be mandatory and fix clinical functionality (and for completeness, not all elements of clinical functionality are contained within an RDS). SFT consider that further explanation in this paragraph would be helpful.

3.4 Capita was responsible for leading this phase, and Hulley & Kirkwood (H&K) were responsible for developing the 'environmental information'. From a review of the Room Data Sheet format, the Inquiry Team understands that 'environmental information' relates to aspects such as the noise, lighting, temperature, ventilation, and air pressure requirements needed for the effective service of clinical functions within specific rooms of a hospital. 'Environmental information' is variously referred to as 'environmental data' and 'environmental parameters' in the documentation available to the Inquiry Team. The Inquiry Team understand these terms to be interchangeable and will adopt the term environmental information in this paper for the sake of consistency.

3.5 This environmental information had not been included in the definition of Clinical Functionality set out at Appendix A of the draft Advisory Paper by MML and discussed in paragraph 2.16 of this paper. Thus it had not been included as a mandatory requirement for bidders.

3.6 For Mechanical & Electrical (M&E) engineering specifications, the CCO noted there would be no input from the Reference Design Team, although both the Engineering Design Philosophy and Energy Strategy and Schedules of Power, Heating and Cooling Loads was: "needed to support BREEAM pre-assessment".

BREEAM 2008/2011 COMPARISON

3.7 In September 2011, H&K produced a report investigating the project's potential to meet new Building Research Establishments Environmental Assessment Method (BREEAM) requirements.

3.8 The 'Report Scope' section states that: "'BREEAM Healthcare 2008' was first issued on 24 June 2008. As of 1 July 2008 all health authorities in the UK required that all healthcare buildings seeking OBC approval commit to achieving an Excellent rating." This second point is not strictly accurate. The 2009 publication of HTM 07-07 did introduce such a requirement, but the requirement did not apply in Scotland. The requirement was introduced later in Scotland. In April 2009, 'A Sustainable Development Strategy for NHS Scotland' was published. It provided that: "Scottish Government Health Directorate support the general thrust of the other UK health departments that from August 2008 all Boards should seek to attain the BREEAM Healthcare 'excellent' rating for new builds and 'very good' rating for refurbishment of existing properties. SGHD [Scottish Government Health Directorate] is currently integrating such a requirement into its procurement policy and guidance, for building projects of £2 million or more." The requirement was reflected in SG policy set out in Chief Executive Letter 19 (2010) (CEL 19) and in the Scottish Capital Investment Manual Business Case Guide of 18 July 2011: "All new build above £2m are required to obtain a BREEAM Healthcare/ or equivalent 'Excellent' rating".

3.9 The 'Report Scope' section of H&K's September 2011 paper further states that, during February 2010, H&K confirmed that an 'Excellent' rating was achievable for the RHSC. Following the change of procurement route and inclusion of the DCN, H&K assessed the combined building under the 2008 assessment method. H&K confirmed on 8 July 2011 that an 'Excellent' rating was achievable. The 'Report Scope' does not explicitly state that this, and further BREEAM assessments, were based on the Reference Design. However, the Inquiry Team understands from responses from CPs to a previous draft of this paper that this was the case.

3.10 On 1 July 2011, the 'BREEAM 2011 New Construction' scheme was launched. This was a more onerous assessment method than 'BREEAM 2008'. The purpose of H&K's September 2011 report was to highlight the key differences between the 2008 and 2011 assessment criteria and how this would affect the BREEAM rating.

3.11 The report indicated that an 'Excellent' rating was not likely to be achieved under BREEAM 2011; a 'Very Good' rating being more achievable. A later assessment confirmed this. According to H&K, one of the minimum requirements to achieve an 'Excellent' rating under BREAAM 2011 was to reduce CO2 emissions 25% further than targets set as a result of Schedule 5, part 6 of the Building (Scotland) Regulations 2004, as amended by The

Building (Scotland) Amendment Regulations 2010 (the Building (Scotland) Regulations). This reduction was to a level H&K believed was likely to incur significant design and cost implications for the project - even if it were possible to implement. On this basis it was not considered a practical proposition given the nature of the site. Notwithstanding this, H&K later confirmed in a Section 6 SBEM Compliance Report that the building could meet the CO2 emission targets set out Schedule 5 Part 6 of the Building (Scotland) Regulations, by adopting ventilation solutions aligned with the Environmental Matrix, discussed below.

THE ENVIRONMENTAL MATRIX AND WARD ROOM THERMAL COMFORT ANALYSIS

3.12 SG policy set out in HDL (2006) 58 made the use of Activity Database Sheets mandatory. This policy was updated by CEL 19. CEL 19 includes a document called 'A Policy on Design Quality for NHS Scotland' (the Design Quality Policy). CEL 19 remained extant for the duration of the project.

3.13 Mandatory requirement 7 of the Design Quality Policy states that:

"All NHS Scotland 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 NHS Scotland Body to demonstrate that the alternative is of equal quality and value in its application.]"

3.14 The Design Quality Policy also contains a section entitled 'Activity Data Base (ADB)' which states that:

"Activity Data Base (ADB) is the briefing, design & commissioning tool for both new-build and refurbishment of healthcare buildings. It is a briefing and design package with an integrated textual and graphical database, an interface with AutoCAD and an extensive graphical library - the complete tool for briefing and design of the healthcare environment. ADB is produced by the Department of Health in England and is mandated for use in Scotland by the Scottish Government Health Directorates as the preferred briefing and design system for NHS Scotland (see Mandatory Requirement 7 of this Policy). It has been developed to assist in the construction, briefing development, design and alteration of healthcare facilities.

Spaces designed using ADB data automatically comply with English planning guidance (such as Health Building Notes (HBNs) and Health Technical

memoranda (HTMs) as ADB forms an integral part of the English guidance publication process. Whilst Scottish users can create their own project-specific briefs and designs using ADB's extensive library of integrated graphics and text which includes room data sheets, room layouts and departmental room schedules, extreme care should be taken to ensure that such data generated by the package are consistent and compliant with Scottish-specific guidance such as Scottish Health Planning Notes, Scottish Health Facilities Notes (SHFNs) and Scottish Health Technical Memoranda (SHTMs) as published by Health Facilities Scotland."

3.15 On 9 September 2010, H&K produced an 'Environmental Matrix' for the standalone RHSC, before the DCN was included in the project. This was the first Environmental Matrix associated with the project.

3.16 The purpose of the Environmental Matrix was set out in emails between H&K and BAM from that year:

"With regards to environmental issues, rather than employ ADB M&E sheets, H&K will produce Environmental Matrix spreadsheet for each room type for easy reference as a user sign off tool." [15 February 2010]

"This document is intended as an easier tool to replace ADB RDS M&E sheets for the elements covered in the matrix." [8 September 2010]

3.17 On 3 February 2012, H&K produced the first version of an Environmental Matrix for the combined RHCYP/DCN project. This was based on the initial Environmental Matrix of 2010.

3.18 H&K subsequently developed the Environmental Matrix of 3 February 2012 to produce an Environmental Matrix dated 19 September 2012. This Environmental Matrix was supplied to bidders with the Reference Design as part of the ITPD, as will be discussed later in this paper. In a number of documents provided to the Inquiry Team, the Environmental Matrix of 19 September 2012 has been referred to as the 'Reference Design Environmental Matrix'.

3.19 Guidance Note 1 of the Reference Design Environmental Matrix stated that:

"This workbook is prepared...as an easier reference tool to replace ADB RDS M&E Sheets for the Environmental Criteria elements described on these sheets."

3.20 In response to an earlier draft of this paper, H&K have told the Inquiry that the Environmental Matrix was derived by reference to published guidance including SHTMs and HTMs current at the time of the reference design (2011/2012) and Reference Design client briefing information, as referred to

within the Guidance Notes page of the matrix. The Inquiry Team understands that this Reference Design client briefing information refers to an NHSL Design Brief dated 10 June 2011.

3.21 The 10 June 2011 Design Brief stated that:

"Comprehensive NHS Estates design guidance has informed the departmental accommodation requirements; these include Health Building Notes (HBN), Health Technical Memoranda (HTM), Scottish Health Planning Notes (SHPN), Scottish Health Technical Memoranda (SHTM) and Activity Data Base (ADB). There are some slight variations between 'English' UK wide healthcare estates guidance and the Scottish versions. Project teams and designers have to be aware of this, however universal space and ergonomic standards apply."

Under the heading 'Heating, Ventilation and Air Conditioning Systems', the following text appeared:

"The need to maintain acceptable comfort conditions in all areas is of paramount importance and the designer needs to demonstrate their strategy for achieving optimum comfort together with minimum energy consumption.

"Ventilation systems provided throughout the hospital should comply with all relevant HBN and HTM standards".

3.22 H&K were asked by the Inquiry Team to confirm how it was demonstrated that the Environmental Matrix was of equal quality and value to ADB. H&K have advised the Inquiry Team that this relates to information outwith H&K's knowledge.

3.23 The Environmental Matrix specified environmental information that was potentially inconsistent with published guidance, namely SHTM 03-01 which outlines ventilation requirements in a hospital. Certain single and multi-bed rooms in the Critical Care department were shown in the Environmental Matrix to require 4 air changes per hour (ACH). This differed from the 10 ACH recommended for Critical Care Areas in SHTM 03-01. This inconsistent information was contained in the version of the Environmental Matrix provided to bidders within the ITPD. Specific aspects of the Environmental Matrix and its iterations are addressed in a separate paper by the Inquiry Team. This issue will also be explored in greater detail at the hearing in April 2023.

3.24 The first reference to the 4 ACH figure seen by the Inquiry Team is in an email of 2 July 2010 from H&K to BAM. 4 ACH is quoted as being sufficient to maintain a temperature range of 18˚C to 28˚C in typical single bedrooms and multi-bed rooms/wards (those not in Critical care). The design solution given for High Dependency Unit (HDU) bed areas is 10 ACH.

3.25 The email goes on to narrate that the 4 ACH: “would be supplemented by opening windows for natural ventilation”. This information was repeated in the Guidance Notes of the very first Environmental Matrix of 2010 for the RHSC, before the DCN was included in the project.

3.26 H&K also produced a report titled ‘Ward Room Thermal Comfort Analysis’ on 21 February 2012. The purpose of the report was to determine peak temperature profiles for typical room accommodation, with a focus on identifying M&E engineering solutions that would keep internal temperatures below 25˚C. This temperature was a briefed maximum by NHSL, given experiences in the ERI.

3.27 Simulations conducted for that report illustrated that exclusively mechanical ventilation and mechanical ventilation supplemented by some natural ventilation were both capable of maintaining a temperature of 25˚C or less with only 4 ACH. H&K did not analyse Critical Care and HDU type ward rooms in the study. The report stated that: “...critical care and high dependency type ward rooms which receive air change rates in the region of 10 ACH, have not been analysed in this study”. The reference to critical care and HDU type ward rooms having 10 ACH is in line with SHTM 03-01.

3.28 In January 2015, the Board of NHSL, acting on input from NHS National Services Scotland (NHS NSS), considered that: “the design solution should not rely in any way with the opening windows”. This issue will be discussed further at paragraphs 4.20 to 4.23 of this paper.

THE OUTLINE BUSINESS CASE (OBC) AND EARLY DESIGN REVIEW

3.29 An OBC for the RHSC re-provision was submitted to SG and approved by the Capital Investment Group in August 2008. An OBC for the re-provision of DCN was approved by NHSL in December 2009, but did not proceed to SG because capital funding was not available. After the change in funding model to NPD, SG approved the development of an update to the existing (approved) OBC to include DCN as part of the same project. On 25 January 2012, that OBC was approved by the Board of NHSL.

3.30 At the time of the OBC, confirmation was pending on whether BREEAM 2008 or 2011 was to be adhered to. However, SG policy was for all new NHS buildings to achieve the standard of BREEAM Healthcare ‘Excellent’.

3.31 Reference was made within the OBC to design task groups that would ensure staff could feed into the Reference Design. These groups were to engage with their colleagues and the project team to develop and agree operational briefs that reflected their requirements, and to review project designs and proposals and feed back to the design team. Provision was also made for a Reference Design Task Group to have monthly meetings.

3.32 In response to an earlier draft of this paper, IBI Group (UK) Limited (IBI) (formerly Nightingale Associates) have told the Inquiry that they are unaware of any monthly meetings between a 'Reference Design Task Group' but that regular meetings took place among the Reference Design Team members themselves. MML have informed the Inquiry that the following task groups were in place:

- Clinical Functionality
- Design and Construction
- Planning
- Consort Enabling Works
- Flood works
- Transport
- Art and Therapeutic Design
- Helipad Group
- Furniture and Equipment
- Catering
- Facilities Management

3.33 MML also advised in their response that Additional Task Groups dealt with the development of the contract documents covering the Clinical, Design & Construction, Legal and Financial aspects of the project. Specialist NHSL Project Managers led the meetings. MML representatives attended task group meetings in an advisory role. A document provided by NHSL in response to an earlier draft of this paper states that the purpose of the design sub task groups was to produce, with the project and design team, proposed 1:200 designs for their department and any required detailed 1:50 designs. The 1:200 designs involved planning internal room adjacencies whilst the 1:50 designs involved input from user groups on specific equipment requirements of certain rooms (from coat hooks to large scanners).

3.34 Further provision was made in the OBC for Capital Planning Project Managers to act as the liaison between NHSL, the Reference Design workstream, and the Design and Construct workstream. They were to be responsible for informing the Board's Construction Requirements (BCRs) and ensuring these were agreed by the appropriate NHSL user groups. Neil McLennan and

Graham Gillies were named in these roles in a Project Execution Plan from September 2011.

3.35 Provision was also made in the OBC for Clinical Management Teams (CMT), who had operational management responsibility for children's services and DCN, to sign-off the Reference Design at all stages prior to final approval by NHSL. In response to an earlier draft of this paper, NHSL have provided documentation to the Inquiry which indicates that these sign-offs related to departmental drawings and Clinical Output Specifications as opposed to environmental information. In their response to the earlier draft of this paper, NHSL have told the Inquiry: "The clinicians reviewed the design in relation to space and content, i.e. the layout, adjacencies, clinical activities and equipment required...The clinicians are not M&E engineers...NHS Lothian appointed Technical Advisors, MML, to manage the specialist M&E aspects of the project."

3.36 The OBC stated that the Reference Design and development of the final design with the preferred bidder would be subject to a range of reviews as work progressed. These reviews included a Health Facilities Scotland NDAP – Design Assessment. The Scottish Capital Investment Manual Supporting Guidance: Design Assessment in the Business Case Process, dated 5 July 2011, provided: "From the 1 July 2010 an assessment of design quality will become part of the business case approval process...Accordingly projects submitted to the Capital Investment Group (CIG) for business case approval will be assessed for compliance with current published guidance. To facilitate this, Boards will be requested to submit a comprehensive list of the guidance that they consider to be applicable to the development under consideration...together with a schedule of derogations that are required for reasons specific to the project's particular circumstances...Projects submitted for the business case process will be assessed for compliance with the following:...SHPN...SHTM...The assessment considers the general areas of design being addressed by the project team as a high level verification for the board and the CIG, as such it should not be seen as a replacement for the project team's in-depth consideration of technical and other standards." The Transitional Arrangements set out in the document provided: "This guidance shall apply to all projects submitted for approval of the Initial Agreement (IA) after 1 July 2010. Projects that have not received approval of their Outline Business Case (OBC) by 1 July 2010 shall be considered for the assessment process on a case by case basis."

3.37 On 6 February 2012, Thomas Brady of Davis Langdon emailed Richard Cantlay of MML and others and advised: "The reference design team have been trying to ascertain, for some time now, if we need to complete a NDAP (NHS Design Assessment Procedure) review of the scheme...a meeting was

to be held on 20th Jan between SFT/HFS/A+DS/Scottish Government to discuss if the NDAP review procedure was a requirement for NPD Contracts." In response, David Stillie of MML responded: "Meeting did take place on 20 January and I spoke to Peter Henderson (architect) at HFS on 23 January. No clear way forward came out of the meeting but he did say that everyone present appreciated that RHSC/DCN project had been reviewed 'to death'. I was unable to get a definitive answer from him before the last RDT meeting as he wanted to discuss further with SFT. I think it now falls to NHSL, probably Brian, to move this forward with SFT. I imagine he is reluctant to raise the issue in case it prompts a further round of review meetings." SFT has told the Inquiry that it was not a matter for SFT to advise on whether or not an NDAP review was required for the Project. SFT has confirmed that its staff did attend the meeting on 20 January 2012 and forwarded the outcome of its own design review such that its interaction with other parties' assurance processes could be understood.

Commented [AG9]: SFT do not have a copy of these meeting minutes and have requested [by email on 31 January 2023] that the Inquiry provide a copy to allow SFT to confirm the content of this paragraph.

Commented [AG10]: SFT consider that explanation of its position is required here to provide an accurate picture of the whole circumstances.

3.38 In response to an earlier draft of this paper, IBI have provided the Inquiry with a Change Control Form dated 9 March 2012 that states: "Due to the reference design team being unable to obtain a clear brief from SFT, NHSL or the PME for the NDAP review please be advised that the reference design programme can no longer accommodate this review. Accordingly it has now been deleted from the Reference Design Team Scope of Works."

3.39 Given that the OBC was approved in 2008, the transitional provisions in relation to NDAP reviews applied. There was no absolute requirement for an NDAP to be completed. The Inquiry has not been provided with an NDAP review by any CP. The Inquiry Team therefore proceeds on the basis that no such review was undertaken for the project.

3.40 The OBC stated that an Achieving Excellence Design Evaluation Toolkit (AEDET) had influenced development of the Reference Design. According to AEDET Guidance Notes produced for the RHCYP/DCN, AEDET was a tool for evaluating the quality of design in healthcare buildings. The toolkit was developed in partnership by the NHS, CABE (Commission for Architecture and the Built Environment), the Construction Industry Council, and Sheffield University. It was: "specifically aimed at achieving excellence in design rather than ensuring compliance with any technical criteria or legislation." AEDET was: "designed to be used by those involved in the commissioning, production and use of healthcare buildings."

3.41 The NHSL Design Brief dated 10 June 2011 and discussed at paragraphs 3.20 and 3.21 of this paper stated that: "The Reprovision project team will use AEDET as a structure to monitor agreed standards through all stages of design to completed construction." In oral evidence given to the Inquiry on 18 May 2022, NHSL Project Director Brian Currie stated that AEDET: "was

undertaken by essentially the reference design team led by the architect for the reference design team."

3.42 According to the AEDET Guidance Notes produced for the RHCYP/DCN, AEDET split the design into ten sections to summarise how well a healthcare building complied with best practice. A score was produced for each section, indicating its strengths and weaknesses. As at 12 August 2011, Engineering, Performance and Construction scoring criteria were deemed: "not relevant at this stage in design development".

3.43 On 12 December 2011, an Independent Design Review of the RHCYP/DCN was published by Atkins Consultants Ltd (the Atkins Report). This was instructed by SFT to review the value for money of the proposed building design together with the programme-wide design objectives, namely that the design (i) met the strategic needs for efficient and effective long-term service delivery, (ii) eliminated unnecessary space, maximising the potential sharing of space and fully integrating with an efficient service strategy, and (iii) minimised the whole life costs of the building and achieved the appropriate sustainability targets.

3.44 The Atkins Report reviewed the Reference Design: "to assess value for money in the creation of the environment for patients and staff." In relation to the AEDET review of 12 August 2011, the Atkins Report noted that: "A number of elements are unable to be scored at this stage because the design is insufficiently developed. In particular performance, engineering and construction cannot be scored at this stage." The remainder of the Atkins review into the Reference Design was limited to the choice of site and ability to expand the development, access points, links to the RIE, orientation of patient bedrooms for sunlight, traffic flows within the building, and clinical adjacencies.

3.45 A later AEDET Review was undertaken on 8 March 2012. The author of this review is given as 'DH Estates and Facilities'. The purpose of the document is stated to be 'Best Practice Guidance'. Section F relates to Engineering and: "asks whether the engineering systems are of high quality and fit for their purpose, will be easy to operate and if they are efficient and sustainable." This section was 'unable' to be scored (as opposed to 'not relevant'). However, an email from SFT to NHSL advises that the Reference Design was completed before 30 April 2012. The Inquiry therefore understands that the Reference Design was significantly developed at the time of this AEDET review, and that some degree of assessment of the Engineering criteria could have been possible.

3.46 The fact that the AEDET review includes an Engineering category suggests that review of this Reference Design element was envisaged. However it is unclear to the Inquiry Team what Reference Design outputs the review was

aimed at assessing. M&E engineering specifications were produced by the Reference Design Team in the form of the Environmental Matrix, the first of which was produced specifically for the RHCYP/DCN on 3 February 2012. This constituted an engineering element of the design that was available at the time of the second AEDET review and which had a bearing on the design's efficiency and sustainability, as outlined in paragraph 3.11 of this paper.

3.47 In response to an earlier draft of this paper, IBI have advised the Inquiry that AEDET provides a toolkit for evaluating the overall design of healthcare buildings; it is not intended to involve a detailed review of the technical design or compliance with healthcare guidance. IBI have advised the Inquiry that, by 8 March 2012, it would not have been possible to review the design of the Performance, Construction and Engineering elements of the design. The outputs from the Reference Design process would have been insufficient to inform these elements. A review of these elements under AEDET would not, to IBI's understanding, have been aimed at assessing compliance with healthcare guidance such as SHTMs.

3.48 In response to an earlier draft of this paper, MML have advised the Inquiry that it was not party to the AEDET review of 8 March 2012 and therefore cannot confirm why Performance, Engineering and Construction were marked as 'unable' to be scored.

3.49 In response to an earlier draft of this paper, NHSL have advised the Inquiry that the M&E design information was always going to be limited at this stage. NHSL considers that it specified compliance with SHTM 03-01 as a minimum engineering standard and it was for the successful bidder to either develop the M&E design to that standard or otherwise seek a derogation from SHTM 03-01.

THE 'M&E REFERENCE DESIGN APPROACH PAPER'

3.50 In an M&E Reference Design Approach paper of March 2012, H&K advised that:

"The building engineering services Reference Design Envisaged Approach is set out to demonstrate that compliance with Section 6 2010 is possible and to provide the vision for an energy efficient hospital without detriment to reliability of service or comfort to the patient and staff whilst complying with all relevant statutory legislation and healthcare guidance."

The Inquiry understand that the above reference to 'Section 6 2010' refers to Schedule 5, Part 6 of the Building (Scotland) Regulations.

3.51 The M&E Reference Design Approach Paper continued:

"Although the development will be designed to maximise the use of natural ventilation, it is intended that rooms will not be reliant on natural ventilation alone, unless they comply with maximum temperature limits listed in the RDS Environmental Matrices."

3.52 The document also contains an Encode Checklist with the following questions answered in the affirmative:

- "Has every effort been made to use a natural ventilation strategy?
- If natural ventilation is not possible, can a mixed-mode approach be used?
- If mixed-mode ventilation is not possible then has every effort been made to use the most efficient ventilation in accordance with HTM guidance?"

THE 'APPROACH TO REFERENCE DESIGN' PAPER

3.53 The Approach to Reference Design paper was designed to be used as a basis for accurately conveying NHSL's intentions to bidders in relation to mandatory and non-mandatory elements of the Reference Design. MML were the lead authors, with collaboration from NHSL ~~and SFT~~. In response to an earlier draft of this paper, MML have told the Inquiry that the paper was an internal document which was not issued to bidders.

Commented [AG11]: SFT has no recollection and is not aware of any evidence to suggest that it collaborated on this paper, therefore the reference to SFT ought to be deleted.

SFT requests that, if this deletion is not accepted, the Inquiry Team provide evidence of its collaboration for SFT to review.

3.54 The latest version of the paper is Revision J, dated 28 August 2012.

3.55 Revision J states that the RHCYP/DCN project required greater input than would normally be the case in preparing a Reference Design. This was attributed to unique issues surrounding development of the facility on the existing RIE site, such as connections required to the RIE building, and the restricted nature of the site being bounded on all sides by existing infrastructure.

3.56 The Executive Summary reiterated that the project board agreed to develop a Reference Design in July 2011 to mandate elements relating to 'Clinical Functionality'.

3.57 Concerned that 'Clinical Functionality' referred to both clinical and non-clinical functions, and that this could lead to confusion, the paper agreed that 'Operational Functionality' should be used in preference. This was because: "some of the mandatory areas of the Reference Design will cover non-clinical functions".

3.58 The paper does not define 'Operational Functionality'. This was something flagged for development by the Procurement Workstream when drafting the

Project Agreement for inclusion in the ITPD. Although a definition reflecting 'Clinical Functionality' appeared in ITPD Volume 2, this was only in 2013. In Revision J, the only indication of what 'Operational Functionality' meant was that it was 'based' on the definition of 'Clinical Functionality' set out at Appendix A. This reflected the definition set out in the draft Advisory Paper by MML discussed in paragraph 2.16 of this paper. Despite this, it was stated in Revision J that the principal purpose of the Reference Design was to define 'Operational Functionality'.

3.59 Revision J provided that bidders were: "to be fully briefed on non-negotiable status of Reference Design". Any attempt by bidders to revisit its terms were to be resisted. The justification for this was that further review might lead to: "additional affordability and programme risks" and curb the benefits of having prepared a Reference Design in advance of the ITPD.

3.60 An earlier draft of the Approach paper (Revision C) highlighted a concern that existed around the willingness of bidders to adopt mandatory elements of the Reference Design. NHSL's Project Director Brian Currie, in reviewing this draft, commented:

"Concern from whom? We need to be more assertive here and just state what we will be doing... we will be controlling the process and agenda not the bidder...This is a discourse which may invite lengthy debate which we don't have time for".

3.61 Revision J also advised that those parts of the Reference Design that did not relate to Operational Functionality (named the non-mandatory elements) were for bidders to develop with freedom: "constrained only by the requirements of the Board's Construction Requirements" (BCRs). These were set out at Section 3 of Volume 3 of the ITPD.

3.62 Concern around the scope for bidders to develop their designs in light of the degree of mandatory elements was raised by Donna Stevenson, Associate Director of SFT, in a meeting on 26 April 2012 between SFT and NHSL. At this meeting, the Approach paper was discussed in detail. An email from Donna Stevenson to Brian Currie on 30 April 2012 indicates these concerns related to the shape of the building. Brian Currie provided reassurance that bidders would be able to change this.

3.63 Non-mandatory elements of the Reference Design are considered under two headings in Revision J: information that would be prepared and made available to bidders even in the absence of a Reference Design, and information that had been prepared as a consequence of preparing the Reference Design. This information was to be issued only so bidders could understand the intent of the Reference Design. It was for bidders to refer to

the BCRs for the detailed requirements, as BCRs took precedence over the Reference Design for non-mandatory matters. This was repeated in ITPD Volume 1 at paragraph 2.6: “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...”

3.64 Revision J featured the Reference Design Deliverables at Appendix B, which advised that ‘environmental parameters’ within Room Data Sheets – understood by the Inquiry Team to mean the same as ‘environmental information’ - was mandatory for bidders to adopt. However as stated previously, environmental information was not included in the definition of Clinical Functionality, which was set out at Appendix A of Revision J.

3.65 References to Room Data Sheets were removed from the remainder of the Revision J.

3.66 The Inquiry understands that the removal of references to Room Data Sheets was done to reflect the fact that NHSL instructed Nightingales to cease production of Room Data Sheets by a CCO dated 17 May 2012.

3.67 According to Revision J:

“previously in PFI and PPP projects, draft or indicative Room Data Sheets could be issued...In NPD projects with a Reference Design there is a requirement for a more complete set of Room Information to be available to Bidders”.

3.68 Revision J continued:

“The specific room requirements (the ‘Room Information’) will be detailed in a combination of:-

- The General Requirements (subsection C of the Board’s Construction Requirements);
- The Clinical Output Specifications (subsection D of the BCRs);
- The Adjacency Matrix (appendix A to the BCRs);
- The Environmental Matrix (appendix B to the BCRs);
- The Schedule of Operational/Design Notes (appendix C to the BCRs);
- The Equipment Schedule (Schedule Part 11 of the Project Agreement);
- The Schedule of Accommodation; and

- The Operational Functionality elements of the Reference Design."

This paragraph stated that the:

"Environmental Matrix specifies parameters and criteria that need to be met and for which the Bidders will be required to advise the levels that will be achieved in their particular design."

The language used in this paragraph of Revision J, together with Appendix B, indicates that the environmental information contained within the Environmental Matrix, and therefore the document itself, was intended to be mandatory for bidders.

3.69 Revision J states that the: "Operational Functionality requirements for the RHSC/DCN will be outlined in the Clinical Output Specification, the Schedule of Accommodation and the Adjacency Matrix". Clinical Output Specifications provided information in relation to the scope of departments and the operational function of the individual rooms within them. The Schedule of Accommodation specified minimum floor areas. The Adjacency Matrix specified the location of certain departments in relation to other departments. Since mandatory requirements were defined as those that set out Operational Functionality, by the logic of this statement, no other documents were intended to be mandatory for bidders to comply with.

KEY STAGE REVIEWS

3.70 The project was subject to periodic Key Stage Reviews (KSRs) conducted by SFT. These were a condition of SG funding support and designed to provide an assessment of the project's readiness before moving on to the next stage of the procurement process.

3.71 KSR 1 was issued on 4 December 2012. At Section 2.7, SFT raised issues as to the extent of mandatory elements in the Reference Design and commented that clarity was required on this in the ITPD. The final position was to be reviewed as part of the Pre-ITPD KSR (KSR 2).

3.72 KSR 2 was issued on 7 March 2013. Section 2.4 of KSR 2 picked up on Section 2.7 of KSR 1 by stating that the clarity sought by SFT had been satisfied by ITPD Volume 1, Section 2.5 (Reference Design and Mandatory Reference Design Requirements) and Appendix E (Reference Design Elements). However, as will be explained below, Section 2.5.3 raised questions regarding the significance of the Environmental Matrix.

THE INVITATION TO PARTICIPATE IN DIALOGUE (ITPD) ITPD VOLUME 1

3.73 In the lead up to the ITPD, NHSL produced mock Dialogue questions. These included: “What do you mean by Operational Functionality?”, “What do you mean by Mandatory Elements of Reference Design?” and: “We don’t use ADB for Room Data Sheets, we have our own Super Duper alternative. OK to use?” The proposed answers to these questions are set out in a Project Steering Board report of 28 March 2013. The definition given for Operational Functionality reflects what is outlined in paragraph 3.78 of this paper, while Mandatory Requirements: “Comprises the information that defines Operational Functionality.” Regarding the question on ADB, the proposed response is: “This is at your risk; we would strongly advise ADB.” As discussed above, CEL 19 provided, at mandatory requirement 7, that ADB was a mandatory tool for the design of Scottish hospitals. If ABD was deemed inappropriate, and an alternative tool or approached is used, the responsibility is placed on the health board to demonstrate that the alternative is of equal quality and value in its application.

3.74 Section 2.2(b) of the BCRs placed an obligation upon the successful tenderer to ensure their design complied with CEL 19. No documents provided to bidders, as part of the ITPD, precluded bidders from using ADB to inform their design or from testing their proposed design against the ADB.

3.75 ITPD Volume 1 Revision A was issued on 11 March 2013. The final version, Revision B, included a definition of Operational Functionality and was issued on 17 April 2013.

3.76 The purpose of the ITPD was to describe the Board of NHSL’s needs and requirements, and set out how Competitive Dialogue would be conducted. ITPD Volume 1 contained: “background information on the Project, the conditions of participation...Draft Final Tender Requirements, envisaged Final Tender requirements”.

ITPD Volume 1, Sections 2.5 and Appendix E

3.77 Section 2.5 was titled ‘Reference Design and Mandatory Reference Design Requirements’. This section reiterated that the:

“mandatory elements of the Reference Design...are those elements of the Reference Design relating to Operational Functionality. The definition used in the NPD Project Agreement is being applied to define the agreed Operational Functionality”.

3.78 This definition provided that Operational Functionality meant:

- the points of access to and within the development site and the buildings;

- the relationship between buildings;
- the adjacencies between different hospital departments;
- the adjacencies between rooms within the hospital departments;
- the quantity, description and spatial areas of specified rooms;
- the location and relationship of equipment, furniture, fittings; and
- the location of and the inter-relationships between rooms within departments but only in so far as each of these above matters related to Operational Use.

3.79 Operational Use meant the use of a room to carry out Board Services. Board Services included clinical services.

3.80 This section continued:

"For the avoidance of doubt, the Board will not enter into any Dialogue on alternative solutions to the Mandatory Reference Design Requirements".

3.81 Section 2.5.3, titled 'Room Data Sheets', provided that:

"Standard format Room Data Sheets have not been prepared by the Board for the Project. The specific room requirements (the 'Room Information') are detailed in the following documents:

- The Board's Construction Requirements;
- The Environmental Matrix;
- The Schedule of Operational/Design Notes;
- The Equipment Schedule;
- The Equipment Responsibility Matrix;
- The Draft Schedule of Accommodation; and
- The Operational Functionality elements of the Reference Design."

3.82 This section continued:

"Bidders will be required to develop Room Data Sheets, incorporating the Room Information".

3.83 Appendix E is titled 'Reference Design Elements' and sets out the full constituents of the Reference Design together with a note of each elements'

mandatory/indicative status. However, the Environmental Matrix did not feature on Appendix E. Nor did any of the Room Information documents other than the Schedule of Accommodation. BREEAM featured as an indicative element of the Reference Design on Appendix E. However, Section 2.8 of ITPD Volume 1 provided that: "Bidder's designs must achieve, as a minimum, a 'Very Good' BREEAM rating under BREEAM 2011". Designs also had to achieve an 'Excellent' rating in accordance with BREEAM Section 6.0 ENE1. This was the provision of BREEAM 2011 that H&K advised was not practical and maybe not possible.

ITPD Volume 1, Section 2.6

3.84 Section 2.6, titled 'Indicative Elements of the Reference Design', provided that Building Services Engineering Solutions was an indicative element.

3.85 Section 2.6 provided that the: "full distinction between Mandatory Reference Design Requirements and indicative Elements of the Reference Design are set out in Appendix E". As set out in the previous paragraph, the Environmental Matrix did not feature on Appendix E as a mandatory or indicative element of the Reference Design.

ITPD Volume 1, Appendix A (ii)

3.86 This Appendix was titled 'Submission Requirements'. Section C8.1 provided:

"Bidders must submit proposals setting out the engineering services design for each element of the scheme in sufficient detail to demonstrate compliance with the Board's Construction Requirements."

The Board's Construction Requirements are discussed below.

3.87 Section C8.3 provided:

"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".

3.88 Section C10.1 provided that bidders must submit an energy model showing how their design fulfilled an 'Excellent' rating in accordance with BREEAM Section 6.0 ENE1.

ITPD Volume 3

3.89 ITPD Volume 3 Revision A was also issued in March 2013. The final version issued to bidders was Revision C from August 2013.

3.90 ITPD Volume 3 consisted of Part 6 Section 3 Sub-Sections A to E of the Schedule to the Project Agreement, otherwise called 'the Board's Construction Requirements'. These set out the key design criteria for the project, with the successful tenderer needing to satisfy all the requirements therein.

3.91 This volume departs from the language of 'mandatory and non-mandatory/indicative' elements and 'Operational Functionality' as used in the Reference Design and ITPD Volume 1. Instead, 'mandatory' refers to requirements contained in certain SG guidance and regulations, such as SHTM 03-01.

3.92 At the 'Definitions and Abbreviations' section, 'Environmental Matrix' is defined as meaning:

"the Environmental Matrix, which details the room environmental condition requirements of the Board required within each department/unit/space/area...as set out in Appendix C of this Section 3...(as varied, amended or supplemented from time to time in accordance with the Project Agreement)".

3.93 At Section 8 'Mechanical & Electrical Engineering Requirements' it is stated that:

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

3.94 In ITPD Volume 3, the terms of the Environmental Matrix are framed as the Board's Construction Requirements, as opposed to being 'indicative' .

3.95 Section 2.3 'NHS Requirements', provides that:

"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".

These requirements include, at 2.3.v, that bidders shall:

"in relation to all SHTM.. .ensure that the Facilities comply with the requirements of such SHTM.. .and adopt as mandatory all recommendations and preferred solutions contained in such SHTM.. ."

3.96 Section 2.5 'Hierarchy of Standards' provided that:

"where contradictory standards/advice are apparent.. .then.. .(1) the most onerous standard/advice shall take precedence.. .The Board shall be entitled to make the final decision regarding the standards/advice to be used for the Facilities..."

3.97 Section 2.3.x provided that the successful tenderer shall achieve as a minimum a 'very good' rating under BREEAM 2011 and an 'Excellent' rating in accordance with BREEAM Section 6.0 ENE1. As previously discussed, this was the provision of *BREEAM 2011* that H&K advised was not practical and may not be possible. The Final Tender of IHSL reflected compliance with the provision.

3.98 At Section 5.26 'Energy Strategy', the successful tenderer required to: "provide Facilities that.. .Minimise internal areas requiring mechanical ventilation". At Section 8.7.8, 'Mechanical Ventilation & Air Conditioning' the need for mechanical ventilation to maintain comfort conditions was of: "paramount importance", and was to be achieved with minimum energy consumption in mind.

3.99 Section 3.6.3, headed 'Room Data Sheets' provided that Facilities must: "as a minimum, meet all the requirements specified in the Room Data Sheets included in Schedule Part 6 Section 6."

3.100 In response to an earlier draft of this paper, MML have told the Inquiry that: "reference to RDS within Volume 3 refers to the RDS that were to be designed in the future by the Preferred Bidder. Section 2.5.3 of ITPD Volume 1 makes clear that RDS were not prepared by the Board for the project or provided to bidders."

3.101 Section 8.7.22 is titled 'Ventilation and Air Conditioning of Isolation Rooms' and provides that: "Ventilation and air conditioning systems for these room shall be designed and installed in accordance with SHTM 03-01, 04-01 and NHS Model Engineering Specification C04." This statement is ambiguous in its phrasing. SHTM 04-01 concerns the design of water systems and control of legionella. SHPN 04 Supplement 1 provides guidance on specialised ventilation in isolation rooms. While the phrasing suggests reference to SHTM 04-01, the context indicates that the intention was to refer to SHPN 04 Supplement 1.

THE INVITATION TO SUBMIT FINAL TENDER (ISFT)

3.102 On 16 December 2013, the Invitation to Submit Final Tender (ISFT) Volume 1 Revision A was issued. This was the final version issued to bidders.

3.103 In their final tender submission, one of the two unsuccessful bidders flagged air changes per hour and pressure regime data in the Environmental Matrix that was inconsistent with healthcare guidance.

THE PREFERRED BIDDER'S FINAL TENDER

3.104 In their Final Tender submission of 13 January 2014, IHSL confirmed that 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 an exception basis highlighting any changes at preferred bid stage."

3.105 The same document provided that: "air change rate...shall be in accordance SHTM-03". This was also reflected in IHSL's specification brief provided to the M&E sub-contractor to implement the design. The sub-contractor was to provide a ventilation system in accordance with: "all appropriate Hospital Technical Memoranda" and the documentation listed at Appendix A of the brief. This included the ITPD Documentation, which included the Environmental Matrix.

3.106 IHSL also set out in the Final Tender their intention to proceed with a mixed mode, natural and mechanical, ventilation strategy in light of experiences from the adjacent ERI, which allowed a maximum internal temperature of 25˚C. The Final Tender also refers to 4 ACH for bedrooms and ward areas.

4 Practical Implications for the RHCYP/DCN Project arising from the adoption of the Reference Design Approach

4.1 A Project Dashboard report of 13 May 2011 provided that the Design Team: "produced a programme showing a 12 month duration to complete the Reference Design based on the schedule of deliverables issued via NHSL...and on three rounds of consultation meeting with the clinical staff". This was reviewed. It was: "looked at in order to reduce the timescale to an eight month period, one agreement being that clinical consultation will be reduced to two rounds".

4.2 This Dashboard report was tabled and discussed at a Project Board meeting of 13 May 2011. It was noted that the programme outlined was unacceptable to NHSL, SFT and SGHD given the estimated slippage in operational date from the previous capital funded project. It was further noted that the: "Reference Design Phase whilst already reduced to two rounds of clinical interface at each design stage is to be reviewed again with a view to shortening it as far as practically possible".

4.3 SG policy set out in CEL 19 provided that: "the client must...not allow design time to be squeezed in order to recover time lost in the programme for other reasons".

4.4 In the same Project Board meeting of 13 May 2011: "SFT and SGHD expressed a strong view that the period indicated for 'Competitive Dialogue'

did not reflect the production of a reference design and was based on an exemplar design. This period, in their view, needs review with a considerable reduction in duration likely."

4.5 At a Project Steering Board meeting of 9 November 2012: "SFT reiterated the need to create an attractive as possible proposition to the market given the current economic situation. SFT continued that...there was an ever more pressing need to shorten the Competitive Dialogue process. The use of a Reference Design...should, in SFT's view, allow such a compression... MB [SG Deputy Director (Capital and Facilities) Mike Baxter] commented that Scottish Government's view was that of SFT's and that there is an established general market view prevailing that the current procurement programme for this project is too long causing difficulties when considering bid intentions." After much debate, NHSL, SFT and SGHD unanimously agreed to shorten the period for Competitive Dialogue from 209 days to 155 days. The Evaluation duration was also shortened from 75 days to 39 days. This was despite the Project Team having a number of concerns about the programme, given the complexity of the project. In July 2013, changes were made to the design brief for bidders following approved derogations from the provision of single room accommodation in DCN Acute Care. On 10 July 2011, the Project Steering Board agreed to lengthen Competitive Dialogue phase by eight weeks to give bidders more time to develop compliant designs.

4.6 Revision J of the Approach to Reference Design paper refers to practical implications of the Reference Design approach on the Reference Design Team. According to Revision J, the Reference Design Team were ring fenced for Reference Design development so they could be released to join bidding teams during the procurement stage. The Inquiry Team understand this solution was formulated in response to concern in June 2011 around the ability of Reference Design Team members to join bid teams. An email exchange on 24 June 2011 between NHSL Project Director Brian Currie and Associate Director of SFT Andrew Bruce suggests that Nightingale Associates and BMJ Architects threatened to withdraw from the Reference Design process if they could not bid for the project. The potential implications of this for the project timescale created significant concern.

4.7 According to Revision J, ring fencing the Reference Design team meant there was complete separation between the Technical Advisory Team (involved in the development of procurement and contract documents) and the Reference Design Team (engaged at arm's length to develop the Reference Design).

4.8 Revision J outlines that a Design Manager was appointed to provide the linkage so that the Reference Design Team prepared a solution that was consistent with that required by the Technical Advisory Team, without giving the Reference Design Team any understanding or involvement in the

development of the procurement and contractual elements of the project. The Inquiry Team understands that David Stillie of MML was appointed to this role as Design Manager Architect and Thomas Brady of Davis Langdon as Design Manager M&E.

4.9 Revision J explained that, as the Reference Design Team were not to be retained by NHSL during the procurement period, it was envisaged that the Reference Design would be handed over to the Technical Advisory Team and actions would be taken to cover for the fact that the Reference Design Team would not be available to address queries during the procurement process.

4.10 It was proposed in Revision J that the Technical Advisory Team would need to take ownership of the design as if it was its own work. This would entail the two teams meeting regularly and the Technical Advisory Team undertaking a thorough and detailed review of the Reference Design.

4.11 In response to an earlier draft of this paper, MML have told the Inquiry that: "Prior to the Reference Design team's departure from the project, MML sought assurance that the Reference Design had been developed in compliance with applicable guidance." On 28 February 2012, Andy Duncan of MML wrote to Thomas Brady of Davis Langdon to seek this assurance. The email stated:

"There is an action on the Reference Design Team to confirm that the Reference Design complies with NHS Guidance and key legislation. I attach the requirement schedule for each of the Reference Designers to respond to. We require a statement from each designer to confirm that the Reference Design complies with the Requirements Schedule. Should it not fully comply then each designer shall confirm that the Reference Design complies with the Requirements Schedule with a schedule of derogations. We will need the compliance statement from the Reference Designers before they leave the project to work for potential bidders."

4.12 On 16 March 2012, Nightingale Associates, BMJ Architects, H&K and Arup issued a joint statement in response to this email: "relating to compliance generally and derogations." The document stated:

"issues relating to compliance shall only be relevant in so far as the proposals have generally been required to be developed to an equivalent level of RIBA Stage C."

Beneath the heading 'Reference Design Compliance Statement Requirement', the following text appears:

"Health Technical Memoranda and Scottish Health Technical Memoranda - We have followed SHTMs and also HTMs when there is no Scottish equivalent."

A full list of derogations is then included in the letter. There are no derogations relating to SHTM 03-01.

4.13 The Inquiry Team understands that this was the only occasion where environmental information within the Reference Design was officially reviewed and signed-off for compliance with healthcare guidance.

4.14 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. However, in an email from NHSL Project Director Brian Currie to Donna Stevenson on 16 May 2012, Mr Currie stated:

"Draft Evaluation criteria/ final submission requirements and scoring approach have now been prepared following workshops with Strategic (24/04) / FM (27/03) and D&C (0/4 & 01/05) work streams. To be presented to PME 24/5 before going to SFT for comment and NHSL Senior Management for final approval. Interim submission requirements being developed in parallel."

4.15 NHSL also: "received no correspondence recommending adjustment to this report [the Approach to Reference Design paper] or its recommendations from SFT." SFT have confirmed that – whilst it commented on timescales and commercial issues such as the flexibility within the reference design approach for bidder innovation, its impact on project timescales, and the ability of reference designers to join bidding consortia – SFT would not have expected to recommend adjustments to the technical details in the Approach to Reference Design paper.

Commented [AG12]: SFT consider that the additional wording is required to remove the suggestion that SFT would have been expected to review and comment on all aspects of the Approach to Reference Design Paper.

4.16 The Inquiry Team understands that once Reference Design work was completed, and Davis Langdon left the project, the project management function transferred to MML, who were the only technical advisers working on the project. This is also the position adopted by the authors of the Grant Thornton Report, which reviewed the governance and internal controls over the RHCYP/DCN project, and whose findings were accepted by NHSL.

4.17 On 8 April 2013, NHSL provided an update on requirements for Operational Functionality. The update stated: "Through Dialogue Meeting 1 it became evident that the understanding of Operational Functionality required further clarification. Feedback was given to Bidders on their specific proposals."

4.18 At a Project Steering Board meeting of 10 July 2013, the Project Steering Board were reminded that: "the project team have communicated previously growing concern of the inadequacies of the programme to deal with the level

of design development necessary for a major acute health facility regardless of the availability of a 'Reference Design'".

4.19 The minutes of a Special Project Steering Board on 22 August 2014 record that Mike Baxter (SG Deputy Director, Capital and Facilities): "asked if there was a common understanding of the requirements to sign off operational functionality and BC [Brian Currie of NHSL] responded that he didn't think this was the case". IHSL advised that they were being asked to deliver much more than on other projects, and: "considerably more than was required for comfort of Operational Functionality".

4.20 In September 2014, IHSL's own Environmental Matrix was produced by Wallace Whittle (now part of TUV SUD UK Ltd), reflecting the ITPD Environmental Matrix.

4.21 The Board of NHSL commented on this in October 2014, noting for what appears to be the first time the discrepancy between the ACH for single bedrooms within the Environmental Matrix and those required by SHTM 0301. IHSL advised this was intentional - the 4 ACH referred to mechanical ventilation only, and was intended to be supplemented by 2 ACH of natural ventilation from openable windows. IHSL believed this was what the Reference Design demanded, and this strategy was reflected in an Air Movement Report for Single Bedrooms produced by Wallace Whittle.

4.22 Mr Ian Stewart, of NHS NSS, advised Janette Richards (NHSL's Lead HAISCRIBE Infection Prevention and Control Nurse) that he was:

"...surprised at reference to the use of openable windows. This could lead to ingress of unfiltered air or egress of infectious air that could find its way to a nearby openable window (whether or not in an isolation room) or to a nearby air intake. In short, have sealed windows as this will enable air flow patterns to be controlled."

4.23 In January 2015, the Board of NHSL confirmed to MML that: "the design solution should not rely in any way with the opening windows". This was almost five years after H&K first outlined that the design would be supplemented by opening windows, a strategy reflected at Guidance Note 14 of the first Environmental Matrices of 2010 – which formed the basis of the Environmental Matrix later supplied to prospective tenderers. A ventilation design supplemented by opening windows was also investigated by H&K as part of their 2012 Ward Room Thermal Room Comfort Analysis.

4.24 At Financial Close in February 2015, the Environmental Matrix was listed as Reviewable Design Data not approved by the Board and had to be re-submitted incorporating the Board of NHSL's comments under the Schedule Part 8 (Review Procedure) of the Project Agreement between NHSL and

IHSL. None of the comments from the Board of NHSL at Financial Close related to ACH within the Environmental Matrix.

4.25 Despite the decision of the Board in January 2015 regarding single bedroom ventilation, and the categorisation of the Environmental Matrix as Reviewable Design Data in February 2015, the single bedroom ACH figures reliant on supplementary natural ventilation were not amended by IHSL in a later Environmental Matrix of 26 November 2015.

5 Provisional Conclusions

5.1 As outlined at the start, this paper seeks to set out the Inquiry Team's current understanding of the Reference Design adopted for the Project. It is provisional in nature. The paper does not constitute any findings of the Chair of the Inquiry. It is open to any CP to seek to correct and/or contradict the contents of the paper. However, unless that is done, in addition to such other findings in fact that Counsel considers appropriate, the Chair is likely to be invited by Counsel to the Inquiry to make the following findings in fact at the conclusion of the hearing scheduled for April 2023:

5.1.1 Prior to 17 November 2010, the project to replace the RHSC was proceeding as a capital funded project.

5.1.2 A team of technical advisers had been appointed by NHSL and significant design work had been undertaken.

5.1.3 On 17 November 2010, SG decided to change the funding structure of the RHSC project to an NPD funding model. NPD funding involves private finance being utilised for public sector projects with returns to the private sector being set at a capped level.

5.1.4 At the same point as the change in funding model, a decision was taken that the DCN should be co-located with the RHSC to form the combined RHCYP/DCN project.

5.1.5 SFT was responsible for assisting public sector bodies in Scotland with NPD projects.

5.1.6 NHSL determined that a 'Reference Design' should be utilised for the RHCYP/DCN project. This was intended to be shared with prospective tenderers in the procurement process and used as a springboard for bidders to develop their own designs.

5.1.7 A 'Reference Design' mandates elements that a tenderer must comply with. It can be contrasted with an 'Exemplar Design' which is

but one potential design option and tenderers are given greater latitude to develop designs.

5.1.8 Historically, Exemplar Designs had been used for Public Private Partnership projects in Scotland.

5.1.9 NHSL, SFT and SGHD supported shortening the programme for producing the Reference Design as far as practically possible.

5.1.10 NHSL, SFT and SG wished to shorten the programme to avoid the potential for slippage in the project arising from the change in funding model.

5.1.11 NHSL had responsibility for determining the detail to be included within the Reference Design and, in particular, the elements with which compliance was mandatory.

5.1.12 CEL 19 provides guidance on the approach NHS Scotland bodies should adopt when designing a new hospital.

5.1.13 CEL 19 mandated that all NHS Scotland Bodies use the English Department of Health's Activity Data Base (ADB) as a tool for briefing, design and commissioning. Where ADB was deemed inappropriate for a particular project, and an alternative tool was used, the NHS Scotland Body was required to demonstrate that the alternative was of equal quality and value to ADB in its application.

5.1.14 ADB would automatically comply with guidance and legislation applicable in England. The NHS Scotland body would need to ensure compliance with Scottish guidance, including SHTMs.

5.1.15 CEL 19 provides that design time must not be squeezed to recover time lost in a project for other reasons.

5.1.16 NHSL did not use ADB as a tool for the briefing and design stages relating to the environmental information for the RHCYP/DCN project.

5.1.17 The Inquiry has seen no documentation demonstrating: (i) why NHSL determined to deviate from using ADB; and (ii) why it considered that the alternative approach that it adopted was of equal quality and value to ADB.

5.1.18 The original Reference Design Team, in place when the project was to be capital funded, was retained by NHSL for the NPD project.

5.1.19 Members of the Reference Design Team were permitted to join a team tendering for the project.

5.1.20 The Reference Design Team were ring fenced and only dealt with the development of the design itself. The Reference Design Team were not involved in the development of the procurement documents or the contractual documents.

5.1.21 The services of the Reference Design Team were dispensed with by NHSL prior to the commencement of the procurement exercise. Accordingly, the Reference Design Team were not available to assist NHSL, or its technical advisers, during the procurement process.

5.1.22 Responsibility for the Reference Design was passed to the Technical Advisory Team when the Reference Design Team left the project.

5.1.23 Prior to the departure of the Reference Design Team, MML sought an assurance from the team that the Reference Design was compliant with NHS Guidance and appropriate legislation.

5.1.24 The Reference Design Team issued a joint document in response, stating that SHTMs (and HTMs where there was no Scottish equivalent) had been followed in producing the Reference Design.

5.1.25 This was the only occasion, prior to the conclusion of the contract with the preferred bidder, where 'environmental information' set out in the Reference Design concerning the proposed ventilation system for the hospital – including air changes per hour and pressure regimes - was formally reviewed and signed-off for compliance with healthcare guidance.

5.1.26 H&K produced an 'Environmental Matrix' for the project on 9 September 2010. This set out a range of environmental information including details of air changes per hour (ACH) and pressure regimes for various areas of the hospital. This formed the basis of a later Environmental Matrix produced by H&K, dated 19 September 2012, which was issued to prospective tenderers with the ITPD.

5.1.27 The Environmental Matrices stated that the document was an easier reference tool to replace 'ADB RDS M&E' Sheets.

5.1.28 There is currently no material available to the Inquiry indicating that the Environmental Matrices were produced using ADB.

5.1.29 On 2 June 2011, the Board of NHSL, with assistance from MML, decided that the Reference Design would set mandatory

requirements in relation to 'Clinical Functionality'. This was later redefined as 'Operational Functionality'. Environmental information had not been included in the definitions of 'Clinical Functionality' or 'Operational Functionality'.

5.1.30 The Environmental Matrix of 19 September 2012 was provided to prospective tenderers as part of the ITPD.

5.1.31 The Environmental Matrix provided with the ITPD contained environmental information that was inconsistent with healthcare guidance, namely SHTM 03-01, which outlines ventilation requirements in a hospital. In particular, values inserted in the Environmental Matrix for certain critical care areas did not comply with the guidance in SHTM 03-01.

5.1.32 ITPD Volume 1, Section 2.5.3 stated that tenderers were required to use the Environmental Matrix, and other 'Room Information' documents, to form the basis of Room Data Sheet production.

5.1.33 ITPD, Volume 3, Section 2.3 required tenderers to comply with SHTMs.

5.1.34 There was a lack of clarity in the procurement documents in relation to: (i) the purpose of the Environmental Matrix; and (ii) whether compliance with the Environmental Matrix was mandatory.

5.1.35 IHSL did not seek to change any of the values set out in the Environmental Matrix when it submitted its final tender.

5.1.36 One tenderer did seek to change values set out in the Environmental Matrix in its tender.

5.1.37 In October 2014, ACH for single bedrooms within IHSL's Environmental Matrix was flagged by the Board of NHSL as potentially non-compliant with SHTM03-01.

5.1.38 This was disputed by IHSL. IHSL maintained that it was proposing a mixed mode ventilation system – comprising of natural ventilation and mechanical ventilation - which complied with SHTM03-01.

5.1.39 NHS NSS corresponded with NHSL in relation to this dispute and expressed surprise that NHSL was considering having openable windows as part of the ventilation system.

5.1.40 In January 2015, the Board of NHSL determined that there should be no openable windows in the RHCYP/DCN.

5.1.41 This was not reflected in IHSL's Environmental Matrix submitted as part of its final tender.

5.1.42 Notwithstanding this disconnect between what the Board of NHSL wished and the solution being offered by IHSL, NHSL did not insist on any changes being made to IHSL's tender (including the Environmental Matrix submitted by IHSL) before a contract was signed.

5.1.43 NHSL entered into a contract with IHSL which stipulated that the Environmental Matrix would be 'Reviewable Design Data' under the contract. Therefore, the precise parameters for the ventilation system would be worked out after the contract was concluded.

Provisional Position Paper 3

Commented [AG1]: This paper includes comments by SFT. The comments are intended to assist the Inquiry and reflect SFT's understanding. The absence of any comment does not indicate endorsement or acceptance by SFT of any element of the paper which does not refer to SFT's role or activity. SFT is content with the paper as it refers to SFT's role, subject to the comments and suggested amendments included below.

The Procurement Process for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences

Volume 1: The Period up to the Close of Competitive Dialogue

Purpose of the Paper

This Provisional Position Paper has been produced to assist the Chair in addressing the terms of reference. It outlines the Inquiry Team's understanding of the procurement process for the award of the contract for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences (RHCYP/DCN) project (the Project). Volume 1 addresses the period from the commencement of the procurement exercise up to the close of competitive dialogue. Volume 2 will address the period from the close of competitive dialogue to the conclusion of the contract. Gaps in the Inquiry Team's understanding are also identified in both volumes. These matters will require to be explored in greater detail at the hearing set to commence on 24 April 2023. Further papers have been produced in relation to the development of the Reference Design and the Environmental Matrix.

An earlier draft of this paper was circulated to Core Participants (CP) for consideration and comment. Those comments have been considered by the Inquiry Team and taken into account in finalising this paper.

In due course, the Chair is likely to be invited by the Inquiry Team to make findings in fact based on the content of this paper. The Inquiry Team does not presently intend to lead further detailed evidence on the matters outlined in it, except where there are gaps in the Inquiry's understanding of the procurement exercise. However, it is inevitable that some of the matters covered in the paper will be touched upon to a greater or lesser extent in the hearing set to commence on 24 April 2023. In addition, it is open to any CP – through evidence or submissions – to seek to correct and/or contradict it. It is therefore possible that the Inquiry's understanding of matters set out in the paper may change, and so the position set out in this paper remains provisional. If it is the case that the Inquiry's understanding does change significantly, a revised edition of this paper may be published in due course.

Contents

1. Introduction & Overview of the Procurement Process

1.1 Following the approval of the Outline Business Case for the Project, NHS Lothian (NHSL) required to conduct a procurement exercise for the Project. The key stages in the procurement process were as follows:

(i) Publication of the Contract Notice – on 5 December 2012
The publication of the contract notice in the Official Journal of the European Union signalled the start of the procurement process. It informed interested parties of the procedure that would be adopted, the value of the contract to be awarded and the procedures that would be adopted for the award of the contract. It stated that variant bids would not be accepted. The estimated capital value of the contract opportunity (excluding VAT) was between £140,000,000 and £165,000,000.

(ii) Information Memorandum and Pre-qualification questionnaire – 5 December 2012.
The Information Memorandum (IM) and Pre-Qualification Questionnaire sought to identify prospective tenderers to invite to participate in dialogue. NHSL stated in the IM that its vision was to create a world-class facility. It confirmed that no variant bids would be accepted.

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(iii) Invitation to Participate in Dialogue (ITPD) – 12 March 2013
The ITPD set out more detail on the procurement process and the procedure for assessing the most economically advantageous tender. NHSL's requirements were detailed in the ITPD.

(iv) Competitive dialogue procedure – 12 March 2013 – 13 December 2013
The ITPD set out how the competitive dialogue procedure would work. In short, a series of dialogue meetings would take place with tenderers to discuss the development of their proposals before NHSL invited final tenders to be submitted.

(v) Invitation to Submit Final Tenders – 16 December 2013

NHSL concluded the competitive dialogue stage on 13 December 2013 and invited the submission of final tenders on 16 December 2012 by issuing a letter to bidders along with a document entitled 'Invitation to Submit Final Tenders' (ISFT) volumes 1 to 3. On 13 January 2014, final tenders were submitted by three tenderers.

(vi) Assessment of tenders and identification of Preferred Bidder – 5 March 2014 NHSL required to assess the tenders against the published criteria to ascertain the most economically advantageous tenderer. A preferred bidder was identified. No formal contract was awarded or concluded at this stage.

(vii) Publication of the Contract Award Decision – 25 March ~~2015~~2014 NHSL published a notice confirming the contract award. IHS Lothian Limited (IHSL) was the economic operator awarded the contract. The capital value of the contract was £150,014,000.

Commented [AG2]: This date is incorrect.

(viii) Conclusion of Contract and Financial Close – 12 to 13 February 2015 The contract was formally concluded between NHSL and IHSL.

2. Legal Principles

2.1 NHSL required to conduct the procurement exercise for the RHCYP/DCN in compliance with the Public Contracts (Scotland) Regulations 2012 (the 2012 Regulations). That was because the value of the proposed public contract was above the relevant financial threshold for the 2012 Regulations to be engaged.

2.2 The 2012 Regulations consolidated Scots law in relation to public procurement. They gave effect to: Directive 2004/18/EC of the European Parliament and Council of 31st March 2004 on the co-ordination of procedures for the award of public works contracts, public supply contracts and public services; Directive 89/665/EEC of 21st December 1989 on the coordination of the laws, regulation and administrative provisions relating to the application of review procedures to the award of public supply and public works contracts, as amended; and Directive 2007/66/EC of the European Parliament and Council of 11th

December 2007 amending Council Directives 89/665/EEC and 92/13/EEC with regard to improving the effectiveness of review procedures concerning the award of public contracts.

2.3 The 2012 Regulations sought to ensure open and fair competition for public contracts. The 2012 Regulations set out the procedures to be followed at each stage of a procurement process from the publication of a contract notice (the formal start of the process) through to the publication of the contract award notice (formally concluding the process and stating the party that was to be awarded the contract opportunity).

2.4 Regulation 4(3) of the 2012 Regulations required a contracting authority, at all stages of the procurement exercise, to:

(a) treat economic operators equally and without discrimination; and

(b) act in a transparent and proportionate manner.

2.5 For example, documents issued to prospective tenderers required to be drafted in a manner that would allow for uniform interpretation. Otherwise, the documentation would lack transparency. The courts adopt an objective standard when interpreting procurement documents. The key issue is how the document would be interpreted by the "reasonably well informed and normally diligent tenderer" (the RWIND Tenderer) (Healthcare at Home Ltd v Common Services Agency 2014 SC (UKSC) 247). The documentation must be sufficiently clear to permit of uniform interpretation by all RWIND tenderers.

2.6 The 2012 Regulations contained a range of options in terms of procedure. These included the 'open procedure', 'restricted procedure', 'negotiated procedure' and 'competitive dialogue procedure'. For 'particularly complex contracts', where a contracting authority considered that the use of the open or restricted procedure would not allow for the award of the contract, the contracting authority could use the 'competitive dialogue procedure'.

2.7 A 'particularly complex contract' was defined in regulation 18(1) as meaning a contract:

> "...where a contracting authority is not objectively able to –
>
> (a) define the technical means...capable of satisfying its needs or objectives; or
>
> (b) specify either the legal or financial make-up of a project or both"

2.8 The contracting authority required to ensure that the number of economic operators invited to participate in the dialogue was sufficient to ensure genuine competition (Regulation 18(13)).

2.9 The 2012 Regulations provided that during the competitive dialogue procedure, a contracting authority:

> "(a) may discuss all aspects of the contract with the participants selected;
>
> (b) must ensure equality of treatment among all participants and, in particular, must not provide information in a discriminatory manner which may give some participants an advantage over others; and
>
> (c) must not reveal to the other participants solutions proposed or any confidential information communicated by a participant without that participant's agreement.
>
> (Regulation 18(22))"

2.10 The contracting authority was entitled to conduct dialogue in successive stages. The contracting authority was also entitled to continue the competitive dialogue procedure until it could identify one or more solutions, if necessary, after comparing them, capable of meeting its needs (Regulation 18(25)).

2.11 In terms of regulation 18(26) of the 2012 Regulations, when the contracting authority declared that the dialogue stage was concluded, it required to:

(a) inform each participant that the dialogue had concluded;

(b) request each participant to submit a final tender containing all the elements required and necessary for the performance of the project on the basis of any solution presented and specified during the dialogue; and

(c) specify in the 'invitation to submit a tender' the final date for the receipt of tenders.

2.12 The contracting authority was permitted to make a request for a participant to clarify, specify or fine-tune a tender referred to in regulation 18(26)(b). However, such clarification, specification, fine-tuning or additional information could not involve changes to the basic features of the tender if those variations were likely to distort competition or have a discriminatory effect (Regulation 18(27)).

2.13 The contracting authority required to assess the tenders received on the basis of the award criteria specified in the contract notice, or descriptive document, and required to award the contract to the participant that submitted the most economically advantageous tender (Regulation 18(28)).

2.14 The contracting authority was entitled to request the participant identified as having submitted the most economically advantageous tender to clarify aspects of that tender, or confirm commitments contained in the tender, provided that any such request did not have the effect of modifying substantial aspects of the tender and did not risk distorting competition or causing discrimination (Regulation 18(29)).

2.15 The contracting authority could specify that payments were to be made to a participant in respect of the participant's expenses incurred in participating in the competitive dialogue procedure (Regulation 18(30). However, payment was optional rather than mandatory.

2.16 In terms of regulation 31, a contracting authority which awarded a public contract is required, no later than 48 days after the award, to send to the Official Journal of the European Union a notice, in the form of the contract award notice in Annex III to Commission Regulation (EC) No. 1564/2005 including the information therein specified.

2.17 A contracting authority is also required to inform any economic operator that submitted a tender, of its decision in relation to the award of the contract by way of a notice in writing (Regulation 32). The notice is required to include:

"(a) the criteria for the award of the contract;

(b) where practicable, the score obtained by–

(i) the economic operator receiving the notice; and

(ii) the economic operator to be awarded the contract;

(c) the name of the economic operator to be awarded the contract;

(d) in the case of an unsuccessful tenderer, a summary of the reasons why the tenderer was unsuccessful;

(e) in the case of an unsuccessful tenderer, the characteristics and relative advantages of the successful tender; and

(f) a precise statement of the standstill period that would apply before the award of the contract."

2.18 The 2012 Regulations imposed a standstill period before a contract could be awarded. A contracting authority required to allow the relevant standstill period to elapse before formally concluding any contract.

2.19 The obligations imposed on a contracting authority by the 2012 Regulations mirrored underlying principles of European law. Procurement exercises, with the potential for cross-border interest, had to comply with Community

obligations in addition to the 2012 Regulations. These obligations include transparency, objectivity, proportionality and non-discrimination (Henry Brothers (Magherafelt) & Others v Department for Education for Northern Ireland [2007] NIQB 116).

2.20 The obligations imposed on a contracting authority do not end at the conclusion of the contract. Any proposed 'material' change to an awarded contract could trigger the need for a new procurement exercise to be conducted (Pressetext Nachrichtenagenteur [2008] ECR I-4401 (hereinafter "Pressetext"). A proposed change will be material if it introduces conditions which, had they been part of the initial award procedure, would have allowed for the admission of tenderers other than those initially admitted or would have allowed for the acceptance of a tender other than the one initially accepted (Wall (C-91/08, 13 April 2010), at paragraphs 37-38). A change will be material if it extends a contract to include the provision of services that were not initially covered in the procurement exercise or if the change alters the economic balance of the contract in favour of a contractor in a manner not provided for in the original contract (Pressetext, paragraph 37).

3. Roles in the Project

3.1 The governance arrangements in respect of reporting structure, oversight and assurance, and project team structure, changed at various stages of the project. The key roles during the procurement phase following Outline Business Case approval are set out below.

3.2 NHSL was the contracting authority for the purposes of the 2012 Regulations. It was the 'client/owner' with overall responsibility for the procurement of the Project. The project governance arrangements agreed up to the appointment of the preferred bidder were set out in a paper for the Royal Hospital for Sick Children (RHSC) and DCN Re-provision Project Steering Board on 14 December 2012, which was noted with amendments. The Investment Decision-Maker (IDM) was the Board of NHSL, which was ultimately accountable for the project. The Board delegated oversight of the Project to the Finance and Performance Review Committee (F&PRC), which changed its name to the

Finance and Resources Committee (F&RC) in December 2012. NHSL's director of finance was the 'Project Owner'. The 'Project Owner' had the executive responsibility for decision making relating to the Project. The F&PRC established a Project Steering Board (PSB), chaired by the Project Owner.

3.3 The PSB's remit was:

- To assist the Project Owner and Project Director in the decision-making process for issues relating to the project
- To support the Project Owner and Project Director in preparing submissions to the F&RC, to satisfy that Committee's assurance needs on governance and internal control and monitoring of key performance milestones
- To serve as the Capital Management Group, with delegated authority to approve capital enabling works for the Project up to £250,000, and will be the first place to review schemes higher than £250,000
- To be the arbiter of matters arising from the implementation of the Project Design and the Strategic Delivery Programme

3.4 PSB membership included:

- Project Owner (chair)
- Project Director
- Medical Director
- Non-executive member(s) of the Board of NHSL
- A representative from the service
- Project Clinical Director

- Director of Capital Planning and Projects
- Associate Director of Finance
- Project Operational Lead
- Communications Manager
- A representative from the Lothian Partnership Forum
- A representative from the South-East & Tayside Regional Planning Group (SEAT)
- A representative from the Scottish Government
- A representative from the Scottish Futures Trust

3.5 NHSL's technical advisors were Mott MacDonald (MM). They were appointed in terms of a contract signed on 13 June 2011 and 11 October 2011, with a service commencement date of 22 March 2011.

3.6 As technical advisor, MM advised NHSL on how to set out the technical specifications for construction works, prepared all the technical schedules and drafted the invitation to participate in dialogue (ITPD). MM drafted the documents with input from MacRoberts and Ernst & Young (NHS Lothian's legal and commercial and financial advisers respectively). Thomson Gray, acting through MM, were cost consultants.

3.7 This was not MM's first involvement in the wider project for a new children's hospital. MM had been involved at an earlier stage when the project was to be capital funded. MM was originally the New Engineering Contract (NEC) Supervisor appointed under the under Frameworks Scotland agreement. That appointment was terminated when the project switched to being funded through a Non-Profit Distributing model (NPD), and MM was reappointed through a different procurement route, the OGC Catalyst framework agreement for Multi-Disciplinary Services. According to a High Level Review of Project

Arrangements conducted by PWC, MM's previous involvement in the project was a key reason for their re-appointment for the role.

3.8 MM engaged with NHSL to appoint a number of sub-contractors, also with previous experience of the project. On 10 May 2011, Davis Langdon was appointed by MM as a sub-consultant with a project management and technical advisory role. MM and Davis Langdon appointed a Reference Design Team made up of sub-contractors, with a member from NHSL taking a project interface role.

3.9 According to a Project Execution Plan, dated September 2011, NHSL's Project Director led the Project Team, made up of the NHSL Project Delivery Team and the Advisory Team. The Project Director was supported by the Commission Director and Commission Manager from MM and Lead Project Manager from Davis Langdon. Together they made up the Project Management Executive. NHSL's delivery team worked with advisors on a number of groups and workstreams, including the Business Case Task Group, and the Procurement, Commercial, Design and Construction and Facilities Management workstreams.

3.10 The Project was to be funded by way of a Non-Profit Distributing model (NPD). Scottish Futures Trust (SFT) was established as a national centre of expertise in infrastructure procurement. SFT provided assistance and expertise in relation to the management of the NPD programme. SFT was charged with maximising value for money for projects across the NPD programme and, in pursuit of that objective, had a dual role in the project: a 'support' role to provide advice to NHSL regarding NPD procurement; and an 'oversight' role.

Commented [AG3]: SFT request that this sentence be expanded to better explain SFT's role.

3.11 SFT sat on the Project Steering Board and attended meetings of the commercial sub-group and procurement workstream of the Project.

Commented [AG4]: SFT request that the Inquiry confirm whether this is a reference to the Steering Board Commercial Sub-Group Committee?

If so, SFT note that they did not attend all of these meetings and were only represented at meetings at which their presence was required. SFT would suggest that the Inquiry include the dates of meetings which SFT attended or, at a minimum, clarify that not all meetings were attended by SFT.

3.12 SFT also sought to ensure value for money for the Scottish Government, by carrying out Key Stage Reviews (KSRs) for the Project. In addition, SFT provided input to SG's Capital Investment Group (CIG) during the approval process for the Outline Business Case and Full Business Case for the Project.

3.13 SFT sat on the Infrastructure Investment Board (IIB), which has an oversight role over all infrastructure procurement in Scotland. SFT's ~~oversight~~ assurance role extended to the terms of the standard NPD project agreement and the financing terms agreed with the preferred bidder. NHSL raised operational matters directly with SFT and, if required, through NHSL's governance structures, such as at the Project Steering Board where a senior representative~~s~~ of SFT ~~were~~ was present.

Commented [AG5]: SFT suggest that there be consistency in describing SFT as having an "assurance" role rather than an "oversight" role.

Commented [AG6]: SFT note that only one senior representative from SFT was present on the Project Steering Board at any time.

3.14 Scottish Government Health Directorate (SGHD) was the government sponsor department for the Project. SGHD has ultimate responsibility for health services in Scotland. SGHD made the decision on how the project was to be funded, namely by way of an NPD model rather than a capital model. It approved the business cases and provided the funding for the RHCYP/DCN Project.

3.15 The Scottish Capital Investment Manual (SCIM) sets out the procurement process to be followed for schemes procured under Public Private Partnerships (PPPs) ~~or~~ including the NPD model in the NHS in Scotland. It includes guidance on the business case process. SFT was involved in revising the 2009 version of the SCIM Public Private Partnership (PPP) Guide to capture NPD-specific requirements.

3.16 The CIG reviewed all business case stages, including the outline business case and full business case, to recommend approval. Approval would be issued by the Chief Executive, Director General or Ministers of the SGHD. As part of their consideration of the business cases, CIG used Scottish Futures Trust's KSRs and other special input. The chair of the CIG was the Scottish Government Deputy Director (Capital Planning and Asset Management) within the Health and Social Care Directorate~~s~~.

3.17 While the Scottish Government had responsibility for ~~financing~~ funding the Project, the Inquiry Team understands that it was NHSL that made the operational decisions in relation to the procurement phase of the Project.

3.18 Health Facilities Scotland (HFS) is a division of NHS National Services Scotland. It is the NHS' centre of expertise on technical aspects of facilities and

the healthcare built environment. HFS is responsible for developing, publishing and maintaining technical standards. HFS managed the Frameworks Scotland programme under which the RHSC re-provision project was originally developed prior to the switch to NPD funding. Following this switch, HFS did not have a direct role in the procurement process for the RHCYP/DCN.

3.19 HFS could also be called upon, on an ad hoc basis, to advise on specific issues. For example, any queries related to published guidance such as Scottish Health Technical Memorandums (SHTMs).

3.20 In 2011, HFS was asked to comment on an Independent Design Review commissioned by SFT. The Independent Design Review undertaken by Atkins Consultants Ltd (the Atkins Report) assessed 'the capacity of the project to deliver value for money by meeting the strategic aims of the programme; by making best use of space and opportunities for maximising sharing with other assets; and by minimising the whole-life costs,' and did not focus on or contain information relating to the technical aspects of engineering systems. The Inquiry Team understands that HFS was not called upon to advise on, or review, technical information relating to the ventilation system for the RHCYP/ DCN prior to a preferred bidder being identified by NHSL.

4. Project Oversight and Assurance

4.1 Following the switch to the NPD model, SFT had a significant role in project assurance, by carrying out 'Key Stage Reviews'. Each review was an assessment of whether the project was suitably developed in terms of 'Project Readiness'; 'Affordability'; 'Value for Money'; and 'Commercial Robustness'.

4.2 The KSR process had operated for PPP projects in Scotland prior to the establishment of SFT by Partnerships UK. Partnerships UK was set up in 2000 to succeed the Treasury Taskforce. The KSR process ~~superseded~~ augmented the Gateway Review procedure for NPD Projects.

Commented [AG7]: The Gateway Review procedure still existed at the beginning and end of the process.

4.3 Scottish Government raised the issue of whether there was a potential conflict between SFT's advisory role on the Project Board and its role in project assurance/review.

4.4 The potential conflict was addressed within SFT by separating the role of providing support to ~~advice on~~ the Project (including membership of the Steering Board) and the role of undertaking project assurance through reviewing and signing off KSRs. SFT's role was clarified by Peter Reekie and Mike Baxter at the Project Steering Board on 25 January 2013.

Commented [PR8]: SFT consider further clarification is necessary here.

4.5 SFT's role is set out in a number of documents including:

i. letter from the Scottish Government to the NHS Board Chief Executives dated 22 March 2011.

ii. letter from Peter Reekie on behalf of SFT, to Jackie Sansbury, of NHSL, dated 1 June 2011.

iii. email exchange between Barry White (SFT Chief Executive) and James Barbour (Chief Executive of NHSL) on 22 July 2011.

iv. document entitled 'Role of SFT in Project Delivery – RHSC/DCN Project' dated 21 July 2011.

v. SFT guidance, 'Validation of Revenue Funded Projects, the Key Stage Review Process', December 2011

vi. SFT document titled 'Project Assurance', May 2013.

4.6 'Project Assurance' (document vi above) outlined how SFT would undertake the KSR process:

"7. SFT Resourcing of KSRs

...KSRs provide a formal checklist for project teams to consider in relation to their project and also provide a benchmarking opportunity to test the

readiness of projects in advance of key milestones in the procurement process. They are designed to require the reviewer, as well as the reviewee, to consider whether the project teams: a) have sufficient clarity over the requirements of the competitive dialogue process, b) have the necessary information and resources available for the tender process to be run efficiently and c) are satisfied that the project will produce a good value for money outcome. In order to ensure a degree of separation between the immediate project team and project sponsoring department and to incorporate external commercial expertise...

...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. This approach ensures that KSRs are carried out with no external cost to SFT or the project sponsor. In addition, 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 SFT staff member as part of his or her ongoing project support role. This reduces the overall delay impact of reviews and ensures that the review process is integrated into the overall project development. It also allows relevant aspects of the review to be considered on an ongoing basis.

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. Consequently, the KSR pro-forma checklists have been updated and relevant guidance made available to project teams as well as SFT staff members undertaking KSRs.

The approach has now been fully operational for 12 months and feedback from project teams and sponsors has been entirely positive."

4.7 SFT's dual role was also expected to provide benefits in respect of oversight. With SFT sitting on the Project Board and advising on ad hoc issues it was anticipated that SFT would be alert to issues as they arose and could help ~~to~~ resolve them on an ongoing basis with NHSL, without needing to wait for the formal KSR review process where matters could be escalated to the senior decision-making forums. ~~the matter to the Scottish Government.~~ According to the document prepared by SFT entitled 'Role of SFT in Project Delivery – RHSC/DCN Project':

> "...In the unlikely event that agreement on key issues cannot be reached then a three way discussion would take place between the Chief Executives of SFT and NHS Lothian and the Finance Director of NHS Scotland. Beyond that, referral to firstly the Infrastructure Investment Board and secondly Ministers remain as options should very significant issues remain unresolved.
>
> The benefit of SFT's dual role is to reduce the chances of significant issues being raised during the approvals process or elsewhere and therefore reduce the chances of delay to the Project."

Commented [AG9]: SFT suggest this wording be amended to accurately reflect the correct process.

4.8 The Inquiry Team understands that KSRs do not ~~have a strong~~ focus on technical details and do not ~~expressly~~ consider compliance with SHTMs. However, in conducting KSRs, SFT would seek assurance on a number of aspects of the project which may include, for example, compliance with Project requirements. KSRs are the point at which issues or risks could be flagged and highlighted.

5. Guidance and Stages of the Procurement Process

5.1 Some of the guidance relating to NPD projects was still being developed ~~when~~ when the RHCYP and DCN project was changed from capital funding to NPD~~the procurement process started for the RHCYP and DCN project~~. Although certain guidance may not have been published, SFT provided NHSL with NPD-specific advice.

5.2 The guidance below was applicable to the procurement process of the RHCYP and DCN re-provision project from the date of publication:

1) Treasury Green Book, 2003

2) Procurement Handbook and Scottish Procurement Policy Notes, 2008

3) Scottish Government's General Procurement Guidance – Competitive Dialogue

4) Scottish Capital Investment Manual (SCIM) 2009 with amendments

5) SCIM Supporting Guidance: Design Assessment in the Business Case Process (2011)

6) Scottish Government Construction Procurement Manual

7) Scottish Public Finance Manual, 2011

8) A policy on Design Quality for NHSScotland, CEL (2010) 19 read in conjunction with the accompanying 'SCIM Supporting Guidance: Design Assessment in the Business Case Process (2011)', specifically section 1.4 Transitional Arrangements. Prior to 2 June 2010, 'A policy on design quality for NHSScotland' HDL (2006) 582 would have applied.

9) Policy on Sustainable Development for NHSScotland, CEL (2012) 23

10) Prior to 25 January 2012, 'Environmental Management Policy for NHSScotland' HDL (2006) 214 would have applied.

11) Scottish Futures Trust (SFT) Validation of Revenue Funded Projects: The Key Stage Review Process Information Note to Projects, 2011

12) SFT Value for Money (VfM) Assessment Guidance, 2011

13) SFT Value for Money Supplementary Guidance for projects in £2.5 billion Revenue Funded Investment Programme October 2011

14) SFT NPD Guidance Note on Approach to Tender Evaluation, 2013

15) SFT, Standard Project Agreements (hub DBFM & NPD Model) User's Guide June 2011.

16) SFT, Standard Project Agreements (hub DBFM & NPD Model) User's Guide June 2012.

5.3 SFT prepared the following standard NPD contract documents:

1) SFT, Standard Form Project Agreement (NPD Model) 2 June 2012

2) SFT, Standard Form Project Agreement (NPD Model) July 2011

3) SFT NPD Articles of Association, 2011

4) SFT NPD Articles of Association, 2012

5) SFT NPD Articles of Association, Nov 2014 ESA amendments

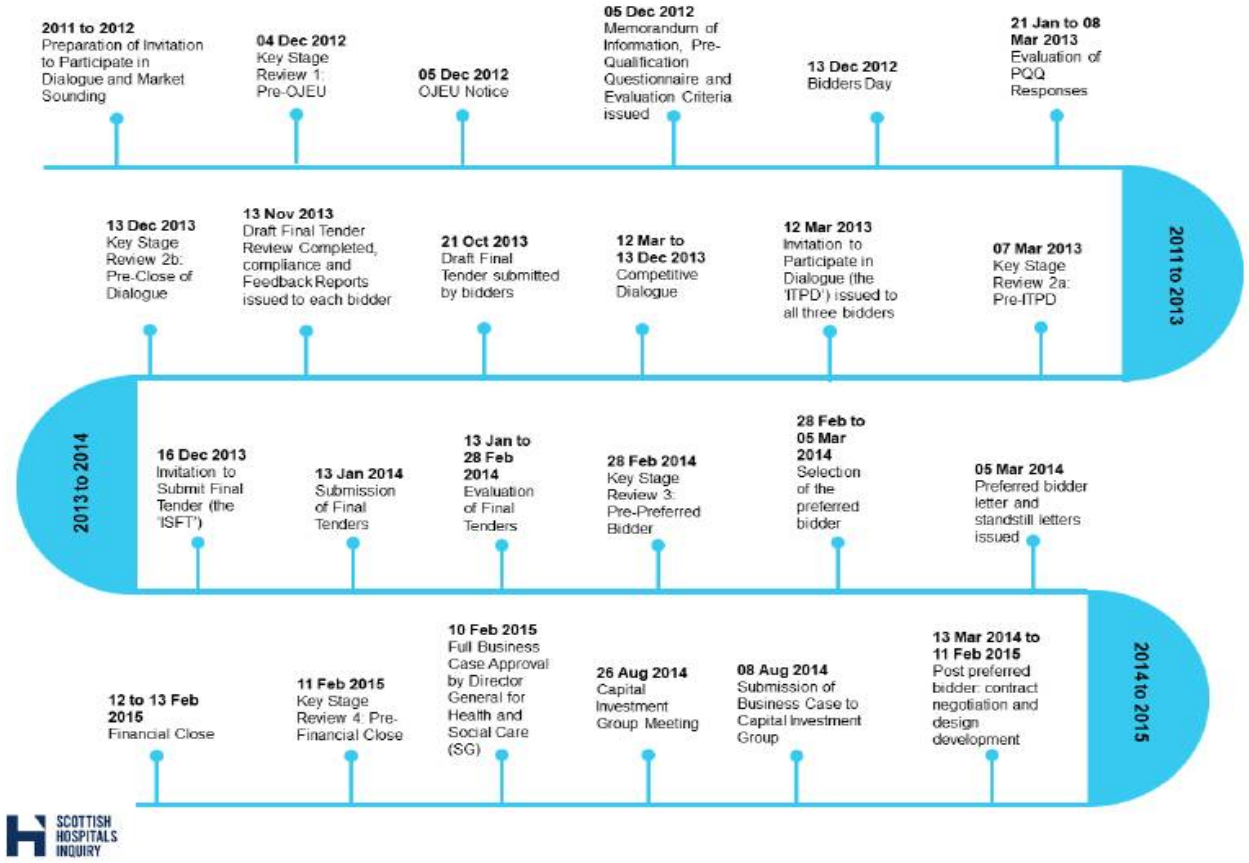
6) SFT NPD Articles of Association, Feb 2015

5.4 Procurement timeline with dates

Preparation of Invitation to Participate in Dialogue and Market Sounding	2011- 2012
Key Stage Review 1: Pre-OJEU	4 December 2012
OJEU Notice	5 December 2012
Memorandum of Information, Pre-Qualification Questionnaire and Evaluation Criteria issued	5 December 2012
Bidders Day	13 December 2012
Evaluation of PQQ Responses	21 January 2013 to 8 March 2013
Key Stage Review 2a: Pre-ITPD	7 March 2013
Invitation to Participate in Dialogue ('the ITPD') issued to all three bidders	12 March 2013
Competitive Dialogue	12 March 2013 – 13 December 2013
Draft Final Tender submitted by bidders	21 October 2013
Draft Final Tender Review completed, Compliance and Feedback Reports issued to each bidder	13 November 2013
Key Stage Review 2b: Pre-Close of Dialogue	13 December 2013
Invitation to Submit Final Tender (the 'ISFT') issued to all three bidders	16 December 2013
Submission of Final Tenders	13 January 2014

Evaluation of Final Tenders	13 January 2014 to 28 February 2014
Key Stage Review 3: Pre-Preferred Bidder	28 February 2014
Selection of the preferred bidder	28 February – 5 March 2014
Preferred Bidder Letter and standstill letters issued	5 March 2014
Post preferred bidder: Contract Negotiation and Design Development	13 March 2014 to 11 February 2015
Submission of Business Case to Capital Investment Group	8 August 2014
Capital Investment Group Meeting	26 August 2014
Full Business Case Approval by Director General for Health and Social Care	10 February 2014
Key Stage Review 4: Pre-Financial Close	11 February 2015
Financial Close	12 February 2015 – 13 February 2015

PROVISIONAL POSITION PAPER 3



6. Preparation for Procurement

6.1 During 2011 and 2012 NHSL, with the assistance of advisers and SFT, planned how to undertake the procurement of the RHCYP/DCN Project. This included: market sounding; progressing the design; preparing a programme with target dates for key milestones and preparing the Invitation to Participate in Dialogue (ITPD) which marks the start of a period of Competitive Dialogue.

6.2 Competitive Dialogue is a process through which bidders engage with the procuring authority to refine tender submissions to ensure they meet the contracting authority's stated requirements. At the end of Competitive Dialogue, the final tenders are submitted by the Bidders and evaluated by a Core Evaluation Team in accordance with the agreed evaluation criteria and methodology. Detail on the Competitive Dialogue process, tender submission requirements, the evaluation criteria and weightings, and the Board's Construction Requirements for the Project are all contained within the ITPD.

6.3 Market Sounding

6.3.1 Market Sounding usually takes place before the publication of the contract notice. According to the SCIM NPD Guide Section 2: From OJEU to Contract Award, market sounding is useful in situations where assessment of the viability of the project reveals it to be 'borderline', or there are unusual elements in the project. Approaching the market should provide insight into the likely level of interest in the market but without giving any one potential participant a head start in the procurement process. Actions taken at this stage must not prejudice the future procurement process.

6.3.2 SFT carried out programme level market sounding. This involved speaking to market participants to gather insight as to whether there would be bidders for the project and whether or not the project would be 'bankable'. The principal question of the market sounding was "is there a market for 25-year project finance?" That was anticipated to be the greatest challenge in the period following the global financial crisis.

6.3.3 Prior to the procurement process, MM and Davis Langdon spoke to contractors about the intention to go to market. The aim was to explore the market's reactions to the potential procurement options under consideration, specifically, the extent to which NHSL would develop the design of the hospital, and which aspects of the design would be the responsibility of bidders. The options were as follows:

- Option A – Mandate Clinical Functionality;
- Option B – Mandate Full Design;
- Option C - Mandate More Detailed ~~Exam~~ Design and Novate; and
- Option D – Exemplar Design

6.3.4 This is referred to at section 5 of the paper titled: 'NHS Lothian RHSC + DCN Little France – Procurement Options' (June 2011) which states:

> "5. Soft Market Testing. A soft market testing exercise was conducted to gauge the market's view on the above proposals. The organisations approached were Morgan Sindall, Brookfield, Galliford Try Investments and Morrison Construction. Each respondent was asked if it they were interested in bidding the project as an NPD. All except 1 confirmed they would be. Each respondent was advised of the option A, B & C approach. The consensus was that bidders would prefer the design to be treated as an exemplar to enable them to have the freedom to truly innovate on the project. Whilst option A gives some degree of flexibility, this was considered to be fairly limited. None of the respondents could see a benefit in Option B over options A & C. And this was considered to be the least favourable. Given that clinical functionality is being fixed under Option A and the ability to innovate is limited by this, all of the respondents preferred Option C primarily because it significantly reduces bid costs. All respondents confirmed that they would be comfortable with a full risk transfer under all 3 options (with the exception of clinical functionality). None of the respondents expressed a concern about the

incumbent design team joining another bidder. The respondents felt that they can engage with other designers who may be able to significantly improve what has been carried out to date."

6.3.5 Project-specific market testing was also undertaken by NHSL, described in the Pre-OJEU Key Stage Review:

"NHS Lothian's Project Director and Director of Capital Planning & Projects have responded to market interest in the project by meeting with representatives of firms potentially interested in bidding for the project.

These meetings commenced from shortly after the procurement route change and have continued to the current date. It is planned that these informal discussions will cease before publication of the OJEU notice.

There have been a variety of bid managers and similar coming forward and the Board representatives have received differing levels of assurance as to the respective corporate interest and depth of consortium members in the project - see abridged list attached.

It is clear from the meetings that initial concerns over a dominant bidder have been alleviated, subject to this being borne out through procurement contract documentation.

Similarly, all the interested parties have indicated high level engagement with SFT regarding the project as part of the NPD programme. NHS Lothian has not been represented at SFT meetings, but the project working group has received feedback from SFT consistent with our informal discussions.

The abridged list attached has been produced for the sole purpose of CIG consideration of the Outline Business Case and should not be more widely distributed.

The Board at this time cannot confirm that there will be multiple bidders as that will be dependent on a positive response from the market to the project..."

"The Project Director and Director of Capital Planning & Projects and/or Associate Director of Finance have met with the following parties (listed alphabetically) to maximise their knowledge of the project, pre-procurement, and to elicit the levels of interest forthcoming. Where a consortium has been identified, this is shown as a single entry.

All have demonstrated a track record in major UK healthcare/PFI/PPP projects, except FCC whose experience is international.

1. BAM/Balfour Beatty
2. Bouygues
3. Brookfield
4. Carillion
5. FCC
6. John Laing Investments/Laing O Rourke
7. Skanska/Miller

More recently, Carillion advised that it did not intend to bid and the Board considers that Bouygues and FCC are not likely to proceed".

6.4 **Reference Design**

6.4.1 On 12 January 2011 the Finance and Performance Review Committee approved the use of a reference design for the RHCYP/DCN project. The Reference Design essentially involved providing bidders with a more developed design than would otherwise be the case with an exemplar approach and was

a factor in decisions regarding the programme for procurement, and the tender evaluation criteria and weightings. It also had implications for what bidders were expected to produce in their final tenders, and how the requirements for bidders were set out in the ITPD. MM developed and advised on the 'Approach to Reference Design' in 2011 and 2012. The Reference Design is the subject of a separate Provisional Position Paper by the Inquiry Team.

6.4.2 A reason for choosing a reference design approach was to retain as much of the design work already undertaken before the Project switched to a different funding model. Amongst the design work already in development was an 'Environmental Matrix' (EM), prepared by Hulley and Kirkwood (H&K). H&K were M&E engineering consultants sub-contracted by MM when the Project was being procured under Frameworks Scotland and appointed again to form part of the Reference Design team in 2011.

6.4.3 The EM set out the environmental conditions for all the rooms in the hospital. This included the specifications for the ventilation system. The EM is addressed in a separate PPP. The EM was included within the Invitation to Participate in Dialogue (ITPD) that was sent to all bidders. The ITPD outlined NHSL's requirements for the hospital and explained what bidders would need to submit in their final tenders to demonstrate that they could meet those requirements, or they would need to highlight derogations.

6.5 **Procurement Programme**

6.5.1 All parties were concerned about the timescale for the Project and wished to avoid unnecessary delay. The Project Steering Board Action Notes of a meeting of 13 May 2011 record that the proposed timetable was unacceptable to NHSL, SFT and SGHD given the estimated slippage in operational date from the previous capital funded project.

6.5.2 SFT was keen to reduce timescales, where possible, without impacting the effectiveness of the process. SFT suggested areas where NHSL could look to shorten the programme.

6.5.3 In June 2011, in a paper titled 'Procurement Paper', Gordon Shirreff (SFT) raised the possibility of 'down selecting' to ~~one~~ two bidders. The decision was taken not to down-select. This became a factor in discussions about the programme, described below.

Commented [AG10]: SFT do not have a copy of this paper and have requested [by email on 31 January 2023] that the Inquiry provide a copy for review to allow SFT to comment on this paragraph.

6.5.4 On 27 June 2011 a 'Procurement Workstream Meeting' was held, at which Brian Currie (Project Director, NHSL), Gordon Shirreff (SFT), Denise Kelly (Davis Langdon), Paul Hampson (MM) and David Cunningham (Davis Langdon) were present. Ahead of that meeting Paul Hampson circulated additional papers to all attendees including, 'Developed procurement/CD programme'. The minutes record:

> "A revised procurement programme was circulated, with suggested days for CD activity included. Discussions took place around format of meetings. 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".

6.5.5 The Minutes of the Project Steering Board Meeting of 11 May 2012 note amongst the benefits of the Reference design that it "shortens Competitive Dialogue Phase" and "minimises abortive design cost for unsuccessful bidders."

6.5.6 On 24 October 2012, Donna Stevenson (Associate Director, SFT) emailed Brian Currie (NHSL) in relation to the programme, stating:

> " ...Programme and Down selection. We think that the programme is longer than it need be in certain respects...In the context of the Board's view that there [sic] all three bidders should be taken through to final tender we consider that the dialogue period of over 8 months could be shortened particularly in the context of the advanced stage of the reference design and the Board's views on the extent of mandatory

elements. The other area where we consider that there is the potential for a reduction in timescale is the period for return of tenders and evaluation, in the dialogue and draft final tenders process."

6.5.7 At a project meeting with SFT regarding "Procurement and Competitive Dialogue Issues", held on 26 October 2012, the following points were raised:

"...SFT's view that a reference design approach allows for less design development through competitive dialogue, therefore lower costs for bidders than without. However, it also increases the threshold for bidder engagement in the first instance. With the market being wary of bid costs, a longer programme is a disincentive.

...

Down selection would take extra time as a step not yet accounted for. It would improve the chances of bidders committed to final submission costs and could therefore be popular with the market.

Discussion re: shortening competitive dialogue period to lengthen time from appointment of preferred bidder to financial close.

[Susan Goldsmith (NHS Lothian)] expressed anxiety if bidders reduced from three to two, particularly if one of the bidders was associated with the current PFI partner. Taking three bidders from ITPD to final submission continues to be NHSL's preferred route."

Commented [AG11]: SFT note that this is not an accurate representation of their position at the time. SFT were of the opinion that the reference design approach would in fact **decrease** the threshold for bidder engagement.

SFT refers the Inquiry to paragraph 109 of Peter Reekie's witness statement of April 2022 in which he states that SFT promoted the reference design approach for bidders as it would "*reduce procurement timescales and procurement costs, particularly for bidders as it would reduce the need for multiple designs to be produced by multiple bidders during the bid period.*"

6.5.8 The PSB minutes of 9 November 2012 state:

"Project Procurement Update

Further to an email from SFT [Peter Reekie] of 1st November 2012 to NHSL [Susan Goldsmith] instructing NHSL, as a condition of funding, to reduce the current length of Competitive Dialogue and consider down selecting, a proposal has been prepared by the Project Team for the Project Steering Board's consideration.

Commented [AG12]: SFT do not have a copy of this email and have requested [by email on 31 January 2023] that the Inquiry provide SFT with a copy of this email for comment.

Down Selection

All agreed that given the particular circumstances of this project and the need to maintain a "level playing field" continuously through the procurement process down selection to two bidders would not be prudent.

Compression of Competitive Dialogue + Tender Evaluation Programme.

SFT reiterated the need to create an attractive as possible proposition to the market given the current economic situation. SFT continued that given the decision not to down select, seen as attractive to the market, there was an ever more pressing need to shorten the Competitive Dialogue process. The use of a Reference Design and a Standard Form of Agreement should, in SFT's view, allow such a compression.

The issue of market attractiveness was queried by BC [Brian Currie] who through soft market testing was only aware of one potentially credible bidder from four who had expressed concern that they may not be able to secure Board approval to bid for the project given the potential bid costs. BC added that one potential bidder had expressed concern that too short a programme may inhibit their ability to offer an appropriate package and sufficiently robust tender to secure their Board approval.

[Mike Baxter] commented that Scottish Government's view was that of SFT's and that there is an established general market view prevailing that the current procurement programme for this project is too long causing difficulties when considering bid intentions.

An alternative compressed programme of some 155 days to close dialogue compared to current duration of 209 days was tabled by BC and the merits or otherwise discussed at length by all parties present. The Evaluation duration has also been shortened from 75 days to 39 days in this alternative programme. Be advised that this programme did give the

Project Team a number of concerns, particularly given the complexity of the project.

After much debate, all present unanimously agreed to adopt the compressed programme. NHSL, however, stated that their reservations remain and that in practice the decision to close dialogue would still dictate the achievement of this revised programme.

NHSL to communicate the following actions to the project team immediately:

1 OJEU Notice release date to be set as 26th November 2012.

2 Bidders Day to be set for 3rd December 2012.

3 The PQQ period is to be extended to allow for the Festive Period with a return date of 11th January 2013.

4 The activities and durations proposed in the "Compressed Programme (as per SFT Condition of Funding)" recently prepared are to be adopted in full.

5 Financial Close is to **remain** as 7th August 2014.

6 All other milestones/dates and activities post FC are to remain as the current programme

...

8 Down Selection of Bidders will **not** be adopted. Current strategy to prevail ie., 3 Bidders through to close of dialogue and final tender..."

6.5.9 The revised timetable as of 30 November 2012 was as follows (changes in bold):

Stage	
OJEU Dispatch	**5 December 2012**
Bidders Day	**13 December 2012**
Submission of PQQs	**21 January 2013**
PQQ Evaluation and shortlist	**8 March 2013**
Issue Invitation to Participate in Dialogue to shortlist	**11 March 2013**
Submission of Final Draft Tenders	**30 August 2013**
Submission of Final Tenders	**22 November 2013**
Announce Preferred Bidder	Early 2014
Financial Close & contract award	Summer 2014
Start on site	Autumn 2014
Building operational	Summer 2017

6.6 **The Core Evaluation Team and development of tender evaluation criteria and weightings**

6.6.1 The PSB was responsible for signing off the tender evaluation criteria and weightings that the Core Evaluation Team would use to assess bidders' proposals and be included in the ITPD. The Inquiry Team's understanding is that bidders would be expected to focus time and resources on elements that, firstly, have a pass or fail scoring and secondly, carry the highest weightings.

6.6.2 Papers presented to the F&PR Committee on 18 April 2012 proposed membership of the Core Evaluation Team and outlined the proposed Scheme of Delegation for Procurement:

> "3.18 The Core Evaluation Team will be led by the Project Director, supported by a lead from each of the technical, financial and legal

advisers. In addition, the Project's full time Clinical Director will be on the Core Evaluation Team

3.19 As agreed by the Committee on 8 February 2012, the Director of Capital Planning & Projects and the Associate Director of Finance will join the core evaluation team for the duration of the procurement phase. In agreement with SFT and SGHSCD, the Director of Capital Planning & Projects will fulfil their requirement for a commercial lead for the Board on the evaluation and competitive dialogue phases through to Financial Close. The Executive Director responsible for the procurement is the Director of Finance. It is important that consistency of membership of the Core Evaluation Team is maintained across the whole bid programme and engagement with bidders.

3.20 The core evaluation team will be supported by specialist groups led by NHS Lothian personnel including Partnership and Facilities. These groups feed into the dialogue process through the core evaluation team and will engage with specific elements of the bidding process appropriate to those functions. These groups will be further supported by the Project Team and advisers, supplemented by identified leads from NHS Lothian Employee Relations, eHealth, Health and Safety and Procurement."

6.6.3 The scheme of delegation was as follows:

"The Project Steering Board will sign off the Invitation to Participate in Dialogue (ITPD) evaluation criteria following technical, legal and financial input and workshops involving members of the Project Steering Board and evaluation groups.

The outcome of the PQQ scoring will be presented to the Project Steering Board, by the Core Evaluation Team, with recommendations that the three highest scoring submissions be invited to proceed to competitive dialogue. The Project Steering Board's recommendation will be brought to the Finance & Performance Review Committee for approval on behalf of the Lothian NHS Board.

In the same way, the outcome of competitive dialogue and the scoring of final submissions will be presented to NHS Lothian Finance & Performance Review Committee with the recommendation from the Project Steering Board, to approve the preferred bidder."

6.6.4 The (Finance and Performance Review) F&PR Committee agreed the membership of the Core Evaluation Team and agreed the proposed scheme of delegation for the non-profit distribution procurement process as outlined in the paper.

6.6.5 The Core Evaluation Team included:

Sorrel Cosens – Project Manager, NHSL

Brian Currie – Project Director, NHSL

Iain Graham – Commercial and Legal Lead, NHSL

Janice Mackenzie – Clinical and Service User Lead, NHSL

Carol Potter – Financial Lead, NHSL

Jackie Sansbury - Operations and Commissioning Lead, NHSL

Andrew Orr – Lead Legal Adviser, MacRoberts

Michael Pryor – Lead Financial Adviser, Ernst & Young

6.6.6 As competitive dialogue was being adopted, the award criteria to be utilised was the "most economically advantageous tender". The factors for evaluating economic advantage of the bid included: period for completion or delivery, quality, aesthetic and functional characteristics, technical merit, after-sales service, technical assistance and price.

6.6.7 According to the SFT NPD Guidance Note on Approach to Tender Evaluation, ~~SFT requires a 60:40 price versus quality split~~ SFT requires a 60:40 price versus

quality split in the absence of project-specific factors that might indicate otherwise. This is justified in paragraph 5, page 4, where it is stated that:

Commented [AG13]: SFT consider that this further explanation is necessary.

> "Procuring authorities should be mindful of the fact that, in contrast to previous revenue funded programmes, there is now more scope to manage the risk of poor quality proposals. The reasons for this include (i) use of exemplar/reference designs that give bidders greater clarity on the procuring authority's expectations (ii) a narrower range of FM services to be included in the projects and (iii) opportunity to use the competitive dialogue procedure to ensure that bidders develop proposals that meet the procuring authority's requirements. Combined with a shift in focus in the current financial climate to 'needs' rather than 'wants', and in order to capitalise on the opportunity in the current financial climate to take advantage of competitive pricing, this suggests that it is appropriate for price to carry a heavier emphasis than it perhaps has in the past.
>
> 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%.
>
> In developing a tender evaluation strategy, it will be important to run sensitivities, based on likely bidding scenarios for the project. SFT will review each project's evaluation methodology to ensure that the mechanisms that are applied in scoring the individual elements of price and quality do not undermine the overall relative weightings that they carry."

6.6.8 NHSL were concerned that the 60% weighting for price and 40% weighting for quality undervalued quality. In a paper to the Finance and Performance Review Committee dated 18 April 2012, Susan Goldsmith and Jackie Sansbury explained the approach to be taken by the PSB:

> "The evaluation criteria will now be influenced by guidance produced by Scottish Futures Trust for the pipeline of NPD projects. This sets out high level thresholds of at least a 60%/40% weighting for cost and quality. The

Project Team are working with the legal, financial and technical advisers to recognise the cost of quality and to ensure that the Board's key quality objectives are fully met. The reference design for the Project already sets a high design quality threshold and bids will be assessed on the basis of pass/fail. A workshop with Project Board representatives and key project stakeholders is to be held shortly to fully define the 'cost of quality' and articulate the detailed design criteria beyond the reference design standard. This has been described as 'what will the Board be willing to pay more for'. This requires to be balanced against the SGHSCD/SFT approach to 'ensure as economic an outturn as possible and not to assume that all the budget is available without challenge'".

6.6.9 Between March and April 2012, NHSL held a first round of workshops to determine the elements that would make up the overall quality score. Workshops were attended by the Core Evaluation team and individuals from NHSL's advisers, namely MM and Davis Langdon. An ITPD Evaluation Workshop on 'Design and Construct' (which includes mechanical and electrical engineering) took place on 10 April 2012. According to the meeting schedule:

> "The purpose of the workshop is to review and agree in outline, the Design & Construct Evaluation Criteria. The first part of the work shop will be to agree the criteria and then those that should be deemed pass or fail and those that should be marked. Each of the criteria will then be examined in greater detail to obtain agreement, in outline, the issues each of the criteria should address. The importance of each criteria will also be assessed on a high, medium, low scale so that marking can be allocated for agreement with the forum attending at a later date. This will be carried out following a review of the feedback received from the Strategic and Management Evaluation Workshop and the FM Evaluation Workshop."

6.6.10 An NHSL document with the draft ITPD evaluation criteria was produced in advance of the workshop. For 'D8 M&E engineering service design', the document stated that:

"Bidders shall provide an environmental conditions/room provisions matrix for both mechanical and electrical services for each room in the Facilities.

Whilst Bidders are required to undertake their own design, NHS Lothian has provided draft matrices as part of the ITPD. Bidders are required to complete their matrices in identical format, or confirm general acceptance of NHS Lothian's draft matrices, highlighting differences on an exception basis."

6.6.11 CEL 19 (2010) is addressed in detail in the Reference Design and Environmental Matrix PPPs. It required NHSScotland bodies to utilise room data sheets produced using the ADB (Activity Database) system for briefing, design and commissioning of new hospitals. If a different tool is to be adopted, the onus is placed on the NHS body to demonstrate that it is of equal value. It is not clear to the Inquiry Team why a 'matrix' was adopted by NHSL and how it had been demonstrated that this approach was of equal value to room data sheets produced using the ADB system. This issue will require to be explored with witnesses at the hearing diet commencing on 24 April 2023.

6.6.12 The first page of the document stated that the scoring approach was 'Scored' as opposed to 'Pass/Fail'. However, the detailed breakdown for D8 proposed the scoring approach as "Pass/Fail or marked to relate to comfort". The comments section stated "high as it relates to environmental comfort".

6.6.13 MM and Davis Langdon also produced a draft of the ITPD evaluation criteria 'for discussion' where M&E engineering service design proposals were scored 'medium'.

6.6.14 A second draft of the ITPD evaluation criteria was produced, dated 24 April 2012. The scoring of D8 "clarity, robustness, quality and level of M&E engineering service design proposals" was now assessed as "medium" with a suggested marking of 1%. No comment has been provided for the change in scoring approach.

6.6.15 A second and third round of workshops were held from June to August 2012 to discuss and agree the criteria and weightings for 'Strategic and Management Approach', 'Design and Construct' and 'Facilities Management', as well as the weightings split between these three categories. The "draft ITPD evaluation criteria calibration scoring" was approved by the Project Steering Board on 10th August 2012.

6.6.16 In June 2012, NHSL's financial advisors, Ernst and Young, provided advice on the evaluation framework for the final evaluation of bids and developed an evaluation methodology that sought to incorporate features that maximise the impact of quality evaluation. The approach, aimed at achieving the desired balance between price and quality while still meeting SFT requirements that price accounts for 60% of the available marks and quality 40%. This was also addressed in a further discussion paper produced in September 2012 entitled "Combining Price and Quality in Evaluation".

6.6.17 According to the paper produced by Ernst and Young in September 2012:

- "The majority of quality evaluation elements are assessed on a pass/fail basis, with the scored element reserved for key differentiating factors.
- Commercial considerations are dealt with entirely within the price score, freeing the available quality marks to be focussed on design, build, FM and management/strategic issues.
- The lowest price bid is awarded the maximum 60 marks. The quality mechanism has been set up so that the highest scoring quality proposals are given the maximum 40 marks, with the quality score of other bids being marked in proportion to this.
- The price marks awarded are calibrated so that proposals that are close in price terms are given similar price marks, thus making the quality score more likely to be the deciding factor. As price differentials become greater, the price marking system becomes

more sensitive so that a bid significantly more expensive than the lowest priced will lose a far higher number of price marks."

6.6.18 On 26 October 2012 at a Project Meeting took place with SFT on 'Procurement and Competitive Design Issues'. The paper by Ernst and Young was discussed. According to the minutes of that meeting:

Commented [AG14]: SFT do not have a copy of these minutes and have requested [by email on 31 January 2023] that the Inquiry provide a copy so SFT can review.

> "PR [Peter Reekie, SFT] emphasised that there was no intention to undervalue quality in the standard form proposed by SFT and that the reference design allows NHSL to specify a high degree of quality in mandatory criteria. SG [Susan Goldsmith, NHSL] accepted that the building will be of good quality, following the work of the reference design to specify the Board's requirements, and highlighted NHSL's need to find a partner for a 25 year relationship beyond construction was a critical quality issue.
>
> It was agreed that the distribution curve used for price evaluation is sensitive. NHSL to focus on finalising the curve and review FM weightings on ITPD questions.
>
> Pass/fail questions
>
> Discussion about questions with a clear compliance threshold that bids could be judged to simply pass or fail. Agreed that NHSL would revisit these questions.
>
> Awarding the maximum quality score to the highest scoring bid
>
> The Project Agreement (PA) outlines the high quality threshold set; any derogations to change the minimum standards suggest that the Project Co are expecting to fail to deliver what NHSL has specified is a quality service. Derogations have to be agreed.

Consensus that there should be a mechanism for adjusting the scores and NHSL will review the legal and commercial elements to be scored against 'price'.

Awarding the maximum score of 40 to the highest scoring bid in terms of quality

Agreed that rather than pursue the proposal to automatically award a maximum score of 40 to the highest quality bid, NHSL would look at calibrating the quality threshold. DO'K [Dennis O' Keeffe] suggested that the quality threshold should be based on performance, process and product.

MB [Mike Baxter, Scottish Government] supported the need to reassure staff and Board members that NHSL will not accept bids below a 'quality threshold', and this should be determined."

6.6.19 Scottish Ministers accept that they were aware of the discussion regarding the percentage weighting for price and quality but consider that this was a decision for NHSL.

6.6.20 In the final ITPD, a pass/fail threshold was used for some elements. This approach was adopted to ensure a minimum standard to which bidders must comply before progressing to the next stage in the procurement process. The scored elements were used to differentiate between bidders who had already met the minimum requirements.

6.6.21 The final break-down of the quality evaluation criteria included within the ITPD was as follows:

Strategic and Management Approach – 5%

Approach to Design and Construction – 23%

Approach to Facilities Management – 12%

6.6.22 The 'Approach to Design and Construction' was made up of 31 separate criteria, of which 12 were scored and the rest assessed on a pass or fail basis.

Quality Evaluation Criteria Reference	Quality Evaluation Criteria	Quality Evaluation Basis	Quality Evaluation Criteria Weighting
C1	Clarity, robustness and quality of approach to meeting the stakeholders requirements in their design	Scored	2.64
C2	Clarity, robustness and quality of approach to design quality	Scored	1.85
C3	Clarity, robustness and quality of architectural and landscape design	Scored	2.64
C4	Clarity, robustness and quality of approach to delivering innovation	Scored	2.64
C5	Clarity, robustness, and quality of approach to adaptability and flexibility	Scored	2.64
C6	Clarity, robustness and quality of way finding and signage proposals	Scored	1.06
C7	Clarity, robustness and quality of interior design proposals	Scored	2.64

Quality Evaluation Criteria Reference	Quality Evaluation Criteria	Quality Evaluation Basis	Quality Evaluation Criteria Weighting
C8	Clarity, robustness and quality of M&E engineering design proposals	Scored	1.06
C9	Clarity, robustness and quality of natural and artificial lighting proposals	Scored	1.06
C10	Clarity, robustness and quality of energy management proposals	Scored	1.85
C11	Clarity, robustness and quality of equipment proposals	Scored	1.06
C11A	Compliance with Minimum Level of Group 1 Equipment	Pass/Fail	
C12	Compliance With Mandatory Reference Design Requirements	Pass/Fail	
C13	Acceptable approach to achieving planning permission	Pass/Fail	
C14	Acceptable vertical and horizontal movement strategy	Pass/Fail	
C15	Acceptable ICT strategy	Pass/Fail	
C16	Acceptable fire planning strategy	Pass/Fail	

Quality Evaluation Criteria Reference	Quality Evaluation Criteria	Quality Evaluation Basis	Quality Evaluation Criteria Weighting
C17	Acceptable structural design proposals	Pass/Fail	
C18	Acceptable services, utilities and infrastructure proposals	Pass/Fail	
C19	Acceptable approach to achieving required BREEAM rating	Pass/Fail	
C20	Acceptable post Preferred Bidder stage design development proposals and design programme	Pass/Fail	
C21	Compliance with Board's Construction Requirements	Pass/Fail	
C22	Acceptable design life proposals	Pass/Fail	
C23	Acceptable construction programme and approach to monitoring	Pass/Fail	
C24	Clarity, robustness and quality of construction methodology	Scored	1.85
C25	Acceptable approach to commissioning and handover	Pass/Fail	

Quality Evaluation Criteria Reference	Quality Evaluation Criteria	Quality Evaluation Basis	Quality Evaluation Criteria Weighting
C26	Acceptable approach to quality and environmental management systems	Pass/Fail	
C27	Acceptable approach to health and safety management	Pass/Fail	
C28	Acceptable approach to compliance with CDM regulations	Pass/Fail	
C29	Robustness of technical costs	Pass/Fail	
C30	Acceptable list of summary assumptions, clarifications and derogations	Not scored	
C31	Acceptable Interface Proposals	Pass/Fail	

6.6.23 A 'Pass' would be awarded if the Bidder's approach:

- Demonstrates a satisfactory understanding of the Board's requirements; and
- delivers a satisfactory level of compliance with the Board's requirements.

6.6.24 There was no further elaboration on what would be deemed 'satisfactory'.

6.6.25 C21 concerned 'Compliance with Board's Construction Requirements'. It was scored on a 'Pass/ Fail' basis.

6.6.26 C8 'Clarity, robustness and quality of M&E engineering design proposals' was given a quality evaluation criteria weighting of 1.06. C10 'Clarity, robustness and quality of energy management proposals' was given a weighting of 1.85. These are the elements that relate to bidders proposals for ventilation design. These were lower than other criteria, such as interior design, architectural and landscape design, adaptability and flexibility, which had a score impact of 2.64.

7. OJEU Notice, Pre-Qualification Questionnaire and the Memorandum of Information

7.1 The Project was advertised to prospective bidders through publication of a contract notice in the Official Journal of the European Union (OJEU). According to the Scottish Capital Investment Manual Section 2 paragraph 4.4, the NHS body 'should be ready to issue the Memorandum of Information and a Prequalification Questionnaire to everyone who responds to the contract notice and these documents should be prepared in advance of issuing the contract notice in OJEU.'

7.2 The Scottish Capital Investment Manual Section 2 paragraph 4.5 states, the Memorandum of Information and accompanying Pre-Qualification Questionnaire should aim to:

- "enable potential participants to decide whether they want to continue to be involved in the bidding process by providing appropriate information about the NHS body, the project and its prospects;
- invite expressions of interest in bidding for the project from the private sector;
- obtain information that will establish whether potential participants are technically and financially capable of delivering the project. NPD contracts are complex and expensive to procure. NHSScotland bodies

must ensure that only consortia with the appropriate resources and skills-base are selected;

- enable the NHSScotland body to gain an understanding of the economic, financial and technical status and previous experience of the potential participants."

7.3 Regulations 23-26 of the Public Contracts (Scotland) Regulations 2012 set out the criteria for the rejection of economic operators, information as to economic and financial standing and information as to technical or professional standing that can be used as qualifying criteria to determine the suitability of prospective tenderers.

7.4 According to a report produced for the Finance & Performance Review Committee on 18 April 2012:

> "The OJEU notice has been approved by the Project Steering Board. The date for the Bidders Day to launch the project onto the market cannot be set until approval of the OBC and to proceed to OJEU has been granted.
>
> The information and Pre-qualification Questionnaire (IM/PQQ), with evaluation criteria, have been developed through the Commercial Workstream with NHS Lothian's technical, legal and financial advisers, and with direction from SFT...The content has been approved by the Project Steering Board and the designed documentation will be shared as a final draft with NHS Lothian Directors in mid-April."

7.5 The Outline Business Case was approved on 18 September 2012 although it was noted in the approval letter that the OJEU notice could not be issued until negotiations with Consort regarding enabling works were successfully concluded. On 4 December 2012, Derek Feeley, the Director General Health and Social Care and Chief Executive of NHS Scotland sent a further letter approving the publication of the OJEU notice subject to certain conditions, including the successful completion of the Pre-OJEU Key Stage Review.

7.6 The Pre-OJEU KSR was completed on 4 December 2012. It confirmed that 'The draft OJEU, PQQ and Information Memorandum have been completed, subject to final points checking and have been reviewed by the Board's advisers and SFT's comments have also been taken into account.' The OJEU Notice was published on 5 December 2012.

7.7 The Memorandum of Information (IM) provided information about: the procuring authority; the project and opportunity; the site and work to date; the project management arrangements; the completion and submission of PQQ responses; conditions for participation; and the pre-qualification evaluation process. Annex 1 contained the Pre-Qualification Questionnaire.

7.8 The IM explained that the PQQ evaluation would comprise the following stages:

> all PQQ submissions submitted in accordance with the PQQ submission requirements...will firstly be checked by the Board for compliance and completeness. Non-compliant and/or incomplete PQQ submissions may be rejected by the Board
>
> the Board will then carry out a preliminary assessment of each remaining PQQ submission to evaluate the 'Pass/Fail' questions. If a Candidate is assessed as failing any such question their PQQ submission will be rejected by the Board. Candidates should note that the preliminary assessment will include an assessment of each remaining Candidate's financial standing submission(s) and any Candidate's PQQ submission assessed as failing the financial standing evaluation will be rejected by the Board.
>
> the Board will then carry out a detailed assessment of each remaining PQQ submissions to evaluate the scored questions. During the detailed assessment the Board will calculate a score for each remaining PQQ submissions using the section weightings and question sub-weightings shown in the evaluation table at paragraph 8.6...

...The scored questions identified in the evaluation table at paragraph 8.6 will be scored using the scoring system described at paragraph 8.4."

7.9 Paragraph 8.4 of the IM stated: "Evaluation guidance is provided in the PQQ for each question that will be scored. Unless otherwise indicated, responses to each question will be scored out of 10 and based on the degree to which the response covers the range of factors specified in the relevant evaluation guidance and as appropriate/relevant to the question, depth of understanding of the issues and/or quality of examples and experience".

7.10 The evaluation table at paragraph 8.6 of the IM included the following details:

Section	Subject	Status	Question Sub Weighting	Section Weighting
A	The Candidate			30%
	General Information	Not scored		
	Resourcing	Scored	30%	
	Capacity	Scored	10%	
	Working Together	Scored	30%	
	Conflicts	Pass/Fail		
	Raising Finance	Scored	30%	
	Financial capacity & economic standing	Pass/Fail		
		Sub-weighting Total	100	
	Construction Contractor: minimum turnover	Pass/Fail		
	Construction Contractor: minimum financial standing	Pass/Fail		
	Subordinated Debt Providers: minimum financial standing	Pass/Fail		
	CDM ACoP	Pass/Fail		
B	Construction Contractor			30%
	General information	Not scored		
	Healthcare experience PPP	Scored	40%	
	Healthcare experience non-PPP	Scored	20%	
	Experience operational site	Scored	15%	

Section	Subject	Status	Question Sub Weighting	Section Weighting
	Other experience	Scored	10%	
	Claims	Scored	5%	
	References	Not scored separately		
	Quality	Pass/Fail		
	Health & Safety	Pass/Fail		
	Environmental	Pass/Fail		
	Employment	Pass/Fail		
	Employment	Scored	5%	
	Employment	Scored	5%	
	Employment	Pass/Fail		
		Sub-weighting Total	100	
C	FM Service Provider			30%
	General information	Not scored		
	Healthcare experience PPP	Scored	45%	
	Healthcare experience non-PPP	Scored	25%	
	Other experience	Scored	15%	
	Claims	Scored	5%	
	References	Not scored separately		
	Quality	Pass/Fail		
	Health & Safety	Pass/Fail		
	Environmental	Pass/Fail		
	Employment	Pass/Fail		
	Employment	Scored	5%	
	Employment	Scored	5%	
	Employment	Pass/Fail		
		Sub-weighting Total	100	
D	Designated Organisations*			30%
	General information	Not scored		
	Healthcare experience PPP	Scored	40%	
	Other PPP experience	Scored	20%	
	Healthcare experience non-PPP	Scored	25%	
	Other experience	Scored	15%	
	References	Not scored separately		
		Sub-weighting Total	100	

Section	Subject	Status	Question Sub Weighting	Section Weighting
E	PQQ declaration	Not scored		
F	Statement of Good Standing	Not scored		
			Weighting Total	100%

7.10.1 "* Each designated organisation will be scored separately with sub-weighting split evenly across them."

7.11 The IM also stated, at paragraph 8.5, that: "Following the detailed assessment stage, the Board shall rank the remaining Candidates in numerical order against their cumulative score. A short list of Candidates to be invited to participate in the dialogue stage shall be drawn up. The Board only intends to select three Candidates for inclusion on its short-list. The three short-listed by the Board shall be those achieving the highest scores during detailed assessment."

7.12 Three candidates submitted a PQQ response: B3 (also referred to as 'Candidate A', later 'Bidder A'); Integrated Health Solutions Lothian (also referred to as 'Candidate B', later 'Bidder B' or 'IHSL'); and (c) Mosaic (also referred to as 'Candidate C', later 'Bidder C').

7.13 Evaluation of PQQ responses and the preparation of the PQQ shortlist took place from 21 January 2013 to 8 March 2013.

7.14 The PQQ Core Evaluation Team included: Brian Currie (NHSL Project Director), Carol Potter (NHSL Associate Director of Finance), Iain Graham (NHSL Director of Capital Planning & Projects) Jackie Sansbury (NHSL Chief Operating Officer), Janice Mackenzie (NHSL Clinical Director), Richard Cantlay (MM Technical Advisor), Michael Pryor (Financial Advisor with Ernst & Young) and Andrew Orr (Legal Advisor with MacRoberts).

7.15 The Core Evaluation Team received Evaluation Support, including technical advice on design, construction and facilities and management. The lead on design and construction was Andrew Scott (MM) and on Facilities Management was Simon McLaughlin (Davis Langdon). The Evaluation Support team also received additional specialist support. Specialist support on NHSL Infection

Control was provided by Fiona Cameron, head of NHS Lothian Infection Prevention & Control Services.

7.16 At the PSB meeting on 25 January 2013, Peter Reekie (Director of Finance and Structures, SFT) requested that NHSL consider accelerating the evaluation of PQQ due to the relatively low number of returns received. Brian Currie responded:

> 'due and proper process is upper most in the evaluation team's mind and that a detailed programme of evaluation activities has been agreed which may prove difficult to re organise at short notice. However, the intention is to make final recommendation to next P St Bd on the 22nd of February, some 7 business days ahead of current programme A subsequent extraordinary F+R Meeting may be required to be called to authorise progression to dialogue – SG to advise. 11th March commencement of dialogue remains target."

7.17 Brian Currie gave the outcome of the PQQ evaluation process in a paper presented to the PSB held on 22 February 2013. Mosaic scored 75 out of 100, B3 scored 74, and IHSL scored 72. The PSB unanimously approved the recommendation that all three candidates be invited to participate in dialogue.

7.18 IHSL's scores for 'Candidate' and 'Designated Organisations' pulled their overall score down. The 'Candidate' refers to the bidding consortium, while 'Designated Organisations' include sub-contractors identified by the bidding consortium to provide particular services. Other parties assessed in the PQQ are the Construction Contractor and FM Contractor. For IHSL's bid, the 'Candidate' was IHSL, the 'Construction Contractor' was Multiplex, the 'FM Contractor' was ETDE, FM and 'Designated Organisations' included HLMAD, Wallace Whittle and Robert Bird.

7.19 In the PQQ candidate feedback for IHSL it was noted that "that Wallace Whittle have no health PPP experience." NHSL has advised the Inquiry Team that although Wallace Whittle may not have previously worked on a health PPP project, they had both health and PPP experience separately. MM have advised

the Inquiry Team that Wallace Whittle having no health PPP experience was flagged as something to be aware of, but it would not prevent a client moving forward with that consortium. The evaluation process looks at all parts of a consortium team. MM informed the Inquiry Team that in it's experience, it is unrealistic to expect that there would ever be a perfect consortium. A lack of PPP experience cannot lead to a "fail" and instead the bidder will be scored with fewer marks.

8. Bidders Day

8.1 A bidders day was organised for 13 December 2012. Susan Goldsmith, Director of Finance (NHSL) gave an overview of the project, Peter Reekie, Director of Finance (SFT), gave insight into the wider NPD pipeline and Brian Currie, Project Director (NHSL), gave detail on the project, the reference design and the procurement process.

8.2 ~~The~~ Brian Currie's speaker~~s~~ notes for the bidders day contain the following information relating to design documentation:

Commented [AG15]: It is not clear which speaker the Inquiry is referring to. SFT suggests that the wording is accordingly amended to clarify.

> "To clarify what we really mean by a Reference Design:
>
> What were the attractions given the departure from previous PPP/PFI projects where an "exemplar" design was the norm?:
>
> - assists with the OBC and accuracy of pre-procurement costing.
> - provides greater certainty over the final design solution.
> - assists significantly in defining a quality threshold.
> - optimises the input required from stakeholders and in particular clinicians and clinical management teams.
> - utilises programme time available as a result of essential parallel activities prior to commencement of procurement.
> - reduces risk and bidding costs to bidders, we would contend.
> - shortens the competitive dialogue phase.

...

Mandatory Requirements Comprises the information that defines Operational Functionality* and is indicated in:

- Interdepartmental Layouts (1:500)
- Departmental Layouts (1:200)
- Room Layouts (1:50) for Key and Generic Rooms Compulsory Requirements
- Planning in Principle as granted by The City of Edinburgh Council.
- Interface, access/egress and infrastructure provisions enshrined in (SA6 + SA Enabling)
- Clinical, D+C and FM Output Specs.

The Reference Design drawings are a diagram or graphical representation of these requirements.

*We refer to Operational Functionality as opposed to Clinical Functionality since some of the mandatory areas of the Reference Design will cover non-clinical functions such as Supplies, Storage, Distribution and Waste Management (Soft FM) and ICT Requirements).

Operational Functionality means:

- The point of access to and within the development, buildings and departments.
- The adjacencies between different departments.
- The adjacencies between rooms within the departments.
- The quantity, description and areas of those rooms and spaces shown on the Schedule of Accommodation.

The level of design development can be described as approximating to RIBA Plan of Work Stage C + (Concept Design) and covers 52% of all spaces at 1:50 scale including the key and generic rooms.

Bidders will be required to generate up to 10 other room types at 1:50 scale for final tender with the remainder being concluded before Financial Close.

Room Data Sheets

Standard format Room Data Sheets have not been prepared by the Board for the Project instead specific room requirements are detailed in a combination of the following documents:

- General Requirements
- Clinical Output Spec
- Environmental Matrix
- Schedule of Operational/Design Notes
- Equipment Schedule
- Schedule of Accommodation
- Operational Functionality elements of the Reference Design

Note: Bidders will be required to develop Room Data Sheets as part of their proposals. The full set of RDS will be completed from appointment of Preferred Bidder to Financial Close.

Schedule of Accommodation

The Schedule of Accommodation, based on the Reference Design drawn layouts, along with the Target or Model (Minimum) Schedule of Accommodation will be issued to Bidders.

This 'Drawn' Schedule of Accommodation for Plant Rooms and Hard FM Rooms is indicative only and should certain other rooms vary in area

terms from the Model Schedule this is acceptable on a specific room only basis.

Indicative Requirements

Bidders will be encouraged to propose innovative solutions in response to:

- Information that has been developed to verify the feasibility of the Reference Design in terms of architecture and engineering.

- Information developed for issue to Bidders in regard to site and servicing information. Bidders must however refer to the Board's Construction Requirements for the detailed requirements for all such indicative elements of the Reference Design for which they may ultimately carry the risk.

Note: The Board's Construction Requirements will always take precedence over the Reference Design for matters which do not define Operational Functionality."

9. The Invitation to Participate in Dialogue (ITPD)

9.1 The ITPD sets out the contracting authority's requirements and the information needed by bidders to prepare their tenders. According to the SCIM:

> "A well drafted and comprehensive ITPD is vital to the smooth running of a project. It will help the participants produce accurate proposals and will avoid misunderstandings that can lead to later problems."

9.2 The SCIM recommends that the ITPD should follow a 'standard form' and include:

- Volume 1: Instructions to Participants (include schedule of deliverables, weightings and contact details)

- Volume 2: Standard Form Project Agreement including project specific amendments
- Volume 3: Technical Specification for Construction Works
- Volume 3 Annex A: Clinical Output Specifications
- Volume 3 Annex B: Non-clinical Output Specification
- Other standard documents will form further appendices

9.3 The ITPD issued for the RHCYP/DCN project is comprised of four volumes:

9.3.1 Volume 1: This set out the general requirements of NHSL in relation to the Project, including:

i. Background information on the Project;

ii. the arrangements for competitive dialogue;

iii. use of the Reference Design including mandatory and indicative elements and the concept of Operational Functionality;

iv. the informal submissions bidder should provide;

v. the Draft Final Tender requirements and the envisaged Final Tender requirements;

vi. evaluation requirements and the evaluation weighting criteria; and

vii. Appendix A(ii) – Submission Requirements.

9.3.2 Volume 2: This set out the contractual requirements of NHSL in relation to the Project in a 'NPD Project Agreement' and 'NPD Articles of Association'.

9.3.3 Volume 3: known as the 'Board Construction Requirements' sets out the specific technical requirements of NHSL in relation to the Project, these being the

construction (clinical and non-clinical) requirements, equipment requirements and facilities management requirements:

i. Appendix A included 'interface with Campus Site and/or Campus Facilities.

ii. Appendix B included the Interface Output Specification.

iii. Appendix C included the draft Environmental Matrix.

9.3.4 Volume 4: This sets out the Data Room available to bidders, which was used for sharing information.

9.4 The following section of this paper provides extracts from the ITPD that relate to

- NHSL's requirements for mechanical and electrical engineering, specifically with regard to the ventilation system;
- the design documents in which ventilation requirements are captured and which bidders were expected to produce; and
- the status of the information contained in or with the ITPD.

9.5 The ITPD was revised during Competitive Dialogue to reflect changes to NHSL's requirements.

9.6 Volume 1

9.6.1 An 'Important Notice' at the beginning of Volume 1 of the ITPD states:

> "Any summaries or descriptions of documents or contractual arrangements contained in any part of the Invitation cannot be and are not intended to be comprehensive, nor any substitute for the underlying documentation (whether existing or to be concluded in the future) and are in all respects qualified in their entirety by reference to them."

9.6.2 Section 2 of Volume 1: 'Technical Overview' provides an overview of the technical requirements of the Project. Section 2.4.1 provides an overview of the design and construction elements and states:

> "The specific requirements for the Facilities to be provided are set out in the Board's Construction Requirements. This comprises: -
>
> - General Requirements;
> - Specific Clinical Requirements; and
> - Specific Non-Clinical Requirements.
>
> The Board's Construction Requirements are set out in Section 3 of Volume 3 of the ITPD and will ultimately form Section 3 of Schedule Part 6 (Board's Construction Requirements) of the NPD Project Agreement...
>
> .... it should be noted that certain elements of the design as they relate to aspects of Operational Functionality are mandatory, as described below and in Appendix E (Reference Design Elements) of Volume 1 of the ITPD."

9.6.3 Section 2.5 sets out the 'Reference Design and Mandatory Reference Design Requirements' (this is addressed in detail in the Inquiry's PPP on the Reference Design). The sub-sections describe design documents that bidders were required to develop as part of their bids and, if successful, during the preferred bidder stage. It also explains which elements of these design documents had already been developed as part of the reference design. Section 2.5 addressed a number of issues including:

> 2.5.1 Schedule of Accommodation and Reference Design Schedule of Accommodation
>
> 2.5.2 Room Layouts
>
> 2.5.3 Room Data Sheets.

9.6.4 Section 2.5 does not explicitly address requirements relating to building services engineering solutions, mechanical and electrical engineering or ventilation more specifically. However, section 2.5.3 does contain information on room data sheet production.

9.6.5 Section 2.5.3 sets out the requirements for the production of Room Data Sheets and mentions the Environmental Matrix as a source of 'room information' to be used to compile room data sheets:

> "Standard format Room Data Sheets have not been prepared by the Board for the Project. The specific room requirements (the 'Room Information') are detailed in a combination of the following documents:
>
> - The Board's Construction Requirements;
> - The Environmental Matrix;
> - The Schedule of Operational/Design Notes;
> - The Equipment Schedule;
> - The Equipment Responsibility Matrix;
> - The Draft Schedule of Accommodation; and
> - The Operational Functionality elements of the Reference Design.
>
> During Dialogue Bidders will be required to develop Room Data Sheets, incorporating the Room Information, for those rooms for which 1:50 layout drawings have been prepared. For the avoidance of doubt this shall include all Key Rooms and Generic Rooms in addition to those rooms identified in the table at paragraph 2.5.2 above. The Room Data Sheets will form part of the Bidders proposals. The Preferred Bidder will be required to complete Room Data Sheets for all remaining rooms prior to Financial Close."

9.6.6 Section 2.6 of the ITPD Volume 1 addresses 'Indicative Elements of the Reference Design':

> "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:
>
> - FM goods handling and distribution;
> - Structural engineering solutions;
> - Building services engineering solutions;
> - Servicing strategies and space allocations; and
> - Hard FM solutions and space allocations.
>
> This constitutes the 'Indicative Elements of the Reference Design'.
>
> Such information is issued to the Bidders for "information only" so that they may understand the intent of the Reference Design. Bidders must however refer to the Board's Construction Requirements for the detailed requirements for all such Indicative Elements of the Reference Design for which they will ultimately carry the risk. 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. The full distinction between Mandatory Reference Design Requirements and Indicative Elements of the Reference Design are set out in Appendix E (Reference Design Elements)."

9.6.7 Mechanical and Electrical/Building Services Engineering solutions is not included in Appendix E as a mandatory element of the reference design. The Environmental Matrix, which contains specifications for the ventilation system amongst other things, is also not included. However, the Environmental Matrix is referred to in the Board's Construction Requirements.

9.6.8 Section 2.8 of the ITPD volume 1 addresses Building Research Establishment Environment Assessment (BREEAM):

> "Bidder's designs must achieve, as minimum, a 'Very Good' BREEAM rating in line with the requirements for healthcare facilities as set out in the BREEAM Scheme Document for New Construction (SD5073) 2011. The designs must also achieve a minimum of 6 credits ("Excellent" rating) in accordance with the BREEAM Scheme Document for New Construction (SD5073) Section 6.0 ENE1."

9.6.9 Section 2.9 of the ITPD Volume 1 addresses Sustainable Design and Quality:

> "Bidders are required to promote sustainable development by demonstrating an integrated approach to the social, environmental and economic well-being of the area served, now and for future generations. The Facilities will reflect the objectives of any local agenda strategy supported by the CEC and also satisfy the requirements of all health and social care guidance notes, as set out in Board's Construction Requirements associated with sustainability and environmental performance."

9.6.10 Information relating specifically to ventilation requirements is set out in 'Appendix A (ii) – Submission Requirements', under section C (Approach to Design and Construction). Appendix A states that "The technical submission requirements submitted by the Bidders in response to section C (Approach to Design and Construction) below will ultimately form part of Project Co's Proposals in accordance with the NPD Project Agreement." Relevant sections are reproduced in the table below.

Table: Summary of submission requirements relating to ventilation in Appendix A (ii) – Submission Requirements, ITPD Volume 1.

Quality Evaluation Criteria & Reference	Quality Evaluation Basis	Quality Evaluation Criteria Weighting	Submission Requirement reference and submission requirement
C8. Clarity, robustness and quality of M&E engineering design proposals	Scored	1.06	C8.2 Bidders must submit proposals setting out how their design will be developed to include the following: ... iii. How temperature, ventilation and comfort for occupants will be maintained in accordance with the minimum criteria and how, if possible, these criteria will be improved; iv. How the quality of the environment and prevention of sick building syndrome shall be ensured; vi. How sustainability has been incorporated into their design, including details of the maintenance and operation philosophy for all mechanical and electrical equipment; The following information should be also be provided to help demonstrate the design proposals noted above, including: x. An environmental conditions / room provisions matrix for both mechanical and electrical services for each room in the Facilities; ...

Quality Evaluation Criteria & Reference	Quality Evaluation Basis	Quality Evaluation Criteria Weighting	Submission Requirement reference and submission requirement
			C8.3 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.
C10. Clarity, robustness and quality of energy management proposals	Scored	1.85	C10.1 Bidders must submit proposals setting out their approach to energy management. This should be provided as set out in C10.1 and C10.2 below. Bidders must submit an energy model, complete with supporting information, demonstrating how their design solution will achieve an optimum level of energy and utility conservation (linked with the requirement for a sustainable development in C4) and show that their design fulfils the following: ... iv. The inclusion of passive design strategies for ventilation and thermal control. The environmental control system is to be coordinated and integrated with the design of the structure and the occupied areas in order

Quality Evaluation Criteria & Reference	Quality Evaluation Basis	Quality Evaluation Criteria Weighting	Submission Requirement reference and submission requirement
			to maximise the control and flexibility of the installations.
			In addition Bidders must submit an analysis of their design solution which demonstrates energy consumption proposals along with cost estimates of specific measures or innovations to be introduced C10.2 For information purposes only in addition to the model referred to above a dynamic thermal energy model is to be submitted which should comply with the parameters set out in Appendix F of the ITPD Volume 1.

9.6.11 Appendix A also set out the requirement and scoring approach for C21 'Compliance with Board's Construction Requirements'. This was assessed through a pass or fail mark. The submission requirement was that:

> "Bidders must confirm their compliance with the Board's Construction Requirements. If as their design has been developed there are specific areas of the Board's Construction Requirements that Bidders would seek to change, these shall be scheduled and provided in support of the statement. The Board shall not be required to accept any proposed amendments".

9.6.12 The amendments referred to above were to be summarised in their submission response to C30: 'Acceptable list of summary assumptions, clarifications and derogations.' This was not scored.

9.6.13 According to Appendix A, bidders were "permitted to submit its responses in a format...which they consider most appropriate to best demonstrate an understanding of the Board's requirements and/or a solution which complies with the Board's requirements. However, as a minimum, the Board would require all design deliverables set out in AP1.1 and AP1.2 to be submitted as part of the Submission Requirements for C (Approach to Design and Construction)".

9.6.14 Appendix AP1.1 contains further design deliverables in respect of ventilation for the RHCYP/DCN:

> 3. Approach to Design & Construction - Interior Design Proposals
>
> 3.2- Loaded 1:50 room layout drawings for the RHSC indicating interior design proposals and demonstrating the coordinating aspects of all design disciplines, including floors, walls, ceilings, façade ventilation, mechanical and electrical services.
>
> 5. Mechanical & Electrical Services
>
> 5.7 - 1:200 internal services concept schematic and zoning plans for both heating and ventilation; indicating of heating and ventilation in each room
>
> 5.9 - Mechanical schematic layouts and report (co-ordinated and consistent with all drawings and design information contained within the Bid Submission Requirements) denoting details and extent of proposed:
>
> 5.9.6 - Natural Ventilation strategy
>
> 5.9.7 - Mechanical Ventilation strategy
>
> 5.9.10 - Specialist ventilation strategy

5.12 - 1:50 mechanical and electrical services sections to illustrate use of ceilings, natural daylight, ventilation strategies, cooling and heating strategies, lighting strategy, acoustic strategy, specialist installations strategy, services concept

7. Environmental Services and Energy Management Strategy

7.1 - Natural Ventilation drawings and proposals

9.6.15 Appendix F – Thermal and Energy Model Parameters states:

"Project Co shall undertake Dynamic Thermal Energy Modelling to assess the energy performance and thermal performance of Project Co's Proposals.

The thermal performance of the Facilities shall be dynamically thermally modelled to the Project specific parameters, identified within Section 3 (Board's Construction Requirements) of Schedule Part 6 (Construction Matters). Thermal modelling shall inform the sizing of all heating, ventilation and comfort cooling requirements for Project Co's Proposals, inclusive of all natural ventilation pathway and overheating analysis.

In conjunction with energy performance, CO2 emissions shall also be required to be equal to, or better than, the agreed Carbon Emissions requirements in Section 3 (Board's Construction Requirements) of Schedule Part 6 (Construction Matters). The following documentation shall be used in providing the targeted thermal energy modelling requirements for the building;

- Scottish Health Technical Memorandums
- EnCO2de
- Health Building Notes
- CIBSE Design Guides
- Building Regulations (Scotland) Technical Standards"

9.7 **Volume 2**

9.7.1 Volume 2 of the ITPD is the NPD Project Agreement for the Project. It was based upon SFT's standard form contract.

9.7.2 The NPD Project Agreement included project specific amendments, which had been pre-agreed by the Board of NHSL and SFT. Bidders were encouraged to accept positions within the NPD Project Agreement, which reflected SFT's standard form project agreement. However, bidders were also encouraged to raise any comments in relation to the project specific amendments by dialogue meeting 3, in order that these issues could be flagged to SFT at that time. Any proposed bidder amendment to the NPD Project Agreement would be a derogation. All derogations required the approval of SFT. The derogations from the standard form Project Agreement referred to in this paragraph (to be agreed with SFT) are ~~a separate matter to~~different from derogations to technical standards referred to in paragraph 9.6.12 (which were a matter for NHSL).

Commented [AG16]: SFT consider that this further clarification is required to provide an accurate picture.

9.7.3 In general, all matters in relation to the NPD Project Agreement were to be raised with NHSL prior to close of dialogue. Only matters in relation to fine tuning and clarification would be permitted post-close of competitive dialogue.

9.7.4 Volume 2 of the ITPD defines 'Board's Construction Requirements' as meaning "the requirements of the Board set out or identified in Section 3 (Board's Construction Requirements) of Schedule Part 6 (Construction Matters) as amended from time to time in accordance with the terms of this Agreement". The Board's Construction Requirements were initially provided to bidders as Volume 3 of the ITPD.

9.7.5 The Project Agreement provided as Volume 2 of the ITPD included Section 5 (Reviewable Design Data) of Schedule Part 6 (Construction Matters) which explains the concept of reviewable design data:

> "This Section 5 (Reviewable Design Data) of Schedule Part 6 (Construction Matters) sets out the details of the specific design information, materials, samples and required approvals (as more

specifically set out in the table below) ("Reviewable Design Data") to be reviewed by the Board in accordance with Schedule Part 8 (Review Procedure) before such Reviewable Design Data is incorporated into the Facilities and/or the Site by Project Co.

For the avoidance of doubt, if Project Co's Proposals incorporate Room Data Sheets and/or Reviewable Design Data there shall be no requirement for Project Co's Proposals to be issued to the Board for review under Schedule Part 8 (Review Procedure). However, if Project Co subsequently revises or amends its Project Co's Proposals in relation to the Room Data Sheets and/or Reviewable Design Data, then such revisals or amendments shall require to be issued to the Board for review under Schedule Part 8 (Review Procedure)."

9.7.6 Section 5 provides a table of Reviewable Design Data. The environmental matrix is not included in the table. However, Room Data Sheets are included. The Inquiry Team understands that this approach was adopted because room data sheets should have been completed for every room in the hospital by financial close. Therefore, the Environmental Matrix should have become obsolete as a briefing and design tool.

9.8 **Volume 3**

9.8.1 Volume 3 of the ITPD consists of Schedule Part 6 (Construction Matters), Section 3, of the NPD Project Agreement. It set out the Board's Construction Requirements. Sub-Section C set out the General Requirements and Sub-Section D the Specific Clinical Requirements.

9.8.2 Paragraph 2 of Sub-Section C set out the Project Wide Requirements, which included:

2.1 Approach to Design

2.2 General Requirements of the Board

2.3 NHS Requirements

2.4 Minimum Design and Construction Standards

2.5 Hierarchy of Standards

9.8.3 Section 2.1, "Approach to Design" states that:

> "The new building will follow the design aspirations and guidance laid out in the Policy on Design Quality for NHS Scotland (2010) to which the Board subscribes and implements through its Design Champion.... The Design Champion for the project is the NHS Lothian's Project Sponsor, supported by the Director of Capital Planning and Projects, and the design process is managed by the reprovision project team."

9.8.4 Section 2.2 'General Requirements of the Board', states that "Project Co shall ensure the Facilities comply with the following general requirements of the Board". The list of requirements that follow include:

> "Adherence to the requirements set out in CEL 19 (2010) "A Policy for Design Quality for NHSScotland, 2010 Revision published by the Scottish Government."

9.8.5 CEL 19 (2010) is addressed in detail the Reference Design and Environmental Matrix PPPs. It required NHSScotland bodies to utilise the ADB system for briefing, design and commissioning of new hospitals. If a different tool was to be adopted, the onus was placed on the NHS body to demonstrate that it was of equal value.

9.8.6 Paragraph 2.3 'NHS Requirements':

> "In addition to the standards listed in paragraph 2.4 of this Sub-Section C, 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."

9.8.7 Included in the list of guidance that follows is

"...

b) New Policy on Design Quality for NHS Scotland published by SGHSCD;

...

h) HTM and SHTM...

...Health Technical Memoranda & Scottish Health Technical Memoranda (HTM & SHTM)

Project Co shall, in relation to all SHTM and all HTM (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 solutions contained in such SHTM and HTM."

9.8.8 Paragraph 2.5 sets out the 'Hierarchy of Standards'. It states that:

"...Where contradictory standards/advice are apparent within the terms of this Section 3 of Schedule Part 6 (Construction Matters) and the Appendices then subject to the foregoing paragraph then (1) the most onerous standard / advice shall take precedence and (2) the most recent standard / advice shall take precedence. When the more onerous requirement is to be used the Board will have the right to decide what constitutes the more onerous requirement.

Where there is a conflict of interest resulting from the use of the standards /advice Project Co shall involve the Board in the decision making process. The Board shall be entitled to make the final decision

regarding the standards / advice to be used for the Facilities including any contradictions that may arise between items (1) and (2) above...

...In certain instances, NHS publications include a number of options or alternative solutions. Where the Board has defined their preference specifically, Project Co shall adopt these preferences as a mandatory requirement. Where no Board preference is stated, Project Co shall engage the Board in the design development process to seek and incorporate the Board's preference within the Facilities."

9.8.9 Paragraph 3 sets out the General Design Requirements and includes the following instructions regarding Room Data Sheets.

"Paragraph 3.6.3 Room Data Sheets

Project Co shall provide Facilities that, as a minimum, meet all the requirements specified in the Room Data Sheets included in this Schedule Part 6 Section 6. Room Data Sheets not included in Schedule Part 6 Section 6 shall be provided through RDD.

Project Co shall provide fully developed Room Data Sheets submitted to the Board as Reviewable Design Data for review by the Board in accordance with Schedule Part 8 (Review Procedure) and clause 12.6 of the Project Agreement.

As part of the commissioning process, Project Co shall be responsible for demonstrating compliance with the requirements included within the Room Data Sheets.

For the avoidance of doubt, Project Co shall provide mechanical ventilation, comfort cooling and air conditioning to suit the functional requirements of each of the rooms in the Facilities. Irrespective of the ventilation requirements in Room Data Sheets, where rooms are clearly intended to be occupied and/or become internal spaces during design development and natural ventilation is not possible, mechanical

ventilation and/or extract ventilation shall be provided as appropriate to suit the function of the space."

9.8.10 Paragraph 5 set out the General Construction Requirements. Paragraph 5.2 'Infection Prevention & Control' states:

"Project Co shall ensure all aspects of the Facilities allow for the control and management of any outbreak and/or spread of infectious diseases in accordance with the following:

f) Ventilation in Healthcare Premises (SHTM 03-01);"

9.8.11 Paragraph 5.3 'Thermal Requirements' states:

"Project Co shall ensure the buildings' envelopes complies with Section 6

of 2011 Non-domestic Technical Handbook to The Building (Scotland) Amendment Regulations 2010 and the following criteria:

c) The building fabric shall include passive design measures to limit summer temperatures to figures given within the Environmental Matrix;"

9.8.12 Paragraph 5.25.1 'BREEAM' states:

"Project Co shall ensure that the Facilities achieve as a minimum a 'Very Good' rating when assessed against BREEAM 2011 New Construction (SD5073). Under the BREEAM 2011 New Construction (SD5073) there are now mandatory requirements specifically under energy, CO2 emissions, water and ecology. In addition, BREEAM embraces energy efficiency and passive design strategies for ventilation and thermal control to enhance internal comfort. The Facilities shall therefore also meet a BREEAM ENE1 target of 6 credits (excellent) in accordance with the BREEAM Scheme Document for New Construction (SD5073) Section 6.ENE1"

9.8.13 Paragraph 5.26 'Energy Strategy' states:

> "Project Co shall provide Facilities that achieve an optimum level of energy and utility conservation. Project Co shall:
>
> a) Minimise internal areas requiring mechanical ventilation;"

9.8.14 Paragraph 8 set out the 'Mechanical & Electrical Engineering Requirements':

> "Project Co shall provide the Works to comply with the Environmental Matrix.
>
> Project Co shall in carrying out the Works comply with the following non-exhaustive list of mechanical & electrical requirements.
>
> ...
>
> Project Co shall take cognisance of all the building services implications of the requirements described in the Board's Construction Requirements of this Schedule Part 6 Section 3 Sub-Section D (Specific Clinical Requirements) and Sub-Section E (Specific Non-Clinical Requirements).
>
> For the avoidance of doubt the hierarchy of standards and advice detailed in paragraph 2.5 shall apply to this paragraph 8."

9.8.15 Paragraph 8.1 lists the 'Minimum Engineering Standards' including "a non exhaustive list of SHTM's, HBN's and HTM's applicable to the Facilities" which includes:

> "...
>
> h) SHTM 03-01: Ventilation in Healthcare Premises;"

9.8.16 Paragraph 8.2 'Infection Control' states:

"Mechanical and Electrical equipment selections and designs shall take cognisance of HAI-SCRIBE in its entirety."

9.8.17 Paragraph 8.5.2 'Thermal Comfort' states:

"Where maximum internal summer time temperature calculations indicate that the internal temperature will exceed those limits set out in the Environmental Matrix, Project Co shall provide means of reducing the temperature rise.

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.

For any room or area that does not meet this criterion, there should be a hierarchy of remedial action to prevent the high temperature by passive means as a priority, adopting a suitable means of comfort cooling as a last resort."

9.8.18 Section 8.5.3 'Air Quality' states:

"...

i. Internal

...Particular attention shall be given to the risk of cross infection within the hospital / healthcare environment and shall be such as to minimise the spread of infection. Project Co shall demonstrate through submission of information to the Board as Reviewable Design Data for review by the Board in accordance with Schedule Part 8 (Review Procedure) and clause 12.6 of the Project Agreement, how the proposals facilitate the control and management of an outbreak and spread of infectious diseases, and in particular shall comply with the requirements of SHTM 03-01 (Ventilation in Healthcare Premises). In order to reduce cross-

contamination, the design of the Facilities shall incorporate 100% fresh air supply systems only.

Project Co's demonstration referred to above is to cover all aspects of the building, its services, spatial relationships, soft and hard FM proposals and incorporate requirements of the Board's Infection Control Team.

Project Co shall provide natural ventilation wherever possible, except where:...

d) Where inflows of air are undesirable;

e) Clinical requirements, as detailed in the Room Data Sheets, do not allow in areas such as isolation rooms, where positive or negative pressure are required; and

f) Areas which are air-conditioned."

9.8.19 Section 8.7.8 'Mechanical Ventilation & Air Conditioning':

"...The need to maintain comfort conditions in accordance with the Room Data Sheets in all areas but particularly in clinical areas is of paramount importance and Project Co shall develop strategies for achieving these conditions together with minimum energy consumption.

Project Co shall provide natural and mechanical ventilation, comfort cooling, and air conditioning to suit the Facilities and clinical requirements and provision of the Clinical Services...

...Project Co shall demonstrate how the proposals facilitate the control and management of an outbreak and spread of infectious diseases in accordance with SHTM 03-01, SHFN 30 and HAI-SCRIBE..."

9.8.20 Paragraph 8.7.22, 'Ventilation and Air Conditioning of Isolation Rooms' states:

"Project Co shall provide air conditioning systems to Isolation Rooms to support the Board's Construction Requirements of this Schedule Part 6 Section 3 Sub-Section D (Specific Clinical Requirements), NHS Standard Infection Control Precautions (SICPs) and maintaining strict positive / negative pressure differentials.

Ventilation and air conditioning systems for these rooms shall be designed and installed in accordance with SHTM 03-01, 04-01 and NHS Model Engineering Specification C04. Project Co shall demonstrate how the proposals facilitate the control and management of an outbreak and spread of infectious diseases."

9.8.21 No similar instructions are provided for the Critical Care Department.

9.8.22 Part 6 Section 3: The Boards Construction Requirements, Sub-Section D: Specific Clinical Requirements states:

"This Schedule Part 6 Section 3 Sub-Section D forms the Specific Clinical Requirements included in the Board's Construction Requirements Specification. Project Co shall satisfy all the requirements under this Sub-Section D.

It contains design philosophy and specific requirements for each of the clinical services to be provided from the Facilities."

9.8.23 The clinical requirements for the Critical Care department were set out in the Clinical Output Specification for Critical Care. This states:

- "Flexibility in the use of the Critical Care beds for both High Dependency and Intensive Care is key to maintaining efficient use of high specification beds. All three critical care areas must be co-located

- Single cubicles will be used for privacy or isolating ordinary infectious conditions

- Lobbied single bed isolation cubicles are required for both source and protective isolation of patients and they all require to have identical design of pressure control with positive pressure lobbies with filtered air, and negative extraction cubicles. It is required that Contaminated air must not flow back into any of the open Critical Care areas. It is required that the lobby must be joined to the room at the foot end of the bed.

- All PICU and HDU bed spaces are required to be of the same specification to allow greatest flexibility of use."

9.8.24 Appendix C contained the environmental matrix. This is addressed in detail in a separate PPP.

10. Key Stage Review 2a: Pre-ITPD

10.1 The Pre-ITPD KSR was finalised on 7 March 2013. Question 4 of the KSR under section 2 "Project Requirements" stated:

> "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."

10.2 The answer provided was:

> "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."

10.3 There was no explanation, or analysis, in the KSR of the purpose of the environmental matrix or any other elements of the technical requirements which fell out of scope in the KSRs.

Commented [AG17]: SFT consider that this further clarification is required to provide an accurate picture.

11. Competitive Dialogue

11.1 The ITPD was issued by NHSL to all three bidders on 12 March 2013. This marked the start of Competitive Dialogue.

11.2 Paragraph 5.15 of the SCIM NPD Guide: OJEU to Contract Award states that the aim of Competitive Dialogue:

> "is to 'identify and define the means best suited of satisfying [the contracting authority's] needs.' This stage formally acknowledges the need in complex projects to talk around solutions, develop ideas and explore options as part of the tender process...It should therefore continue until the contracting body is satisfied that it has identified the solution or solutions capable of meeting its needs and requirements with sufficient precision to enable Final Tenders (which fully meet these requirements) to be submitted."

11.3 NHSL's Core Evaluation Team were involved in Competitive Dialogue, assisted by technical, legal, financial and cost advisors. NHSL did not have an external healthcare planner to advise them during the Competitive Dialogue process.

11.4 The Reference Design Team who had produced the reference design and associated documents were not retained by NHSL during the procurement period to allow members to join bidding teams during the procurement stage. According to the August 2012 version of MM's "Approach to Reference Design" paper:

> "The Reference Design will therefore have to be handed over to the Technical Advisory team and actions will have to be taken to cover for the fact that the Reference Design team will not be available to address queries during the procurement process.

In terms of the handover and sign-off of the Reference Design, the following matters will have to be addressed:

- Is the Reference Design fully aligned with the requirements of the Clinical Output specifications;
- Has NHSL taken ownership of the Reference Design on the basis that some areas of the design will be a compromise between the requirements and what can be achieved through design;
- Is the Reference Design fully aligned with the Board's Construction Requirements – architectural, engineering and Soft FM requirements;
- The Technical Advisory team during procurement must be in a position to fully understand the development of the Reference Design from a technical point of view. The Team will need to take ownership of the design as if it was its own work."

11.5 In November 2012, the PSB agreed to adopt a compressed programme for competitive dialogue. The competitive dialogue period was reduced from 209 days to 155 days.

11.6 The ITPD sets out the process for Competitive Dialogue in paragraph 4. It was envisaged that the dialogue process would comprise a series of meetings leading to submission of the Final Tender, and that dialogue would be continued until NHSL was satisfied that solutions from one or more Bidders were capable of meeting NHSL's requirements. Bidders were expected to provide informal submissions in advance of dialogue meetings, and a draft final tender before being invited to submit final tenders at the Close of Dialogue.

11.7 Informal submissions would not be evaluated but feedback on these submissions would be given to Bidders at each stage of the Dialogue and would inform the basis for the remaining Dialogue. The ITPD noted that objective of Dialogue "...is to ensure Bidders are clear on the Board's requirements and

allow each Bidder to develop a Solution that is capable of meeting the requirements set out in the ITPD."

11.8 The ITPD provided the following timetable of dialogue meetings.

Tenders		

11.9 The expected format and requirements for these meetings were set out in the ITPD as follows:

> "4.2.2 Each monthly Dialogue Meeting (Dialogue Meetings 1-6) shall involve the Board spending time with each Bidder. The format of such monthly meetings shall be:
>
> (a) Initial meeting between the Board's full Core Evaluation Team and Bidder's team;
>
> (b) The initial meeting shall (if required) break out into a series of sub-meetings concentrating on legal, technical and financial aspects of Bidder's proposals;
>
> (c) The sub-meetings shall re-convene for a final wrap up meeting with the Board's full Core Evaluation Team and Bidder's team.
>
> 4.2.3 In advance of each Dialogue Meeting, Bidders are invited to submit specific material related to the agenda topics to be discussed (Informal Submissions) as more fully set out in paragraph 4.5.3. These Informal Submissions by Bidders prior to the Dialogue Meetings shall enable the Board and its advisers to:
>
> (a) review the work undertaken by Bidders since the previous Dialogue Meeting;
>
> (b) provide any meaningful and relevant comments to the Bidders; and

(c) avoid any time disconnect between the Board's comments and the development of Bidders' Solutions

4.5.3 The proposed agenda topics and submission requirements for each Dialogue Meeting are set out in the following appendices to Volume 1 of the ITPD:

(a) Appendix A (i) (Technical Agenda Topics and Informal Submission Requirements) and (ii) (Submission Requirements);

(b) Appendix B (i) (Financial Agenda Topics and Submission Requirements); and

(c) Appendix C (i) (Legal Agenda Topics) and (ii) Submission Requirements and Evaluation).

4.5.4 With each technical submission, Bidders are also required to provide a completed Annex 2 to Appendix A (ii) – 'Schedule of Design Deliverables for Technical Meetings during Dialogue Period' confirming the supporting drawings and information that Bidders are providing to support the Submission Requirements of the ITPD. Bidders should note that all drawings must be submitted at least once before submission of the Draft Final Tender."

11.10 An initial briefing meeting was held with all the bidders to introduce the team and provide an overview of the project, including 'in particular the detail and importance of the Reference Design and the demarcation between Mandatory Reference Design Requirements and Indicative Elements of the Reference Design."

11.11 The initial briefing meeting with bidder B (IHSL) was held on 20 March 2013. It was attended by Susan Goldsmith, Project Sponsor, the NHSL Core Evaluation Team and Advisers, and 15 members of the bid team.

11.12 On 8 April 2013 NHSL issued an update to prospective tenderers entitled "Reference Design - an update on requirements for Operational

Functionality". According to this update, "the Board have agreed to relax the requirements in relation to a limited number of departments whose location within the RHSC and DCN is less critical." This did not relate to Critical Care or neutropenic patient wards. The ITPD was revised to reflect these changes.

11.13 On 22 April 2013, IHSL submitted its informal submission for Dialogue meeting 2 which addressed C8, 'M&E engineering design proposals', C9 'Lighting' and C10 "Energy Management Proposals". The submission contains the following statements:

> "At this stage we have reviewed the Reference Design and Plant and Services Strategies of the Exemplar Design...we think it is fair to say that the Reference Design appears to ourselves to provide economic, practical and energy efficient solutions and we don't expect the final solutions to be dramatically different.
>
> 'Design Control and Operational Philosophy:
>
> The designs will be undertaken in house utilising computer based modelling, calculation and drawing packages... These outline designs will be subject to ongoing review for compliance with SHTM's, HTM's etc and sustainability and BREEAM targets.'
>
> 'Sustainability:
>
> Designs will be fully compliant with current legislation and NHS Targets the aim being to meet and exceed where possible.
>
> We are currently holding separate BREEAM and Sustainability reviews with the Team and will advise on progress...
>
> ...We are therefore looking closely at materials and passive measures to reduce energy base loads as a parallel exercise with the Architects.'

'C8.3 Environmental Matrix:

No changes proposed at this time nor envisaged in the future but we will continue to review and advise back'

'C10. 1 Energy Management, iv. Passive Design Measures:

Natural ventilation being developed in line with Reference Design and viewed as achievable further thermal performance of building being reviewed with Thermodynamic Model. Will form part of Final Solution with detailed Thermal and Energy Performance Data taken from Thermodynamic Modelling exercise.'"

11.14 Dialogue meeting 2 for bidder B (IHSL) took place on 1 May 2013. Colin Macrae from MM led on responses regarding M&E within the Design and Construction Breakout group.

11.15 The action notes from the meeting do not reflect any detailed discussion regarding ventilation strategy, for example for passive design (using natural ventilation where possible), or consideration of the environmental matrix. Compliance was discussed, with the following action note recorded:

> 2.1.4 Where the Operational Functionality is compromised by virtue of compliance with the Board's requirements as set out in paragraph 5.2.2 of ITPD volume 1 then IHSL shall identify the specific areas affected and provide a supporting commentary. Any such changes will require discussion with an agreement by the Board. NHSL will issue a clarification to all Bidders.
>
> NHSL are still reviewing our position on compliance (in respect of your informal submission 2 D&C proposals) and will issue a bulletin in the week commencing 06/05/13.

11.16 Another Bidder, 'Bidder C' (Mosaic) provided a narrative to explain their ventilation strategy which would 'result in a lower air flow than the 6 air

changes/hour specified in SHTM 03 where mechanical ventilation is utilised'. Bidder C also described instances where they would move away from the reference design (environmental matrix), including 'where it is non-compliant with relevant design guidance'. Their submission on C8 and C10, for Dialogue Meeting 2, dated 24 April 2013, contained the following statement:

> "Only move away from the Reference Design where we see real benefit to NHS Lothian in terms of: reduced energy usage; better system resiliency; ease of operation; improved maintenance; or where it is non-compliant with relevant design guidance
>
> ...
>
> Natural ventilation facility to be provided where possible to allow a low energy solution within a sustainable design...
>
> ...Ventilation can be provided by natural infiltration of outside air via opening windows or other openings or mechanical i.e. fan assisted ventilation. Both natural and mechanical ventilation are appropriate in particular circumstances however where a specific clinical need applies mechanical ventilation will be provided in accordance with SHTM guidance.
>
> ...
>
> The selection of 25°C as the maximum temperature for bedrooms determines that mechanical ventilation and cooling will be the likely solution as simulations have shown that this level of temperature control is not achievable using natural ventilation.
>
> Having established the need for mechanical control of room temperature the ventilation & cooling strategy must be defined...
>
> ...The use of terminal cooling devices such as chilled beams are widely accepted as an effective, energy efficient method of cooling which is

acceptable in patient bedrooms. In order to maximise energy efficiency the air flow rate should be based on the calculated flow to suit occupancy and provide the required cooling. This will generally result in a lower air flow than the 6 air changes/hour specified in SHTM 03 where mechanical ventilation is utilised.

We would like to explore the acceptability of the above strategy with the Health Board and also review the specialist ventilation strategy for clinical areas such as:

1. Operating theatres

a. Generally as SHTM

b. The use of "skirt-less" canopies in UCV theatres

c. The use of single plant for a pair of theatres

2. Isolation rooms

a. A common supply system is proposed in the reference design with design as HBN4 supplement 1

b. Application of isolation room guidance to Critical Care single rooms

3 Imaging rooms, in particular;

a. Intra operative MR scanner suite

b. Interventional imaging"

11.17 Bidder C's informal submission also included a presentation for Dialogue Meeting 2. The following points were made regarding building services and energy:

"• Aim for minimum fresh air, rather than 6 air changes/hour for in-patient bedrooms

- Include for natural ventilation wherever possible
- Utilise Mechanical vent with chilled beams
- treat critical and non-critical spaces differently"

11.18 Feedback notes regarding Bidder C's submission on M&E, prepared for Dialogue Meeting 2, include:

"Any suggestions/proposals will be considered if they help achieve sustainability target.

Clarify our attitude to reference design."

11.19 Dialogue meeting 2 for Bidder C took place on 2 May 2013. The action notes do not reflect detailed discussion regarding the ventilation strategy. However, revised action notes included within Bidder C's informal submission for Dialogue Meeting 3 included the following addition in track changes, "[bidder C was] proposing a reduction from 6AC/Hr to 4 AC/hr as set out in the reference design."

11.20 On 9 May 2013 NHSL issued a bulletin to all bidders offering clarification of operational functionality. This bulletin states:

"The Board will consider, and may accept, changes to the Mandatory Reference Design Requirements (i.e. those elements relating to Operational Functionality) where a Bidder considers that those Mandatory Reference Design Requirements are not capable of meeting the Board's requirements (as described in paragraph 5.2.2 of Volume 1 of the ITPD)."

11.21 The bulletin also provides a reminder of the definition of operational functionality set out in the ITPD. (See the previous section of this paper on the content of the ITPD).

11.22 At the meeting of the PSB on 31 May 2013, Brian Currie (NHSL) noted that the Core Evaluation Team were comfortable that all bidders would proceed to submit draft final tenders in late August, but that bidders had fed back that the programme was challenging to meet. Brian Currie also noted that bidders were "only now submitting 1:200 departmental layouts...for which Bidders were expected to provide a robust rationale for any changes to the Reference Design." This related to changes in adjacencies and layouts.

11.23 IHSL provided an update on M&E engineering design proposals, for Dialogue Meeting 3, on 29 May 2013. With regard to 'C8.3 Environmental Matrix' IHSL stated:

> "No changes proposed at this time nor envisaged in the future but we will continue to review and advise back (as previous).
>
> Additional floor plans layouts developed to demonstrate Heating/Cooling/ Ventilation Strategies."

11.24 The floor plan layouts for ventilation strategy were high level and showed that a number of rooms in Critical Care were 'HBN4 dependent', some would receive central air supply and some central supply and extract. Exact air change rates, pressure regimes and descriptions of the room function were not provided.

11.25 The update on 'C10 Energy Management' included an update on progress with Environmental Modelling:

> "Experiences from the adjacent ERI prove ward conditions are not acceptable when reliant on natural ventilation alone – maximum allowable internal temperature 25^0C.
>
> Single Bedroom Ward, South Facing Exposed (Summer)

Mixed Mode Ventilation

- Opening windows – restricted opening to 100mm.
- Supply air provided if the room air temperature is great than 25oC.
- External air 4 ACH cooled to 18oC.
- No reliance on uncontrolled infiltration for cooling."

11.26 The Action Notes from Dialogue meeting 3 record that:

> "IHS Lothian provided an update on their Environmental Matrix and Energy Model. Further details to be provided for the next dialogue meeting."

11.27 The Action notes for Bidder C's Dialogue meeting 3, held of 30 May 2013, do not record any discussion of ventilation strategy or the environmental matrix.

11.28 IHSL's Dialogue meeting 4 took place on 26 June 2013. In their informal submission for this meeting no mention is made of ventilation strategy or the environmental matrix. In their update on design development, IHSL referred to the use of ADB with regard to agreeing equipment proposals and signing off room layouts. Their submission arrived after the deadline and it was noted in the notes for the Chair for Dialogue meeting 4 that "NHSL will respond to these submissions today, but you should be aware that late submissions cannot receive the same attention as those of other bidders that arrive on time."

11.29 The Action notes for Dialogue meeting 4 with Bidder B (IHSL) do not show any discussion of ventilation strategy, the environmental matrix or use of ADB. There was discussion regarding instances where NHSL's requirements cannot be delivered as a result of a specific Mandatory Reference Design Requirement:

> "IHS Lothian to provide the schedule in word format which identifies the department, room, perceived non compliance in the Reference Design, proposed solution and the requirement with which it now complies and

with the following additional columns – a 'comments' column and a 'yes/ no' column in order that NHSL can add commentary."

11.30 IHSL submitted a document titled 'Compliance with Mandatory Reference Design – B1', dated 27 June 2013. This document shows differences between the Reference Design and IHSL's design of the Critical Care (PICU/HDU) department. Under the sub-heading 'variances' it is noted that "The non-compliances with the requirements of the operational policy are the same as the reference design." The summary of IHSL's "proposed improvements/alterations" to the reference design included:

"Improved connectivity and flexibility

We have improved the flexibility of the high and low acuity bed areas of the HDU by standardising the multi bed bays and single rooms This enables the provision of the same level of equipment in each room, enabling the boundary between the sub departments to flex as demands on the service vary.

It also provides the potential for the department to become all single bedrooms if future service demands change (as has happened in other departments to accommodate the infection control..."

11.31 On 10 July 2014 the Project Steering Board approved the prolongation of competitive dialogue by 8 weeks in order to promote design compliance. The minutes noted:

"[Brian Currie] proposed that an 8 week prolongation of the competitive dialogue phase was introduced to facilitate design compliance across all three bidders. This milestone was to be met under current programme at Dialogue Round 5 (end of July) but it has become increasingly clear in recent weeks that due to the volume and intensity of design development and review iterations required to bring the 1:200 scale drawings and minimum areas to compliance with the Board's requirements this will not be achievable.

It is the project team's firm view that the procurement process cannot progress to Draft Final Tender Stage until three design compliant bids are evidenced.

The May 2017 Operational date would remain under this proposal but anticipated Financial Close date would move back 8 weeks to early October 2014. The intention is that this proposed prolongation would be absorbed in a shortening of the construction duration.

The PSB were reminded that the project team have communicated previously growing concern of the inadequacies of the programme to deal with the level of design development necessary for a major acute health facility regardless of the availability of a 'Reference Design':

28 March 2013, 26th April 2013 and 31st May 2013 – 'Ability of Bidders to submit meaningful design proposals within competitive dialogue programme remains to be confirmed'.

BC also confirmed that all three bidders had been asked for their view on the need for prolongation and, with varying degrees of duration, all confirmed that additional time was necessary. One bidder reluctantly agreed, when pressed, that they would be unable to comply in the time allocated given the status of their design submission to date.

The PSB accepted this proposal given the maintenance of the operational date however [Mike Baxter] expressed concern that Consort may use this prolongation to further delay completion of key enabling works. SFT have also previously noted this proposal in an email communication to the Project Director following a detailed briefing session."

11.32 On 12 July 2013, bidders received a brief change from NHSL. The brief change notified bidders that NHSL had applied for a single room derogation in DCN Acute Care. Bidders were requested to design DCN Acute Care to meet the clinical output specification. Changes were also made to the Project Brief for

Theatres in both the RHCYP and DCN. The brief change also involved the inclusion of the former petrol station site within the Project site boundary following its acquisition by NHSL. These changes were raised with bidders and the relevant changes were made to the Project Agreement and construction documents (practical and legal changes only).

11.33 NHSL has advised the Inquiry Team that the Brief Change had limited impact on the Competitive Dialogue process. Competitive dialogue was extended not just to accommodate the Brief change but due to the overall process taking longer than initially anticipated.

11.34 By Dialogue Meeting 4B on July 24, 2013, IHSL's 1:200 design for Critical Care had 'B status: comments to be incorporated'. 'A status' was defined as 'no comments' and 'C status', which was given at the previous meeting of 20 June, meant 'unacceptable/resubmit'. The Action notes include comments on the drawings received for PICU/HDU/Critical Care/NICU. None relate to ventilation.

11.35 IHSL's informal submission for Dialogue meeting 4C included 'M&E Engineering Design Approach' (C8). This contained similar content to previous C8 submissions and noted outline designs have been subject to ongoing review for compliance with SHTM's, HTM's, etc. IHSL stated that:

- "We have undertaken internal Peer Reviews at Concept and Proposal Stages and will carry out a final review.
- C8.3 Environmental Matrix: No changes proposed at this time nor envisaged in the future but we will continue to review and advise back".

11.36 Also included with the submission were 1:200 drawings of the ventilation strategy. The drawings for the First Floor where Department B1 (Critical Care/HDU/Neo-natal surgery) as well as P1 (Theatres) were to be located provide a legend to show which rooms would require central supply and extract ventilation, central air supply, central general extract, central dirty extract, be HBN4 Dependent (isolation room guidance), be in line with SHTM 03-01, or

have natural ventilation. No rooms in Critical Care are shown to be SHTM 03-01 dependent. Isolation rooms are shown to be 'HBN4 Dependent'. Single bed cubicles and open plan bays are shown as requiring central supply air. Central air supply for rooms in Critical Care is in line with the requirements in SHTM 03-01. A number of single bed cubicles have en-suites.

11.37 On 16 August 2013 Tim Davison, Chief Executive of NHSL, sent an email to Iain Graham, Brian Currie, Susan Goldsmith, Alan Boyter, Fiona Mitchell, and Edward Doyle, regarding a meeting with medical consultants in which they had expressed concern 'about the capacity and design of the new hospital, the lack of a 'service strategy' and most audibly, their feeling of being disconnected from influencing what was happening.' The consultants felt disengaged from the design process. A meeting was arranged for 6 September 2013 to discuss these issues. It is not clear to the Inquiry Team how this matter was resolved.

Commented [AG18]: SFT's understanding is that the consultants being referred to here are medical professionals. SFT suggests that the wording is amended to clarify this, so as to avoid confusion with the Project Team's technical, legal or financial consultants.

11.38 A paper was prepared by Sorel Cosens on 10 September 2013 for the Project Steering Board meeting on 13 September 2013. According to the paper, four additional dialogue meetings had been arranged to focus 'primarily on Bidders' compliance with operational functionality and room sizes' and the meetings were held with 'the Clinical Director, an NHSL Project Manager with detailed knowledge of the Reference Design, and our Architectural Adviser from Mott MacDonald.' The paper also notes:

> "Outstanding design compliance after September will be addressed in feedback on the Draft Final Tenders; non-compliance would result in a bidder being informed that their submission would have been discounted without full evaluation had it been their Final Tender."

11.39 IHSL produced certain room data sheets dated 8 October 2013. They contain the acronym 'ADB' in the top left corner, 'Activity Database' in a banner at the bottom of each page and the Department for Health logo in the bottom corner. They contain the following information for rooms in Department B1 'PICU and HDU's':

Room name	Code	Revision date	Mechanical Ventilation	Ventilation type	Pressure	Filtration
Single-bed cubicle	B1401	25/09/2013	4ac/hr (supply)	Central supply air	positive	G4 - minimum
Single bed cubicle: isolation	B1401-01	08/10/2013	HBN4 dependent	HBN4 dependent	balanced	F7 - minimum
Open Plan Bay 3 Cots: neonatal	B1407-01	25/09/2013	4ac/hr supply	Central supply air	positive	G4- minimum
Single cot cubicle: neonatal	B1421	8/10/2013	4ac/hr supply	Central supply air	positive	G4 minimum
Multi-bed bay 4 beds low acuity	B1609-01	25/09/2013	4ac/hr supply	Central supply air	positive	G4 minimum
Multi-bed bay: 4 beds High Acuity	B1609-02	25/09/2013	4ac/hr supply	Central supply air	positive	G4 minimum

11.40 **Draft Final Tenders**

11.40.1 Draft Final Tenders were submitted by bidders on the 21st October 2013. This was a 'dry run' for the Final Tender, allowing bidders to set out their solutions to NHSL and for NHSL to provide feedback on whether aspects of the Draft Final Tender met NHSL's requirements as set out in the ITPD.

11.40.2 The draft final tender was not scored. It was aimed at ensuring that no bids would be dismissed for non-compliance and that there would be three

compliant bids to assess. The focus was on ensuring the bids submitted were complete and able to be evaluated. A 'compliant tender' is one which complies with the bid submission requirements set out in the ITPD, and which does not fail any of the pass/fail criteria.

11.41 The Inquiry Team understands that one bidder – Bidder C – submitted a marked up version of the EM. This sought to amend some of the entries to reflect Bidder C's ventilation strategy, "to enhance the proposed design criteria or to adjust values based on intended room use". Bidder C changed the air change rates for single bed cubicles and open plan bays in the PICU (Paediatric Intensive Care Unit) and Low Acuity department sub-groups from 4 ac/hr to 10 ac/hr. For single bed cubicles and open plan bays in the Neo-Natal and High Acuity department sub-groups Bidder C modified the air change rates to 6 ac/hr.

11.42 The Draft Final Tender review was completed on 13 November 2013 with Compliance and Feedback Reports issued to each Bidder. In order to "ensure fairness between bidders" no detailed feedback was to be provided "beyond setting out where that bidder does not meet minimum requirements". All of the bidders received the following feedback:

> "The Bidder should note there are a number of responses submitted in the Draft Final Tender that are unsatisfactory and, as such, currently constitute a 'fail' against the Board's minimum requirements; these unsatisfactory responses (clearly identified by inclusion of 'the Bidder has not provided a satisfactory response') MUST be addressed and failure to do so within the Bidder's Final Tender is likely to result in the Final Tender being rejected...
>
> The Bidder has not provided all the requirements as set out in ITPD Volume 1 Appendices AP1.1 Design Deliverables and AP1.2 Specifications; where these have not been submitted the Bidder has not provided a satisfactory response and this is likely to result in the Final Tender being rejected."

11.43 Feedback provided to IHSL alone was that:

"The Board is disappointed that submissions have not developed in line with feedback and discussions in dialogue to date. The Board is unable to confirm whether the Bidder would meet the minimum requirements where an incomplete submission has been provided."

11.43.1 The Board held a final dialogue meeting with each bidder at which they provided feedback in relation to the draft final tender and clarified outstanding points. This final meeting took place on the following dates for each bidder:

"(a) 19th November 2013 for Bidder A (B3);

(b) 20th November 2013 for Bidder B (IHSL);

(c) 21st November 2013 for Bidder C (Mosaic.)"

11.44 The action notes for dialogue meeting 6 held with bidder B do not record any feedback on the ventilation design, environmental matrix or room data sheets.

11.45 The following comments were provided with regard to the 'Approach to design and construction':

"Where sections were 'under development' the Board cannot comment on IHSL's submission. The level of incomplete information caused considerable anxiety in a draft of final tender.

NHSL will not review further submissions at this stage, however for sections submitted as part of Draft Final tender that the Board could not locate, IHSL are to confirm the title and location of the documents in Conject for the team to review.

The Bidder will be informed if any such submissions do not meet the Board's requirements..."

11.46 The Action notes for Dialogue meeting 6 held with Bidder A and Bidder C do not record feedback on C8 Mechanical and Electrical engineering, nor do the notes

contain comments showing concern over the completeness of the draft final tender.

12. Close of Competitive Dialogue

12.1 Paragraph 5.15 of SCIM Guide 'From OJEU to Contract Award' states that the competitive dialogue stage should continue:

> "...until the contracting body is satisfied that it has identified the solution or solutions capable of meeting its needs and requirements with sufficient precision to enable Final Tenders (which fully meet these requirements) to be submitted."

12.2 Paragraph 5.19 states that:

> "There is no limit on the number of stages which can be used provided that, at the end of the dialogue, there are sufficient participants to allow for a genuine competition".

12.3 Paragraph 5.24 states that:

> "It is vital that the dialogue continues until the contracting body has clearly identified and specified its detailed requirements, the solution(s) capable of meeting its needs and this, the basis upon which final tenders should be submitted. It must be confident that the remaining participants have sufficient information/clarity to be able to submit fully developed and 'final' tenders as the next stage only permits 'fine tuning'"

12.4 The project team recommended to the PSB that the competitive dialogue phased was concluded. The recommendation to close dialogue was discussed at the PSB meeting held on 29 November 2013. After discussion of a number of points to do with outstanding bidder's concerns and land issues:

> "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."

12.5 At this meeting Brian Currie also "raised again the project team's concerns about achieving Financial Close with the Preferred Bidder in six months."

12.6 Given the feedback provided at the draft final tender stage, which included an expression of considerable anxiety in relation to incomplete information in IHSL's tender, it is not clear to the Inquiry Team why the project team and the PSB considered that it was appropriate to close the dialogue phase. This issue will require to be explored with witnesses at the hearing diet commencing on 24 April 2023.

Commented [PR19]: SFT recognises that this is a statement of the Inquiry Team's position. Is the Inquiry Team clear that both the project team and the PSB was aware of the incompleteness of information referred to?

13. Key Stage Review 2b: Pre-Close of Dialogue

13.1 The Pre-Close of Dialogue Key Stage Review was finalised on 13 December 2013.

13.2 Section 2: 'Project Requirements', question 2 asks:

"Is the Procuring Authority, and are its advisers, satisfied with the overall quality and level of detail supplied by bidders during dialogue in respect of the design and build and service delivery solutions and that bidders' proposals are capable of meeting its requirements?"

13.3 The response given is:

"Recommendation: That, prior to close of dialogue, the Board receives and copies to SFT, letters, in the form of the drafts which the Board have earlier provided to SFT, from each of its financial, legal and technical

advisers confirming that each consider that it is appropriate for the Board to close dialogue."

13.4 Question 3 asks: "Based on dialogue with bidders is the Procuring Authority satisfied that the final tenders will contain solutions that satisfy its operational and functional requirements?"

13.5 The answer provided is: "Yes".

13.6 Question 16 asks:

> "Please confirm what further development of technical information is required from bidders between now and final tender submission and from the preferred bidder between appointment and financial close. Is the Procuring Authority, and are its advisers, satisfied that this is achievable within the current project timetable?"

13.7 The answer provided is "yes" with the comment:

> "100% compliance for operational functionality and minimum room layouts has now been achieved with all bidders. The Board has reviewed the bidders' programmes for design development through to financial close. The Board consider that the programme from preferred bidder to financial close is challenging."

13.8 The conclusion in the KSR was that the Project was ready to proceed to the next stage subject to certain recommendations. These included letters being provided from financial, legal and technical advisers confirming that each consider that it is appropriate for NHSL to close dialogue.

13.9 The issues highlighted at the final tender stage, which included an expression of considerable anxiety in relation to incomplete information in IHSL's tender, were not addressed within the KSR. It is not clear to the Inquiry Team why these issues were not addressed. This issue will require to be explored with witnesses at the hearing diet commencing on 24 April 2023.

**Volume 2 of the PPP will address the period from the close of Competitive Dialogue until the award of the contract. Provisional conclusions will be set out at the end of Volume 2 in relation to the entire procurement phase.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Provisional Position Paper 3

Commented [AG1]: This paper includes comments by SFT. The comments are intended to assist the Inquiry and reflect SFT's understanding. The absence of any comment does not indicate endorsement or acceptance by SFT of any element of the paper which does not refer to SFT's role or activity. SFT is content with the paper as it refers to SFT's role, subject to the comments
and suggested amendments included below.

The Procurement Process for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences

Volume 2: The Period from Close of Competitive Dialogue to the Award of the Contract

Purpose of the Paper

This Preliminary Position Paper has been produced to assist the Chair in addressing the terms of reference. It outlines the Inquiry Team's understanding of the procurement process for the award of the contract for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences (RHCYP/DCN) project (the Project). Volume 1 addresses the period from the commencement of the procurement exercise up to the close of competitive dialogue. Volume 2 addresses the period from the close of competitive dialogue to the conclusion of the contract. Gaps in the Inquiry Team's understanding are also identified in both volumes. These matters will require to be explored in greater detail at the hearing set to commence on 24 April 2023. Further papers have been produced in relation to the development of the Reference Design and the Environmental Matrix.

An earlier draft of this paper was circulated to Core Participants (CP) for consideration and comment. Those comments have been considered by the Inquiry Team and taken into account in finalising this paper.

In due course, the Chair is likely to be invited by the Inquiry Team to make findings in fact based on the content of this paper. The Inquiry Team does not presently intend to lead further detailed evidence on the matters outlined in it, except where there are gaps in the Inquiry Team's understanding of the procurement exercise. However, it is inevitable that some of the matters covered in the paper will be touched upon to a greater or lesser extent in the hearing set to commence on 24 April 2023. In addition, it is open to any CP – through evidence or submissions – to seek to correct and/or contradict it. It is therefore possible that the Inquiry's understanding of matters set out in the paper may change, and so the position set out in this paper remains provisional. If it is the case that the Inquiry's understanding does change significantly, a revised edition of this paper may be published in due course.

Definitions and abbreviations from Volume 1 are utilised in Volume 2.

Contents

14. Submission of Final Tenders

14.1 On 16 December 2013, after the close of competitive dialogue, NHSL invited bidders to submit their final tender in accordance with the 'Invitation to Submit Final Tender' (ISFT).

14.2 The expectation for the design at final tender is set out in the Scottish Capital Investment Manual (SCIM), NPD Guide: Section 2, paragraph 5.67:

> "The design at Final Tender stage must be sufficiently developed to enable the best tender to be selected but does not need to be at the level of detail which would be expected at contract signature stage. The process of design development, provided it has no or minimal impact on overall cost, should be regarded as clarification of design which should still be permissible under competitive dialogue."

14.3 The design at this stage is expected to include 1:200 plans and 1:50 for key areas, cross sections, site plans, area schedule, and performance specifications to be used to provide a fixed price bid.

14.4 The expectation for the development of proposals generally is set out in paragraph 6.22 which states:

> "...It is important that the Body is happy that a number of participants have developed acceptable solutions which will require minimum development following submission of Final Tenders. No material changes can be made to bids following submission of final tenders, unlike the previous negotiated procedures approach adopted in many PPP projects."

14.5 The SCIM provides a table to show the 'Commitment expected at each stage of procurement from Participants on major projects'. For final tender stage:

Commitment expected at the end of final tender stage	
State of contract discussions at end of stage:	Agreement on all key contractual issues affecting price and risk allocation, including payment mechanism and performance regime.

Designer:	1:200 plans with key departments at 1:50
Design and construct sub-contractor:	Confirmation of acceptance of draft contract, payment mechanism, performance regime and allocation of risks within consortium.
Services sub-contractor:	Confirmation of acceptance of draft standard contract, payment mechanism, performance regime and allocation of risks within consortium.
Bidding consortium:	Full financial model. Agreement on all points of principle on specifications.
Financial and Economic Standing/Funding:	Statement of support from funders/equity with draft term sheet and acceptance of standard contract terms, payment mechanism and performance regime, financial model and allocation of risks within consortium.

14.6 Like the ITPD, the ISFT comprised of four volumes:

- Volume 1 set out the general requirements of the Board, this being background information on the project, final tender requirements and how NHSL intended to evaluate the final tender, award the project and communicate with bidders;
- Volume 2 set out the contractual requirements of NHSL, which included the final tender (bidder specific) NPD Project Agreement, the Articles of Association and the Payment Mechanism;
- Volume 3 set out the specific technical requirements of NHSL, these being construction (clinical and non-clinical requirements), equipment requirements and facilities management requirements;
- Volume 4 set out the Data Room (a cloud storage facility) available to bidders.

14.7 The ISFT was the same as the ITPD except for the following changes:

- Volume 1 was updated to reflect notifications issued during the course of Competitive Dialogue.
- Volume 2 contained the Final Tender (Bidder Specific) Project Agreement, which reflected amendments agreed between NHSL, SFT and each bidder during competitive dialogue. It was issued separately to each bidder.
- Volume 3 included the Final Tender (Bidder Specific) Service Level Specification that had been developed during Competitive Dialogue.

14.8 Volume 3 also includes the Environmental Matrix in appendix C. The Inquiry Team is unclear whether the version of the Environmental Matrix issued with the ITPD was replaced with a bidder-specific version at the ISFT stage for bidders that had suggested changes to the Environmental Matrix during competitive dialogue. This will require to be explored with witnesses at the hearing commencing on 24 April 2023.

14.9 A summary of the final tender requirements for the technical submission is as follows:

- an executive summary which would not be scored;
- 'strategic and management approach' proposals some of which were scored on a pass or fail basis and some given a mark;
- 'approach to design and construction' proposals, including design deliverables set out in Appendix AP1.1 of the ISFT, some of which would be scored on a pass or fail basis and some given a mark;
- 'approach to facilities management' proposals some of which would be scored on a pass or fail basis and some given a mark;

14.10 All technical submissions formed part of the 'Quality Evaluation Mark' for which forty marks were available. Of that mark, 'strategic and management approach' made up five percent, 'approach to design and construction' made up 23 percent and 'approach to facilities management' made up twelve

percent. The remaining sixty marks out of a hundred were available for the price evaluation score.

14.11 As with the ITPD, Volume 1 set out general requirements. Section 2 was entitled 'Technical Overview'. Paragraph 2.4.1 stated that the specific requirements were set out in the 'Board's Construction Requirements' which were set out in section 3 of volume 3 of the ISFT. Innovation was encouraged but certain elements of the design, as they relate to Operational Functionality, were mandatory. This was described in Appendix E of volume 1 which was entitled 'Reference Design Elements'.

14.12 Paragraph 2.5 was entitled 'Reference Design and Mandatory Reference Design Requirements'. It outlined that a reference design had been developed which comprises mandatory and indicative elements. NHSL had spent time developing the reference design "...with significant clinical and stakeholder engagement..." prior to the commencement of the procurement exercise. The Mandatory Elements concerned Operational Functionality. In contrast to the ITPD, the ISFT contained new text explaining that NHSL would consider changes to the 'Mandatory Reference Design Requirements' (i.e. those elements relating to Operational Functionality) where a bidder considered that the 'Mandatory Reference Design Requirements' were not capable of meeting 'the Board's requirements'. The ISFT set out the process for bidders to notify NHSL of these changes. It also notes:

> "The Board confirms that the drafting in the ITPD around Operational Functionality is not intended to mandate elements of the Reference Design which demonstrably do not affect or impact Operational Use."

14.13 Paragraph 2.5.2 addressed room layouts:

> "During Dialogue Bidders were required to develop 1:50 layout drawings for a selection of rooms. The Preferred Bidder will be required to develop 1:50 layout drawings for all remaining rooms prior to Financial Close."

14.14 Section 2.5.3 was entitled 'Room Data Sheets'. It narrated that standard form room data sheets have not been prepared by NHSL for the Project. The

specific room requirements were set out in a combination of documents including 'The Board's Construction Requirements' and the 'Environmental Matrix'. Room Data sheets required to be developed for those rooms for which 1:50 layout drawings were prepared in dialogue as well as all Key Rooms and Generic Rooms. The ISFT stated that:

> "The Preferred Bidder will be required to complete Room Data Sheets for all remaining rooms prior to Financial Close."

14.15 The ISFT stated that Bidder's designs must achieve a "very good" BREEAM rating as a minimum.

14.16 Appendix K is entitled 'Certificate of Acceptance of Contractual Terms'. This was to give confirmation that the Board's Construction Requirements in volume 3 of the ISFT, and the NPD Agreement in volume 2, were acceptable to the tenderer.

14.17 Volume 3 of the ISFT, which set out the Board's Construction Requirements, did not contain changes to Section 2 'Project Wide Requirements' and Section 8 'Mechanical and Electrical Engineering Requirements' that are relevant to this paper.

14.18 Section 2 of Volume 3 sets out the general requirements of NHSL and lists the guidance to which the facilities must comply (including HTM and SHTM), and explains the hierarchy of standards to use in cases of inconsistency or contradiction between standards contained in the guidance or the Board's Construction Requirements.

14.19 Section 8 states that "Project Co shall provide the Works to comply with the Environmental Matrix" and that Project Co shall ensure that the "design, construction and selection of components for the mechanical and electrical works" comply with the guidance listed in Section 2 as well as in Section 8.1. This includes SHTM 03-01 which provides guidance on ventilation for healthcare premises, and CEL 19 (2010) 'A Policy for Design Quality for NHSScotland', 2010 Revision published by the Scottish Government, which mandates the use of Activity Database (ADB) or an equivalent.

14.20 ADB referred to above is a computer software package developed by the Department of Health, England, that assists healthcare planners, architects and teams involved in the briefing, design and equipping of healthcare environments. Content for ADB is developed from technical guidance such as Health Building Notes and Health Technical Memoranda (HTM). SHTMs are the Scottish equivalent of HTMs. ADB can be used in the production of Room Data Sheets, which outline the environmental specifications for each room of the hospital.

14.21 Bidders submitted their final tenders on 13 January 2014.

14.22 IHSL's final tender for C8: Mechanical and Electrical Engineering Design Proposals included their ventilation strategy:

> "C8.2 (iii): Temperature Control:
>
> Internal design criteria have been demonstrated through thermodynamic modelling. The solution provides the benefits of natural ventilation supplemented by a mixed mode mechanical ventilation solution which when operating in conjunction with ceiling mounted radiant panel heaters provides an element of user adjustable control.
>
> C8.2 (iv) Environmental Quality
>
> Experiences from the adjacent RIE prove conditions are not acceptable when reliant on natural ventilation alone, a mixed mode ventilation approach has therefore been adopted which allows a maximum internal temperature of 25°C. Cooled air will be automatically delivered to the naturally ventilated spaces if the room temperature is sensed to be above 25°C to reduce the temperature. This 'peak loping' approach ensures the risk of overheating is minimized and thermal comfort is maintained while reducing energy consumption compared to a fully mechanically ventilated approach.
>
> The ventilation, heating and comfort cooling strategy will ensure a good indoor air quality which together with the natural and artificial lighting strategy shall ensure comfort thus preventing sick building syndrome.

> Care shall be taken in the location of ventilation intakes to minimise the risk of external contaminants."

14.23 C8.2 (x) and C8.3 refer to the Environmental Matrix (EM). The requirement for C8.2 (x) was for bidders to provide an "environmental conditions/room provisions matrix" for both mechanical and electrical services for each room in the Facilities. C8.3 stated that a draft environmental matrix had been provided by the Board as part of the ITPD documentation, that bidders "must confirm acceptance of... highlighting any proposed changes on an exception basis". The EM was a spreadsheet that outlined the ventilation specifications for each room in the hospital. The development of the EM and potential inconsistencies between the EM and Scottish Healthcare guidance is the subject of the Inquiry's Provisional Position Paper 2.

14.24 IHSL's final tender submission for 'C8.2 (x) Environmental Conditions Room Matrix' 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 an exception basis highlighting any changes at preferred bid stage.
>
> Environmental Conditions:
>
> We have followed the reference design and have utilised the reference design matrix to compile the room environmental proposal drawings listed below..."

14.25 A list of drawings followed, including the ventilation strategy for the first floor, where B1 Critical Care is located: titled 'WW -SZ-01 – PL -524-001_FT – First Floor Plan – Ventilation Strategy'. The drawing only indicates ventilation type, it does not provide more detailed data on the exact air change rate or pressure regime for different rooms. Shading is used to indicate the type of ventilation for each room, specifically, whether a room required "central supply and extract", "central supply air", "central general extract", "central dirty extract", "HBN 4 Dependant", "In line with SHTM 03-01" or "natural vent" ventilation.

14.26 IHSL's response to C8.2 (x) continues: "The room temperature set points, air change rate and ands [sic] shall be in accordance [sic] SHTM 03 [sic] and lighting information as CIBSE guide LG2."

14.27 Also under C8.2 (x), a table is provided, indicating that HDU (High Dependency Unit) should have 10 air changes per hour of supply air (stated as 'Ac/hr'). Air changes per hour refers to the number of times the entire volume of air in a room is completely removed and replaced with fresh air. The ventilation type, in this case 'supply' refers to the provision of fresh air into a room when the air movement needs to be controlled. Ventilation 'extract' involves the removal of contaminated air from a room.

	Temperature		Ventilation		Lighting
Typical Room	Design Maximum deg C	Design Minimum deg C	Supply Ac/hr	Extract Ac/hr	Normal Lux
Bathroom	28	18	0	10	200
Bedroom	25	20	4	0	100
Consulting Room	28	18	3	3	300
Clean Utility	28	18	6	0	150
Dirty Utility	28	18	0	6	200
HDU	25	18	10	0	400
Patient Accommodation Day	25	18	4	0	100
Multi-bed Wards	25	18	4	0	100
Treatment Room	28	18	10	0	500
Operating Theatre Suite	28	18	In line with SHTM03-01 in line SHTM03-01		500
Operating Theatre Recovery	25	18	15	15	500
Pantry	28	18	6	8	300

Text below the table states:

> "Where comfort cooled fresh air is indicated, the mechanical ventilation systems shall be supplemented by the ability to open the windows"

14.28 Under section 'C 8.3 Environmental Matrix' IHSL's submission stated:

> "As indicated above no changes proposed at this time nor envisaged in the future but we will continue to review and advise back. The solutions are refenced on the Heating, Ventilation and Cooling strategy drawings, sequence 521, 524 and 525 recorded in AP1.1 Section 5.1 Mechanical Drawing Schedule."

14.29 IHSL did not submit a separate environmental conditions room matrix or a marked up version of the EM with their final tender submission for C8. The drawings referred to above include drawings for the ventilation strategy for each floor, discussed above.

14.30 Bidder C described the following ventilation strategy in their final tender for 'C8 Mechanical and Electrical Design Proposals':

> "...In order to maximise energy efficiency, the air flow rate will be based on the calculated flow to suit occupancy and provide required cooling as required [sic]. As a result of our study, we have proposed a lower air flow of four air changes/hr (which have been agreed in dialogue meetings, despite being lower than those specified in SHTM 03), and the addition of terminal cooling to achieve the required environmental control.
>
> Ventilation air flow rates for mechanical ventilation will be based on a typical occupancy:
>
> - Single rooms: one patient and two others (visitors or clinicians)
> - Multi-bed rooms: as above, three people per bed space
>
> These will result in a similar air flow to the provision of four air changes/hr included in the reference design, though with the additional benefit of terminal heating / cooling via the beam."

14.31 Bidder C's response to the requirement under C.2 (x) for an 'environmental conditions/room provisions matrix' was:

> "The [Bidder C] environmental matrices have been produced to reflect the design criteria used as the basis of the [Bidder C] proposals. The criteria contained within the matrices are intended to represent the standards and strategy of the engineering proposals.

The matrices have been derived from the reference design environmental matrices in order to show where the design criteria have been modified to reflect the [Bidder C] engineering strategy.

Refer to Appendix 1 - Environmental matrix."

14.32 Under C8.3, bidders were asked to "confirm acceptance of the Board's Environmental Matrix, highlighting any proposed changes on an exception basis". Bidder C's response was:

"It is noted that the design data contained in the reference design matrices is considered to represent the mandatory standards and should be adopted by bidders. It is also noted that any deviations from the reference design matrices should be identified.

It is [Bidder C]'s intent to generally follow the reference design environmental matrices except where the criteria are modified by the different engineering strategies proposed, for example the proposed use of chilled beams combined with fresh supply rates based on occupancy. All adjustments to the reference design criteria have been highlighted in red in the proposed matrices.

Some other criteria have been modified to enhance the proposed design criteria or adjust values based on the intended room use. Again all adjustments have been highlighted in red."

14.33 Bidder C's response to C8.3 included further detail on the changes they made to the EM due to their engineering strategies. They did not describe changes made to the air change rates in Department B1 (Critical Care). Bidder C replicated the guidance notes contained in the EM "for clarity". The guidance relating to HDU bed areas and Critical Care areas stated:

"HDU bed areas:

Design criteria contained in HBN 57 gives specific guidance as well as SHTM 03-01 – especially Appendix 1 for air change rates – 10 ac/hr supply, 18°C to 25°C control range. This capability shall be provided

but not at the summer and winter external ambient design extremes against the internal maximum and minimum range conditions. The department should be air conditioned and controlled on a zonal basis."

"Critical care areas:

Design criteria contained in SHTM 03-01, especially Appendix 1 for air change rates – 10ac/hr supply , 18°C to 25°C control range. This capability shall be provided but not at the summer and winter external ambient design extremes against the maximum and minimum range conditions. NHSL may require specific rooms to have a control range up to 28C"

14.34 Bidder C's EM contained changes to the specifications for Department B1 (Critical Care, HDU and Neo-Natal Surgery). In the PICU (Paediatric Intensive Care Unit) and Low Acuity department sub-groups the air changes for single bed cubicles and open plan bays have been changed from 4 to 10 air changes per hour. For Neo-Natal and High Acuity department sub-groups the air change rates have been changed from 4 to 6 air changes per hour.

14.35 IHSL's energy strategy was to minimise energy requirements by adopting passive design features, which included using natural ventilation. This would help them to achieve ENE 01 BREEAM compliance, compliance with building standards, and achieve 90% of the desirable requirements of the Edinburgh Council Standard for Sustainable Buildings.

14.36 The input data used for their operational energy model includes mechanical ventilation specifications for a number of different room types, as well as an indication of whether or not natural ventilation would be used for that room. The list of room types includes "bedroom" and "ward areas" with 4ac/hr mixed mode ventilation. It does not include "HDU", "Critical Care" or "Isolation".

14.37 IHSL's energy model and ventilation strategy is set out in their submission on Building Services Deliverables: Mechanical and Electrical Services. Paragraph 5.9.6 describes the Natural Ventilation Strategy:

"5.9.6.1 Purpose of Ventilation:

Ventilation in the healthcare environment can be naturally or mechanically

driven and serves a number of purposes which can be summarised as follows:-

- Providing fresh air for normal respiratory purposes
- Diluting the level of CO2 in the space
- Removal of odours and pollutants
- Control of temperature and humidity
- Control of infection
- Specialist process requirements
- Occupants experience a feeling of wellbeing

The use of natural ventilation will minimise the need for energy to drive fans. However many clinical requirements, in for example Operating Theatres, necessitate the use of mechanically driven ventilation for close environmentally controlled spaces and departments having high equipment heat gains. Furthermore, despite carefully considered

planning, building constraints invariably lead to spaces that do not have access to natural ventilation

…

Studies have been carried out into particular areas of the hospitals – wards, for instance, which make up a significant proportion of the hospital - to determine whether natural ventilation can be employed to achieve the purposes as set out above, within the targets set down by the Board in the ITPD documents."

14.38 The document notes, at paragraph 5.9.6.2, that "there are a number of situations in which natural ventilation may not be suitable or desirable" and

states that local factors need to be taken into account which “include but are not restricted to”, air permeability or air tightness of the building, outdoor air quality, indoor air quality, pollution and thermal comfort. The document states that while some departments or rooms within departments shall be mechanically ventilated “consideration has been given to naturally ventilating the maximum possible number of areas”. It then refers to an analysis done on the “option of naturally ventilating the wards as they form a large proportion of the building”. The document continues:

> “5.9.6.3 Analysis of the ventilation strategy for the building
>
> ...
>
> The thermal modelling has concentrated on the typical ward specifically considered two adjacent ward bedrooms located on each face of the main building. In association with the thermal modelling, daylight simulation calculations have been undertaken as part of a strategy to achieve a BREEAM ‘Excellent’ rating for ENE1 for the new hospital. These calculations determined the optimum window sizes required for the daylighting percentage.
>
> Due to the low envelope air permeability mechanical make-up ventilation is provided to the bedrooms to match the extract from the adjacent bedroom en-suite toilet/shower rooms. This adds the benefit of being able to condition this air, particularly in warm weather, to assist in reducing overheating.
>
> Below are two examples of simulations that were carried out to reach a final solution, however, these are the culmination of many other simulations carried out using differing design criteria and options.
>
> Single Bedroom Ward, South Facing Exposed (Summer) with mixed mode ventilation
>
> - Opening windows – restricted opening to 100mm.
> - Supply air provided if the room air temperature is great than 25°C.

- External air 4 ACH cooled to 18°C.
- No reliance on uncontrolled infiltration for cooling.

…

5.9.6.4 Conclusion

The results show that in the wards a mixed mode, natural and mechanical ventilation combination...does provide the solution to meeting the overheating criteria in the rooms. It is proposed that all ward rooms adopt this mixed mode approach and are be provided with a means of cooling in the form of tempered fresh air from central plant along with a restricted opening window.

It is envisaged that generally only small perimeter non clinical rooms with low occupancy and low heat gains will be solely naturally ventilated. Other similar but larger more densely populated rooms will employ a mixed mode system. Then as stated above the majority of the clinical spaces will be mechanically ventilated or mechanically or air conditioned."

14.39 The document goes on to outline IHSL's 'Mechanical Ventilation Strategy' at paragraph 5.9.7:

"The ventilation systems to the Hospital are designed in accordance with Scottish Health Technical Memorandum SHTM 03-01. Ventilation shall be provided to suit both the operational and statutory requirements of the development. Although the development has been designed to maximise the use of natural ventilation, it is intended that rooms will not be reliant on natural ventilation alone, unless they comply with maximum temperature limits listed in the RDS Environmental Matrices.

To obviate problems with overheating due to 100mm opening restrictions on opening windows, we have included for mechanical supply ventilation for the Ward Areas and to provide mechanical cooling to all tempered air supply air handling units to provide the ability to

supply air temperature at a condition to ensure the internal temperatures in patient areas shall be maintained within comfort levels as illustrated within the separate Ward Bedroom Comfort Analysis Report."

14.40 Paragraph 5.9.10 describes the 'Specialist Ventilation Strategy', focusing on isolation rooms:

> "Designated Isolation Rooms shall be provided with HBN4 positively pressurised lobby ventilation for isolation purposes along with independent en-suite extract to roof mounted extract fans with discharge stacks or Hepa filtration as appropriate."

14.41 No further information is provided for any other rooms of the hospital which may require specialist ventilation for the control of infection or for other purposes. However, paragraph 5.9.14.1, which provides an overview of the 'Building Energy and Management System' states:

> "The environmental conditions within the hospital spaces are controlled to ensure high levels of comfort to the occupants, overall energy efficiency of the system and also infection control needs and other clinical requirements as prescribed in the SHTMs."

14.42 Paragraph 5.12 refers to 1:50 drawings of 'mechanical and electrical services sections'.

14.43 IHSL's final tender for 'Specification for Ventilation Systems' included a section entitled 'Applicable Standards'. It states that: "The Ventilation System shall accord with all appropriate Hospital Technical Memoranda, Codes of Practice and Relevant British and European Standards and Appendix A". Under section 6.0 'Design Criteria' it states, "For ventilation/air change rates used in the design, the Sub-contractor shall refer to the ADB sheets."

14.44 Paragraph 8.1 is entitled 'Background to Ventilation and Air Conditioning Installations'. It states that the building is based on a mixed mode solution. Under 'U10 Ventilation systems', detail is provided regarding 'All Air Systems':

"…

Areas shall be controlled in zones or as individual rooms as necessary to achieve the conditions required by the ADB Sheets.

Supply plants shall incorporate panel type coarse pre-filters followed by high efficiency bag filters. Absolute HEPA (high efficiency particulate air) terminal filters shall be provided only for 'ultra clean' areas such as UCV Theatres for Orthopaedic and Neurosurgical and isolation rooms. Some isolation rooms incorporate HEPA filters on the extract system.

Full humidity control, including humidification and dehumidification, shall be provided only in critical care clinical areas, such [as] operating theatres, recovery, radiology and MRI Scanner or wherever close control of humidity is required for the successful operation of sensitive equipment, e.g. computers, as advised by the ADB Sheets. Steam shall be provided by dedicated gas fired steam boiler plant and direct injection humidifiers.

Air pressure regimes for theatre suites shall be designed in accordance with the guidance provided in SHTM 03-1 employing wall mounted pressure stabilisers.

Air volumes have been established by consideration of heat gains or losses and also the air change rate necessary for comfort and safety as appropriate for the activity carried out in each area. Relative air pressures between rooms shall be maintained to suit the activity concerned, by design of the supply and extract air volumes, and use of pressure relief equipment where necessary to prevent cross infection or transfer of unpleasant odours between areas, as required by the ADB sheets.

Heat recovery shall be provided between the supply and extract systems. The hospital ventilation systems shall be in accordance with SHTM 03-01 Ventilation in health care premises, DW 144 and DW 143..."

14.44 1 DW 143, referred to above, is titled, 'A practical guide to ductwork leakage testing. HVCA Publications, 1998.' DW 144 is 'Specification for sheet metal

ductwork, low, medium & high pressure/velocity air systems. HVCA Publications, 1998.'

14.45 Information is provided regarding different room types, specifically, wards, isolation rooms, outpatient type departments, operating theatres, critical care departments, comfort cooled areas. Details regarding exact air change rates, pressure regimes and other technical information is not provided. The section on Critical Care states:

> "Critical care departments such as ITU/HDU shall be provided with dedicated ventilation systems.
>
> The supply air ventilation plant shall heat and cool the air as required by the control system to provide the correct condition in the various rooms/zones.
>
> Final temperature control to the spaces shall be achieved by terminal reheaters controlled from user adjustable sensors within each space. Heater batteries shall be located wherever possible in plant areas, but where heaters can only be provided in the ceiling void of the occupied space they shall be located away from patient occupied spaces, i.e. bed spaces.
>
> Heat recovery shall be provided between the supply and extract systems."

14.46 For final tender submissions for section C2 'Robustness and Quality of Approach to design quality' bidders were asked to:

> "submit proposals setting out how the design will be developed to integrate the architectural, mechanical, electrical and civil and structural engineering aspects of the design to present a cohesive innovative design which meets all the Board's construction and stakeholders' requirements (including infection control and HAI-SCRIBE requirements). The submission shall utilise all Mandatory Reference Design Requirements to deliver a solution across all disciplines."

14.47 HAI-SCRIBE referred to above stands for Healthcare Associated Infection System (for) Controlling Risk In the Built Environment. The system was developed to ensure that infection prevention and control risks are identified and managed in the built environment (a hospital or other healthcare facility). The Infection Prevention and Control measures are put in place and maintained for the lifetime of the healthcare facility by HAI-SCRIBE. The potential risks related to the proposed site development, design and planning, construction or refurbishment and ongoing maintenance of the healthcare facilities can be identified and managed by the HAI-SCRIBE system.

14.48 Infection control risks are identified at each of the following stages of the lifecycle of the healthcare facility using HAI-SCRIBE.

- Development Stage 1 – considers the initial brief and proposed site for development.
- Development Stage 2 – Design and planning
- Development Stage 3 – Construction and refurbishment
- Development Stage 4 – Pre-handover check, ongoing maintenance and feedback.

14.48.1 There are three key parts in respect of implementing the HAI-SCRIBE system:

Part A: Assembling the project team and ensuring that HAI-SCRIBE forms part of its responsibilities.

Part B: Assessing the risk by the use of question sets (1) – (4).

Part C: Gathering the information to inform dialogue. This is set out in the planning and design manual (SHFN 30, Part A).

14.48.2 IHSL's tender contained the following information in relation to 'Integrated Approach', 'Design Reviews', and 'HAI-SCRIBE':

"Integrated Approach:

Our whole team has pursued an integrated approach from our site wide master planning through to design development, detail design and clinical planning for all elements of the new RHSC & DCN facility. This has involved coordinating the skills of the many specialist consultants together

with input and feedback from NHS Lothian's team during the dialogue process...

Design Reviews

The Design Team have been meeting regularly through the detail design stages to ensure that all aspects of the structure, fabric and building services are fully integrated. We have also held three full 'Design Reviews' chaired by Chris Liddle our Design Champion to ensure that all aspects of the design including the clinical planning presents a cohesive design based upon function, clarify and the creation of a high quality environment for patients, staff and visitors.

…

HAI-Scribe

Throughout our development of the design we have taken cognisance of the requirements of HAI-SCRIBE and have designed in measures that will eliminate or minimise the effect of healthcare associated infection. We have ensured that infection control principles are incorporated into our design, drawing on national guidance particularly 'infection control in the built environment: design and planning (SHFN30 version 3).'

We have carried out internal HAI-SCRIBE reviews, however we are aware that it will require further reviews with NHS Lothian representatives (particularly infection control) as we continue to work through Preferred Bidder, Financial Close and construction on the live hospital campus and on-going maintenance.

IHS Lothian have undertaken a HAI-SCRIBE review as part of the ITPD stage and we will continue this throughout the whole project as we know that it is more cost effective to achieve management of infection at the planning stage. Such assessments and records will also assist the Board Infection Control Risk Management Group.

The building services installation has been designed in line with HAI-SCRIBE and the building services shall be reviewed at each of the stages in the HAI-SCRIBE risk assessment process.

We have also taken cognisance of the following and have developed

designs to accommodate control of infection issues taking into account the following..."

14.49 What follows is a long list which includes en-suite toilets, isolation rooms, suitable ventilation systems, use of natural ventilation Critical Care areas are not mentioned.

14.50 In Section C2.2 "Site Analysis/Analysis of Board's Requirements" IHSL stated under "Mechanical and Electrical Engineering Requirements", that the engineering systems have been designed to comply with the list of SHTM's, HBN's and HTM's applicable to the facilities and listed within the BCRs. IHSL also stated that they had reviewed design guidance documents and principles set out in the BCRs and CEL 19 (2010), "A Policy for Design Quality for NHS Scotland".

14.51 Section C3, "Clarity and Robustness And Quality of Architectural And Landscape Design" contains a section C3.1 viii on how the design will fully address control of infection and HAI Scribe. IHSL's tender stated:

"We have taken cognisance of the requirements of HAI-SCRIBE and have integrated them throughout all aspects of the design. We have carried out internal HAI-SCRIBE reviews however are aware that it will require a comprehensive review with NHS Lothian representatives (particularly infection control) as we continue to work beyond Preferred Bidder towards Financial Close.

We have worked on the assumption that Development Stage 1 of the HAI-SCRIBE process has already been implemented and completed by NHSL and their technical advisory team and the following comments are therefore restricted to any design issues relevant to the current status of the scheme, which equates to part completion of Development Stage 2.

It is at this stage that we are required to identify any hazards associated with potential HAI risks and consider any measures which might be required to mitigate and manage them..."

14.52 IHSL included a copy of the HAI-SCRIBE "checklist for Development Stage 2: HAI-SCRIBE Applied to Planning and Design Stage of Development", which IHSL had completed. Under question 3.1 "Does the design and layout of the healthcare facility inhibit the spread of infection?", there is a tick under "yes". Under question 3.2 "Is the ventilation system design fit for purpose, given the potential for infection spread via ventilation systems", there is a tick under "yes".

14.53 IHSL's submission on 'Acceptable Post Preferred Bidder Stage Design Development Proposals and Design Programme' described how they would manage the design process to financial close should they be selected as preferred bidder. It included development of room data sheets and use of Activity Database:

"Room Data Sheets (RDS) Design Deliverables and Equipment Schedule – Enhancement and Improvement of the Design.

The PBS [Preferred Bidder Stage] Launch Meeting will be utilised to discuss the project set-up and project protocols. This is when the following items will be reviewed, to ensure that the RDS Work stream can progress to programme:

- Agree which Design Group will lead (assume Project Technical Design Group Lead). Possible detailed further review of rooms in appropriate Clinical Group – Key rooms and Generic rooms.

- Review Project Equipment Standardisation, including Equipment Unions.
- Project Database Set-Up.
- Review RDS already produced for the Rooms and agree proposed amendments based on above.
- Room Type Schedule – Review Room Types/ADB room briefing codes – agree number of types (encourage as much standardisation as clinically possible ie possible increase to Generic Rooms within the 31 types already established). Note this discussion will continue during the Technical Design Group/Equipment Design Workshops

  …
- Agree strategy for design development of Specialist Equipment (e.g. Imaging Equipment). Note this discussion will continue during the Technical Design Group / Equipment Design Workshops.

The RDS for the Generic and Key Rooms will be targeted for review in DDM 1 and remaining Room Types will be targeted for review in DDM 2 and agreed in principle in DDM 3 to allow the release [sic] the ADB database for commencement of the main 1:50 Design Programme. A summary of the initial RDS Production Programme (in ADB) is as follows:

- Generic Rooms – RDS brief agreement and release for 1:50 Design in DDM 1.
- Key Rooms – RDS brief agreement and release for 1:50 Design in DDM 1
- Remaining Room Types – RDS brief agreement and release for 1:50 Design in DDM 2 and DDM 3 (if required)..."

14.54 In their tender submission for 'C21: Compliance', IHSL confirmed compliance with the Board's Construction Requirements subject to any derogations scheduled in their submission for Section C30. Their submission C30 'Assumptions and Derogations from the Board's Construction Requirements' does not contain any derogations from SHTM 03-01, NHSL's mechanical and electrical requirements, or the Reference Design Environmental Matrix.

14.55 Bidder C's final tender Submission for C30 "Assumptions and Derogations" states:

> "We confirm that our design solution complies with the Board's Construction Requirements, however, where there are specific areas of this document that we wish to clarify, our clarifications are set out below."

14.56 One of the clarifications is with respect to Section 8: Mechanical & Electrical Engineering Requirements: "Project Co shall provide the Works to comply with the Environmental Matrix". Bidder C's clarification is "Refer to [Bidder C] response C8.3 for comments on environmental matrix." Further clarifications are made regarding thermal requirements and internal air quality, the latter including reference to meeting requirements in SHTM 03-01.

15. Evaluation of Final Tenders

15.1 Evaluation of final tenders took place in the period from 13 January 2014 to 28 February 2014. This was a shorter period than initially programmed. In November 2012, after discussion between NHSL, SFT and SGHD, it was unanimously agreed to adopt a compressed programme with tender evaluation duration shortened from 75 days to 39 days.

15.2 The evaluation of each criteria set out in the final tenders was led by a member of the Core Evaluation Team and included members of NHSL's project team and external advisers.

15.3 In terms of the Quality Evaluation Criteria, which comprised of evaluating Section B (Strategic and Management), Section C (Approach to Design and

Construction) and Section D (Approach to Facilities Management), this was arranged as follows:

- Iain Graham led the evaluation of Section B (Strategic and Management) and was supported by MM [Mott MacDonald], MacRoberts LLP and Ernst & Young. This was a scored and pass/fail evaluation;
- Brian Currie (NHSL) led the evaluation of Section C (Approach to Design and Construction) and was supported by MM. This contained a mixture of 'scored' and 'pass/fail' evaluations. Evaluation team members included:

  From NHSL:

  - Brian Currie (Project Director)
  - Janice Mackenzie (Project Clinical Director)
  - James Steers (Clinical Director)
  - Fiona Halcrow (Service Project Manager)
  - Janette Richards (Infection Control)
  - Neil McLennan (Capital Project Manager)
  - Ernie Bain (Estates Manager)
  - Charlie Halpin (Energy and Environment Manager)

  Advisers:

  - Richard Cantlay (Lead Technical Adviser)
  - Graeme Greer (Technical Adviser)
  - David Stillie (Technical Architectural Adviser)
  - Colin Macrae (Technical M&E Adviser)

- Andrew Duncan (Technical Construction Adviser)
- Fraser Littlejohn (Technical Planning Adviser)
- Rod Shaw (Technical Cost Adviser)

- Jackie Sansbury led the evaluation of Section D (Approach to Facilities Management) and was supported by MM. This was a scored and pass/fail evaluation.

15.4 The price evaluation was led by Iain Graham, supported by Ernst & Young.

15.5 The document 'Competitive Dialogue Project Plan and Final Tender Evaluation' includes guidance on quality scoring for the technical submissions:

> "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 the final consensus scores for each of the evaluation criteria for which that Group is responsible.
>
> Once the evaluation has been completed for each Bidder the Core Evaluation Author and CET [Core Evaluation Team] Lead will be responsible for preparing the final scoring report using the Final Tender Evaluation Scoring Matrix at Appendix F, with associated commentary, as appropriate. The completed scoring report will be submitted to the Core Evaluation Team to allow the final scores to be checked and verified and the selection of the Preferred Bidder to be made."

15.6 The Inquiry Team understands that this guidance was followed in the assessment process with a consensus score being allocated.

15.7 Brian Currie and Ernie Bain (Estates Manager) from NHSL were responsible for evaluation of 'C8 M&E engineering design proposals' and 'C10: energy management proposals'. They were advised by Kamil Kolodziejczyk and Colin Macrae, technical advisers from MM.

15.8 IHSL's submission for C8 'M&E engineering design proposals' received an overall score of 5, meaning 'satisfactory'. This meant the evaluation team assessed that IHSL's approach:

- demonstrates a satisfactory understanding of all aspects of the Board's requirements; and/or
- proposes a solution which performs satisfactorily in complying with the Board's requirements.

15.9 According to the Reviewers' comments many of the components of IHSL's tender "lacked detail", were "basic" or "minimal", and some were not provided. Examples included:

- In terms of the requirement that "Bidder's **must** submit proposals setting out the engineering services design for each element of the scheme in sufficient detail to demonstrate compliance with the Board's Construction Requirements." the Reviewers determined that the brief was achieved. The comment provided is:

  "Lacking detail on design philosophy and BCR compliance".

- [The] "environmental conditions/room provisions matrix for both mechanical and electrical services for each room in the Facilities" section records that the brief was achieved. The Reviewers comment is:

  "No matrix provide, (sic) but environmental layout drawings provided."

- The section on "Major plant life cycle statements... to support the lifecycle costing analysis completed in the technical costs proforma." records that the brief was achieved. The Reviewers comment is:

  "Basic statement referring to CIBSE guidance for life cycles. No costs provided."

- C8.3 stated that “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 acceptance basis.” IHSL did not provide an a marked up environmental matrix, but in their submission had noted that “no changes proposed at this time nor envisaged in the future.” The Reviewers concluded that the brief had been achieved. The Reviewers commented:

  “Good response.”

15.10 It is not clear to the Inquiry Team why the Reviewers considered that IHSL’s response in relation to the EM was “good”. The Inquiry Team has identified potential discrepancies between values for environmental conditions in the EM and published guidance. These potential discrepancies are covered in greater detail in the separate papers on the Reference Design and the Environmental Matrix. The basis for assessing IHSL’s response as “good” will require to be explored with witnesses at the diet of hearings commencing on 24 April 2023.

15.11 The proforma report for C10, energy management proposals, was scored 7, meaning “good". The Reviewers comments record that “Naturally ventilated room depths minimised to ensure effectiveness of single sided ventilation”.

15.12 A document was prepared comparing the strengths, weaknesses and evaluation summaries of the three bidders final tender submissions for ‘Design and Construct’. Both bidder A and bidder C scored higher than Bidder B (IHSL) for C8 “mechanical and electrical engineering”. The weakness of IHSL’s submission was: “Many sections do not have detailed descriptions or explanations. Two CHP proposed, three would be ideal.” The ‘strength’ was “Good level of drawings provided”. Bidder B received a score of 5 and the “evaluation summary” was “Satisfactory response, covering the required criteria”. Bidder C received a score of eight and the evaluation summary was “Very good narrative descriptions on most elements providing a good level of detail to demonstrate compliance.”

15.13 IHSL received the lowest score out of the three bidders for C8.

15.14 IHSL received the highest score out of the three bidders for C1, “meeting the stakeholders requirements”, C3 “architectural and landscape design”, C6 “Way finding and signage”, C7 Interior Design Proposals, C9 “natural and artificial lighting” and C24 “construction methodology”. IHSL were the only bidder to receive scores above eight, including a score of nine for “Wayfinding and signage proposal”, and 10 for “architectural and landscape design” and “interior design”.

15.15 The submission for C21: “Compliance with Board’s Construction Requirements” was assessed on a pass or fail basis, and C30: “Assumptions and Derogations” was not scored. David Stillie (MM) provided comments on all three bidder’s responses to C30. With respect to IHSL, it was noted:

> “As IHS Proposals are compliant with a mandatory reference design requirements, we assume that all derogations which would have been required in construction of the reference design will be acceptable to NHS Lothian...
>
> This bidder has adopted the Reference Design and has accepted compliance with the Board’s core requirements. The above represents those responses that I feel need further discussion with the Board or amongst ourselves before we can be happy with them.”

15.16 In their submission for C30 Bidder C, had referred to their modified environmental matrix with respect to NHSL’s requirement in Section 8 of the BCRs that “Project Co shall provide the Works to comply with the Environmental Matrix”. David Stillie commented: “I assume Colin has looked at M&E content” but made no further comment with respect to Bidder C’s proposed changes to the Environmental Matrix.

15.17 The scores for quality and price were compiled to complete the assessment of tenders. IHSL’s combined score was the highest of the three bidders.

15.18 Sorrel Cosens prepared a paper for the PSB on 28 February 2014 confirming completion of the evaluation of final tenders. At this meeting, the evaluation of

the three tenders was discussed. Brian Currie stated that the evaluation was “robust” and that a consensus had been reached. Brian Currie and Iain Graham highlighted that the three bids were extremely close “which was a testament to the success of the competitive dialogue in ensuring that all three bids met NHSL's requirements”. The project team’s recommendation for appointment of the preferred bidder was approved for sharing with the NHSL’s Finance and Resources (F&R) Committee.

16. Key Stage Review 3: Pre-Preferred Bidder

16.1 Key Stage Review 3: Pre-Preferred Bidder Appointment was finalised on 28 February 2014. In Section 2 “Project Requirements”, Question three, states “Is the Procuring Authority, and are its advisers, satisfied that any further development of technical information required from the preferred bidder appointment to financial close is achievable within the current project timetable?”. The response is “yes” with the comment:

> "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"

16.2 Section 5 was entitled “Commercial”. Question 29 stated: “Please describe the risks that the Procuring Authority considers to be most significant to the preferred bidder stage and the strategy for managing these risks”. The comment provided was “The key risks in the Updated risk register are as listed in Annex B”. The risk register in Annex B set out ‘key risks. “Programme delay in reaching Financial Close” was noted as a risk. Its status was ‘red’. The “Adequacy of Controls” was stated, in bold, as “**Not satisfactory at present**”. The risk register recorded that the project team “...continue to be sceptical regarding delivery of financial close in less than six months from the appointment of Preferred Bidder”.

17. Selection of the preferred bidder

17.1 Two papers were prepared for the (F&R) Committee meeting on the 5 March 2014. Brian Currie shared a paper detailing the tender evaluation process and selection of preferred bidder. It noted that the consensus of all evaluation meetings was that all three bidders passed the pass/fail criteria. The key risk highlighted was a potential challenge to the preferred bidder appointment by an unsuccessful tenderer. A report by Sorrel Cosens provided an overview of the assessment scores and an anonymised recommendation for the preferred bidder. The scores for the three tenders were assessed as: 86.11, 87.43 and 88.08.

17.2 NHSL also received updates from Ernst & Young, MacRoberts and MM. Mr Orr, of MacRoberts, stated that the procurement process had complied with the 2012 Regulations and best practice. The processes and procedures of SFT had also been followed. In terms of a letter dated 4 March 2014, Mr Cantlay of MM advised that he believed that from a technical perspective, the evaluation had been carried out in a manner consistent with the evaluation methodology. Mr Cantlay stated that from a technical perspective, it was appropriate for NHSL to conclude the evaluation process and appoint the preferred bidder.

Commented [AG2]: Please can the Inquiry confirm the date and source of this statement and provide SFT with a copy of the source? We note that the statements regarding procurement process and technical elements are both supported by witness evidence. Without having had sight of the reference material, if the sentence is intended to convey that SFT's Key Stage Review had been signed off, then that could be clarified.

17.3 The minute records that Mr Cantlay stated that the scores awarded for the technical evaluation criteria seemed correct and it appeared appropriate for the preferred bidder to be appointed. Mr Cantlay is recorded as stating that "...the scores were all appropriate and he was happy with the evaluation and satisfied that the preferred bidder was in full accordance with the requirements". Mr Currie stated that all three bids had been of an acceptable quality. The minute records, at paragraph 61.16, that:

> "Everything possible had been done to mitigate the risk of poor quality facilities and/or poor services being provided to NHS Lothian."

17.4 At the meeting, the Chair sought confirmation that the price in the contract would be fixed. Mr Orr, MacRoberts, confirmed that there would be a fixed price contract in place subject to any variations or agreed increases.

17.5 The Finance and Resources Committee agreed to note the outcome of the scored evaluation and the assurance statements provided by the legal, technical and financial advisers along with the completion of the KSR (appointment of preferred bidder) by SFT. The Committee unanimously approved the selection of IHSL as the preferred bidder.

17.6 Following authorisation by the Finance & Resources Committee, the Board of NHSL issued a preferred bidder appointment letter to IHSL on 5 March 2014 (the PBA Letter). Standstill letters were issued to the unsuccessful tenderers on 5 March 2014.

Commented [AG3]: Please can the Inquiry confirm whether this date is accurate? Volume 1 records the date of Publication of Contract Award Notice as 25 March 2015, which appears to be an error.

17.7 This PBA Letter states that:

a) "IHSL's Final Tender submitted on 13 January 2014, as clarified and amended by Schedule Part 5 (Clarifications in respect of IHSL's Final Tender) of the Preferred Bidder Appointment, has been evaluated as the most economically advantageous Final Tender; and

b) Subject to IHSL and each member of its consortium accepting the conditions set out in this Preferred Bidder Appointment...

the Board has approved the recommendation to appoint IHSL as the Preferred Bidder for the Project on the basis of its Final Tender..."

17.8 The PBA Letter formed the basis for the preferred bidder appointment. Schedule Part 1 (Terms of Preferred Bidder Appointment) set out the terms of IHSL's appointment as preferred bidder. The terms included the following:

- IHSL was required to use its best endeavours to diligently progress the Project to Financial Close on 2 October 2014 and thereafter use its best endeavours to achieve a completion date of 17 February 2017.

- IHSL was required to work with NHSL to develop, agree, and finalise the outstanding issues set out in Schedule Part 3 and Schedule Part 4.
- Section 4.4 of Schedule Part 1 required IHSL to develop certain technical schedules of the Final Tender NPD Project Agreement, including room data sheets. Section 4.5 states that: “IHSL shall further develop their Design included within their Final Tender to the level set out in the Invitation to Submit Final Tender (as a minimum).”
- Schedule Part 2 (Preferred Bidder to Financial Close) set out the timetable to reach financial close of the Project.
- Schedule Part 3 (IHSL’s outstanding issues to be addressed in respect of the Project) set out the issue to be resolved, including legal and contractual issues, interface issues, strategic and management issues, design and construction issues, facilities management issues and planning issues.
- Schedule Part 4 (IHSL’s gaps in relation to the Final Tender (Bidder B) NPD Project Agreement) set out any gaps in this Project Agreement. This included “Schedule Part 6 (construction matters) Section 4: Project Co’s Proposals” and “Schedule Part 6 (construction matters) Section 6: Room Data Sheets” to be provided by Project Co.
- Schedule Part 5 (Clarifications in respect of IHSL’s Final Tender) sets out the clarifications raised by the Board in respect of IHSL’s Final Tender. These clarifications clarified or amended IHSL’s Final Tender.
- IHSL required to use its best endeavours to diligently develop the “IHSL technical Schedules of the Final Tender (Bidder B) NPD Project Agreement) including Schedule Part 6, section 6 (room data sheets).”

17.9 Paragraph 4.5 stated that:

> "IHSL shall further develop their Design included within their Final Tender, with the minimum level of design requirements being those set out in the ISFT."

17.10 NHSL and MM have advised the Inquiry that it is not unusual to have a number of outstanding issues, gaps and points for clarification at this stage of the procurement process.

17.11 IHSL returned a signed Preferred Bidder Letter to the Board on 7 March 2014. From this point onwards, IHSL was the preferred bidder. However, no formal contract had been concluded for the project itself.

18. Development of design during the post-preferred bidder stage

18.1 Further design development took place from March 2014 to financial close. The first meeting between representatives of NHSL and IHSL was held on Thursday 13 March 2014. Members of NHSL's project team, NHSL's advisers and IHSL moved into project offices together to facilitate regular engagement. Wallace Whittle/TUV SUD were responsible for progressing the design of the mechanical and electrical building services, including the ventilation system. Wallace Whittle/TUV SUD were consultants subcontracted to Brookfield Multiplex, the member of IHSL's consortium responsible for the design and construction of the hospital.

18.2 A number of meeting groups were set up including the Project Delivery Group (PDG), Project Management Group (PMG), Design Steering Group and other workstreams. Attendees included representatives from NHSL, NHSL's advisers, and IHSL. Additional meetings were set up to progress different workstreams. The RHSC and DCN Steering Board Commercial Sub-Group was set up following a Special Steering Board meeting on 22 August to address slippage with the programme to financial close. Attendees included representatives from NHSL, SFT, IHSL and Scottish Government Health and Social Care Department.

18.3 Patrick MacAulay from HFS was invited, and agreed, to attend meetings with NHSL on detailed design development, specifically for the more complex departments such as theatres, radiology, critical care and emergency department.

18.4 The scope of the expected development of design had been set out in the Preferred Bidder Letter sent in March. MM later provided additional feedback on IHSL's M&E final tender in a feedback report, dated 23 May 2014. The report stated the following with respect to engineering services and ventilation in particular:

Criteria	Feedback on IHSL's response
Engineering services design and compliance with BCRs	IHSL response was lacking detail on design philosophy and compliance with BCRs.
Temperature, ventilation and comfort of occupants	More detail required.
Quality of the environment and sick building prevention	Lacking detail description on prevention of sick building syndrome and quality of environment. Only basic statement focusing on ventilation issues provided.
An environmental conditions/room provisions matrix for both mechanical and electrical services for each room in the Facilities.	Environmental drawings provided but no matrix.
General comments	Many sections do not have detail description or explanation.

18.5 At the PSB Meeting of 20 June 2014 Brian Currie reported that "Technical schedules (Project Co proposals) development is behind programme but now well underway". Change management was discussed at this meeting. There was a distinction between design development and a change to the design. A 'Change' refers to instances where NHSL's requests for further development of the design was a change to the stated requirements to the extent that costs need to be revised. ~~The process for dealing with a Change were set out in~~

~~Schedule Part 16, "Change Protocol".~~ The action notes of the PSB meeting record:

> "The design process is logging any requested changes to the final tender design. IHSL and NHSL then agree whether these can be classified as design development or should be treated as a change. BC hopes that the genuine changes will be small in number and value, to be confirmed after completion of design at the end of July.
>
> ...PR acknowledged that change would always be a factor at this stage in a project, and that the aim for all parties was to manage this within the cap...."

Commented [AG4]: This sentence does not appear relevant to the Preferred Bidder period which is being discussed.

18.6 On 9 July 2014, the F&R Committee were informed that design development was progressing on target, and "An intense period of developing the detailed design of the building with staff and users is well underway, scheduled to complete by the end of July 2014."

18.7 In July and August 2014, IHSL prepared revisions of their proposal "Section 4.23 Specification – Building Services" for financial close. The document was checked by Stewart McKechnie, (Director, TUV SUD/Wallace Whittle). The only mention of the environmental matrix is in relation to lighting.

18.7.1 The majority of the information in the section on specification for ventilation systems is the same as that provided in the final tender and described in section 14 of this paper: "Submission of Final Tender": Under section 5.0 "Applicable Standards" it states:

> "All elements of the works shall be in accordance with the requirements of current legislation, regulations and industry standards unless otherwise stated.
>
> The Ventilation System shall accord with all appropriate Hospital Technical Memoranda, Codes of Practice and relevant British and European Standards..."

18.7.2 Section 6.0 on design criteria contains one difference, stating that for ventilation air change rates used in the design, it was “Project Co” (i.e. IHSL), rather than the sub-contractor, who “shall refer to the ADB sheets”.

18.7.3 Section 8.1 “Background to Ventilation and Air Conditioning Installations” states:

> “The building is largely sealed with limited openable windows in order to control the internal environment within the spaces.
>
> The building ventilation is based on a mixed mode solution where it permits, utilising openable windows together with mechanical vent and a peak lop cooling solution.
>
> The Hospital shall be mechanically ventilated:-
>
> - Throughout all internal rooms that have no access to natural ventilation
> - Perimeter areas where mechanical ventilation is required for clinical reasons
> - Perimeter areas where mechanical ventilation is required for operational and environmental control reasons...
> - Ward areas throughout
>
> The various departments to match their function shall be served by a number of ventilation air handling systems...”

18.8 U10 “Ventilation Systems: All Air Systems” states that:

> “...Areas shall be controlled in zones or as individual rooms as necessary to achieve the conditions required by the ADB Sheets.
>
> …

Air pressure regimes for theatre suites shall be designed in accordance with the guidance provided in SHTM 03-1 employing wall mounted pressure stabilisers.

Air volumes have been established by consideration of heat gains or losses and also the air change rate necessary for comfort and safety as appropriate for the activity carried out in each area. Relative air pressures between rooms shall be maintained to suit the activity concerned, by design of the supply and extract air volumes, and use of pressure relief equipment where necessary to prevent cross infection or transfer of unpleasant odours between areas, as required by the ADB sheets.

...The hospital ventilation systems shall be in accordance with SHTM 0301 Ventilation in health care premises, DW 144 and DW 143."

18.8.1 Additional information is provided in relation towards, isolation rooms and critical care departments along with some other room types, but does not go into detail regarding ventilation specifications such as air change rates. The section on critical care departments states:

"Critical care departments such as ITU/HDU shall be provided with dedicated ventilation systems.

The supply air ventilation plant shall heat and cool the air as required by the control system to provide the correct condition in the various rooms/zones.

Final temperature control to the spaces shall be achieved by terminal reheaters controlled from user adjustable sensors within each space. Heater batteries shall be located wherever possible in plant areas, but where heaters can only be provided in the ceiling void of the occupied space they shall be located away from patient occupied spaces, i.e. bed spaces.

Heat recovery shall be provided between the supply and extract systems."

18.9 A Special Steering Board meeting was held on 22 August 2014 involving NHSL, Mike Baxter from the Scottish Government Health Department, Peter Reekie from SFT and Richard Osborne and Ross Ballingall from IHSL. The purpose of the meeting was to raise NHSL's "significant concern" about the project programme and give IHSL an opportunity to discuss progress. The NHSL project team presented a revised programme with slippage of eight weeks, and IHSL tabled their own programme.

18.9.1 The production of room data sheets was discussed at the meeting. 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."

18.9.2 It is not clear to the Inquiry Team why NHSL was comfortable that all room data sheets would not be completed by financial close. Both the ITPD and the ISFT stated that the preferred bidder would be required to complete all room data sheets before financial close. It is also not clear what was agreed in relation to the content of the room data sheets. These issues will require to be explored with witnesses at the diet of hearings due to commence on 24 April 2023.

18.9.3 At the meeting, Brian Currie noted that technical information which would be captured in Project Co's Proposals – which would form part of the Project Agreement and which constituted IHSL's response to the Board's Construction Requirements and extensive design development - "are not yet completed, with some way to go in certain areas."

18.9.4 Brian Currie also noted "that in dialogue and the invitation to submit final tenders NHSL had been clear on the requirements and deliverables for the programme and that IHSL had been slow to get started." Susan Goldsmith

was concerned that the updated programme "would also prove impossible to deliver."

18.9.5 Ross Ballingall of Multiplex stated 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.' He felt that this "demonstrated a 'paranoia and lack of trust' in IHSL."

18.9.6 Peter Reekie noted that "changes in design development would always happen, and asked if IHSL had responded with costs to progress discussions."

18.9.7 Iain Graham "noted that the revised programme proposed shows what information NHSL requires to have sufficient information to have comfort of operational functionality of the design, in order to provide the LTA with sufficient confirmation to proceed to credit."

18.10 On 25 August 2014, the register of 'Technical Risks to Financial Close' recorded as an issue:

> "Project Co proposals insufficiently developed to required level for FC".

18.11 The risk impact was rated as "high". Current mitigation measures included providing feedback on the Project Co Proposals (PCPs) structure, and draft one of the PCPs, and setting out the NHSL's expectations in a PCP workshop and setting out NHSL's expectations on individual workstreams. A proposed further mitigation post financial close was to:

> "increase the length of the RDD [Reviewable Design Data] list.
>
> Focus on specific design risks.
>
> Fast track the legal review".

18.11.1 Additional issues given a high risk impact were "lack of review time" for the PCP strategy documents and drawings. Mitigation measures were not recorded.

18.11.2 The risk register also recorded that “due to the current status of the PCPs. The RDD list could be extensive”. This was classed as having a medium risk impact. In the column “potential further mitigation required post FC” it was recorded:

> “Long list of RDD due to further iterations of drawings etc. to be made etc. Board require to both resource the requirements for review and understand the rights of comment they have within the Review Procedure (which is where RDD is reviewed). This should then mitigate risk of Project Co claiming changes.”

18.11.3 RDD referred to above means “reviewable design data”. Reviewable design data included design deliverables and Project Co Proposals that had not yet been approved by NHSL. A design deliverable or Project Co Proposal that was approved by NHSL was given level A status meaning construction could commence based on that design document or proposal. Level B status meant that Project Co could proceed on the basis of the document subject to comments that NHSL had made against that item. Level C status meant that Project Co could not proceed with construction in terms of that item until it had been amended in accordance with the NHSL’s comments and had undergone the review procedure outlined in Schedule Part 8 of the Project Agreement. Level D status was given to items that were rejected by NHSL and required resubmission. The schedule of Reviewable Design Data was included in the Project Agreement, Schedule Part 6 (Construction Matters) Section 5 (Reviewable Design Data).

18.12 At the F&R Committee meeting of 27 August 2014 Susan Goldsmith stated that following IHSL failing to achieve the deadline for the RIE interface documentation, financial close for this project would be delayed until November 2014. The minutes record that progress would be closely monitored through monthly meetings to ensure that financial close remained on target for November 2014.

18.13 On 23 September 2014, Brian Currie emailed Susan Goldsmith and copied in Iain Graham and Moira Pringle to outline his concerns about the Project. He noted that the PCPs continue to be a struggle for IHSL. Difficulties identified

included a lack of technical information and outstanding design issues. These included the extensive list of technical derogations. Mr Currie noted that: "There is a potential risk that under strict procurement rules this extended list could be considered so different from IHSL's tender that another bidder may challenge fairness". Mr Currie stated that the list of derogations was considerably longer than that submitted at final tender. Mr Currie note that IHSL would not be provided all the Room Data Sheets as had been expected:

Commented [AG5]: SFT note that the derogations referred to in this paragraph are technical derogations, rather than commercial/contractual derogations with which SFT was involved.

> "Operational Functionality
>
> Debate continues with IHSL over a caveat that we are insisting on given IHSL are unable to deliver all 1:50's and Room Data Sheets prior to FC as they committed to at final tender.
>
> Room Data Sheets
>
> IHSL have promised 123 RDS's (less than 50% of rooms) prior to FC. Given we will be some way short, our operational design notes will not be evidenced and hence require to be added to our BCR's as a contractual obligation.
>
> We have yet to receive IHSL's environmental matrix promised some time ago"

18.14 Mr Graham responded to this email on 24 September 2014. Mr Graham noted that IHSL had "expended their pre FC funds". He did not consider that the position would be significantly different with another bidder. Mr Graham stated that:

> "Brookfield Multiplex have maintained the 'trust us we will build what you want' and not evidenced the engagement with the NPD requirements. This is a matter of us (Brian principally) to judge the risk on the design development versus potential for delivering what we expect. It appears to me that they are commercial; have not delivered drawings and design development to programme and are introducing new items or caveats "under the radar" throughout the design development. This is either because the designers are not up to speed

because they have expended fee allowances or that BM are controlling the position for commercial effect or combination of both."

18.15 A number of options, which included the option to reject IHSL as preferred bidder, were set out by Mr Graham. Mr Graham's recommendation was to "accept the position" to try to "nearly meet" the proposed programme.

18.16 During September and October 2014 IHSL submitted revisions of the Environmental Matrix. NHSL, following advice from MM, provided feedback. An issue was identified with the ventilation design for single bedrooms, specifically around their proposal of four air changes per hour, openable windows and positive pressure. It was noted that SHTM 03-01 says six air changes per hour and recommends a balanced or negative pressure regime. The development of the Environmental Matrix during this period is described in detail in the Inquiry's Provisional Position Paper 2 on the Environmental Matrix.

18.16.1 On 21 October 2014, Brian Currie reviewed IHSL's drawing showing the ventilation distribution for Department B1 where Critical Care/HDU was located. The drawing was given RDD level C status. This meant that it was "subject to amendment as noted". The drawing was included in the RDD Schedule Part 2 "Non Approved RDD Items" with detailed comments provided by NHSL, including: "Drawing significantly lacks detail in order to provide a suitable review" and: "Full design to be in line with all PCPs, BCRs, manufacturer's guidance and SHTM requirements."

18.17 On 31 October 2014 the Commercial Sub-group of the Project Steering Board discussed the programme to achieve the revised target for financial close, which was set to 12 December 2014. There was a concern that "failure to meet this third attempt at FC would make all parties look foolish," that slippage into 2015 "would cause significant problems for both the Board and IHSL" and that there was reputational risk. NHSL proposed that any further delay to financial close be "absorbed in the construction period" and discussed cost implications of the delay. NHSL raised concern that IHSL had not yet provided a full and realistic programme to the hospital opening date. The development of technical information was discussed:

“Funders...require certainty and line drawn in the sand as technical information would surely continue to develop post-FC...

... PR [Peter Reekie, SFT] asked JB [John Ballantyne, Commercial Director, IHSL] if, in his opinion the Board had changed what it is asking for since the invitation to tender. JB replied that there was a difference of opinion over the level of detail expected in Project Co's Proposals (PCPs), but the open-ended requirement that 'the Board has to be satisfied' was difficult to achieve. JB acknowledged that the Board had agreed latitude on signing off operational functionality where 100% technical info not yet produced. Also, the Board's Construction Requirements had been updated in dialogue with IHSL, which reduced the extensive list of derogations that would be required of IHSL. These were examples of Board/IHSL negotiation to reach a pragmatic position in technical documentation for FC.

BC [Brian Currie, Project Director] noted that if the design development had generated key technical information for review earlier in the process then areas of challenge... could have been addressed and resolved earlier. JB noted that sign-off of the 1:50 design buy [sic] the Board had delayed the programme; BC acknowledged this, but that this could only account for two weeks of slippage and all had previously agreed that this particular activity has gone well. The production of the supporting architectural and engineering information has not been as successful...

…

SF [Sean Ferm, Commercial Manager, Macquarie Capital Group Ltd] confirmed that most PCPs [Project Co Proposals] had been issued to the LTA, with the exception of civil and structural, BREEAM, and acoustics. JB pointed out that the deadline to close PCPs had been 31/10/14 and that they were unlikely to meet this by the end of the day. BC confirmed that the Board has some technical queries outstanding on PCPs but have advised that these should not be material and therefore should not delay issue to the LTA. PR advised the Board and IHSL to resolve these issues

or to ensure that they were captured as reviewable design data post-FC. BC undertook to review the Board's outstanding PCP queries with their technical adviser and collate any such non-material issues into a schedule to be addressed post-FC.

The final list of derogations from the BCRs to be provided by IHSL later that day; the Board will review and respond to these on 03/11/14.

BC noted that while drawings feedback had been provided, IHSL had challenged some of these and the Board had met with them to discuss and confirm the position. All outstanding drawings comments are to be issued by the Board on 03/11/14. It was noted that IHSL may want to meet to confirm some of these before they were fully concluded, and this would need to be prioritised in w/c 03/11/14.

Conclusion of the energy strategy requires a meeting between the Board and IHSL as soon as possible in the w/c 03/11/14.

…

The group agreed that, regardless of the FC date, IHSL and the Board should proceed to agree finalised technical documentation by 12/11/14 at the latest."

18.18 The F&R Committee was updated on the programme to financial close at their meeting on 12 November 2014. Brian Currie and Iain Graham prepared a paper explaining the factors affecting the programme. These included technical issues, issues with CapEx (capital expenditure), as well as revenue consequences for Facilities Management and Life Cycle maintenance, the funder (the European Investment Bank) and Consort interface. With respect to technical issues the paper noted, "the production of the necessary legal documentation (Project Company Proposals or PCPs) and plans have been slower than necessary to avoid impacting on the critical path."

18.18.1 With respect to key risks, the paper noted:

- "The IHSL consortium members have both a cost and reputational imperative to see early Financial Close. However, the terms have to be acceptable.
- It is the Project Directors view that FC will not be achievable before February, 2015 and that there is limited scope to shorten the construction programme without significant risk to quality. As such, an operational date in September, 2017 should be anticipated at best.
- It is also hoped that the reasons for the slippage in programme to conclude FC is not repeated post FC. These are principally:
    1. Lack of appreciation and experience of the process to FC by the constructor element of the Preferred Bidder
    2. A "design [and] build" mentality prevailing by the constructor i.e.., determination to keep design intent as open as possible to maximise commercial advantage post FC.
    3. Poor management by the Preferred Bidder.
- Mitigation measures include seeking a compensating shortening of construction programme; removal of an inflationary uplift due to the period of time since tender."

18.19 The paper was discussed at the F&R Committee meeting on 12 November 2014. The Committee "expressed disappointment and concern at the delays" and the Chair "commented that the Committee was not reassured by the process and it would be important to demonstrate that risk management was in place before the Committee could be reassured." Brian Currie advised that "NHS Lothian was managing the project as best as it could but that many of the present issues were outwith NHS Lothian's control...NHS Lothian's legal adviser had stated that NHS Lothian was going above and beyond what they were legally required to do in order to expedite the process." The Committee agreed to note the financial close programme and the governance in place to support NHSL's requirements.

18.20 By 18 November 2014, the risk register recorded that "Programme delay in reaching Financial Close" was "red". The programme was delayed due to delayed delivery of detailed design "sufficient to proceed to financial close". The "Adequacy of controls to minimise risk and achieve programme" were 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..."

18.20.1 Performance of Building (described as "Building does not operate to specification...") was noted to be "Green". The risk register recorded that:

> "Board requirements stated clearly in procurement documentation and competitive dialogue"

18.20.2 The risk register recorded that the risk of Scottish Government approval was "green". There was a £50 million contingent liability at final business case should the project not proceed. Despite the green rating, the comment was:

> **"Not satisfactory at present**; FBC presented to SCIG on 05/08/14 and considered 26/08/14..."

18.21 On 18 November 2014, NHSL prepared a paper entitled "Board Commentary on the Technical Information Requested by the Board and Technical Information issued by IHSL". The paper records that notwithstanding the requirement in the ISFT for the preferred bidder to complete all room data sheets by financial close, NHSL had agreed to reduce this to approximately 40% of rooms. NHSL also agreed to suspend the development of 'Project Co Proposals' and create an additional category of RDD. The paper noted that the quality of information submitted by IHSL was "not in line with the level expected". The paper concluded that:

- "The level of information requested by the Board and accepted by IHSL has been clearly documented;

Commented [AG6]: It is not clear whether the risk register referred to is a Project Risk Register or a Technical Risk Register. SFT request that this is made clear.

Commented [AG7]: This paper was included in SFT's document Witness Bundle, but the paper in the Witness Bundle was dated 19 November 2014. Please can the Inquiry confirm the date is accurate.

- The level of information requested is considered reasonable and in line with other projects;
- The Preferred Bidder has been late in providing information at each stage;
- The quality of the information submitted has not been in line with the level expected."

18.22 The Inquiry Team understands that on 19 November 2014, a HAI-Scribe (Healthcare Associated Infection - Systems for the Controlling Risk in the Built Environment) report identified a risk with the ventilation system, specifically due to air pressure in single bedrooms. On 12 January 2015, TUV SUD/ Wallace Whittle submitted a revised single bedroom ventilation strategy. On 13 January 2015, Janette Richards, NHSL's lead HAISCRIBE Infection Prevention and Control Nurse, consulted Ian Stewart (Consultant within HFS' Engineering and Environment department) regarding IHSL's strategy. Ms Richards was concerned that IHSL's proposal for openable windows would affect the pressure regime in the room and have implications for infection control. HFS advised against the use of openable windows in the design, and recommended sealed windows which would allow air flow patterns to be controlled. On 29 January 2015, NHSL advised IHSL that:

- "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."

18.23 The discussion between relevant parties regarding the perceived issues with TUV SUD/Wallace Whittle's ventilation strategy for single bedrooms is described in further detail in the Inquiry's Provisional Position Paper 2 on the Environmental Matrix.

18.24 According to a document entitled 'Design risks to the Board at Financial Close', the risks at 28 January 2015 included ventilation. The issue is not described, but it is given a 'high' risk impact. The current mitigation measures were stated to be:

- "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."

18.25 The final position was stated as "TBC". No person was specified as being responsible for the closure of this risk.

18.26 The document contained an entry for "Design" where the issue was stated to be "Review of RDS content". The risk impact was stated to be "closed". The comment given was "RDS have been submitted for Board Review". No details are provided in relation to the review procedure or whether the room data sheets were deemed acceptable to NHSL. The final position was stated as "TBC" notwithstanding the fact that the Risk Impact was described as "closed".

18.27 The document contained a further entry for "Design" where the issue was stated to be "RDS omitted by Project Co at FC". The risk impact was stated to be "closed". The comment given was "Board reviewing operational design

notes to confirm if there are gaps for the omitted RDS". The Final Position was stated as "TBC".

18.28 A document titled 'Technical Risks to the Board at Financial Close', dated 30 January 2015 listed "...the principal high, medium and low technical risks..." for the project. It highlights a number of risks related to the unexpected and 'significant' quantity of RDD."

18.28.1 One of the highlighted risks was "Less well defined proposals, therefore less certainty by the Board. Lack of design". The mitigation measures employed up to financial close were "IHSL pushed very hard to achieve maximum information during PB stage. Further developed RDD schedule for Board".

18.28.2 Another risk arising from the significant quantity of RDD was that "Board may not be able to respond in the allocated 15 days. Therefore the RDD item is deemed accepted." The mitigation measures employed up to financial close were stated to be "Informal non-contractual design review meetings being held with IHSL. Process confirmed in Part 3 of Section 5 of Schedule Part 6 limiting Project Co's ability to add RDD items with less than 4 weeks notice." as well as "Internal resourcing/management meetings ongoing." Required mitigation measures post financial close include, "The Board and Motts to resource RDD appropriately." and "Manage Project Co's rolling programme in accordance with Part 3 of Section 5 of Schedule Part 6."

18.28.3 The document did not state whether the risks set out were high, medium or low.

18.29 A risk register report was shared with the PSB for its meeting on 30 January 2015. The risk register report does not mention the RDD items recorded in the document "technical risks to the Board at Financial Close" or the ventilation item recorded in the document "design risks to the Board at Financial Close" as risks. The risk register report contains an item nine 'Specification Changes post Financial Close' with the description: "Programme is delayed due to Board changing service and accommodation requirements." Risk 25 and 45 are identical and relate to "service change", specifically: "Planned function of a

room/area becomes obsolete or priorities change due to changes in practice/advances in technology and requires updating before opening". The controls in place for all three items included putting in place governance structures to manage the approval of change.

18.30 The risk register noted "programme delay in reaching Financial Close" as an amber risk. The controls in place included "Rigorous and resourced user group engagement and technical adviser input to progress detailed design and technical schedules..." The adequacy of the controls to minimise and achieve programme were described as:

"Not satisfactory at present..."

18.31 It is not clear to the Inquiry Team why the risk status had reduced given that the controls in place were still deemed to be unsatisfactory. This will require to be explored with witnesses at the diet of hearings commencing on 24 April 2023.

18.32 At the PSB meeting on 30 January 2015 Brian Currie introduced the risk report. He noted that "post-FC change would be inevitable", that any changes would have cost and revenue implications, would lead to delay, and that "a governance process to manage the impact is required." The decision-making process for dealing with change was discussed. NHSL were working towards completion on 5 February 2015. Mr Currie noted that there was a requirement for the contract to be signed by 13 February 2015 due to the project sponsor's leave.

18.33 By financial close the issues that had been identified with the Environmental Matrix and TUV SUD/Wallace Whittle's design for single bedroom ventilation were not resolved. Room data sheets were incomplete, although draft room data sheets for generic and key rooms had been prepared. The ventilation specifications outlined in the Environmental Matrix as well as the Room Data sheets for Department B1 (Critical Care, HDU, Neonatal Surgery) were potentially inconsistent with SHTM 03-01, but this had not been identified by MM, NHSL or IHSL. This and other potential inconsistencies are described in

further detail in the Inquiry's Provisional Position Paper 2 on the Environmental Matrix.

18.34 Room data sheets were included in Part 3 of Section 5 (Reviewable Design Data) and Schedule Part 6 (Construction Matters) of the Project Agreement (RDD Schedule). Part 3 included "Reviewable Design Data not provided to the Board nor approved by the Board at Financial Close" and was subject to the Review Procedure in Schedule Part 8 of the Project Agreement, "before such Reviewable Design Data is incorporated into the Facilities and/or the Site by Project Co". Furthermore, according to Part 3 of the RDD Schedule:

> "Following the date of this Agreement:
>
> - Project Co shall submit a programme of issue dates for Reviewable Design Data set out in this Part 3;
> - Project Co shall ensure that such programme shall show the items of Reviewable Design Data forecast to be submitted to the Board within the next 3 months;
> - Project Co shall revise and reissue the programme on a monthly basis so as to maintain a rolling 3 month look ahead from each date of issue
>
> Project Co recognises this aspect of the Reviewable Design Data process is still to be agreed and further acknowledges the practicalities for the Board co-ordinating and undertaking the reviews of Reviewable Design Data. Project Co shall ensure that no changes to the first month of each revised 3 month programme shall be made without the prior approval of the Board, and the Board shall approve or reject any Project Co proposal for such a change within 5 Business Days of receipt of the Project Co proposal, failing which the Board shall be deemed to have approved the change.
>
> Project Co shall take reasonable endeavours to sequence the release of information in a manner so as to mitigate the volume of parallel reviews required to be undertaken by the Board pursuant to the Review Procedure."

18.34.1 Also included in Part 3 of the RDD schedule were ventilation drawings: "1:200 Primary distribution for all areas indicating main distribution routes and plant locations with respect to...ventilation" and "1:50 Detail layouts for all areas for... ventilation", described previously.

18.34.2 The Environmental Matrix and Schedule of Accommodation were included in Part 4 of the RDD Schedule, which contained "Non-Approved Project Co's Proposals Design Data comments". They were subject to the review procedure under Schedule Part 8 of the Project Agreement. In relation to the Environmental Matrix, a number of Board comments were set out. These included a comment noting that a detailed proposal was awaited on bedroom ventilation to achieve balanced/negative pressure relative to corridor.

18.34.3 Part 4 of the RDD Schedule stated that:

> "If Project Co considers that the comments below on any of the items listed in this Part 4 amount to a Change, Project Co shall, before complying with the comments and resubmitting the Endorsed RDD, notify the Board of the same and, if it is agreed by the parties or determined pursuant to Schedule Part 20 (Dispute Resolution Procedure) that a Change would arise if the comments were complied with, the Board may, if it wishes, implement the Change and it shall be dealt with in accordance with Schedule Part 16 (Change Protocol)."

18.34.4 Part 4 contained a table which included a number of comments, the details of which are described in the Inquiry's Provisional Position Paper 2 on the Environmental Matrix.

18.34.5 Part 1 of the RDD Schedule contained "endorsed" RDD items that had been given Level A or Level B status, meaning that they could proceed subject to comments NHSL had made against each item. No items related to ventilation were included in Part 1.

18.34.6 As noted previously, IHSL's ventilation strategy drawings were included in Part 2 of the RDD schedule, which included "Non-Approved RDD Items" that had received Level C or Level D at financial close, meaning that Project

Co could not proceed with construction in terms of that item until NHSL's comments had been incorporated and the drawing submitted to NHSL through the review procedure outlined in Schedule Part 8.

19. Full Business Case

19.1 The Full Business Case (FBC) required to be approved by both NHSL and the Scottish Government in order for the Project to achieve funding.

19.2 The purpose of the FBC is to:

- "identify the 'market place opportunity' which offers optimum Value for Money
- set out the negotiated commercial and contractual arrangements for the deal
- demonstrate that it is 'unequivocally' affordable
- put in place the detailed management arrangements for the successful delivery of the scheme"

19.3 The FBC includes:

- "Strategic Case: Strategic Case confirmed/updated
- Economic Case confirmed or updated
- Commercial Case:
    - Detail each procurement selection process
    - Confirm scope of procured works & services
    - Confirm main contractual arrangements
- Financial Case
    - Confirm financial implications of project and project & affordability

- Stakeholder sign-off

- Management Case:

  - Confirm details of management arrangements outlined in OBC to demonstrate that organisation is ready & capable of proceeding to contract award & implementation"

19.4 According to the Scottish Capital Investment Manual NPD Guide Section 2: OJEU to Contract Award, the following commitments are expected at the end of the preparation of the FBC:

State of contract discussions at end of stage:	Fully developed contract drafts
Designer:	1:200 plans with key departments at 1:50
Design and construct sub-contractor, services sub-contractor and bidding consortium:	Final sign-off on draft contract, payment mechanism, performance regime and allocation of risks within consortium
Financial and Economic Standing/Funding:	Due diligence commences prior to submission of Full Business Case

19.5 Paragraph 7.9 states that:

> "It is expected that while the FBC is being considered for approval, the NHSScotland body and private sector partner will continue to work up the detailed contractual documentation and that due diligence on behalf of the financiers will be continuing. NHS bodies will be required to demonstrate that schemes are sufficiently close to financial close before FBC approval will be given."

19.6 The FBC was circulated in advance of the meeting of the Finance and Resources Committee on 9 July 2014. At the meeting, the committee agreed to approve the submission of the FBC with the recommendation that it would proceed to the Capital Investment Group of the Scottish Government Health and Social Care Directorate. ~~SFT.~~

Commented [AG8]: This appears to be an error and should be deleted.

19.7 Version 1 of the FBC was approved by the Board of NHSL on 6 August 2014. The Capital Investment Group (CIG) was due to consider the FBC at their meeting on 26 August 2014.

19.8 The strategic context set out in the FBC had not changed since the Outline Business Case. The expected benefits of the new hospital included a reduction in healthcare associated infection through modern design, particularly single rooms with en-suite accommodation (paragraph 2.10.2). The FBC stated that design risk for the Project was allocated to Project Co and not NHSL (paragraph 4.1.3):

> "1) Design risk sits with Project Co, subject to the Project Agreement (Clause 12.5) and agreed derogations identified within the Board's Construction Requirements."

19.9 The FBC included the letters from MacRoberts and MM in relation to the conduct of the procurement exercise. The report by Ernst and Young was also included.

19.10 Paragraph 6.4.1 stated that:

> "Commissioning arrangements are outlined in the Project Agreement with IHSL, to ensure all aspects of construction conform to the relevant standards and comply with contractual requirements"

19.11 Paragraph 6.6 addressed risk management. Programme delay in reaching financial close was the only risk highlighted as red. No risks in relation to the design of key building systems, including the ventilation system, were recorded in this section of the FBC.

19.12 The FBC stated that the hospital was scheduled to open on 15 May 2017.

19.13 The Inquiry Team has been advised by NHSL that the process for approval of an FBC requires NHSL to submit the FBC several weeks in advance of the CIG meeting. The FBC is then circulated to members for review and comment. Questions from members are collated and sent back to NHSL, usually the week before the meeting. NHSL would then seek to respond to each question

raised. This is not a resubmission of the FBC, but a process of clarification in response to specific points raised by members of the CIG.

19.14 For the Project, correspondence indicates that comments from the CIG members were passed to NHSL on 20 August 2014, and NHSL responded to those comments on 25 August 2014. None of the comments related to mechanical and electrical engineering..

19.15 The CIG meeting to discuss the FBC, including the points of clarification, took place on 26 August 2014. According to the minutes, the FBC for the RHCYP/DCN "was not approved at the meeting due to a number of outstanding comments." The comments that followed related to costs and unutilised space. The minutes then state, "Formal approval of this project to follow once queries had been resolved."

19.16 According to action notes of the PSB meeting held on 30 January 2015, "Finalisation of the financial model on 02/02/15 will trigger FBC approval by SGHSCD and key stage review completion by SFT – both are needed for financial close, and therefore critical to be completed by 04/02/15."

19.17 Funders required a letter confirming that the Scottish Government had agreed an award of revenue funding. SFT have advised the Inquiry Team that such a letter is a normal condition precedent set by funders to reach financial close. On 6 and 7 February 2015, Alan Morrison (Health Finance, SGHSCD), Iain Graham (Director of Capital Planning and Projects, NHS Lothian), Kerry Alexander (NPD Programme Director, SFT) and Andrew Orr (legal adviser, MacRoberts) discussed the content of the letter. At this point, the Pre-Financial Close Key Stage Review had not yet been completed, and the FBC had not yet been approved.

19.18 Mr Orr advised that if the letter stated that SG's approval of revenue funding "is subject to all issues highlighted in the Key Stage Review being satisfactorily concluded", funders would need something showing that these issues had been concluded. Mr Graham, was concerned to "get the balance right" in this letter by confirming approval of funding while not raising further questions about the Key Stage Review. Mr Graham suggested to use the wording "We

will separately confirm the requirements for the Board to ensure satisfactorily conclusion of the Key Stage Review".

19.19 In terms of a letter dated 10 February 2015, Paul Gray (Director General for Health and Social Care at the Scottish Government) confirmed that the CIG had considered the FBC and had agreed an award of funding for the Project, and that "We will separately confirm the requirements for the Board to ensure satisfactorily conclusion of the Pre Financial Close Key Stage Review."

20. Key Stage Review 4: Pre-Financial Close

20.1 The Pre-Financial Close KSR was completed on 11 February 2015.

20.2 The KSR could only be completed once some issues in relation to ESA10 were resolved. Ernst & Young produced a report for the Board to satisfy SFT. Brian Currie commented on an earlier draft of the KSR and advised SFT that it was generally an accurate record of the project's status subject to some minor comments being provided.

20.3 Within the Key Stage Review report, under "Section 3: Project requirements" the following 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 following comment was included in the KSR:
>
> "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: Please 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". The relevant box is left blank. 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."

20.4 It is not clear to the Inquiry Team why this statement was made. By financial close, the preferred bidder should have produced room data sheets for every room in the hospital. It is not clear why this requirement was waived by NHSL. This issue will need to be explored with witnesses at the hearing diet that commences on 24 April 2023.

20.5 SFT has advised the Inquiry Team that it did not undertake a design or technical assurance role and this element of the KSR was intended to prompt NHSL to reflect, with its advisers as necessary, on the stage of development of the technical solution and documentation at this critical stage.

20.6 NHSL has advised the Inquiry Team that they provided the above affirmative answers based on letters of support from its legal, financial and technical advisers.

21. Financial Close

21.1 Financial close is the end point of procurement when contracts are signed. After financial close, ~~NHSL required to start making payments~~ and construction could begin.

Commented [AG9]: This is not accurate: payments by NHSL were not due to be made until the building was completed.

21.2 The target date for financial close was 3 October 2014 at tender stage. Financial close took place on 12 to 13 February 2015.

21.3 On 21 January 2015, in accordance with the minute of the Board of NHSL dated 6th August 2014, the Finance and Resources Committee formally resolved to delegate authority to the Chief Executive or Director of Finance of the Board of NHSL to approve the final terms of the NPD Project Agreement subject to:

> "(a) the approval of the final business case for the Project by the Scottish Government; and
>
> (b) the first full year Annual Service Payment at financial year 2014 prices not exceeding £17 million (excluding the effect of any movement in interest rates between now and financial close)."

21.4 Upon approval of those terms, there was formal authority to approve, sign, seal, execute, deliver and/or initial (as required) the documents required to reach financial close of the project.

21.5 Contract documents including the project agreement and all of the contracts setting out the financial arrangements, were signed on 13 February 2015 and 14 February 2015, marking financial close. After this date ~~the Board began making payments to IHSL and~~ IHSL required to commence construction.

Commented [AG10]: These dates do not match with the dates used by the Inquiry in Volume 1 of the Procurement Position Paper at paragraph 1.1 (viii) which refers to 12 and 13 February 2015.

Commented [AG11]: This is not accurate: payments by NHSL were not due to be made until the building was completed.

22. Business Case Addendum

22.1 An addendum to a FBC can be required if there have been key movements in any material information about the project between FBC approval and contract signature. It is a practical process by which the financial position as identified in the FBC is updated. It does not require further consideration and/or recommendation by the CIG and the addendum is not referred for approval to the DGHSC.

22.2 An addendum to the FBC was approved by the NHSL on 1 April 2015. It was submitted to CIG on 7 April 2015, for noting. This was after the contract was signed and financial close had taken place.

22.3 The addendum notes that the project proceeded to financial close having adopted the contractual adjustments recommended by SFT to address the ESA 2010 accounting treatment ~~to remain off balance sheet~~ contractual adjustments recommended by SFT to address the ESA 2010 accounting treatment to maximise the potential for the project to be classified to the private sector. ESA10 refers to the European System of National and Regional Accounts, new rules of which had implications for the accounting treatment of projects procured under the NPD model. Changes were made to the role of the public sector director with the introduction of an independent expert. The amendment was principally to the articles of association of the SPV with consequential minor changes in the Project Agreement. There was no change in the strategic case or the economic case for the Project as set out in the FBC. The financing arrangements are addressed in the addendum. Completion and handover of the new hospital was estimated at 25 July 2017 with the hospital due to open on 16 September 2017.

Commented [AG12]: SFT's comment on the first draft of the procurement paper remains valid.

23. Provisional Conclusions

23.1 As outlined at the start, this paper seeks to set out the Inquiry Team's current understanding of the procurement process for the project. It is provisional in nature. The paper does not constitute any findings of the Chair of the Inquiry. It is open to any CP to seek to correct and/or contradict the contents of the paper. However, unless that is done, in addition to such other findings in fact that Counsel considers appropriate, the Chair is likely to be invited by Counsel to the Inquiry to make the following findings in fact at the conclusion of the hearing diet scheduled for April 2023.

23.1.1 NHSL conducted market testing prior to the commencement of the procurement exercise.

23.1.2 NHSL was satisfied that there was sufficient interest in the market for a new hospital that was to be funded by way of a NPD funding model.

23.1.3 The procurement exercise required to comply with the 2012 Regulations.

23.1.4 NHSL was the contracting authority for the purposes of the 2012 Regulations and had overall responsibility for the conduct of the procurement exercise and the content of documentation issued to prospective tenderers.

23.1.5 NHSL was assisted by technical advisers, including MM, in the production of the tender documents.

23.1.6 HFS was not called upon to advise on, or review, technical information related to the requirements of the ventilation system proposed for the new hospital prior to a preferred bidder being identified by NHSL.

23.1.7 SFT provided assistance to NHSL during the procurement process. Their role involved providing advice on the NPD procurement process and an 'oversight' role.

23.1.8 Concerns were raised by the Scottish Government as to whether it was appropriate for SFT to have this dual role. This was discussed and resolved between the Scottish Government, SFT and NHSL and the ~~However, the~~ procurement proceeded with SFT adopting this dual role.

Commented [AG13]: SFT considers this statement does not reflect what is discussed earlier in the paper.

23.1.9 The contract opportunity constituted a "particularly complex contract" for the purposes of the 2012 Regulations and NHSL was entitled to adopt the competitive dialogue procedure.

23.1.10 Three entities were invited to participate in dialogue. They were issued with the ITPD.

23.1.11 The ITPD followed the structure recommended by the SCIM.

23.1.12 The ITPD set out NHSL's requirements, including the technical requirements for the ventilation system, and the procedure for assessment of tenders.

23.1.13 The assessment criteria adopted by NHSL was the "most economically advantageous tender". The assessment was based on an assessment of price and quality. There was a 60/40 split in terms of price and quality.

23.1.14 A number of technical requirements were assessed on a pass/fail basis. The remainder were scored as part of the 40% weighting accorded to quality.

23.1.15 The available marks for mechanical and electrical engineering proposals were less than those available for interior design and architectural and landscaping design.

23.1.16 The competitive dialogue procedure involved a series of discussions taking place with prospective tenderers before tenderers were invited to submit final tenders.

23.1.17 During the competitive dialogue phase, NHSL required to clarify what it meant by 'Operational Functionality'.

23.1.18 The project was assessed at various stages of the procurement process by way of 'Key Stage Reviews' (KSR). KSR were carried out by SFT.

23.1.19 KSR were designed to support the successful delivery of revenue funded projects by providing an assessment of the readiness and application of best practice, including Value for Money, of projects before they move onto the next stage in the procurement process. ~~aimed at ensuring the financial viability of the project.~~ While technical issues were touched on in the KSR, it was not the purpose of the KSR process to undertake a ~~detailed~~ technical review of the specifications for the building systems in the new hospital.

Commented [AG14]: SFT have suggested a more accurate description of the KSR process.

23.1.20 NHSL, ~~and~~ SFT and SGHD had a desire to keep the procurement process as short as was reasonably practical.

23.1.21 NHSL utilised a reference design approach. This was made clear to prospective tenderers in the procurement documents including the ITPD and the ISFT.

23.1.22 CEL 19 (2010) made it a mandatory requirement for all NHS Bodies in Scotland engaged in the procurement of both new-build and refurbishment of healthcare buildings to use and properly utilise the England Department

of Health's Activity DataBase (ADB) as an appropriate tool for briefing, design and commissioning.

23.1.23 If ADB was deemed inappropriate for a particular project and an alternative tool or approach is used, the responsibility is placed upon the NHS Body to demonstrate that the alternative is of equal quality and value in its application.

23.1.24 NHSL did not produce ADB room data sheets and issue them to prospective tenderers.

23.1.25 An Environmental Matrix was produced which sought to set out NHSL's technical requirements for the ventilation system.

23.1.26 Prospective tenderers required to submit some room data sheets as part of their tender. These were for key and generic rooms.

23.1.27 Both the ITPD and the ISFT stated that the entity appointed as preferred bidder would require to develop room data sheets for all spaces in the hospital before financial close.

23.1.28 ITPD Volume 1, Section 2.5.3 stated that tenderers were required to use the Environmental Matrix, and other 'Room Information' documents, to form the basis of Room Data Sheet production.

23.1.29 ITPD, Volume 3, Section 2.3 required tenderers to comply with SHTMs.

23.1.30 There was a lack of clarity in the procurement documents in relation to: (i) the purpose of the Environmental Matrix; and (ii) whether compliance with the Environmental Matrix was mandatory.

23.1.31 Following the close of competitive dialogue, three tenders were submitted. These included tenders by IHSL and Mosaic.

23.1.32 All three tenders were assessed as valid tenders that complied with all the technical requirements set by NHSL.

23.1.33 IHSL stated in its tender submission that its technical solution complied with SHTMs, HBNs and HTMs.

23.1.34 IHSL did not propose any changes to the Environmental Matrix.

23.1.35 One tenderer (Bidder C/Mosaic) did propose changes to the Environmental Matrix including to air changes per hour in critical care rooms.

23.1.36 Bidder C had stated during competitive dialogue that it would make changes to the Reference Design in a variety of situations, including where there was non-compliance with relevant design guidance.

23.1.37 Both IHSL's tender and Mosaic's tender were assessed by NHSL as complying with NHSL's published requirements. This assessment was made notwithstanding the fact that IHSL and Bidder C/Mosaic were offering to provide different technical requirements in terms of the Environmental Matrices submitted.

23.1.38 Given the disconnect between the values in the Environmental Matrix (issued with the ITPD) and SHTM03-01, it is not clear why IHSL's tender was deemed by NHSL to comply with the published requirements.

23.1.39 The assessment panel noted that IHSL's tender:

> "lacked detail on design philosophy and BCR compliance".

23.1.40 The Pre-Preferred Bidder KSR recorded (in section 2, Question 3) 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"

23.1.41 A risk register was set out in Annex B of the Pre-Preferred Bidder KSR. It noted "Programme delay in reaching Financial Close" as a "red" risk. The risk register recorded that "Adequacy of Controls" was "Not satisfactory at present".

23.1.42 IHSL's tender was assessed as the most economically advantageous tender.

23.1.43 MacRoberts advised NHSL that the procurement process had complied with the 2012 Regulations and best practice.

23.1.44 SFT confirmed to NHSL that the processes and procedures of SFT had been followed.

Commented [AG15]: Please can the Inquiry confirm the date and source of this information, and provide a copy to SFT for review? - See comment at 17.2 and at 23.1.46

23.1.45 MM advised NHSL that from a technical perspective the evaluation had been carried out in a manner consistent with the evaluation methodology. Accordingly, it was appropriate for NHSL to conclude the evaluation process and appoint the preferred bidder.

23.1.46 The advice of MM, MacRoberts and SFT was relied on by the Finance and Resources Committee of NHSL in determining to recommend that IHSL be appointed as preferred bidder.

Commented [AG16]: SFT was not a part of the evaluation team. Could the Inquiry please confirm the advice from SFT being referred to? As per SFT's comment at 17.2, if this is intended to convey that SFT's Key Stage Review had been signed off, then could that be clarified.

23.1.47 IHSL was appointed as preferred bidder.

23.1.48 In the period from the appointment of IHSL as preferred bidder to financial close, NHSL agreed to waive the requirement (stated in both the ITPD and ISFT) that room data sheets for all spaces in the hospital would be completed by financial close.

23.1.49 By financial close, IHSL had completed room data sheets for less than half the spaces in the hospital.

23.1.50 The draft project agreement contained a concept of "reviewable design data". Technical issues not agreed by financial close became "reviewable design data" under the project agreement.

23.1.51 Prior to a contract being signed between NHSL and IHSL, a dispute arose in relation to air change rates, and pressure regimes, in certain bedrooms.

23.1.52 Discussions took place between NHSL, MM and IHSL in relation to the issues concerning environmental parameters in certain bedrooms. IHSL

made it clear to NHSL that its proposal for ventilation was “mixed mode” and relied on natural ventilation for certain spaces in the hospital.

23.1.53 No issues were included on the Project Risk Register and no issues were escalated by NHSL to the Scottish Government in relation to the proposed ventilation system for the new hospital before financial close.

23.1.54 Prior to the conclusion of the contract, no issues were raised by NHSL or MM in relation to the requirements of the ventilation system for critical care areas proposed by NHSL.

23.1.55 Question 3 of the Pre-financial close KSR was in the following terms:

> “Please 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?”

23.1.56 The answer should have been answered with either “yes” or “no”. The relevant box was left blank. 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.”

23.1.57 As at August 2014, NHSL had concerns about the project programme.

23.1.58 As at November 2014, NHSL had concerns about the quality of the information provided by IHSL in relation to the Project.

23.1.59 Prior to signing any contract with IHSL, NHSL was aware that there was significantly more “reviewable design data” than had originally been planned for the Project.

23.1.60 A contract was concluded between NHSL and IHSL, and financial close achieved, in February 2015.

23.1.61 NHSL entered into a contract with IHSL which stipulated that the environmental matrix would be “Reviewable Design Data” under the contract. Therefore, the precise parameters for the ventilation system would be worked out after the contract was concluded.

SCOTTISH HOSPITALS INQUIRY

Response to Provisional Position Papers

on behalf of

IBI Group (UK) Limited

in re

The Scottish Hospitals Inquiry

Introduction

1. Reference is made to the provisional position papers circulated by the Inquiry relating to the RHCYP & DCN, covering: (i) the Reference Design process (**'PPP 1'**); (ii) the purpose and development of the Environmental Matrix (**'PPP 2'**); and (iii) the Procurement Process (**'PPP 3'**) (together the **'Position Papers'**). Further reference is made to IBI's response, on 29 July 2022, to earlier drafts of the Position Papers (which itself incorporated, at **Appendix 1**, IBI's narrative dated 3 May 2022).

2. Subject to one point of detail below, IBI does not wish to respond to the factual matters raised within the Position Papers. It will, however, reflect in due course on any further evidence pertaining to the issues covered in the Position Papers (whether by way of the witness statements and document bundles disclosed in advance of the April diet, or the oral evidence elicited from witnesses at the diet). It will continue to assist the Inquiry where it can, including, if necessary, by identifying what it considers to be factual inaccuracies in that evidence.

PPP 1: AEDET Process

3. At Para. 3.41 of PPP 1, it is observed: *'In oral evidence given to the Inquiry on 18 May 2022, NHSL Project Director Brian Currie stated that AEDET: "was undertaken by essentially the reference design team **led** by the architect for the reference design team."'* (Emphasis).

4. First, Mr Currie's reference to the '*architect'* might be taken as a reference either to Nightingale Associates or BMJ Architects. Second, it is unclear what Mr Currie meant

when stating that the architect '*led*' the AEDET process. In relation to the second issue, IBI has been unable to contact the prior employees of Nightingale who were involved directly in the AEDET meetings, so cannot offer a first-hand account at this stage. It is, however, IBI's understanding that:

a. Nightingale chaired the AEDET meetings that took place on 12 August 2011 and 8 March 2012. This involved explaining the methodology behind the scoring system to participants, and then recording the participants' scores on the AEDET workbook; and

b. Nightingale did not assume overall responsibility for either: (i) the list of attendees; or (ii) the topics put forward for scoring. Those were matters that would have required input from NHS Lothian and other members of the Reference Design Team.

5. This issue is raised in order to prevent any misunderstanding of the role performed by Nightingale as part of the AEDET process. IBI would be glad to assist the Inquiry further, as necessary, in relation to this issue.

Dated this 3 day of February 2023

Murdo MacLeod QC

Nicholas McAndrew, Advocate

Womble Bond Dickinson (UK) LLP

03 February 2023

By e-mail only – legal@hospitalsinquiry.scot

For the attention of Inquiry Team
Scottish Hospitals Inquiry

Our Ref: RSAL/1/4162
Your Ref: TBC
Direct e-mail: awe@bto.co.uk

Dear Sir or Madam

RHSC & DCN Edinburgh
TUV SUD Limited
Response to Provisional Position Papers

Please find below our response, on behalf of TUV SUD Limited, in relation to the three Provisional Position Papers issued to date; that response being confined to comments in relation to Provisional Position Paper 2: *The Environmental Matrix for the Royal Hospital for Children and Young People and Department of Clinical Neurosciences*.

Any documents referred to will be uploaded, along with a copy of this letter, to Objective Connect.

Provisional Position Paper 2 ("PPP2") refers extensively to Scottish Health Technical Memoranda 03-01 ("SHTM03-01"), Ventilation for healthcare premises, Part A – Design and Ventilation. Chapter 4 of PPP2 briefly sets out the content of SHTM03-01 and the guidance contained therein. Paragraphs 4.4 and 4.5 of PPP2 refer to the design information provided in Table A1, in Appendix 1, of SHTM03-01. Table A1 provides guidance on technical parameters, including air changes per hour and pressure regimes, for various areas of a hospital.

Among other things, PPP2 makes reference to the guidance that SHTM03-01 provides for Critical Care areas. It is noted at paragraph 4.5, for example, that Critical Care areas require 10 air changes per hour. PPP2 does not, however, also reference the requirement for 10Pa pressure in Critical Care areas. Indeed, there appears to be no mention of the 10Pa pressure recommendation for Critical Care areas in PPP2.

Given the impact that pressurisation has on the ventilation systems within healthcare facilities, it is considered that reference to the requirement for not only 10 air changes per hour but also 10Pa pressure in Critical Care areas ought to be included within PPP2.

Should you have any queries, or wish to discuss generally, please feel free to contact me on the number above.

Yours faithfully

Alan Eadie
Partner
For and on behalf of BTO Solicitors LLP

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NHS National Services Scotland

Scottish Health Technical Memorandum 03-01

Ventilation for healthcare premises
Part A – Design and validation

Health Facilities Scotland
Engineering and Environment

February 2013

Contents

Acknowledgements

Health Facilities Scotland would like to thank the principal contributors and the Steering Group led by the Department of Health for their efforts in producing the HTM 03-01 Part A document.

HTM 03-01 Part A has been updated and amended by Health Facilities Scotland for use in NHSScotland as SHTM 03-01 Part A and the contribution from the National Heating & Ventilation Advisory Group is gratefully acknowledged.

Preface

About Scottish Health Technical Memoranda

Engineering Scottish Health Technical Memoranda (SHTMs) give comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare.

The focus of Scottish Health Technical Memorandum guidance remains on healthcare-specific elements of standards, policies and up-to-date established best practice. They are applicable to new and existing sites, and are for use at various stages during the whole building lifecycle.

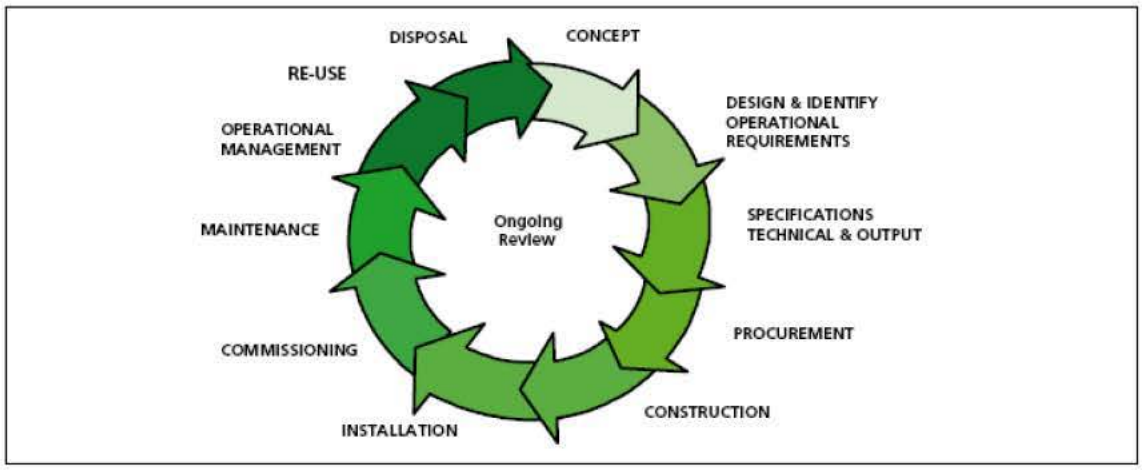
Healthcare providers have a duty of care to ensure that appropriate engineering governance arrangements are in place and are managed effectively. The Engineering Scottish Health Technical Memorandum series provides best practice engineering standards and policy to enable management of this duty of care.

It is not the intention within this suite of documents to repeat unnecessarily international or European standards, industry standards or UK Government legislation. Where appropriate, these will be referenced.

Healthcare-specific technical engineering guidance is a vital tool in the safe and efficient operation of healthcare facilities. Scottish Health Technical Memorandum guidance is the main source of specific healthcare-related guidance for estates and facilities professionals.

The core suite of eight subject areas provides access to guidance which:

- is more streamlined and accessible;
- encapsulates the latest standards and best practice in healthcare engineering;
- provides a structured reference for healthcare engineering.



Healthcare building lifecycle

Structure of the Scottish Health Technical Memorandum suite

The series of engineering-specific guidance contains a suite of eight core subjects:

Scottish Health Technical Memorandum 00: Policies and principles (applicable to all Scottish Health Technical Memoranda in this series).

Scottish Health Technical Memorandum 01: Decontamination.

Scottish Health Technical Memorandum 02: Medical gases.

Scottish Health Technical Memorandum 03: Heating and ventilation systems.

Scottish Health Technical Memorandum 04: Water systems.

Scottish Health Technical Memorandum 05: Reserved for future use.

Scottish Health Technical Memorandum 06: Electrical services.

Scottish Health Technical Memorandum 07: Environment and sustainability.

Scottish Health Technical Memorandum 08: Specialist services.

Some subject areas may be further developed into topics shown as -01, -02 etc and further referenced into Parts A, B etc.

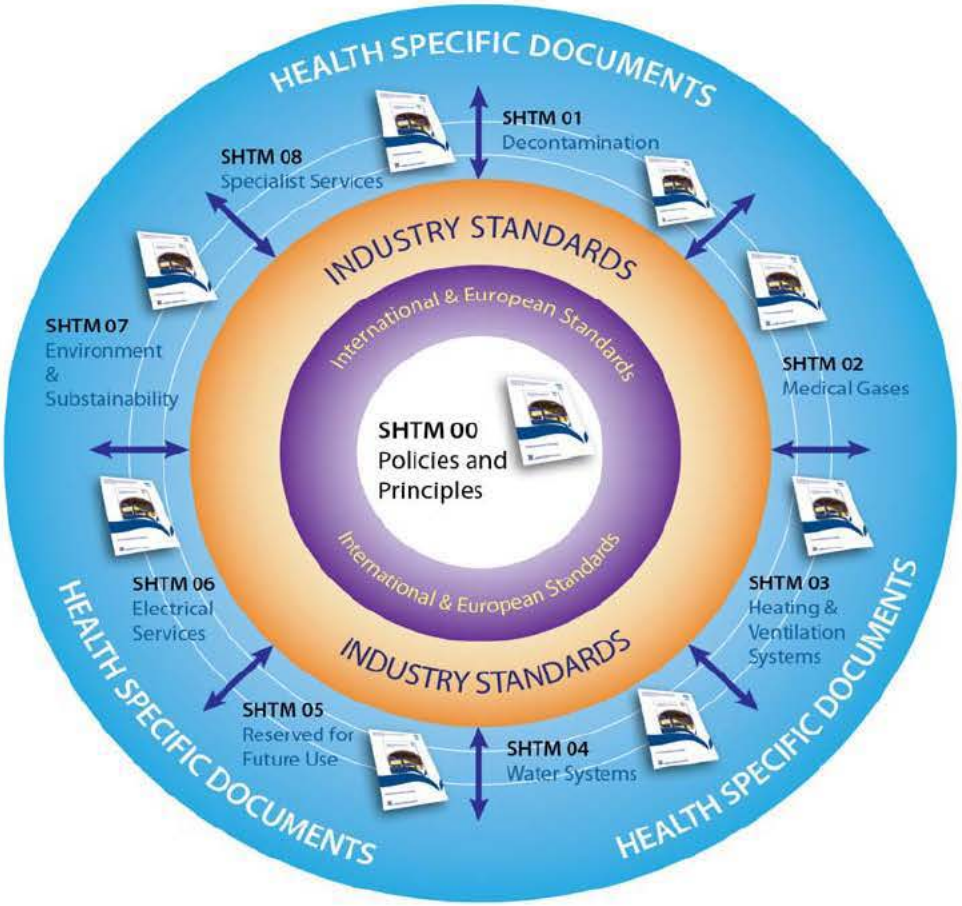
Example: Scottish Health Technical Memorandum 06-02 Part A will represent: Electrical Services – Electrical safety guidance for low voltage systems.

In a similar way Scottish Health Technical Memorandum 07-02 will simply represent:

Environment and Sustainability – EnCO_2de.

All Scottish Health Technical Memoranda are supported by the initial document Scottish Health Technical Memorandum 00 which embraces the management and operational policies from previous documents and explores risk management issues.

Some variation in style and structure is reflected by the topic and approach of the different review working groups.



Engineering guidance

1. Introduction

1.1 Ventilation is used extensively in healthcare premises or primary patient treatment in operating departments, high dependency units and isolation facilities. It is also installed to ensure compliance with quality assurance of processed items in pharmacy and sterile supply departments and to protect staff from harmful organisms and toxic substances, for example, in laboratories.

1.2 This edition of Scottish Health Technical Memorandum 03 'Ventilation in healthcare premises' is published in two sections. It is equally applicable to both new and existing sites. It gives comprehensive advice and guidance to healthcare management, design engineers, estate managers and operations managers on the legal requirements, design implications, maintenance and operation of general and specialised ventilation in all types of healthcare premises.

1.3 Current statutory legislation requires both 'management' and 'staff' to be aware of their collective responsibility.

1.4 'Ventilation' is also provided in healthcare premises for the comfort of the occupants of buildings. More specialised ventilation will also provide comfort but its prime function will be to control closely the environment and air movement of the space that it serves in order to contain, control and reduce hazards to patients and staff from airborne contaminants, dust and harmful micro-organisms.

1.5 Ventilation systems in themselves present little danger to patients or staff. However, they do possess the ability to transmit hazards arising from other sources to large numbers of people. The danger may not become apparent until many patients and staff have been affected.

1.6 The sophistication of ventilation systems in healthcare premises is increasing. Patients and staff have a right to expect that it will be designed, installed, operated and maintained to standards that will enable it to fulfil its desired functions reliably and safely.

1.7 The Health and Safety at Work etc Act 1974 (HSW Act 1974) is the core legislation that applies to ventilation installations and these installations are intended to prevent contamination, control closely the environment, dilute contaminants or contain hazards. Their very presence indicates that risks to health have been identified.

Statutory requirements

1.8 The Control of Substances Hazardous to Health (COSHH) regulations place upon management an obligation to ensure that suitable measures are in place to protect their staff and others affected by the work activity. These methods may include both safe systems of work and the provision of a specialised

ventilation system. In laboratories the requirements are often met by the provision of fume cupboards and safety cabinets.

1.9 The existing requirements to provide ventilation, implicit under HSW Act 1974 and COSHH, have been made explicit by the Management of Health and Safety at Work Regulations 1999, the Workplace (Health, Safety and Welfare) Regulations 1992 and the Provision and Use of Work Equipment Regulations 1998, all issued as a result of European Directives.

1.10 Where specialised ventilation plant is provided as part of the protection measures there is a statutory requirement that it be correctly designed, installed, commissioned, operated and maintained. The local exhaust ventilation (LEV) section of the COSHH regulations requires that the plant be inspected and tested at least every 14 months by an independent organisation and that management maintain comprehensive records of its performance, repair and maintenance.

1.11 Certain substances have Occupational Exposure Limits (OEL) set out in Guidance Note EH 40 published annually by the Health and Safety Executive. If special ventilation systems are provided in order to achieve these standards they will be subject to the COSHH regulations as above.

1.12 All ventilation systems should conform to the principles set out in the Approved Code of Practice and guidance document entitled "Legionnaires' disease: the control of *Legionella* bacteria in water systems" (commonly known as 'L8') published by the Health and Safety Executive and Scottish Health Technical Memorandum SHTM 04-01: The control of *Legionella*, hygiene, "safe" hot water, cold water and drinking water systems.

1.13 Special ventilation plants installed in laboratories dealing with research, development or testing, whether involving drugs, animals or genetically modified organisms, may be subject to particular legislation with regard to their operation in addition to that mentioned above. Further information is given by the Health and Safety Executive Health Services Advisory Committee in:

- safe working and prevention of infection in clinical laboratories;
- safe working and prevention of infection in clinical laboratories: model rules for staff and visitors;
- safe working and prevention of infection in clinical laboratories in the mortuary and post-mortem room.

1.14 Plants installed in units manufacturing medicinal products to the standards set out in the current European Guide to Good Manufacturing Practice may also be subject to particular legislation with regard to their operation in addition to that mentioned above.

1.15 Records should be kept of equipment design and commissioning information. The Health and Safety Executive, Medicines Inspectorate and other interested bodies have a statutory right to inspect them at any time. All records should be kept for at least five years.

1.16 The fire regulations require that if ventilation ductwork penetrates the fabric of a building it should be designed and installed so as to contain the spread of fire. (for further information refer to Firecode Series SHTMs 81, 83 and 85)

1.17 Increased health risks to patients will occur if the more specialised ventilation systems installed to supply high quality air to operating departments do not achieve and maintain the required standards. The link between post-operative infection and theatre air quality has been well established. Plants serving conventional operating departments, for instance, will be required to ensure the separation of areas within the suite by maintaining a specific direction of air flow between rooms, even when doors are opened. They will also maintain the selected operating department environmental conditions regardless of changes in the outside air conditions or activities within the space. In addition ultra-clean operating ventilation systems that are designed to provide an effectively particle-free zone around the patient while the operation is in progress, have been shown to reduce significantly post-operative infection in patients undergoing deep wound surgery. Their use for other forms of surgery may well be required.

1.18 Ventilation systems that can be shown to be inappropriate, inadequate or ineffective and that give rise to proven failures can result in a civil suit by the patient against the operators.

1.19 If the plant has been installed to dilute, extract or contain harmful substances (the definition of which now includes microorganisms) its failure may expose people to unacceptable levels of hazard. Proven failures can give rise to a civil suit against the designers and operators by the individuals who have been affected. This would be in addition to the actions brought as a result of breaching the statutory requirements.

1.20 There is a statutory requirement to provide ventilation in all enclosed workspaces. It may be provided by either natural or mechanical means. The following are some of the factors that determine the ventilation requirements of a workspace:

- human habitation (minimum fresh air requirement);
- the activities of the department, that is, extraction of odours, aerosols, gases, vapours, fumes and dust – some of which may be toxic, infectious, corrosive, flammable, or otherwise hazardous (see Control of Substances Hazardous to Health (COSHH) regulations;
- dilution and control of airborne pathogenic material;
- thermal comfort;
- the removal of heat generated by equipment (e.g. catering, wash-up, sterilising areas, electrical switch rooms, uninterruptible power supply (UPS) cupboards and some laboratory areas);
- the reduction of the effects of solar heat gains where other forms of reducing the solar effect is not available or practical, i.e. solar blinds;

- the reduction of excessive moisture levels to prevent condensation (for example Hydrotherapy pools);
- combustion requirements for fuel burning appliances (see BS5376, BS5410 and BS5440);
- 'make-up' supply air where local exhaust ventilation (LEV) etc., is installed.

Mechanical ventilation systems are expensive in terms of capital and running costs, and planning solutions should be sought which take advantage of natural ventilation either where the use of the area in question is not critical to airflow patterns or pressures, or where backup systems are available when natural ventilation cannot be achieved.

1.21 When new ventilation systems are accepted for use, full information as to their designed mode of operation together with recommended maintenance procedures should be provided as part of the handover procedure.

Requirement	Reason	Application
Statutory	Health and Safety at Work etc Act	Operating department Laboratories Pharmacy
	COSHH regulations	Areas containing identified biological or chemical hazards Areas containing oxygen displacing gases
	Local Exhaust Ventilation (LEV)	Enclosed work-spaces Workshops
Functional	Comfort	Situations where the quality of the environment for staff and patients is critical to their general performance and well-being
Clinical	Post-operative infection reduction	Operating suites used for general surgery, casualty, obstetrics/gynaecological and maternity procedures
	Reduction of deep wound sepsis	Ultra-clean operating suites for transplant, deep wound surgery, hip replacement, bone grafting and bone marrow transplant procedures
	Isolation from contact with bio hazards	Isolation units for patients who present a biological, chemical or radiation hazard to others. Isolation units for patients with a reduced immune system

Table 1: Reasons for providing ventilation

Functional overview – Terms in use

1.22 The terms 'ventilation' and 'air-conditioning' are often incorrectly used to describe the same equipment. A general explanation of the terms is given below.

Ventilation

1.23 Ventilation is a means of removing and replacing the air in a space. In its simplest form this may be achieved by opening windows and doors. Mechanical ventilation systems provide a more controllable method. Basic systems consist of a fan and either collection, (extraction) or distribution (supply) ductwork. More complex systems may include the ability to heat and filter the air passing through them. Ventilating equipment may be required in order to remove smells, dilute contaminants and ensure that a supply of 'fresh' air enters a space.

Air-conditioning and mechanical cooling

1.24 Air-conditioning is the ability to heat, cool, dehumidify and filter air. For full air-conditioning, humidification may also be provided. This means that the climate within a space being supplied by an air-conditioning plant can be maintained at a specific level regardless of changes in the outside air conditions or the activities within the space. Mechanical cooling may be provided where close control of 'comfort conditions' within a space is required but humidity control is not needed.

Special ventilation

1.25 In healthcare premises, certain activities will necessitate the provision of ventilation equipment with additional special features in order to achieve and maintain specific conditions. These may be needed in order to assist with the treatment of patients or maintain the health and safety of staff. The precise reason for providing special ventilation will depend upon the intended application. The list below indicates some of the more typical reasons:

- to remove, contain or dilute specific contaminants and fumes;
- to ensure the isolation of one space from another;
- to preserve a desired air flow path from a 'clean' to a 'less clean' area;
- to provide control of the cleanliness of a space;
- to provide 'close' control of temperature;
- to provide 'close' control of humidity.

1.26 The following departments will usually have specialised ventilation requirements, either for a single room or throughout a suite of rooms:

- operating department;
- laser surgery unit;
- intensive treatment unit;
- infectious diseases isolation unit;
- manufacturing pharmacy;
- specialised imaging, X-ray and scanning unit;

- pathology containment laboratories;
- mortuary and dissection suite;
- research laboratory;
- sterilising and disinfecting unit (SDU);
- endoscopy unit;
- renal dialysis suite;
- ultrasound facilities;
- audiology room.

1.27 Ventilation may be provided in a wide variety of ways. These will include:

- extensive purpose-built air-conditioning units housed in their own plant rooms;
- proprietary 'packaged' systems often sited outside on a roof or;
- wall-mounted electric fans located at the point of use.

1.28 A fixed volume of air may be supplied, often expressed in terms of the resulting number of air changes per hour (ac/h) within the space being ventilated. It may also be expressed in terms of litres/second/person. Alternatively the volume of air supplied may be varied in order to maintain a specific pressure relationship between the area supplied and other surrounding areas. In some situations a combination of both methods may be adopted.

1.29 Modern plants are fitted with the means to recover energy from the extract air where this can be justified without causing contamination of the incoming supply air.

1.30 Ultra-clean systems use the same basic plant and equipment as standard air-conditioning but are in addition fitted with a terminal device that supplies the air in a unidirectional manner to the working area. Their standard of filtration will be capable of delivering air with a very low particle count to the space that they serve.

Local exhaust ventilation

1.31 Local exhaust ventilation (LEV) is a term used to describe systems installed to prevent hazardous substances from entering the general atmosphere of the room in which they are being used. Their primary function is to protect staff from the effects of their work activity.

1.32 Simple LEV systems comprise a capture hood, extract ductwork and fan. These are used to contain industrial types of hazard such as fumes from welding processes, gas discharges from standby battery banks and dust from woodworking machinery. The vapour given off when large quantities of chemicals are decanted into ready-use containers and fumes from X-ray film processing units are further examples of chemical hazards often controlled by LEV systems.

1.33 In laboratories, pharmaceutical manufacturing facilities and operating suites, LEV systems usually take the form of semi-open fronted cabinets within which the hazardous substance is manipulated. These cabinets either have their own filtered air supply or are fed with air from the room. The air extracted from the cabinet is passed through a high-efficiency filter before being discharged either to the atmosphere or back into the room. Microbiological safety cabinets, laboratory fume cupboards, cytotoxic drug cabinets and fixed or mobile disinfection enclosures are all examples of this type of facility.

1.34 Mortuaries and dissection suites may have LEV systems incorporated within the dissection table, specimen bench and bone saw.

Management action

1.35 The guidance contained in this SHTM should be applied in full to new installations and major refurbishments of existing installations.

1.36 Ventilation will need to be provided:

- as a requirement for patient care;
- in order to fulfil a statutory duty.

1.37 In assessing the need for more specialised ventilation and the standards desired for patient care, managers will need to be guided by their medical colleagues and by information published by Health Facilities Scotland.

1.38 The statutory need for ventilation falls into two categories:

- in the first, the need for specialised ventilation and the standards to be adopted are clearly set out in specific pieces of legislation. An excellent example of this is the current legislation surrounding the manufacture of medicinal products in the European Community. The managers of the departments affected by this type of legislative requirement should be aware of their needs and be able to advise on the standards to be achieved;
- the second type of statutory requirement arises due to the interpretation of both the Health and Safety at Work etc Act and the Control of Substances Hazardous to Health (COSHH) regulations. The person tasked with conducting COSHH assessments will be able to advise as to the need for, and standard of, ventilation in each particular case.

Design and validation process

1.39 It is essential when undertaking the design of a specialised ventilation system that the project be considered as a whole. The process model set out below should ensure that all relevant factors are considered.

Step	Question	Design statement and information required	Comment
1	Why is the system required?	Healthcare applications Statutory elements Non-healthcare applications	
2	What is the required system performance?	Room air flow pattern Air change rate Differential pressures Air quality Room air condition Noise limits	
3	What are the constraints on the distribution system?	Location, Size, Materials Dampers, Access, Insulation Fire considerations Room terminals	
4	What are the minimum requirements for the AHU(s)?	Intake / Discharge positions *Legionella*, Health and Safety Access, Fire, Electrical safety Leaks, Insulation, Cleanliness Filtration, Drainage	
5	What control functions are required?	User control requirements Estates control functions Energy management Environmental conditions Control sequence logic Run, Set back, Off philosophy	
6	How will the system performance be validated?	Validation methodology Instruments used Design information required [*Design air flow rates* *Design air velocities* *Pressure differentials* *Noise levels* *Air quality* *Installation standard*]	
7	The system will only be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life.		
8	Handover to client	Basic design information Commissioning results Validation report	

Table 2: Design and Validation process model

Use and function of typical equipment used in ventilation plant

1.40 Typical equipment used in ventilation systems is listed below together with a brief description of both function and use.

General

1.41 The equipment built into the ventilation system and its ductwork should be of a type that will neither cause nor sustain combustion. No materials that could sustain biological activity should be used in the construction or assembly of the system.

Air Intake

1.42 An uncontaminated air supply to the system is essential. In order to achieve this, the air intake will be positioned so that air discharged from extract systems or other dubious sources cannot be drawn in. Exhaust fumes from vehicles can present particular problems. The area surrounding the intake will need to be kept clean and free of vegetation and waste material in order to reduce the possibility of biohazards or fire. The intake itself will be protected by a louvre and mesh screen to prevent rainwater, vermin and insects etc from entering the system.

Damper

1.43 Several types may be fitted:

- automatic dampers fitted immediately behind the air intake and extract louvres. They will automatically close when the system is shut down in order to prevent an uncontrolled circulation of air;
- balancing dampers are fitted into each branch of the air distribution ductwork system so that the design air flow rate can be set during the commissioning process;
- where ductwork passes through a fire compartment wall, ceiling or floor a fire and/or smoke damper may be required;
- plant isolating dampers are fitted so that the main plant can be isolated from its air distribution duct system. They are manually operated and enable cleaning and maintenance of the air-conditioning equipment to be carried out.

Ducting

1.44 The means by which air is conveyed from the intake to its point of use. Ducting is usually constructed of galvanised steel and will normally be insulated to reduce noise and conserve energy. Ducts can also be formed in concrete, brickwork, stainless steel or plastic and may be rigid or flexible.

Fan

1.45 A series of rotating blades that move the air in the direction required. Fans are usually powered by electric motors either directly connected to them or driven through belts and pulleys. A fan may be arranged either to force air into or draw air from a ductwork system.

Attenuator / silencer

1.46 A device that will contain and absorb the noise emitted by a fan. They may be required to reduce disturbance caused by noise breaking out through the air intake and also noise transmitted along the ductwork to the conditioned space.

Filter

1.47 A filter consists of a labyrinth of fibrous material contained in a frame. It is designed to capture and hold particles being carried in the airstream. Because of the size range and number of particles that exist in air no filter can remove them all. The purpose of filtration is to reduce their number and size range to an acceptable level. Filters of progressively higher grades are fitted through the ventilation system:

- primary filters (coarse) are designed to collect the larger particles and are intended to keep the air-conditioning plant clean;
- secondary filters (fine) will remove the staining particles from air and keep the conditioned space visibly clean;
- high efficiency particulate air filters (HEPA/absolute) will remove virtually all particles from air. These may be required in order to reduce contamination in the working area either biologically or in terms of particle count.

Filters may be fitted to extract systems to protect energy recovery devices. They may also be fitted to remove biological, radiation or chemical hazards and if so, are often contained in a 'safe change' facility in order to protect those carrying out maintenance.

Activated carbon filters will reduce odours in extracted or recirculated air.

Heater battery / heater coils

1.48 A series of heater batteries or heating coils with or without fins through which steam or hot water is circulated. Heat is given up to the air passing over the battery thus increasing its temperature. Heating is usually carried out in stages, the final battery being controlled by the end user. Small batteries may be electric.

Humidifier

1.49 A device for increasing the humidity of air by adding moisture. For ventilation in healthcare premises this is normally achieved by releasing 'clean' steam into an

air supply duct. The steam will be completely absorbed into the air, increasing its humidity. The level of humidity may be preset or controlled by the end user.

Cooler battery / cooling coil

1.50 A series of finned coils mounted in the air supply duct. Either chilled water or refrigerant is circulated through the coils causing heat to be removed from the air. This will reduce its temperature and may also condense moisture out of the air. As free moisture in a duct can be a source of contamination the coil will be fitted with an eliminator and drainage system.

Eliminator

1.51 A device for catching and removing water droplets from an air stream. It may form part of a cooling coil or be a separate device.

Drainage system

1.52 A means of removing water from ductwork and disposing of it safely. Typically it will consist of a tray mounted in the duct to catch moisture, a glass water seal trap, continuously falling drainage pipework and an air break in the drain run to prevent waste water returning and contaminating the duct.

Access doors and observation ports

1.53 Doors and removable panels providing access for routine maintenance and cleaning. The doors should be fitted with glazed ports and suitable lighting provided so that the correct operation of devices such as cooling coils, humidifiers and filters can be easily observed without needing to switch off the plant.

Energy recovery

1.54 Many plants are fitted with the means to recover energy from the extract air without causing contamination of the incoming supply air. These devices will be fitted with a drainage system and may incorporate an eliminator. Several types of energy recovery systems are available.

1.55 Precise definitions of ventilation and air-conditioning terms are given in the Chartered Institution of Building Services Engineers (CIBSE) Guide B.

Typical plant

1.56 The layout of a typical plant that conforms to the requirements for healthcare applications is shown in Figure 1 overleaf. It contains most of the equipment described above.

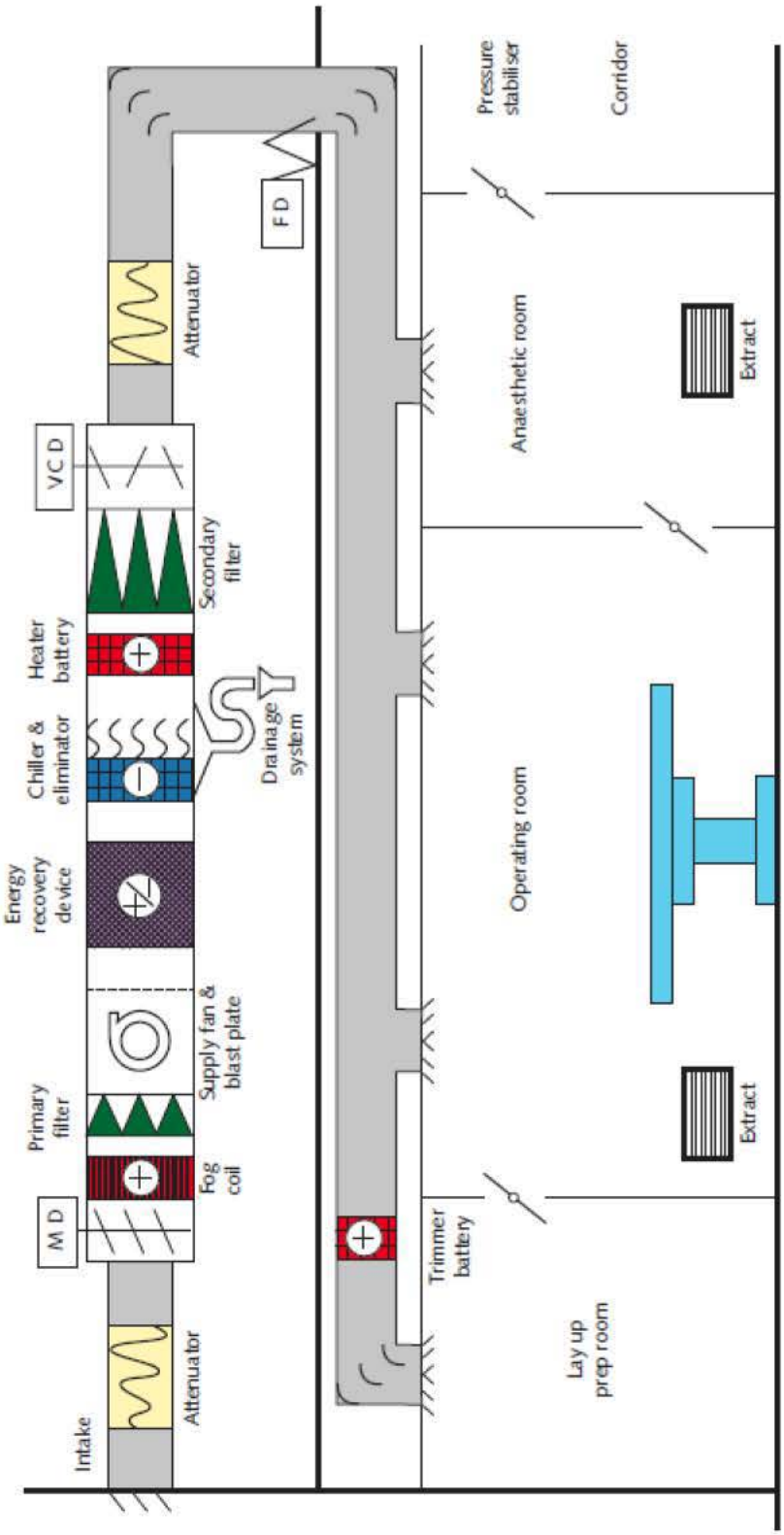


Figure 1: Design and Validation process model

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2. Provision of ventilation in healthcare buildings

2.1 It is acknowledged that planning constraints imposed by the building shape and/or functional relationships of specific areas will invariably result in some measure of deep planning thus reducing the opportunity for natural ventilation. However, ventilation costs can be minimised by ensuring that where practicable, core areas are reserved for rooms that have a functional requirement for mechanical ventilation. Examples are sanitary facilities, dirty utilities and those rooms where clinical or functional requirements have specific environmental needs; and where for reasons of privacy, absence of solar gain etc., windowless accommodation is acceptable. Other spaces appropriate to core areas are those that have only transient occupation and therefore require little or no mechanical ventilation, for example circulation and storage areas.

Natural ventilation

2.2 Natural ventilation is usually created by the effects of wind pressure. It will also occur if there is a temperature difference between the inside and the outside of the building. The thermo-convective effect frequently predominates when the wind speed is low and will be enhanced if there is a difference in height between inlet and outlet openings. Ventilation induced by wind pressures can induce high air change rates through a building provided air is allowed to move freely within the space from the windward to the leeward side.

2.3 As the motivating influences of natural ventilation are variable, it is almost impossible to maintain consistent flow rates and ensure that minimum ventilation rates will be achieved at all times. This variability is normally acceptable for general areas including office accommodation, general wards, staff areas, libraries rooms, dining rooms and similar areas which should, where possible, be provided with opening windows of a design that facilitates natural ventilation.

2.4 Current guidance restricts the amount windows can be opened for safety reasons and as many designs are top-hung, their ability to permit natural ventilation is limited. It may therefore be necessary to provide dedicated ventilation openings in the fabric of the building to allow a sufficient natural flow of air into and out of the space. Paragraph 2.20 also refers.

2.5 In all cases, excessive heat gain, indoor air quality requirements or external noise may limit or preclude the use of natural ventilation.

Extract ventilation systems

2.6 Separate extract ventilation will be required for sanitary facilities, lavage areas, dirty utilities and in rooms where odorous, but non-toxic fumes are likely, in order to ensure air movement into the space. 10 air changes per hour have been found necessary, particularly in geriatric and psychogeriatric

accommodation. This will assist with infection control procedures. A single fan/motor unit can be suitable for individual rooms, but multi-room systems should be provided with duty and standby fans or motors to meet this need.

2.7 Toilets should have an extract ventilation rate as set out in the building regulations. Where WC's are located in shower and bathroom spaces, the ventilation required for the WC will normally be adequate for the whole space.

Supply only ventilation

2.8 Mechanical supply ventilation will be required in areas where it is important to maintain a positive pressure in order to prevent the ingress of less clean air, e.g. in pharmacy aseptic suites, sterile supply packing rooms, operating theatres and their preparation rooms (air change rates are given in Table A1).

Supply and extract ventilation

2.9 Mechanical supply and extract ventilation should be provided in rooms where there is a need to control room pressure in relation to adjacent spaces. Intensive Care Units, (ICU), isolation suites and treatment areas are typical applications.

Mechanical or comfort cooling

2.10 Cooling is very expensive in terms of energy costs and should be provided only where necessary to maintain a comfortable environment for staff and patient, or to ensure satisfactory operation of equipment. The imaging department in particular may require cooling to offset the equipment load.

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.

2.12 Certain non-patient areas may also require cooling and will typically include some laboratories, central wash-up and other areas that are subject to high equipment heat gains.

2.13 Where deep planning of other continuously occupied spaces, for example offices, is unavoidable, there will also be occasions when acceptable levels of comfort can only be maintained by cooling. Planning solutions of this type however will be exceptional.

2.14 Refrigeration plant should be of sufficient capacity to offset heat gains and maintain areas at a temperature that does not exceed the external design shade temperatures by more than about 3ºC taking into account the level of design risk for the application.

Air-conditioning

2.15 Full air-conditioning is only required in a very small number of areas within healthcare buildings and due to the capital and running cost its inclusion should be kept to a minimum. Paragraphs 3.14 - 3.15 and 4.91 - 4.93 also refer.

2.16 Areas whose functions may warrant the installation of air-conditioning include operating departments, intensive therapy units, manufacturing pharmacies and areas with particularly sensitive equipment.

Specialised ventilation

2.17 Due to the nature and extent of activities carried out in healthcare buildings, there will be a need for a wide range of specialised ventilation systems. The types of system which are generally required in individual departments and typical arrangements are given in Section 7.

2.18 The activities within some departments will require the provision of local exhaust ventilation (LEV). This is a statutory requirement under COSHH wherever the escape of chemicals, toxic fumes, biological material or quantities of dust into the general area would present a hazard to the occupants.

Ventilation for general areas

2.19 Table A1provides recommended air change rates, temperatures and pressures for general areas that require mechanical ventilation in healthcare buildings.

Use of natural ventilation

2.20 The air tightness of new buildings has improved to the point that infiltration through building leakage can no longer be relied upon to provide sufficient air-flow. Attention must therefore be given to the provision of purpose-made ventilation openings to achieve the necessary flow rates. The air entering the openings may need to be controlled by motorised dampers linked to temperature and / or occupancy sensors in the ventilated space.

2.21 Internal partitions, fire compartment walls and closed doorways can often impede the flow path, and when this happens, the process will be more dependent on single-sided ventilation. Nevertheless, even with this degree of compartmentation, acceptable ventilation may still be achieved without window openings that would prejudice safety, security or comfort.

2.22 Some types of window, for example, vertical sliding, can enhance single sided air change by temperature difference, and these will improve the overall rate of natural ventilation in protected or sheltered areas where the effect of wind pressure is likely to be minimal.

2.23 It is generally considered that natural cross-flow ventilation is able to give reasonable air distribution for a distance of up to 6 metres inwards from the

external façade, provided that reasonably clear air paths are maintained. Beyond this distance in areas where clear air paths cannot be maintained and in areas where high minimum air change rates are specified, mechanical ventilation should be provided.

2.24 Further information can be found in SHTM 55 'Windows', BS5925 'Code of practice for ventilation principles and designing for natural ventilation' and CIBSE Applications Manual AM10: 'Natural ventilation in non-domestic buildings'.

Mixed mode ventilation

2.25 This comprises an assisted form of natural ventilation. Fans are fitted in the purpose made damper-controlled ventilation openings. Alternatively a separate ventilation unit may be installed. In both cases the dampers and fans are controlled under the dictates of temperature and occupancy sensors to ensure a minimum air flow rate while taking advantage of natural ventilation effects when present.

2.26 Where natural or mixed mode ventilation is adopted with complex air paths, the designer should produce an air flow diagram in order to ensure correct provision of air transfer devices. CIBSE Applications Manual AM13: 'Mixed mode ventilation in non-domestic buildings' gives guidance.

Mechanical extract ventilation

2.27 General extract systems can vary in complexity from a single wall-mounted fan to a ducted air system with dual extract fans.

2.28 Replacement air is generally provided by a central supply system (as described below). Unless special precautions are taken, the latter may result in an unacceptable level of draughts occurring in winter, and possible risk of unacceptable levels of noise transmission.

2.29 If individual systems are used, the ventilation can be operated intermittently, provided it continues to run for at least 15 minutes after the room is vacated, as with light switch-operated fans in individual toilets.

2.30 If general exhaust systems are used; it is recommended that filtered and tempered replacement air is provided via a central supply plant to adjoining lobbies or corridors, to prevent the risk of discomfort caused by the ingress of cold air. Fire compartmentation requirements must be maintained.

2.31 Information on specialised extract systems is given in Section 7.

Mechanical supply systems

2.32 Where mechanical supply systems are required, the fresh air should be tempered and filtered before being delivered to the space, to avoid discomfort.

2.33 The air should be heated using a constant or variable temperature source, but generally only to the space air temperature. In most instances, the low-pressure hot water heating (LPHW) should offset any fabric loss, so that setback room temperatures can be maintained during unoccupied periods without the need for the ventilation system to operate.

Balanced ventilation

2.34 Balanced ventilation systems are merely a combination of a supply and extract systems of equal volume; and either a single space or a whole building may be considered to be balanced. A balanced system is necessary in instances where it is essential to maintain consistent air movement within an area, for example, treatment rooms.

Cascade ventilation

2.35 In operating departments it is normal practice to supply air to the operating room, and allow it to pass through less clean areas – corridors, utility rooms etc. (from where it is eventually extracted).

Recirculation systems

2.36 Due to the nature of the use of mechanical ventilation systems within healthcare buildings, there are few opportunities for the application of recirculation air systems. They are however normally used for HEPA filtered clean room applications where the extract air is significantly cleaner than the outside supply. Recirculation is also routinely used in the canopy section of Ultra Clean Operating theatre ventilation systems.

2.37 Where the designer is considering the installation of a recirculation air system, due account must be taken of:

- minimum fresh air supply volume required by the Building (Scotland) Regulations 2004 (currently 20%);
- prevention of contamination of supply air from vitiated air in extract systems;
- prevention of stratification occurring within plenum chambers and mixing boxes which may result in freezing of downstream coils;
- ensuring sufficient velocities through control dampers (ideally 5-6m/s) to provide suitable authority; and good shut-off;
- modulating control of mixing to provide optimum on-plant conditions;
- use of 'free cooling' by cycling the dampers to minimum fresh air when the enthalpy of the outside air is above that of the extract air under conditions when cooling is required.

Chilled beams

2.38 The use of chilled beams for the provision of heating, cooling and ventilation is increasingly common in healthcare premises. The use of Active Chilled Beams providing tempered filtered air to a heating / cooling device within the room can provide effective local control of environmental conditions.

2.39 Care should be taken in positioning chilled beams to ensure the avoidance of cold draughts particularly when used in the cooling mode. The control settings should ensure that the external elements of the beam are always above dewpoint.

2.40 Consideration should be given to the ease with which specific types of chilled beam units can be accessed for cleaning having regard to the need to control the infection risk. The impact of maintenance requirements on room availability should also be considered.

Split comfort air-conditioners

2.41 Split comfort air-conditioners, room conditioners or cassette units are used increasingly where there is a small local requirement for cooling for operational purposes. They can provide an effective economic solution to cooling needs, where a central refrigeration system is not practicable.

2.42 The units re-circulate room air so provision for a fresh air make up, either by natural or mechanical means, to the standard required by the Building (Scotland) Regulations must be provided.

2.43 The recirculation of room air presents problems with indoor air quality (IAQ) and may increase the risk of healthcare associated infection (HAI). Split units should not therefore be used in critical patient areas.

2.44 Split units may be used for single room applications or as multiple linked units that can independently provide either heating or cooling, all served by a single outdoor unit. These systems enable good temperature control of a number of rooms with maximum energy efficiency.

2.45 Whether single or multiple systems are used, it is essential that the designer gives due consideration to the source of electrical supply, location of the heat rejection unit, environmental effects to the refrigerant used and drainage provision for the cooling coil condensate.

2.46 The units will require routine maintenance for filter change and cleaning; they should therefore be installed in an accessible position.

Dilution ventilation and clean air flow paths

2.47 Dilution ventilation has in the past been used to control levels of hazardous substances in a space. This approach is no longer considered acceptable. The COSHH Regulations require that known hazardous substances should

be substituted by safe alternatives. If this is not possible then they should be controlled at source by the use of closed systems such as anaesthetic gas scavenging units or exhaust protective enclosures such as fume cupboards.

2.48 The exposure of staff to casual spillages of substances such as medical gases in anaesthetic rooms should in the first instance be dealt with by establishing a clean airflow path. Air should be supplied at high level and extracted at low level directly behind the anaesthetic equipment position. The philosophy of establishing a clean air-flow path from the supply point; to the staff; on to the patient and out via a low level extract would also apply in recovery rooms and maternity delivery rooms including labour, delivery, recovery & post partum (LDRP) Rooms. A suitable air change rate will provide dilution ventilation as an additional safeguard; see Table A1, Table A2 and Note c.

2.49 In operating theatres the patient will be on a closed breathing circuit in a room with a high air change rate. Under these circumstances the dilution effect would be considered sufficient to control any casual exposure to anaesthetic gases.

Mechanical ventilation systems

System selection

2.50 Natural ventilation is always the preferred solution for a space, provided that the quantity and quality of air required, and the consistency of control of ventilation to suit the requirements of the space, are achievable with this method. If this is not the case, a mechanical ventilation system will be required.

Choice of central/local plant

2.51 Mechanical ventilation is expensive to operate, and as such, should be controlled to operate when the space being served requires to be ventilated. In addition, loads on refrigeration plant are rarely constant owing to changes in solar gain, occupancy and use of heat-generating equipment and lights, therefore control of temperature is critical.

2.53 If the ventilation loads throughout a department or building are in phase, or are not significant, a central plant with single zone control can be adopted. However, this is rarely the case, and elsewhere, the condition or quantity of supply air to different areas or zones of the building must be varied accordingly. This can be done by providing either individual plants to each zone, or separate zone terminal control. Where there is a high density of rooms with similar ventilation requirements in an area of a building or department, it is usually economical to combine them into a central system.

2.54 In large buildings, a choice between a single distribution system and multiple smaller systems may arise. Large distribution systems and their plant can have the advantage of lower operating costs, but require more space for vertical shafts and horizontal distribution. In general, very long runs of ducting should be avoided to prevent undue heat losses or gains, excessive leakage, and difficulties in balancing during commissioning. As the pressure losses in the

long runs will be greater and a higher initial static pressure will be required, this will lead to a more expensive class of ductwork. Multiple smaller distribution systems may be more expensive in capital and operating costs but they avoid long runs, large ducts and vertical shafts, and this may reduce overall building costs. They also provide a more robust service as the failure of an individual system does not prevent the use of the rest of the building.

Zoning of the building

2.55 The efficiency and effectiveness of any ventilation or air-conditioning installation depends largely on the zoning and control of the installation. The factors to consider when determining the zoning of a ventilation system for a building or department are:

- periods of occupancy;
- fresh air/ventilation requirements;
- smoke control.

2.56 Where the ventilation system is not merely tempering the air, but also providing the heating and/or cooling requirements, the following additional factors will need to be considered:

- internal or peripheral location;
- orientation of windows;
- variation in internal loads;
- level of control required.

2.57 For single zone plant in staff areas, local control (with a run-on timer if required) is recommended, as this can be turned off when the space is not in use, thus saving both thermal and electrical energy. Most supply and extract systems, conversely, are required to operate continuously while the department is occupied, thus some form of time or use control is necessary.

2.58 The control of individual plant items is covered in Section 4, with examples of typical control strategies in Section 6. For control of particular specialised ventilation and air-conditioning systems refer to Section 7 of this document.

2.59 On very rare occasions a duplicate standby air handling plant may be justified. If installed it must be provided with a gas-tight damper at its junction with the supply distribution duct, so that no back-flow can occur. Standby plants can become sources of contamination if warm moist air is allowed to dwell within them. Their design and control system must ensure that this cannot happen.

Specific requirements for hospital departments

2.60 Specific requirements for individual spaces and departments are included in the Health Building Notes (HBNs) and Activity Database (ADB) A-Sheets, or Scottish Health Planning Notes (SHPNs).

3. Assessment of service requirement

Selection of design criteria

External design conditions

3.1 The most accurate data that is available for the summer and winter conditions at the site should be used. The Metrological office can supply data for the United Kingdom.

3.2 Healthcare mechanical ventilation systems will normally be 'full fresh air'.

3.3 Local adjustments such as for height above sea level, exposure factor, or other climate peculiarities, should be made as appropriate.

Internal design conditions

3.4 The design conditions selected within patient areas must strike a balance between the comfort requirements of staff and patients, who often have very different levels of clothing and activity.

3.5 Recommendations for the dry resultant temperature and humidity of individual spaces are shown on Activity Database (ADB) A-Sheets. Table A1 gives a summary.

Minimum fresh air requirements

3.6 For most applications involving human occupancy, the dilution of body odours is the critical factor in determining ventilation requirements. Where natural ventilation or mechanical full fresh-air systems are used, all ventilation air will be fresh.

3.7 Where odour dilution is the overriding factor, it is recommended that 10 litres/second/person should be taken as the minimum ventilation rate.

3.8 Smoking is not permitted in healthcare premises. If permitted for example in residential care, it will be confined to designated areas. It therefore follows that these areas will contain a high percentage of smokers so the ventilation rate would be at least 36 litres/second/person for these applications (CIBSE Guide A; Table 1.10 refers).

3.9 In non-standard applications such as laboratories, aseptic suites, operating departments, etc., the particular requirements for each area should be considered independently in order to determine the overriding minimum requirement for ventilation.

Limiting supply air conditions

3.10 For most applications in healthcare buildings, it is the temperature differential between the supply and room air, rather than the actual temperature of the supply air which is the critical factor. The maximum recommended supply-to-room air temperature differential is:

summer cooling: - 7K

winter heating: + 10K

3.11 It is also necessary to keep supply air humidity below 70% during winter in order to minimise risks associated with condensation.

Air purity

3.12 In healthcare premises, the standard of filtration will depend on the activities within the occupied spaces. With the exception of special areas, (for example manufacturing pharmacies), the requirement for aerobiological needs is not stringent and filtration is only required to:

- maintain hygienic conditions for the health and welfare of occupants, or for processes such as food preparation;
- protect finishes, fabrics and furnishings; to reduce redecoration costs;
- protect equipment either within the supply air system; that is, to prevent blocking of coils, or in the space itself to prevent dust collection.

3.13 Given that almost all viable particles will originate from the occupants of a space and not from the incoming air, dilution is the more important factor aerobiologically. Therefore, for general areas a G4 filter will be suitable. More critical areas will require a F7 filter. HEPA filters will only be required in Ultra Clean systems.

Humidity control requirements

3.14 Providing humidification is expensive in terms of plant, running costs and maintenance, and therefore its use should be restricted to where it is necessary for physiological or operational reasons.

3.15 Humidification was originally required for some healthcare applications, e.g. operating theatres, in order to control the risk associated with the use of flammable anaesthetic gases. The use of such gases has now ceased. Humidification is therefore no longer required unless there is a very specific application requirement.

Maximum noise levels

3.16 Noise will be generated in an air distribution system by the fan, ductwork fittings, dampers and grilles. The specified maximum noise level will depend on the activities within the occupied spaces.

3.17 The overall noise levels should not exceed the values given in Scottish Health Technical Memorandum 08-01: 'Acoustics', although general requirements are given in Table 3.

3.18 Attenuation should be incorporated into the ductwork system or plant arrangement as necessary to reduce noise from fans and plant items in order to achieve the acceptable limits within the rooms at the design air flows.

3.19 Plant noise should not be greater than 80dB(A) within the plant room from the fans, coolers, heaters, humidifiers etc. when starting up or running, and should be reduced to lower noise levels where the plant is near to departments sensitive to noise.

3.20 Attention must be given to the reduction of tonal components. High tonal components from air diffusers etc. can seriously disturb concentration over longer periods even when the overall noise level is low. Broadband noise causes less annoyance. Reference should be made to SHTM 08-01: 'Acoustics'.

3.21 The designer requires knowledge of the total hospital layout and operational policies, to assign acceptance magnitudes to all the possible noise sources, in order to arrive at the correct rating.

Room	Overall noise level - NR	Ventilation plant commissioning - NR	Ventilation plant design - NR
Operating department	50 (55)	45	40
Ward areas	33	30	30
Sanitary facilities	45	40	35
Industrial areas	50	45	40
Circulation areas	50	45	40

Table 3: Interior noise level

3.22 In Table 3, above, the overall noise level takes account of all internal and external noise sources. The commissioning noise level is the level measured with a sound level meter in the unoccupied room, taking account of the external noise together with the noise generated by the ventilation system. When occupied and in use, this commissioning level will constitute a continuous background noise which will allow the overall noise level to be achieved. The ventilation plant design noise level is that generated by the plant alone with no other noise source being considered. The levels suggested make recognised allowance for the ingress of environmental noise that must be considered in the overall design, that is, in specifying the attenuation of walls, partitions, ceilings, etc.

3.23 The recommended criterion is measured as the "A" weighted sound pressure level expressed in decibels, which should not be exceeded for more than 10% of the time.

3.24 The designer must also consider noise escaping to the external environment and this must not be unacceptable to occupants of adjacent buildings.

Calculation of building loads

Air infiltration

3.25 Air infiltration occurs due to a complex combination of wind pressure, thermal effects, location relative to other features and the construction standard of the building. The infiltration rate is governed by the size and number of openings in the building envelope and the complexity of internal air paths.

3.26 CIBSE Guide A (2006) Section 4 provides information and formulae for the calculation of air infiltration and natural ventilation of buildings. In all cases the requirements of the appropriate section of the Building (Scotland) Regulations must be met.

Summertime temperatures

3.27 The calculation method for determining the summertime temperature is described CIBSE Guide A (2006) Section 5. However, it is very important to select the time of day and time of year of peak loadings for the calculations. These will be dependent on the orientation and proportion of solar to total heat gain. In establishing outside design values, the design risk having regard to the function and occupancy of the building should be considered.

3.28 Where calculations indicate that internal temperatures will frequently exceed the selected design external shade temperature by more than 3K for a period that exceeds the building design risk, methods of reducing temperature rise should be implemented. Options include: - reducing solar and casual gains, the use of chilled beams or ceilings, increasing ventilation rates or providing mechanical cooling. In some situations it may be possible to alter the thermal mass of the structure to 'move' the peak temperature event time so that it occurs outside of the occupancy period. Calculations and thermal modelling should be undertaken to ensure that during the summertime internal temperatures in patient areas do not exceed 28°C dry bulb for more than 50 hours per year. It has been found that there is a relationship between preferred indoor temperatures and mean outside temperature. Fig A2 in CIBSE Guide A indicates this relationship.

Peak heating load

3.29 Peak heating local calculations are necessary on all mechanical supply systems to establish the size of heater batteries and subsequently the central plant.

3.30 Where ventilation systems provide tempered air to spaces that have supplementary LPHW to offset the building fabric losses, the plant heating load should be calculated based on the external winter design temperature, the design internal air temperature, and the calculated total air volume (including a suitable allowance for leakage).

3.31 Where the ventilation system is the only means of heating a space, an increase in load equivalent to the calculated fabric heat losses from the space should be added to the ventilation load. A check of supply temperature difference should be made. If it exceeds 10K the ventilation supply volume should be increased to suit.

Condensation risk

3.32 A check should be made to ensure that the selected air condition will not lead to surface condensation on low-temperature elements of the ventilated space.

3.33 Where there are local sources of moisture that would require excessive levels of ventilation to avoid condensation, the designer should consider the capture and removal of moisture at the source of the evaporation via an exhaust hood or similar device.

3.34 In intermittently heated buildings, it is necessary to consider the condensation risk at night setback conditions as well as during normal operation. Calculation methods for this assessment are given in CIBSE Guide A.

Peak cooling load

3.35 In addition to the base data of airflow rates and temperatures, when calculating cooling loads, the designer must take into account:

- solar cooling loads;
- surface conduction cooling loads;
- internal gain cooling loads;
- cooling loads due to high-level humidity control;
- method of control of internal conditions;
- fluctuations in internal temperatures.

3.36 When the peak internal loads have been assessed and a suitable allowance made for non-coincidence, the supply temperature can be calculated.

3.37 Once the lowest required supply temperature of the air handling unit has been established, and an allowance made for temperature rise through the fan and ductwork (usually 1K for low pressure systems), the off-plant enthalpy can be established from a psychrometric chart or table.

3.38 The cooling loads for all plants on the chilled water system should be calculated at each of the individual peak times in order to establish accurately the required (diversified) capacity of the chiller.

Annual energy consumption

3.39 Annual energy consumptions of heating-only ventilation systems are simple to calculate based on supply-to-external air temperature rise, and frequency of occurrence of external temperatures as given in CIBSE Guide A.

3.40 Minimum air volumes are usually fixed by the room loads or fresh air requirements. However, the designer may increase airflow to some rooms or zones in order to balance loads, as detailed in the following paragraphs on "Calculation of plant requirements."

3.41 The method of zoning and control can significantly influence energy consumption.

3.42 The nature of air-conditioning operation, comprising cooling and reheating for humidity or zonal temperature control, makes prediction of energy consumption very complex. It is imperative that these calculations are performed to ensure optimum energy efficiency.

3.43 The concept of load and plant operation charts is outlined in the CIBSE Guide A. The method requires the designer to establish the minimum and maximum loads on all zones across the range of external temperatures between winter and summer design conditions. Once the load chart is complete, the plant chart converts the loads to supply temperatures, which are then superimposed on external air temperatures.

3.44 When all temperatures for all zones are plotted on the plant operation chart, set points and resetting schedules can be established. From this information, the outputs of individual heaters, coolers and humidifiers can be established at any given external temperature. When those loads are computed against annual frequency of occurrence of external temperatures as given in CIBSE Guide A, the annual energy consumption of individual elements, and thus the air-conditioning system, can be established.

3.45 In order to prevent surface condensation occurring, it is necessary to provide sufficient ventilation to maintain the maximum and ambient dew-point temperature below the lowest surface temperature, the coldest usually being the glazing. Paragraphs 3.33 and 3.34 also refer.

Calculation of plant requirements

Air supply volumes

3.46 The minimum air supply volume for a room is determined by the greatest of these three criteria:

- the minimum fresh-air requirement;
- the minimum supply volume for the room load as determined by the maximum heating or cooling supply temperature differential;
- the desired/required air change rate.

Plant sizing

3.47 Once the design airflow has been established the cross-sectional area of the air-handling unit can be calculated based on a maximum coil face velocity of 2.0 m/s.

3.48 In order to establish the length of the air-handling unit, it will be necessary to refer to manufacturers' literature, ensuring all necessary access panels and components are included as detailed in Section 4.

3.49 The fan duty should be calculated by adding the resistances of all elements that contribute to the pressure drop of the index circuit.

3.50 The main elements that must be considered are:

- inlet or discharge louvres;
- plant entry and discharge;
- attenuators;
- components within the air-handling unit;
- duct-mounted heaters and filters (including a dust allowance);
- ductwork distribution;
- ductwork fittings, including: fire dampers, volume control dampers, bends and sets, tees, changes of section;
- air terminal device;
- discharge velocity.

3.51 Where packaged air-handling units are installed, the fan pressure drop is usually quoted as external plant resistance, and thus the designer does not need to calculate the resistances of individual plant items. The designer should, however, ensure that an allowance has been made for filter clogging; and confirm whether the fan pressure quoted is fan total or static pressure.

3.52 Resistances of ductwork and fittings may be obtained from the CIBSE Guide A. However, the designer should exercise some care when using tabulated pressure loss information for fittings that are relatively close together.

3.53 Upon completion of the resistance calculation exercise, the designer should make allowances for calculation and construction tolerances as indicated in Table 4.

Criteria	Low pressure systems	Medium/high pressure systems
Volume flow rate margin for leaking and balancing requirements	+5%	+5%
Total pressure loss margin A. for increase in volume flow rate (above)	+5%	+5%
B. for uncertainties in calculation	+5%	+10%
Combined total pressure loss margin	+10%	+15%

Table 4: Typical fan volume and pressure margins

Plantroom size and location

3.54 The ventilation plant and associated equipment should be positioned to give maximum reduction of noise and vibration transmitted to sensitive departments; while at the same time, achieve an economic solution for the distribution of services.

3.55 It is not recommended that noise and vibration generating plant be housed either directly above or below sensitive areas (for example, operating or anaesthetic rooms) unless there is no alternative, in which case, additional care and attention must be given to the control measures.

3.56 The plant must also be located so that it is remote from possible sources of contamination, heat gains and adverse weather conditions. The design should ensure that wind speed and direction have a minimal effect on plant throughput.

3.57 Safe access to and around plant is essential to facilitate inspection, routine maintenance, repair and plant replacement.

Provision of primary services

3.58 Where more than one air-handling plant requires cooling, remote central cooling plants with piped chilled water are preferred. In the case of a single plant, a multi-stage direct-expansion cooling coil with refrigerant piped from an adjacent compressor/condensing plant could be considered. If this option is selected, a refrigerant gas detector mounted in the base of the duct and an alarm system audible to the end-user will also need to be provided (as dictated by COSHH Regulations).

3.59 Clean dry steam is preferred for humidification, provided that the boiler water treatment does not render the steam unusable for direct humidification.

3.60 If a suitable supply of steam cannot be obtained from the steam main, a steam generator should be provided locally, or a self-generating humidifier installed. Electric humidifiers require considerable electrical loads and if a gas supply can be derived, this would be preferable. The location of a local steam generator is critical if condensate is to drain back into it.

Inlet and discharge sizing and location

3.61 Air intakes and discharge points should preferably be located at high level, to minimise the risks of noise nuisance to surrounding buildings, contamination and vandalism.

3.62 Intakes and discharges should be designed and located so that wind speed and direction have a minimal effect on the plant throughput.

3.63 Helicopter landing pads in the vicinity of ventilation intakes and discharges can result in large short-term pressure changes. This can cause pressure surges in supply systems and reverse airflows in extracts. Exhaust fumes from the helicopter may also be drawn into intakes. For general information, refer to Health Building Note (HBN) 15-03 – Hospital helipads.

3.64 Intake points should also be situated away from cooling towers, boiler flues, vents from oil storage tanks, fume cupboards and other discharges of contaminated air, vapours and gases, and places where vehicle exhaust gases may be drawn in.

3.65 Where intakes have necessarily to be sited at or near ground level, the area around them should be paved or concreted to prevent soil or vegetation being drawn in. They should also be caged or located within a compound to prevent rubbish being left in the vicinity. The likely proximity of vehicle exhausts should also be taken into account when determining the protected area around the intake.

3.66 The discharge from an extract system must be located so that vitiated air cannot be drawn back into the supply air intake or any other fresh-air inlet. Ideally, the extract discharge will be located on a different face of the building from the supply intake(s). In any event, there must be a minimum separation of 4 metres between them, with the discharge mounted at a higher level than the intake.

3.67 Discharges from LEV systems should preferably be vertical and usually not less than 3m above roof level. They should not be fitted with a cowl that could cause the discharge to be deflected downwards.

3.68 Each intake and discharge point should be fitted with corrosion-resistant weatherproof louvres or cowls to protect the system from driving rain. Louvres should be sized based on a maximum face velocity of 2 m/s in order to prevent excessive noise generation and pressure loss.

3.69 The inside of the louvres should be fitted with a mesh of not less than 6mm and not more than 12mm to prevent leaves being drawn in and infestation by vermin.

3.70 The duct behind louvres should be self-draining. If this is not practicable, it should be tanked and provided with a drainage system.

3.71 Cleaning access must be provided either from the outside via hinged louvres or by access doors in the plenum behind the louvre. Where a common plenum is provided, cleaning access should be via a walk-in door.

Heat rejection devices

3.72 The design conditions given in Section 2 make no allowance for the elevated temperatures that can occur on the roof of buildings. Refrigeration condensers should, if practicable, be shaded from direct solar radiation, or the design adjusted to take account of the gain.

3.73 Air-cooled condensers must always be the first choice for heat rejection from any refrigeration plant. Evaporative cooling systems must not be used in healthcare premises.

3.74 Reference should be made to Scottish Health Technical Memorandum 04-01: 'The Control of *Legionella*, hygiene, 'Safe' hot water, cold water and drinking water systems, Part A: Design, Installation and Testing, and Part B: Operational Management, published by Health Facilities Scotland, 2011.

4. Air handling unit design and specification guidance

General requirements

Location and access

4.1 Air-handling units should be located in an accessible area secured from unauthorised entry. Siting units in ceiling voids above occupied spaces is not appropriate.

4.2 Units located on roofs must have a safe means of access together with suitable precautions to prevent personnel or equipment falling or being blown off during maintenance activities.

4.3 Units located at ground level should be secured within a locked compound to prevent unauthorised access. Measures should be taken to exclude vehicles from the vicinity to ensure that exhaust fumes will not be drawn into intakes.

4.4 Units may have a working life of approximately 20 years. It can be anticipated that over this period there will be a need to access every element within the unit for deep cleaning. It is also quite possible that the main fan and individual heater and chiller batteries will need replacement. Suitably positioned service connection joints and adequate spacing should permit these items to be withdrawn without the need to dismantle other installed plant or equipment. Batteries significantly wider than 1 metre should be split to permit withdrawal from both sides.

4.5 It is essential that air-handling units are positioned so that all parts are easily and safely accessible for routine inspection and service. If a unit is located against a wall or backs onto another unit then access to all parts must be available from the front. Units greater than 1 metre wide should preferably have access from both sides or access doors large enough to permit the full and safe entry of maintenance personnel.

4.6 Water may be used during routine cleaning or spilt when maintenance is being undertaken. The area around the unit should be tanked to prevent water penetration to adjacent areas and adequately drained.

4.7 Fire precautions should be incorporated in accordance with Firecode. Guidance is available in BS5588: Part 9 and Sections 5 and 6 of this document.

4.8 Combustion equipment must not be located in a fire compartment that houses air-handling equipment.

Technical requirements

4.9 The basic technical requirements of the whole of the ventilation system should meet the relevant clauses of the Model Engineering Specification. It should be noted that the Specification contains a menu of clauses that cover a wide range of applications, so it is important to select only those that are relevant to the specific application.

Note 1: At the time of writing, Model Engineering Specification C04 was listed for revision in order to bring it into line with the revised standards as set out in this Scottish Health Technical Memorandum. Where conflicts in specification arise, the Scottish Health Technical Memorandum takes precedence.

4.10 It is essential that the main plant/ductwork is located far enough above the floor to permit the correct installation of drainage systems for cooling coils, humidifiers and heat recovery systems. Easy access for maintenance of drainage systems and their associated pipework must be provided.

4.11 Organic materials or substances that can support the growth of microorganisms must not be used in the construction of the plant or its distribution system. The water fittings and materials directory lists suitable materials for sealants and gaskets.

4.12 The plant and its distribution system must not contain any material or substance that could cause or support combustion.

4.13 Plants should have a high standard of air-tightness. The double-skin method of construction with insulation sandwiched between two metal faces is recommended. The panels may be available in a variety of colours at no additional cost. This can aid identification by colour coding of units in a plant room (for example green for general ventilation; blue for theatres; red for laboratories and isolation facilities; grey for extract etc).

4.14 The inside of the plant should be as smooth as possible. Channels, rolled angles or formed sections that could trap or hold moisture should be kept to a minimum. If stiffeners are required, they should be fitted externally. If internal bracing has to be fitted it must be of a design that will not trap or hold moisture.

4.15 Airflow across air treatment components such as filters, heat exchangers and humidifiers will be influenced by the pattern of the approaching airstream. If unsatisfactory conditions are created, the performance of the component will be reduced.

4.16 Access to items that require routine service such as filters, frost batteries and chiller batteries should be via hinged doors. The doors should be large enough (for example 500mm minimum) to allow easy access. Items requiring infrequent access such as attenuators may be via bolted-on, lift-off panels. All doors and panels should be close-fitting and without leaks.

4.17 Care should be taken during installation to ensure that electrical and mechanical services are not installed in positions that will reduce or impede access.

4.18 It can be difficult to turn off AHUs in order to inspect filters and drainage trays. Viewing ports and internal illumination will therefore facilitate routine inspection of such items. Viewing ports should be at a convenient height so that temporary ladders are not required. Internal illumination should be provided by fittings to at least IP55 rating. Fittings should be positioned so that they provide both illumination for inspection and task lighting. All of the lights in a unit should be operated by a single switch.

4.19 Access to AHUs and items in the distribution system such as filters or heater / chiller batteries should be via fixed ladders and platforms or pulpit-style moveable steps. The installation of distribution ductwork and other electrical or mechanical services should provide sufficient clearance to allow the pulpit steps to be easily wheeled into position.

AHU drainage system

4.20 All items of plant that could produce moisture must be provided with a drainage system. The system will comprise a drip tray, glass trap, air break and associated drainage pipework.

4.21 The drip-tray should be constructed of a corrosion-resistant material (stainless steel is preferred) and be so arranged that it will completely drain. To prevent 'pooling', it is essential that the drain connection should not have an upstand; and that a slope of approximately 1 in 20 in all directions should be incorporated to the drain outlet position. The tray must be completely accessible or, for smaller units, easily removable for inspection and cleaning.

4.22 Each drip tray should be provided with its own drain trap. The drain trap should be of the clear (borosilicate) glass type. This permits the colour of the water seal to be observed thus giving an early indication of corrosion, biological activity or contamination within the duct. The trap should have a means for filling and incorporate couplings to facilitate removal for cleaning. It should be located in an easily visible position where it will not be subject to casual knocks. The pipework connecting it to the drainage tray should have a continuous fall of not less that 1 in 20.

4.23 Traps fitted to plant located outside or in unheated plant rooms may need to be trace-heated in winter. The trace-heating must not raise the temperature of water in the trap above 5°C.

4.24 Water from each trap must discharge via a clear air gap of at least 15mm above the unrestricted spill-over level of either an open tundish connected to a foul drainage stack via a second trap, or a floor gully (or channel). A support should be provided to ensure that the air gap cannot be reduced. More than one drain trap may discharge into the tundish providing each has its own air break.

4.25 Drainage pipework may be thermoplastic, copper or stainless steel. Glass should not be used. The pipework should be a minimum diameter of 22mm and a fall of at least 1 in 60 in the direction of flow. It should be well supported and located so as not to inhibit access to the AHU.

Layout of air handling unit

4.26 The AHU should be arranged so that the majority of items are under positive pressure. Any item of plant requiring a drain should be on the positive pressure side of the fan. A recommended layout is given in schematic from in Figure 3.

4.27 A separate extract unit will generally be required for the area served by each supply unit.

4.28 An energy recovery system will normally be fitted between the supply and extract units.

Provision of dampers

4.29 Fire- or smoke-actuated dampers shall be provided at the locations required by Firecode. (See Paragraphs 5.17 - 5.21).

4.30 Motorised low-leakage shut-off dampers should be located immediately behind the intake and discharge of each supply and extract system respectively. They should be of the opposed-blade type, opening through a full 90° and must close automatically in the event of power failure or plant shutdown to prevent any reversal of the system airflow.

4.31 The quality of motorised dampers is critical. They should be rigid, with square connections fitted with end and edge seals of a flexible material and with minimal play in linkages. The leakage on shut-off should be less than 2%.

4.32 A manually operated isolating damper should be installed between the main AHU and its distribution system to enable the unit to be isolated when cleaning is in progress.

4.33 Good practice will require the fitting of a main volume control damper so that the design airflow rate can be set at commissioning. The damper should be lockable in any position. If it will also be used for plant isolation, it should be capable of being reset to give the design airflow without the need for re-measurement.

4.34 Internal plant isolating dampers or provision for the fitting of shut-off plates between items within a unit are not required.

Vibration

4.35 Vibration from a remote plantroom can be transmitted by the structure of the building, may be regenerated and may sometimes be magnified many times. Units should be selected to have the minimum vibration generation and installed on suitable anti-vibration mounts. Pipe and ductwork should incorporate anti-

vibration couplings, preferably in two planes at right angles, as close to the vibration source as possible. Consideration should be given to the use of anti-vibration pipe hangers and supports.

Sequence of components

4.36 The following arrangement of plant components is typical although in many instances not all elements will be required:

- fresh air intake;
- motorised isolation damper;
- frost / fog coil;
- pre-filter;
- energy-recovery device;
- attenuator;
- fan;
- blast plate;
- attenuator;
- chiller battery;
- eliminator;
- heater battery;
- humidifier;
- final filter;
- isolation / volume control damper.

Note 2: Attenuators may be located in the intake and discharge duct if they are of a suitable type (See Paragraphs 4.159 - 4.162)

There may be instances where the above arrangement is not appropriate and the plant arrangement should be planned accordingly.

Fans

General requirements

4.37 The fan should be selected for good efficiency and minimum noise level, but the overriding factor should be the selection of a fan characteristic such that the air quantity is not greatly affected by system pressure changes due to filters becoming dirty or external wind effects.

Acceptable types

4.38 Fans can be of the axial, centrifugal, cross-flow, mixed-flow or propeller type, depending upon the requirements of the system.

4.39 Where used, centrifugal fans should preferably be of the backward-blade type. Alternatively, where noise levels are more critical and pressure requirements are lower, forward-curved blade fans are acceptable. For high-power applications, aerofoil-blade fans may be appropriate.

Selection

4.40 Generally, large ventilation systems will use centrifugal fans due to their efficiency, non-overloading characteristics, and developed pressures.

4.41 Forward curved centrifugal fans can overload if allowed to handle more air than they are designed for.

4.42 Alternatively, it may be appropriate to use mixed flow fans in high-pressure systems.

4.43 Axial flow or propeller fans are generally only used in local through-the-wall systems, or systems with very low pressure requirements.

4.44 Cross-flow fans have very low operating efficiencies, and thus their use is restricted to applications such as fan coil units.

Location and connection

4.45 Fans are normally positioned to 'blow through' the central plant so that the cooling coil and humidifier drains will be under positive pressure.

4.46 The fan performance figures given by manufacturers in their catalogue data are based on tests carried out under ideal conditions, which include long uniform ducts on the fan inlet/outlet. These standard test connections are unlikely to occur in practice, the designer should therefore ensure as far as is practical that the fan performance will not be significantly de-rated by the system. This objective can be approached by ensuring that the fan inlet flow conditions comprise uniform axial flow velocities with low levels of turbulence.

4.47 Where the outlet duct is larger than the fan discharge connections, there should be a gradual transition, with a following section of straight duct, having a length equivalent to three duct diameters.

4.48 The design of the fan intake connection must be carefully considered to avoid swirl in the airstream. When the air spins in the same direction as the impeller, the performance and power consumption of the fan are reduced. When the air spins in the opposite direction to the impeller the power consumption and noise will increase with hardly any pressure increase. Airstream swirl is usually induced by large variations across the fan intake caused by the air passing round a tight bend immediately before the intake.

4.49 Where a centrifugal fan is located with an open intake, the clear distance between the suction opening and the nearest wall should be not less than half the diameter of the inlet. If two fans with free inlets are positioned within the same chamber, their adjacent suction openings should be at least 1 diameter apart.

4.50 Airtight flexible joints should be provided at fan inlet and outlet connections. They should be equal in cross-section to the points of connection and be neither longer than 200mm nor shorter than 100mm.

4.51 For centrifugal fans, a diffuser screen / blast plate should be fitted immediately downstream of their discharge.

Supply fan drive arrangements

4.52 Where the fan drive is via a motor-driven belt and pulley, it should be external to the air stream. This arrangement has the following advantages:

- the fire risk is reduced;
- the drive is visible so it is simple to check that the belt is still there;
- particles shed from the drive belt are outside of the air stream;
- if the belt slips, the “burning rubber smell” is not transmitted down into occupied areas of the premises;
- noise generated by the motor and drive will not be transmitted along the ductwork;
- waste heat is excluded from the system;
- the drive may be through a vee or toothed belt and pulley. The latter have the advantage of eliminating belt squeal on start up and have a longer service life. They are particularly suitable where the fan drive motor is fitted with a soft start and should be located external to the air stream.

4.53 The drive train should be easily visible without the need to remove access covers. Protecting the drive train with a mesh guard is the preferred option. For weatherproof units designed to be located outside, the fan drive will be external to the duct but enclosed. It should be easily visible through a viewing port with internal illumination and access via a lockable hinged door.

4.54 For direct-coupled fan and motor units, the motor should be out of the air stream.

4.55 For induction drive ‘plug’ motor arrangements (where the motor is fitted within the fan and is integral to it) and in line axial fans with a pod motor; the fan / motor combination may be within the air stream provided the motor windings are protected from over temperature by a thermister and lockout relay.

Extract fan drive arrangements

4.56 The preferred method where the fan drive is via a motor driven belt and pulley arrangement will be to locate it external to the air stream.

4.57 The fan drive and motor may be located inside the duct within the air stream provided the motor windings are protected from over-temperature by a thermister and lockout. The drive train should be easily visible through a viewing port, have internal illumination and access via a lockable hinged door.

4.58 Where the system air is explosive, aggressive or has high moisture content, the extract fan motor must be located outside the air stream. This is generally achieved with axial fans by using a bifurcated unit.

Control

4.59 Fans in healthcare applications are normally either single or two-speed. Where there is a requirement for two-speed operation, this is generally via a local user control (for example, in a hood extract system to provide a boost facility) or via a time schedule for energy saving during unoccupied periods.

4.60 Normally only a single motor is required with a standby motor available for fitting as necessary or fitted but not belted. Twin, run and standby motors - with the standby being jockeyed around - are not required.

4.61 Where there is a specified requirement for standby fans, the system should incorporate an automatic changeover facility activated via an airflow sensor. Fault indication should be provided.

4.62 The control of fans in terms of start-up and run is increasingly being vested in computer software. Inverter-drive, variable-speed, soft-start systems are becoming a standard approach. It should be remembered that most healthcare applications require known amounts of air to be delivered while the system is in use. Constant volume systems that deliver specified air-change rates are therefore the norm. Duct- or room-pressure-controlled, variable-speed systems have a very limited application in healthcare.

4.63 It is necessary to ensure that - should the computer control system or its software develop a fault - then the fan can be switched to a direct-start, fixed-speed, manual operation. This is particularly important for critical care systems serving operating suites, high-dependency care units of any type, patient isolation facilities, laboratories and pharmaceutical production suites. Off-site software support is no substitute for the ability of on site staff to override the automatic control and keep the system operating in an emergency. Under these circumstances actions that may shorten the life of the plant are considered of secondary importance to that of preserving the health and safety of patients and staff.

Heater batteries / heater coils

General requirements

4.64 Frost batteries are installed to protect the downstream filters from low-temperature, high-humidity intake air conditions. As they handle unfiltered air they should be constructed of plain tubing without fins and be as near to the outside as possible to minimise condensation during cold weather. Access for cleaning will need to be provided to both sides of the coil.

4.65 Where steam coils are used for a frost battery, they may be constructed using spiral-finned copper tube. As they will be prone to fouling the tube layout and spacing should permit easy access for regular cleaning.

4.66 Main and branch heater-batteries should be constructed of solid-drawn copper-tube coils with copper fins, generally connected in parallel.

4.67 Where there is a wet heating system in the areas served, the main heater-battery should be sized for the ventilation requirements only, and not for the fabric loss.

4.68 Access for cleaning must be provided to both sides of all frost batteries and heater-batteries.

Acceptable types

4.69 Electric, water or steam heater-batteries may be considered. However, electric heater-batteries are expensive to operate and where there are alternatives, their use should be restricted to low-power use (for example trimming control).

4.70 Where steam-supplied heater-batteries are used, their control, venting and trapping systems should be designed so that a vacuum cannot occur within the coil. The condensate drainage arrangements should not allow pressure to build in the main resulting in a back-up of condensate in the coil.

Location

4.71 Where possible, wet-trimmer heater-batteries should be located in plant areas.

4.72 Where it is necessary to locate heater-batteries in false ceilings etc, consideration should be given to the use of electric heaters. If this is not practicable, drip-trays should be installed under both the battery and the control valve assembly to protect the ceiling. A moisture sensor and alarm should be fitted in the tray. In any event, to facilitate maintenance access, they should be located above corridors or other non-critical areas and never above patient occupied spaces.

4.73 Auxiliary fan coil units should not be installed in the ceiling above an occupied space. They should be accessible for routine maintenance and cleaning without the need to cause significant disruption to the operation of the department that they serve.

Control

4.74 LPHW frost coils should be controlled by an off-coil temperature sensor operating a motorised valve to provide a minimum plant "on temperature" of between 2°C and 5°C. The off-coil temperature of the frost coil is generally sensed by a serpentine thermostat downstream of the coil or upstream of the next plant item. This thermostat will shut the fan down if any part of the air stream is below the minimum set-point.

4.75 Steam-supplied frost coils should be fitted with an on/off control operated by a temperature sensor mounted upstream of the battery. These are normally set to open the control valve fully when the outside temperature drops to +1°C. This will ensure that there is no standing condensate in the base of the coil.

4.76 The main heater-battery should be controlled in the same manner under the dictates of either an off-coil temperature sensor, or a room temperature sensor, depending on the plant configuration and method of control. Trimmer heater-batteries are generally controlled by one or more averaging temperature sensors within the room or rooms in the zone.

4.77 Heater-battery control valves should drive to a closed position on system shutdown or fan failure. The control system should then automatically set to provide frost protection.

Cooling coils

General requirements

4.78 Cooling coils will need to be decontaminated periodically. They must have good access both up and downstream. Hinged access doors with viewing ports and illumination inside the duct should be provided both sides of the coil.

4.79 An eliminator will be required downstream of all cooling coils. The eliminator may take the form of an extension of the coil fins or be a separate device. If a separate device it should be removable as a unit to permit cleaning of the coil face.

4.81 4.80 All cooling coils must be fitted with their own independent drainage system as specified above. A baffle or similar device must be provided in the drip tray to prevent air bypassing the coil. The tray should be large enough to capture the moisture from the eliminator, bends and headers. Where coils are greater than 1m high, intermediate drip-trays will be required.

4.82 Condensate traps manufactured from Borosilicate Glass will allow easy visual inspection and incorporate a self-cleaning smooth non-porous internal surface, complying with ISO 3585 and BS2589 Part 1.

Selection

4.83 Cooling coils supplied with chilled water are the preferred option. For small loads or where chilled water is not available, direct expansion coils may be used.

4.84 Care must be taken in selection to minimise electrolytic action resulting from condensation on the airside. Coils constructed from copper tubes with copper fins extended on the downstream side in the form of an eliminator and electro-tinned after manufacture are preferred. Aluminium fins should only be used if vinyl-coated.

4.85 All parts of the coil and its associated ductwork in contact with moisture must be manufactured from corrosion-resistant materials. Pressed steel coil headers, even if treated, have been shown to be prone to corrosion over time and should not be used. Steel mounting frames and casings present similar problems hence stainless steel is preferred.

Location

4.86 Microorganisms that multiply in moisture cannot be avoided when the coil is dehumidifying. However, locating the final filter downstream of the coils will reduce the risk of infection.

4.87 Cooling coils in AHUs should be located upstream of the final filter.

4.88 Where any cooling coil has to be located above a ceiling, drip-trays should be installed under both the coil and the control valve assembly to protect the ceiling. A moisture sensor and alarm should be fitted in the tray. To facilitate maintenance access, they should be located above corridors or other non-critical areas and never above patient occupied spaces.

Control

4.89 There are two basic methods of control for cooling coils:

- off-coil control – used in multi-zone systems or single-zone systems where close humidity control is required, to provide a constant maximum off-plant condition which satisfies the temperature and high humidity requirements of the zone with the highest load;
- sequential control – used in single-zone systems, or multi-zone systems with averaging sensors where close control is not required. A room or duct temperature sensor controls the cooling coil and heater battery in sequence to maintain constant room conditions.

4.90 The advantage of off-coil control is that accurate humidity control can be provided without relying on humidity sensors, which are prone to inaccuracy and drift. Off-coil control is however, expensive to operate in terms of energy consumption, due to the fact that there is no feedback of room loads, and thus

at low loads and in systems where there are large zonal variations, significant over-cooling and reheating will occur.

4.91 On systems with two-speed operating, it is usual to isolate the cooling coil upon selection of low speed. In addition, on system shutdown, low airflow or fan failure, the cooling coil must be isolated.

Humidifiers

Design need

4.92 Humidification was originally required for some healthcare applications in order to control the risk associated with the use of flammable anaesthetic gases. The use of such gases has now ceased. Humidification is therefore no longer required unless there is a very specific application requirement.

4.93 Operating-theatre AHUs do not generally require humidifiers but provision for their retrofitting in terms of space provision and a capped drainage system should be provided.

4.94 Where humidification is required, it will be subject to the specific requirements set out below. These are intended to ensure that the unit will operate safely and not become a source of contamination.

General requirements

4.95 The most important requirement for a humidifier is to create complete mixing of the steam with the air. The manufacturers' instructions should be followed regarding minimum distances which should be allowed before bends or other components. This is particularly important with respect to a filter mounted downstream. If it becomes saturated by the humidifier, organisms can grow through the filter and be released into the duct. These may then be carried on the airstream into an occupied space.

4.96 The section of ductwork containing the humidifier may need to be periodically decontaminated. Hinged access doors with viewing ports and internal illumination should be provided. A label warning that the device emits live steam and should be isolated prior to opening should be affixed to the access door.

4.97 All parts of the humidifier and its associated ductwork in contact with moisture must be manufactured from corrosion-resistant materials. Stainless steel is preferred.

4.98 The electrodes of self-generating electrode-boiler type humidifiers should be stainless steel.

4.99 All humidifiers must be fitted with their own independent drainage systems as detailed in Paragraphs 4.20 - 4.25 or 4.72 and 4.87.

4.100 For self- and locally-generated steam humidifiers, the cleanliness of the water supply is essential for their safe operation. Provision should be made for draining down supply pipework and break tanks for periodic disinfection and cleaning during periods when they are not required in service.

4.101 The addition of treatment chemicals for continuous control of water quality for humidifier/air handling units should be avoided. Consideration could be given to installing a UV system to control microbiological growth. Given the limitations of UV systems, however, this will require filtration to high quality to ensure the effectiveness of exposure of organisms to the UV irradiation. As with all water treatment systems the unit should be of proven efficacy and incorporate UV monitors so that any loss of transmission can be detected.

Acceptable types

4.102 Only steam-injection manifold-type humidifiers are considered suitable for use in health building air-conditioning systems. Water humidifiers of any type should not be used.

4.103 Steam may be derived from the central steam supply provided that it does not contain any treatment carry-over, or generated locally either within or adjacent to the humidifier.

4.104 The introduction of steam should be by an appliance specially designed to discharge dry steam into the air-conditioning system without objectionable noise or carry-over of moisture.

4.105 During the design stage, consideration should be given to the proposed methods for the regular cleansing of the humidifier(s) and their components.

Selection

4.106 The number and length of steam-injection manifolds to be used is dependent on various factors such as duct cross-sectional area, air velocity, dry-bulb temperature and manifold design. Guidance from the manufacturer should be followed closely.

4.107 A mains steam humidifier can be noisy and will be difficult to control if it is operated at an excessive steam pressure. It should be sized for an operating pressure of approximately 1 bar. The pipework supplying it should be provided with a dirt pocket, pressure reducing valve and steam trap installed as close as practicable to the humidifier, so that the steam condition at entry is as dry as possible. A temperature switch on the condensate line (or equivalent design provision by the humidifier manufacturer) should be incorporated to prevent 'spitting' on start-up.

4.108 Most operational problems with mains steam humidifiers arise because of back-pressure in the condensate discharge line which will result in flooding into the duct. Unless the condensate from the device can be discharged and collected at atmospheric pressure, it should be discharged directly to drain.

4.109 A local steam generator, where used, must be fed with potable quality water. Additional water treatment to the standard set out above may be required. If the humidifier is unused for a period exceeding 48 hours, it must automatically drain its water content, including that contained in the supply pipework, right back to the running main and leave itself empty.

4.110 Some steam generators are of a type that requires regular cleaning and descaling. The design must allow for them to be installed such that they can be physically isolated from the air duct in order to prevent contamination of the supply by cleaning agents while this is taking place.

Location

4.111 Careful siting of the humidifier injection manifold is required to prevent the steam impinging onto the side(s) of the duct, condensing and generating excess moisture.

Control

4.112 Accurate humidity control can only be provided on single-zone systems, or multi-zone systems with zonal humidifiers. In the above systems, humidity sensors control the humidifier for low-level humidity control, and override the temperature controls to open the cooling coil valve for high-limit humidity control.

4.113 Multi-zone systems are more usually controlled by a minimum humidity sensor located in the supply duct(s) following the last heater-battery.

4.114 Overriding controls separate from the normal plant humidistat should be installed. Their purpose is to prevent excessive condensation in the conditioned space when starting up. A time delay should be incorporated into the humidifier control system such that the humidifier does not start until 30 minutes after the ventilation/plant start-up. In addition, a high-limit humidistat should be installed to limit the output of the humidifier so that the saturation in the duct does not exceed 70%. This humidistat is to control the added moisture. It is not necessary to install a de-humidifier to reduce the humidity of the incoming air if it already exceeds 70%. The humidifier control system should ensure that the humidifier is switched off when the fan is not running.

4.115 On systems with two-speed operating, it is usual to isolate the humidifier upon selection of low speed. In addition, on system shutdown, low airflow or fan failure, the humidifier should be isolated.

Filtration

General requirements

4.116 The purpose of filtration is to reduce the level of airborne contamination in an air stream. It is generally carried out in stages.

4.117 Filters must be securely housed and sealed in well-fitting frames that minimise air by pass. Air by pass significantly reduces filter efficiency, the higher the filter grade the greater the effect. Mounting frames should be designed so that the air flow pushes the filter into its housing to help minimise air bypass. Mounting frames that withdraw so that the filter can be changed without having to reach into the unit are preferred.

4.118 Neither the filter media, nor any material used in the construction of the filters, should be capable of sustaining combustion. The filter media should be such that particles of it do not detach and become carried away by the airflow.

4.119 Filters need to be readily accessible for replacement so a hinged access door should be provided. The upstream side of the filter should be visible for inspection through a viewing port with internal illumination.

4.120 All filters should be provided with a means of visually checking the differential pressure across them. Direct-reading dial-type gauges marked with clean and dirty sectors are preferred.

4.121 A complete spare set of filters must be provided at handover.

Definition of filter terms

4.122 Particulate air filters are divided into four categories:

- general ventilation filters grades G1 to G4;
- fine filters grades F5 to F9;
- high efficiency particulate filters (HEPA) graded H10 to H14;
- ultra-low particulate air filters (ULPA) graded U15 to U17.

4.123 General filters are graded in terms of their 'Synthetic dust weight 'Arrestance'. This represents the percentage of a test dust captured by a filter. 'Arrestance' provides a good indication of a filter's ability to remove the larger, heavier particles found in outdoor air. These are of a size to block finned batteries and large enough to settle out in the air distribution system.

BS EN 779 grade (Eurovent grade)	% Arrestance	Notes and typical healthcare application
G1 - (EU1)	< 65	Metal mesh grease filter
G2 - (EU2)	65 to < 80	Coarse primary filter
G3 - (EU3)	80 to < 90	Primary air intake; return air; energy recovery device protection
G4 - (EU4)	> 90	General purpose tempered air supply

Table 4: General Filters

4.124 Fine filters are graded in terms of their 'Atmospheric dust spot Efficiency'. This is a measure of the filter's ability to remove the very fine staining particles found in outdoor air. It will indicate how 'visibly' clean a filter will keep a ventilated space. The staining particles are approximately the same size as most

common bacteria so it is also a rough measure of the filter's ability to remove microorganisms.

BS EN 779 grade (Eurovent grade)	% Efficiency	Notes and typical healthcare applications
F5 - (EU5)	40 to 60	General purpose panel / bag filter
F6 - (EU6)	60 to < 80	Basic grade bag filter
F7 - (EU7)	80 to < 90	Medium grade bag or pleated paper Conventional operating theatre supply air
F8 - (EU8)	90 to < 95	High grade bag or pleated paper
F9 - (EU9)	> 95	Basic HEPA filter – Level 8 clean rooms

Table 5: Fine Filters

4.125 High efficiency filters (HEPA and ULPA) are graded in terms of their ability to capture their 'Most Penetrating Particle Size' (MPPS). High-efficiency filters self-select the particle that they are least able to trap, hence the MPPS. They are then tested against that size of particle. These filters are designed to provide very high-efficiency filtration of particles in the sub-micron size range.

BS EN 1822 grade (Eurovent grade)	% Efficiency @ MPPS	Notes and typical healthcare application
H10 - (EU10)	85	Ultra-clean theatre terminal
H11 - (EU11)	95	
H12 - (EU12)	99.5	
H13 - (EU13)	99.95	
H14 - (EU14)	99.995	Pharmacy aseptic suite Category 3 room extract
U15 – U17	-	Not generally used in healthcare

Table 6: High Efficiency (HEPA) Particulate Filters

Selection primary filters

4.126 All filters should be of the dry type. Panel filters are cheap and disposable with relatively low dust-holding capacity. They are generally used as pre-filters to eliminate large particles that would otherwise clog or cause damage to the fan and finned heating and cooling batteries. Stainless steel frames that hold disposable pre-cut filter pads are preferred.

4.127 General ventilation supply plant should incorporate primary air filters of grade G3, sized for a maximum face velocity of 2.0 m/s. Additional coarse pre-filters may be justified where the intake air is exceptionally polluted. They are sometimes fitted as a temporary measure when building work is being carried out in the vicinity of the air intake.

Secondary filters

4.128 Where a higher standard of filtration is required, secondary bag or pleated paper panel filters would be used. Rigid frame filters incorporating pleated

paper elements are preferred over bag filters for critical care applications such as operating theatres.

4.129 In urban or other areas of high atmospheric pollution, a higher standard of filtration may be justified to reduce the level of staining to internal finishes.

Extract air filters

4.130 Extract filtration will generally only be required where heat-recovery devices are installed. There are a very limited number of specialised applications (microbiological safety cabinets and similar LEV systems) where contaminated air is required to be filtered prior to discharge to atmosphere. If it is safe for staff to work in a room without wearing respiratory protective equipment, it is safe to discharge the room air to atmosphere without filtration.

Return-air filters

4.131 They are used to reduce the load on HEPA filters in recirculating applications such as Ultra Clean operating suite ventilation canopies and pharmacy aseptic suites.

High-efficiency filters – HEPA and ULPA

4.132 HEPA filters are expensive so their use should be kept to a minimum. Applications requiring HEPA filters include the air supply to aseptic suites in manufacturing pharmacies, the discharges from microbiological safety cabinets and isolation facilities.

4.133 If used, HEPA filters should be of the replaceable panel type with leak-proof seals. They should be installed in a manner that permits on-site validation of the filter and its housing. This may involve the release of a Dispersed Oil Particle (DOP) challenge smoke through an injection point upstream of the filter and a measurement of the DOP penetration across the downstream face. Alternatively a particle-counting method may be used.

4.134 HEPA filters are sometimes fitted in extract systems to capture hazardous substances or organisms. Design provision must be made for the subsequent safe handling of contaminated filters by maintenance staff. This may be achieved by:

- sealing the hazardous substance into the filter before it is removed;
- providing a system to fumigate the filter to kill any organisms;
- housing it in a ”safe change” unit that permits the filter to be ejected into a bag and sealed without staff having to come into direct contact with it.

4.135 In view of the costs and problems associated with placing HEPA filters in extracts, it is recommended that a full risk assessment be carried out at the design stage. This should include defining the true need for HEPA filters in an

extract; validation of its performance at installation; the method of safely changing a contaminated filter; and its subsequent disposal.

4.136 ULPA filters are very expensive and are designed to remove particles below a size that are either surgically or aerobiologically significant. There would have to be exceptional circumstances in order to justify their use in healthcare ventilation systems.

Activated carbon filters

4.137 Activated carbon filters are able to remove gases and vapours from an air stream and are graded according to the range of substances they can remove. They are not normally fitted in air-conditioning supply systems.

4.138 They are occasionally fitted retrospectively because the main air intake has been poorly sited and is drawing in traffic fumes. Where used they must be protected by a particulate air filter.

4.139 Activated carbon filters are more commonly used in specialised fume extraction systems when the location of the discharge means that dilution cannot be relied upon to disperse noxious fumes.

Location

4.140 The primary filter should be positioned on the inlet side of the supply fan, downstream of the frost coil. The secondary filter, when fitted, should be on the positive-pressure side of the fan. This will prevent air being drawn into the system after the filter and capture any particles shed by items of equipment within the AHU.

4.141 The filter installation must be arranged to provide easy access to filter media for cleaning, removal or replacement, with side or front withdrawal as required.

Control

4.142 Differential-pressure transducers should be provided to monitor and alarm remotely on excessive filter pressure drop. In critical areas dirty-filter indication lights should be provided at the point-of-use.

Energy-recovery

General requirements

4.143 Energy recovery will normally be fitted to all healthcare ventilation systems. It may be omitted only where it would clearly be uneconomic. Where the economic case is marginal, space should be allowed for the retrofitting of an energy recovery system.

4.144 For systems in healthcare premises, a plate heat exchanger or 'run-around coil' system is suitable. Thermal wheels may be used providing they are fitted with a

purge sector. The small amounts of air leakage across those devices are not considered significant. Other systems such as heat pumps or heat pipes are also suitable. Selection should be based on relative locations of the supply and extract units, ease of maintenance and practicality. Cleaning access will be required to both sides of any energy-recovery device.

4.145 The following are the minimum energy transfer efficiencies required for devices handling equal air volumes:

- run-around coil – 45%;
- plate heat exchanger – 50%;
- thermal wheel – 65%;
- any other energy-recovery device – 50%.

4.146 If a plate heat exchanger is chosen, the plates should be constructed of metal. Plastic should not be used for internal bypass dampers and drive gears.

4.147 Whichever energy-recovery device is chosen the extract side will need to be protected by a G3 filter and provided with a drainage system as described in Paragraphs 4.20 - 4.25, to remove condensate.

Location

4.148 Energy-recovery devices should be located downstream of the frost battery and pre-filter, prior to the cooling coil or main heater battery on the supply side.

Control

4.149 It is essential to consider the control of both the energy recovery device and the frost battery when assessing the economics of recovery, as all energy provided by the frost battery will directly reduce the heat exchange of the recovery device. To this end, the off-coil setting of the frost coil should be the minimum possible to protect the primary filter (for example +2°C).

4.150 The energy-recovery device should be controlled in sequence with the main heater battery, and should incorporate a control to prevent the transfer of unwanted heat when the air-on condition rises above the required plant set point.

4.151 In instances where the plant is cooling the air, it may be possible to remove heat from the supply air at high ambient conditions, under the dictates of enthalpy sensors in the intake and extract ducts.

Attenuation

General requirements

4.152 Noise will be generated in an air distribution system by the fan, plant items and airflow. The ductwork is a very effective transmitter of this noise hence there is generally a need to limit the noise transmission to meet the requirements of the building. This normally involves the provision of sound attenuation treatment as part of the overall ductwork system design.

4.153 A thorough assessment of the design should be made to assess the noise impact. This should take into account the following primary factors:

- fan- and plant-noise generation;
- air-flow generated noise in ductwork fittings and dampers;
- noise generated at grilles, diffusers and other terminals;
- noise break-in and break-out of ductwork;
- cross-talk and similar interference;
- the noise limitations for the building and surrounding areas;
- external noise generation.

4.154 A method of assessment of these factors and the sound attenuation requirements of ductwork systems is given in CIBSE Guide B.

4.155 The fan is usually the main source of system noise. The sound power that it generates varies as the square of the fan pressure, and thus to limit the fan noise level the system resistance should be kept as low as economically possible. As a general rule the selected fan should operate close to its point of maximum efficiency to minimise its noise generation. Where there is disturbance to the airflow at the fan inlet, the manufacturer's stated fan noise levels should be increased by up to 5 dB(A). More precise guidance on this aspect may be available from the manufacturers.

4.156 Fans radiate noise through both the inlet and outlet connections and it may be necessary to provide attenuation to limit the noise from both of these connections. It is always preferable and more economic to control noise and vibration at source, or as close to source as possible. It should be noted that attenuators offer a resistance to airflow. The resistance must be included in the fan and ductwork calculations.

4.157 Provided care is taken in the design and construction of low-pressure systems to avoid significant noise generation in the ductwork, attenuation should only be needed to absorb fan noise.

4.158 Noise breakout from all equipment housed in the plantroom must be taken into consideration if control is to be satisfactory. Any ductwork within the plantroom after the silencer should be acoustically insulated to prevent noise break-in or the silencer relocated at the point of entry or exit of ductwork to and from the plant room.

4.159 There is no complete means of control over external noise generation from such as road traffic, aircraft, factory and community noise. Consideration must be given to this at the design and planning stage.

Acceptable types and location

4.160 The noise levels produced by ventilation and other plant should be reduced by either lining the inside of the duct with sound-absorbing material or fitting bespoke attenuator units.

4.161 In supply systems, sound-absorbing material should not be applied to the inside surface of a duct system downstream of the final filter, owing to the risk of mechanical damage and the subsequent dispersal of the media into the ventilation system.

4.162 In supply and extract systems, sound-absorbing material must not be applied to the inside of a duct within 1 metre of a fire damper. The material should be non-particle-shedding and fire-resistant (further guidance can be found in SHTM Firecode suite of documents). Where sound-absorbing material is applied in a section of duct that will be routinely exposed during maintenance activities it should be protected from mechanical damage.

4.163 Bespoke attenuator units with a sound-absorbing infill suitable for the quality of air being handled and protected by a perforated sheet metal casing are the preferred option for critical systems. Absorption of moisture, dirt and corrosive substances into the 'in-fill' and the release of fibrous particles into the airstream should be prevented by the use of a membrane. The membrane material should have a declared service life of at least 25 years. If these conditions can be met then the attenuator may be located in the supply ductwork downstream of the final filter. When so located, cleaning access should be provided at both ends of the attenuator unit.

5. Air distribution system

Air distribution arrangements

Ductwork distribution systems

5.1 Ductwork systems for ventilating and air-conditioning applications are referred to by their velocity or pressure category, that is, as low, medium or high velocity (or pressure) systems. Heating & Ventilating Contractors Association (HVCA) limits are up to 10 m/s or 1,000 Pa; 20 m/s or 1,750 Pa: and 40 m/s or 3,250 Pa in the case of conventional low, medium and high pressure systems respectively. High-pressure systems are disappearing because of the constraints of the Building Regulations but existing systems may sometimes need to be altered or extended.

5.2 For normal applications in healthcare buildings, low velocity systems are recommended. The use of higher velocities than those recommended is not likely to be economical. Future trends are likely to be towards even lower optimum duct velocities; however, velocities below 2 m/s are unlikely to be justified.

5.3 The site will often dictate the main routing of ductwork systems, but in general, the design should seek to make the layout as symmetrical as possible; that is, the pressure loss in each branch should be as nearly equal as possible. This will aid regulation and may reduce the number and variety of duct fittings that are needed.

5.4 Main distribution ductwork should not be routed above sleeping areas. Where there is no alternative route, additional acoustic insulation will be required.

5.5 Where auxiliary cooling units, fans, filters or trimming devices are installed in the distribution system, they must be independently supported and fitted with a suitable drainage system where appropriate. If they are a source of vibration they should be linked to the distribution ductwork via flexible connections.

5.6 The fan of a Local Exhaust Ventilation (LEV) system provided under the COSHH Regulations should be located outside of the building so that all of the ductwork within the building is under negative pressure. Where the fan has to be within the building it should be located as close as practicable to the outside with an absolute minimum run of discharge ductwork within the building. The discharge ductwork within the building will be under positive pressure so it must not be penetrated by test holes or inspection hatches.

Ductwork materials and construction

5.7 The choice of duct material should take account of the nature of the air or gas being conveyed and the environment in which the duct will be placed.

5.8 Galvanised-sheet-steel is generally suitable and most economical for normal ventilating and air-conditioning applications. Its inherent mechanical strength renders it resistant to casual damage both during the construction phase and throughout its service life when mechanical and electrical services around it are altered. It also readily withstands the impacts sustained when rotary equipment is used to for internal cleaning.

5.9 In instances where moisture levels and/or corrosive elements in the air being conveyed are very high, aluminium, stainless steel, PVC or GRP (glass-reinforced plastic) ducts should be used. Stainless or black steel are the only suitable materials for high-temperature ductwork.

5.10 In inherently wet areas, such as the base of fresh air inlet ducts and some extract systems, the ductwork may require draining to prevent a build-up of standing water. The layout of the drains should be as specified in Paragraphs 4.20 - 4.25.

5.11 Where builderwork plenum chambers or ducts are used, these may be constructed of various materials. However all such ducts must be rendered and sealed to prevent dust shedding. A greater allowance may need to be made for leakage.

5.12 Galvanised, black and stainless steel ductwork should be manufactured and installed to the current HVCA specification for sheet metal ductwork DW144, but excluding the use of bolt-through supports.

5.13 GRP and PVC ductwork should be manufactured and installed to the current HVCA specification for plastic ductwork DW154.

5.14 Where phenolic-board ductwork is considered, care should be taken to ensure that it is fabricated to a quality standard and installed strictly in accordance with the manufacturers' instructions. Its pressure rating and degree of support should be suitable for the application and ducts should be fitted with mechanical protection where required. Designers should be fully conversant with installation techniques and Installers should be experienced having received training in the techniques required and certified to this effect by the manufacturers. Due consideration should be given to the impact on ductwork pressures created by the closing of dampers. Phenolic-board ducting should not be installed in plant rooms or any other areas where it could be vulnerable to impact damage. Internal cleaning using mechanical (rotary) means is also liable to cause damage to the integrity of surfaces.

5.15 Flexible ductwork is unsuitable for air distribution in healthcare applications. It should only be used to make the final connection to a terminal (See Paragraphs 5.54 and 5.55).

5.16 The inside of the ductwork should be free from structural projections and as smooth as possible. Flanged, gasketed joints are preferred.

Fire aspects, damper types and locations

5.17 It is essential that all relevant fire aspects of ducting systems are agreed with the fire officer before the design is finalised.

5.18 Ductwork must be fire-stopped where it penetrates fire compartment walls, floors and enclosures, cavity barriers and sub-compartment walls or enclosures, and provided with weatherproof collars where roofs or external walls are penetrated.

5.19 Fire/smoke dampers shall be provided at the locations required by SHTM Firecode. The fire-damper mounting frame must be securely attached to the building fabric. Where a fire-damper is not mounted directly in a fire compartment wall, it must be correctly supported and the ductwork between it and the firewall must posses the same fire rating as the firewall that it penetrates. The fire-rated portion of ductwork must not be penetrated by test holes or inspection hatches. All fire/smoke dampers shall be capable of remote re-setting via the Building and Energy Management System (BEMS) or equivalent, after periodic testing procedures.

5.20 An access hatch shall be provided adjacent to each fire damper so that its correct operation can be directly observed.

5.21 Smoke-diverting dampers must be provided on recirculation air systems to divert automatically any smoke-contaminated return air to the outside of the building in the event of a fire; and arranged so that the normally open smoke-diverting damper on the return-air branch to the input unit closes and all the return air is exhausted through the extract fan. Guidance is available in SHTM 81 and BS5588: Part 9.

Duct sections

5.22 Ducting is generally available in rectangular, circular and flat oval sections, although other sections may be made for special situations.

5.23 Rectangular ducting is most common on low-pressure systems, for the following reasons:

- it can readily be adapted to fit into the space available;
- fittings are cheaper than those for circular or flat oval ductwork;
- it can readily be joined to such component items as heating and cooling coils, and filters.

5.24 When sizing ductwork, the designer should take into account:

- both installation and operating costs;
- space limitations imposed by the structure and other services;
- operating noise levels;

- requirements of regulation at the commissioning stage.

5.25 For overall economy and performance, the aspect ratio should be close to 1:1, since high aspect ratios increase the pressure loss, heat gains or losses and overall cost (for example, changing the aspect ratio from 1:1 to 1:4 can typically increase the installed cost of the ductwork by 40% and add 25% to the heat gains or losses).

5.26 Rectangular ducting should not be the first choice for high pressure systems, and should be avoided in systems operating at high negative pressures, because the strengthening of the flat sides and the sealing requirements necessary to make rectangular ducts suitable for these high pressures are costly.

5.27 Circular ducting is preferable for high-pressure systems, and for systems operating at high negative pressures. In the case of the latter, additional stiffening rings may be necessary. Machine-formed spirally-wound ducting and a standard range of pressed and fabricated fittings can sometimes make circular ducting more economical, particularly in low pressure systems having a relatively low proportion of fittings.

5.28 Flat oval ducting provides an alternative to circular ducting, principally where there is a limitation on one of the dimensions in the space available for the duct run.

5.29 Other sections may be used, such as triangular sections to pass through roof trusses. Such sections present difficulties in the provision of fittings, and connections to standard plant items, and are likely to be more expensive than traditional sections.

Standard ductwork fittings

5.30 All fittings should conform to current HVCA specification DW144. Wherever possible, long radius bends, large radius main branches, not more than 45° angle sub-branches and long-taper transformations should be used.

5.31 Fittings should be arranged with vanes in sub-branches connected directly to grilles and diffusers, and turning vanes in square bends (when used). When vanes are used, additional cleaning access will be required.

5.32 The number of duct fittings should be kept to a minimum and there should be a conscious attempt to achieve some standardisation of types and sizes. Increasing the number and variety of fittings in a system can markedly raise its overall cost.

5.33 Bad design in relation to air flow can lead to vibration of flat duct surfaces, increases duct-generated noise and pressure loss, unpredictable behaviour in branch fittings and terminals, and adverse effects on the performance of installed plant items (such as trimmer batteries).

Branches

5.34 There are many designs of branches and junctions in use. The important features are that the flow should be divided (or combined) with the minimum interference and disturbance. Changes in duct sizes should not be made at the branch but a short distance downstream (or upstream). A good dividing branch design cannot be effective if the flow entering the branch is not uniform across the section.

Changes of section

5.35 The expansion of a duct section should be formed with sides having a total included angle of no more than 30°, and preferably less than 20°. If the angle of expansion is greater, the flow is not likely to remain attached to the walls of the duct and large eddies will be formed with flow reversal at the walls. This leads not only to a high-pressure loss, but also to non-uniform velocity pattern at the outlet. Where there is insufficient space for a gentle expansion and a greater angle is necessary, internal splitters should be used.

5.36 A contraction in a duct section is less critical, but the total included angle of the taper should not exceed 40° (or 20° where the contraction is made on one side of the duct only)

5.37 The most economical way to change the section of a rectangular duct is to restrict the change of duct size to one side only. If the calculated reduction or increase to the side dimension is 50mm or less, it is usually not economical to change the size at the position. The minimum size of a rectangular duct should usually be 150mm x 100mm.

Other fittings

5.38 As a general rule, fittings should avoid abrupt changes in direction and also sharp edges that cause the flow to separate and form eddies, thus limiting pressure loss and causing noise generation. If the fitting leads to the flow preferentially attaching to one side of the outlet, then a significant length of straight downstream duct is necessary before the next branch or fitting; this length should be greater than five equivalent diameters.

Thermal insulation

5.39 Thermal insulation is applied to ductwork to reduce heat exchange, and to prevent condensation.

5.40 In a duct system, the air temperature changes can be significant, especially when passing through untreated space, and these have the effect of reducing the heating or cooling capacity of the air and of increasing the energy input to the system. The heat transmission to and from the surrounding space can be reduced by effective insulation of the ducts. Extract ductwork conveying air from which heat recovery will be derived should be thermally insulated to the same standard as with associated supply ventilation ductwork.

5.41 Condensation can arise in ductwork systems conveying cooled air and, apart from creating conditions conducive to corrosion of ductwork, condensation affects the heat and vapour-resisting properties of insulating materials themselves which may induce further condensation.

5.42 In normal circumstances, the insulation thickness for heat resistance is sufficient to prevent surface condensation, but in extreme conditions the insulation thickness for vapour resistance may be greater than that for heat resistance. When cold ducts pass through areas of high dew-point, carefully selected vapour barriers should be applied externally to the insulation.

Noise generation within the ductwork

5.43 Noise is generated in ductwork at sharp edges, by tie rods, damper blades, duct obstructions and sharp bends etc. This air-flow-generated noise becomes an important factor if it is about the same or greater level than the upstream noise level. (Air-flow-generated noise is often referred to as “regenerated noise”).

5.44 The noise level generated by airflow in ductwork is very sensitive to the velocity. The sound power of this noise is approximately proportional to the sixth power of the velocity; that is, a doubling of the duct velocity will increase the sound power by a factor of 64. The duct velocities should therefore be kept as low as possible. In general, duct fittings that have lower pressure loss factors in similar flow conditions will generate less noise.

5.45 Ductwork serving quiet areas should not be routed through noisy areas where noise break-in can occur and increase the noise level in the ductwork.

5.46 Grille, register and louvre noise should be kept to the minimum by selecting types having low noise-producing characteristics, without high tonal noise, and should be fitted with acoustically treated external inlet and outlet louvres.

5.47 Cross-talk attenuators may be necessary where noise intrusion between adjacent spaces can arise and where individual room confidentiality is required. They will normally be of the ‘through-the-ceiling, ‘up-and-over’ type and may include a fire damper if required.

Volume control damper locations

5.48 Manually operated balancing dampers are needed generally:

- in the main duct downstream of the fan;
- in branches of zone ducts;
- in sub-branch ducts serving four or more terminals;
- at terminals not covered by the previous item.

5.49 Dampers integral with terminals should only be used for final trimming of air volumes, otherwise noise and air distribution problems may ensue.

5.50 Dampers in rectangular ducts should be single-bladed when the longer side is up to 450mm but be of the opposed-blade multi-leaf type above this size. In circular ducts, iris-type dampers are recommended. Dampers must be accessible, incorporate a position indicator and means of locking in the commissioned position. Dampers should be located as far away as possible from adjacent branches or plant items.

Cleaning and access door locations

5.51 Cleaning and access doors are required to facilitate access to plant items and ductwork components for inspection, maintenance, cleaning and replacement, and must be of sufficient size to permit safe access for the required functions. Consideration should also be given to the number of doors to be provided. Older installations may be deficient in the provision of access doors and consideration will be necessary to have these incorporated in the course of any refurbishment in the accommodation served.

5.52 Recommended locations for access doors are given in the current HVCA specification DW144 and are generally provided to give access to:

- every regulating damper;
- every fire and motorised damper;
- filter (to facilitate filter withdrawal);
- both sides of cooling/heating coils;
- humidifiers;
- fans; and
- motors and impellers.

5.53 Care should be taken when siting access doors to ensure that no other services to be installed will prevent reasonable access.

Flexible ducting

5.54 Flexible ductwork may be used for final connections to grilles and diffusers provided it is constructed to meet the fire precautions recommended in BS8313. It must not pass through fire compartment walls, floors or enclosures of sub-compartment walls or enclosures, or through cavity barriers.

5.55 Flexible ducting will cause a significant frictional loss and may be difficult to clean and should never be used in lieu of a bend. Where installed it should take the most direct route and be as short as possible, never exceeding 1 metre in length.

Diffuser and grille selection and sizing

5.56 The effectiveness of all ventilation and air-conditioning systems depends on the methods by which air is introduced to, and vitiated air is removed from, the

space. The usual results of poor air-terminal selection and/or positioning are: draughts, stagnation, poor air quality, large temperature gradients and excessive noise.

5.57 Air can be supplied to a space in a number of ways, although any device can be broadly placed into one of two categories: that producing a diffused supply, or that producing a perpendicular jet. Diffusers may be radial or linear, and normally utilise the Coanda effect (that is, adhesion of the air stream to an adjacent surface), to reduce the risk of excessive room-air movement. A perpendicular jet is formed by discharging air through grilles, louvres or nozzles, which are generally adjustable.

5.58 Air-flow patterns produced by both types of terminal are dependent to a large extent on the presence of the Coanda effect.

5.59 Supply air terminals can be incorporated into any room surface, for example, floors, walls (high or low level), desktop etc.

5.60 As they operate on the jet principle, the use of sidewall and linear grilles is restricted to areas where air change rates are low, that is, less than 10 per hour. Perforated rectangular diffusers can provide acceptable conditions within the occupied zone at up to 15 air changes per hour. In areas where a higher air change rate is required, square or circular ceiling mounted diffusers should be used.

5.61 The performance of supply air terminal devices is provided, based on three criteria: throw, spread and drop.

- **throw** is defined as perpendicular or parallel distance from the terminal to the point at which the air velocity is 0.5 m/s isovel;
- **spread** is defined as the width of the 0.5 m/s isovel; and
- **drop** is defined as the vertical distance from the centre line of the terminal to the bottom edge of the 0.25 m/s isovel.

5.62 It is necessary to consider each of these parameters in both summer and winter conditions to ensure satisfactory operation of the air-terminal device, as warm jets behave very differently from cold jets.

5.63 A warm jet tends to rise until it attaches itself to a horizontal surface, while a cold jet falls. Care must be taken to ensure that this does not lead to unacceptable temperature gradients in winter or excessive air velocities in the occupied zone in summer.

5.64 In order to ensure satisfactory air movement within a space, it is necessary to consider interaction between air movement from adjacent terminals, and ceiling mounted fixtures (light fittings etc), as well as interaction between air movement and room surfaces.

5.65 If the supply and extract terminals are too close, short-circuiting may occur, while if they are too far apart, stagnant zones may be formed. Where two

opposing air streams meet, the individual velocities must not be greater than 0.25 m/s.

5.66 Supply and extract grilles and diffusers should be fitted with opposed-blade dampers for fine balancing purposes.

5.67 Further guidance on the selection of grilles and diffusers is given in the CIBSE Guide B.

5.68 In operating theatres, the supply terminals must be able to produce a down-flow movement of air in the operating zone 1 metre above floor level. Ceiling mounted diffusers with fixed directional vanes that provide a downward turbulent airflow are the preferred option. Plenum boxes fitted with perforated screens to produce a parallel downward flow are also acceptable. Nozzles or jets of any type are not acceptable. Sidewall-mounted linear diffusers that utilise the Coanda effect to send air across the ceiling and 'drop' it into the operating zone are also not suitable. However linear ceiling mounted diffusers that provide a direct downward airflow around the operating zone may be used.

Transfer grille - size and location

5.69 Air-transfer grilles in walls, partitions or doors form an integral part of the building's air distribution system. Modern doorsets have very low leakage rates so cannot be relied upon to permit even quite small airflows. Failure to make adequate provision for air to move from room to room will result in excessive pressure differentials and 'door whistle'.

5.70 Transfer grilles are required in locations where there is a significant imbalance between the supply and extract rates in a room. They will relieve any pressure differentials that may affect the operation of the spaces and/or the ventilation system and permit airflow in a known direction. However, transfer grilles are vulnerable to damage and, in many instances, as long as the equivalent free area is provided, they can be substituted with undercut door.

5.71 Care needs to be taken to ensure that the positioning of transfer grilles does not interfere with the fire or smoke integrity of the building. In general, the air-transfer grilles should not be installed within fire-resisting boundaries, although if this is unavoidable, they should be fitted with fire- or smoke-dampers.

5.72 Where installed, transfer grilles should be of the non-vision type, sized for a maximum face velocity of 1.5 m/s.

5.73 In photographic dark rooms, lightproof transfer grilles will be required.

5.74 Cross-talk attenuators may be necessary where noise intrusion between adjacent spaces can arise and where individual room confidentiality is required. (See also Paragraphs 5.43 - 5.47).

Pressure stabilisers - size and location

5.75 Pressure stabilisers are required in lieu of air-transfer grilles in areas where it is necessary to maintain pressure differentials between adjacent rooms to prevent reversal of airflows for example, in operating suites, isolation facilities and clean rooms. (See also Paragraphs 7.24 - 7.28).

5.76 Fire precautions for pressure stabilisers are the same as for transfer grilles. For sizing criteria, refer to Paragraph 7.23

5.77 Pressure stabilisers should be of the balanced-blade type, with the facility to make fine adjustment of the pressure setting. They should be silent in operation and give a seal as tight as practicable when closed. The materials of construction and method of assembly should allow for cleaning and disinfection.

5.78 Pressure stabilisers should be installed in a visible location so that their operation can be readily observed.

5.79 Cross-talk attenuators may be necessary where noise intrusion between adjacent spaces can arise and where confidentiality is required. In these cases, the pressure stabiliser and cross-talk attenuator should be mounted in a short length of ductwork within the ceiling void.

5.80 Pressure stabilisers may need to be fitted with a stand-off baffle on their discharge side to prevent a sight line in situations where a laser will be used. Baffles may also be required to preserve privacy or prevent discharge air causing draughts or disturbing the air distribution pattern in the adjoining room. They are also useful in low-level locations to prevent the airflow path being obstructed by portable equipment.

6. Automatic controls

6.1 Various options for control of single and multi-zone air-conditioning systems are given in CIBSE Guide B.

General requirements

6.2 The basic requirements for an automatic control system are as follows:

- facilities to start, set-back and stop the plant;
- facilities to control the volumetric air-flow;
- facilities to control the system or room pressure;
- temperature control and indication;
- humidity control and indication;
- devices to monitor and indicate the plant's operating state;
- alarms to indicate plant failure, low air-flow, and filter state.

The control functions actually provided will depend on the purpose of the ventilation system.

6.3 There will also be a need to determine the control strategy in the event of a fire either within the zone being served or within an adjoining zone.

6.4 The designer should consider whether it is necessary for the supply and extract fans to be interlocked, either so that the supply fan will not operate unless air-flow is established within the extract system, or vice-versa depending on the required pressures within the rooms being served.

6.5 The sequence switching of units in order to prevent transient reverse airflows will be particularly important in laboratory and pharmacy areas that also contain fume cupboards, safety cabinets and other LEV systems.

6.6 Alarms should be provided to show 'filter fault' and 'low air-flow'. The "filter fault" alarm should be initiated by a predetermined increase of pressure differentials across the filter. The 'low air-flow' alarm should be initiated when the supply air quantity falls to 80% of the design value.

Objectives of control system

6.7 The primary objective of ventilation plant control system is to maintain the space served within the required environmental control limits, at the appropriate times, regardless of external conditions or internal loads and with the minimum energy consumption.

6.8 Often, it is not possible to predict accurately building load variation at the design stage, and thus optimum set points cannot be assessed. Information provided by monitoring the operation of the plant via a Building and Energy Management System (BEMS) will enable optimum set points to be established and energy consumption reduced. Control of most systems will be via a BEMS. This will enable the operating conditions and control tolerances to be set and monitored. The BEMS may also be set to log the actual energy consumed by the system together with that recovered by the energy-recovery device. This will provide a useful check on overall operating efficiency and provide evidence that energy targets are being achieved.

6.9 BEMS incorporating self-adaptive control algorithms that automatically adjust the set-point to the suit the usage and load are preferred. The provision of movement sensors within the controlled space in order to determine the actual occupancy will facilitate this process.

6.10 The failure of specialised ventilation systems can have grave consequences for the delivery of healthcare. Control systems should therefore be simple, robust and reliable.

6.11 Computer-software-driven control systems are becoming the norm in building services. However, it should be remembered that healthcare ventilation systems need to be available to operate outside of normal working periods when software support is not available. Should the software fail, it will be left to site staff, who may have little knowledge of the control algorithms to restart the ventilation system. It is therefore essential to ensure that a simple means of re-starting critical systems in the event of a software failure is provided (see also Paragraphs 4.62 - 4.63)

Location of controls

6.12 Whether within the plant, duct or room, sensors should be located to provide accurate measurement of the condition of the air being monitored.

6.13 Sensors and control items such as control valves should be located close to the element being sensed or plant item being controlled, in order to minimise time lags within the system which may create over-shoot of conditions beyond the design envelope and result in additional energy consumption.

6.14 There are practical advantages in locating all control valves for an air-handling unit in a bank (at a convenient height) at one end of the unit. (This will not normally result in an undue additional control lag.)

6.15 Some applications require intermittent mechanical ventilation, frequently at a high air-change rate, (for example, in bathrooms and treatment rooms.) Local controls to facilitate this mode of operation should be placed in a prominent position to encourage economical use.

6.16 Local controls that enable the user to select more than one mode of operation should be clearly labelled to identify the particular mode selected. Where the system allows different room pressures to be selected then a direct-reading

pressure gauge should be fitted within the eye line of the users to provide an independent confirmation of the resultant mode of operation. A clear description of the selectable modes of operation should be mounted adjacent to the control switch.

Fire aspects

6.17 A fire control panel should be mounted at the entrance of the area that the ventilation serves. The panel should have restricted access for the fire officer and include independent on/off controls and indication of the supply and extract systems.

6.18 In certain critical care departments it is preferable to maintain the supply ventilation in case of a fire within the area. For example, in an operating department, while undergoing surgery, the patient cannot always be easily moved without significant risk. In the event of a fire in a staff or support area of the department, or adjoining zone, the continued supply of air to a theatre will maintain it at a positive pressure and protect the patient and staff from the effects of smoke. This will allow time for the patient to be stabilised so that he/she can be safely evacuated if necessary. A similar situation occurs for patients in ITU and other critical care units. In all of these cases the ventilation to the critical area should continue to operate unless the AHU starts to draw in smoke. For these departments, a notice should be affixed to the fire control panel drawing attention for the need to liaise with departmental staff before switching off fan units.

6.19 All supply AHUs should have a smoke sensor mounted in the main supply duct immediately downstream of the AHU. In the event of a fire in the AHU or smoke being drawn into the system from an outside source, it should cause the supply air fire damper to close and shut down the AHU.

Time switching

6.20 Facilities to start, set-back and stop the plant should be provided in the plantroom. Remote start and set-back control and indication, if required, should be provided at a manned staff location, for example, at the reception or staff base or, in theatres, within the Surgeon's Panel.

6.21 Many ventilation systems may be completely shut down when the area served is not in active use. Alternatively, where there is a need to maintain a background condition, the ventilation output can be reduced by "setting back" the system. This will significantly reduce energy consumption and extend the life of filters and other system components.

Start-up control

6.22 The plant's start control should contain a control logic that will start the plant in the sequence set out in the following algorithms, Figures 2 - 5

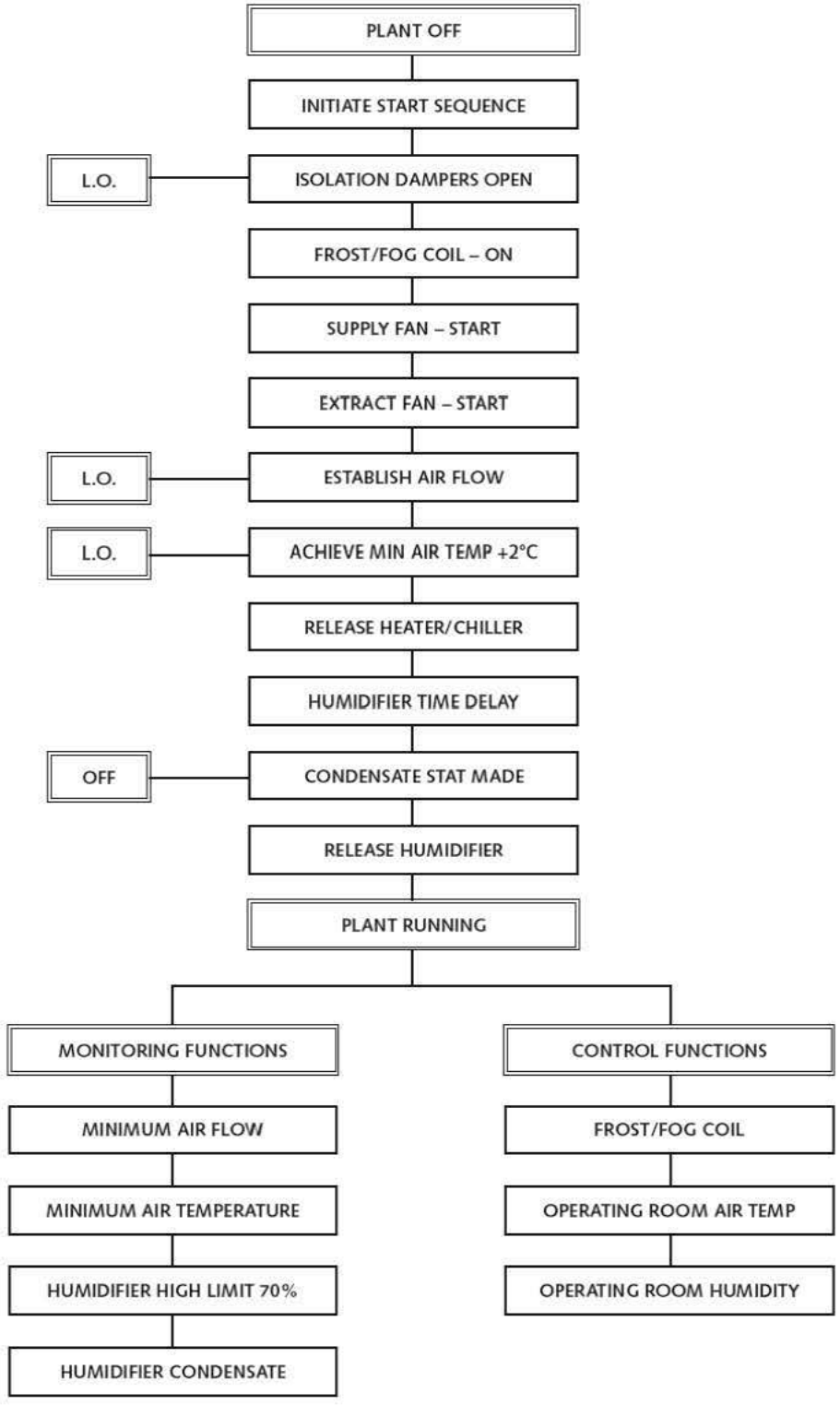

Figure 2: Typical plant control algorithm – normal start-up sequence

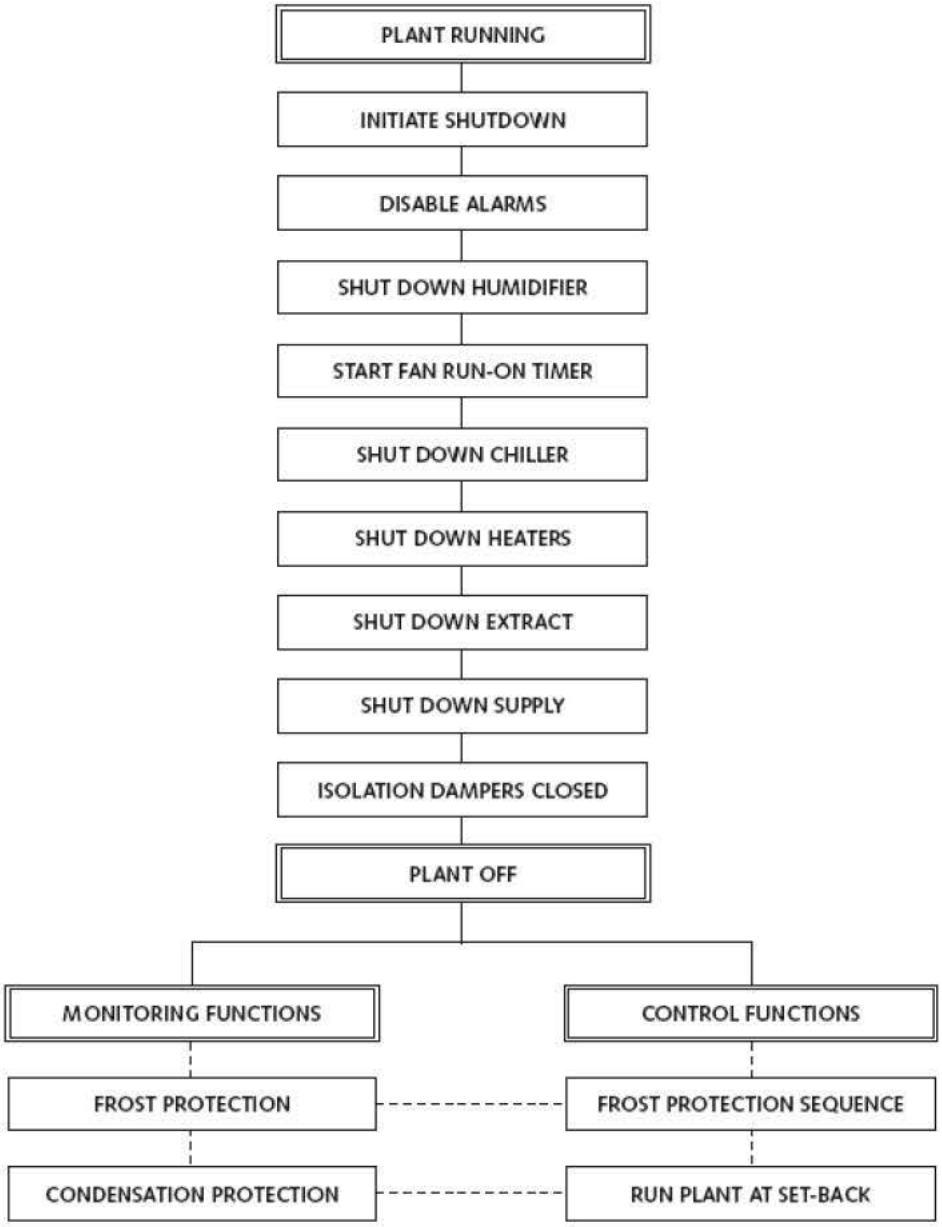

Figure 3: Plant control algorithm – normal shutdown sequence

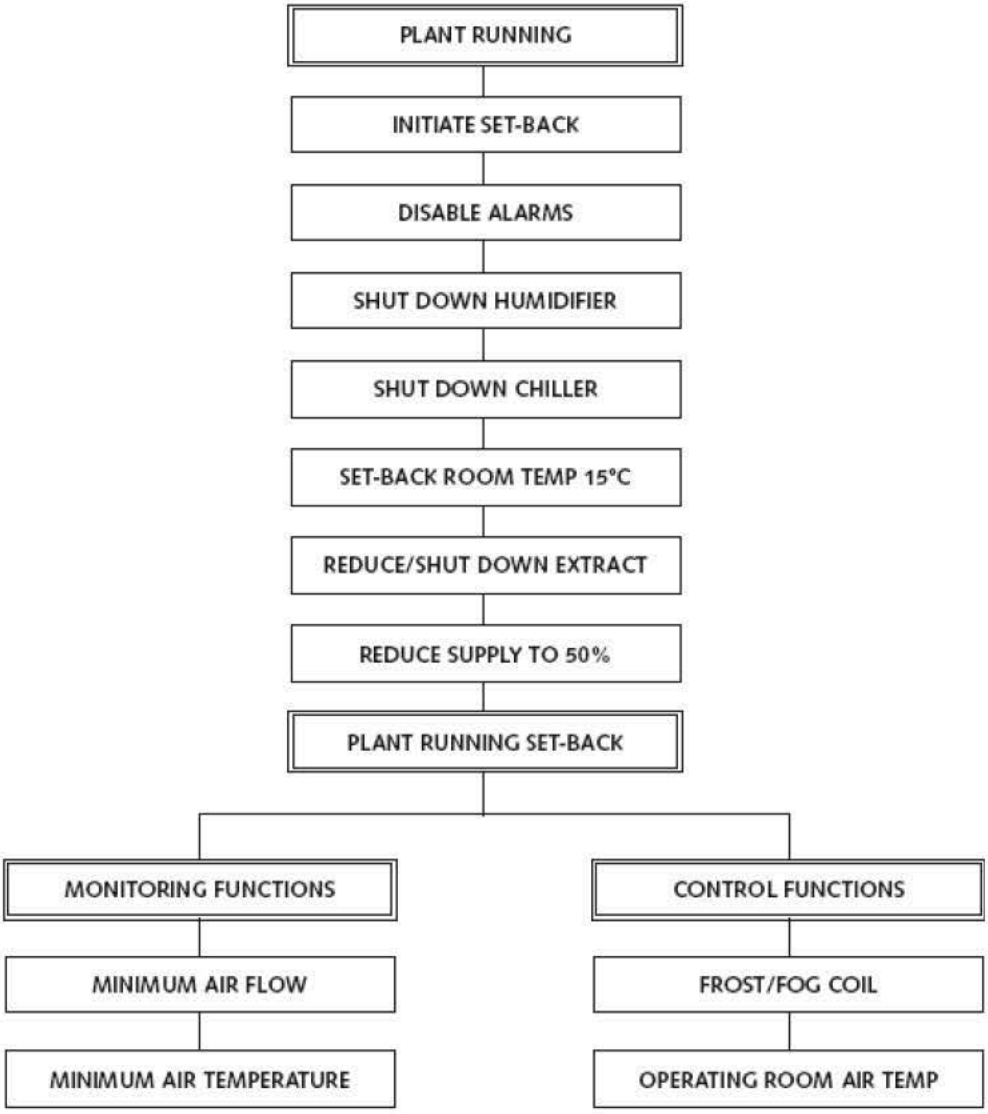

Figure 4: Plant control algorithm – set back sequence

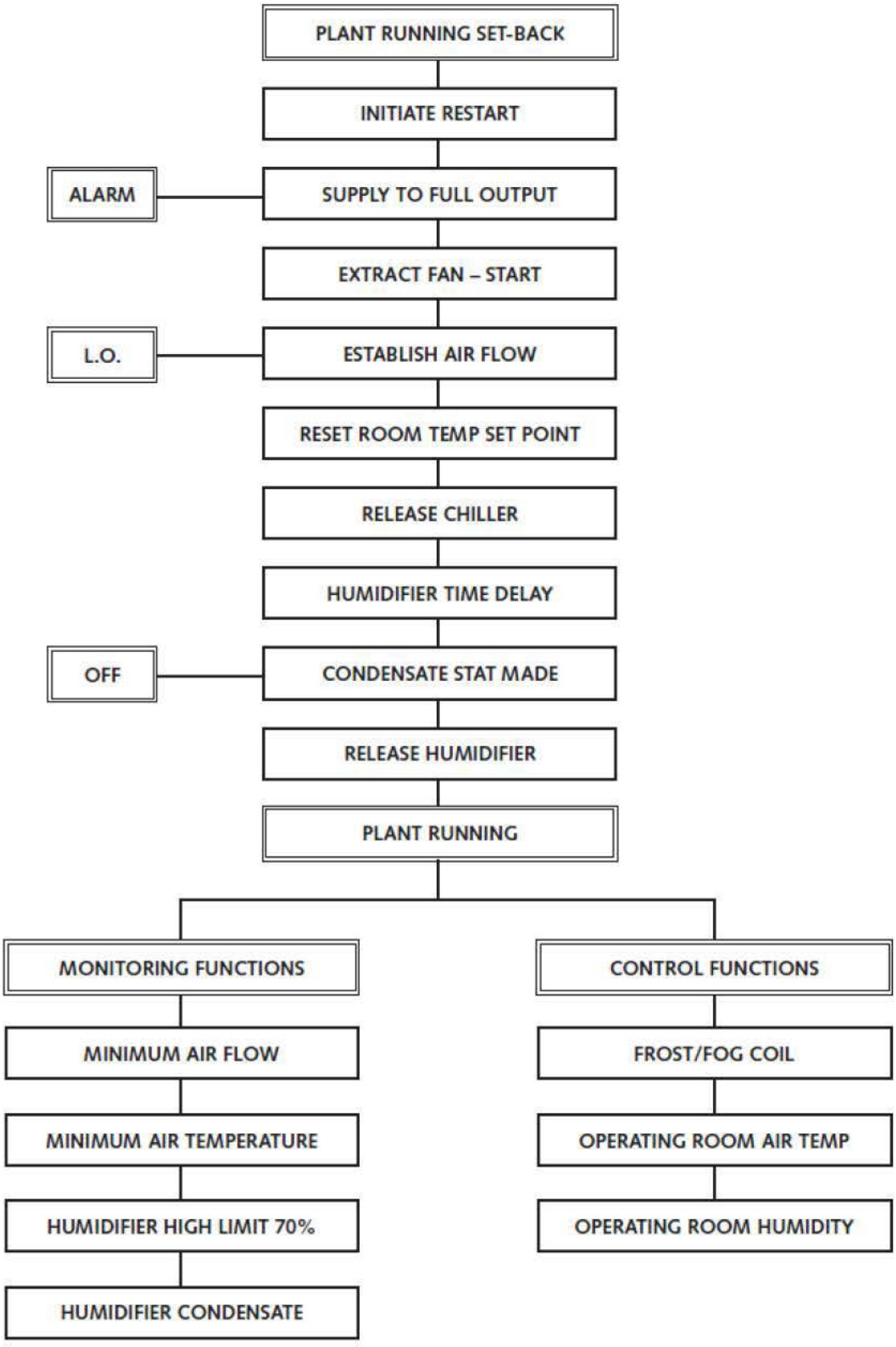

Figure 5: Plant control algorithm – restart from set-back

Set-back control

6.23 Where variable speed controls are installed, the setback facility for each plant should depress the control temperature to around 15°C; exclude any humidification and cooling from the system; and reduce the supply and extract air volumes to around 50%. The extract fan can also be turned off as long as the desired direction of air movement from clean to less clean will be maintained (See also Figures 2 - 5).

Use control

6.24 The installation of movement detectors allows for "use control" of ventilation systems. A simple control logic that reduces the system to a "set-back" condition if there has been no movement detected in the space for, say, 30 minutes and that switches the system "off" if no movement is detected for one hour is recommended for many applications, including operating suites.

6.25 A variation on this can be provided by linking ventilation controls to lighting. For example, in an operating theatre, the system may be off outside of working hours, could run at set-back when the general lighting was switched on and increase to full speed when the operating lamp is switched on. As with movement detection, a 30-minute run-on should be provided at each stage when the lights are turned off.

6.26 Either of the above control strategies may be refined by linking to the BEMS to provide a control logic related to normal working hours and associated 'real-time' movement within the zone being controlled. This should result in significant energy savings.

Environmental control

Temperature control methods and application

General

6.27 All control valves must fail safe, that is, close in the event of power or air-flow failure, with the exception of the fog/frost battery control valve, which should open upon power or airflow failure.

6.28 Control valves should be located in an accessible position. Isolation valves should be provided to enable the control valve to be removed for service without the need to drain-down the system.

6.29 Care should be taken to ensure that the installation of control valves and their associated pipework do not obstruct access to the AHU inspection doors and hatches.

Room temperature control

6.30 The limits for room temperature set point are generally between 16°C and 25°C depending on the particular application, and in some specialised instances (for example, operating departments) are adjustable within a predetermined range by the user.

6.31 The selection of temperature set point for each room or zone may be by a control facility in the room / zone, or remotely at the control panel or BEMS. Where the control device is mounted within the room / zone and adjustable by the user, it should be marked either 'raise' and 'lower' or '+' and '-'. It should control within a specified temperature range to suit the user requirement with a control tolerance of ±1K. All other control set-points should be selectable either on the control panel or at the BEMS interface.

6.32 Where local control is provided, an indication of temperature will be required locally, or at a staff base (if appropriate), using an analogue or digital indicator. The indicator should be large enough to be read from the normal working position (for example, at the operating table in a theatre). This may be mounted in a supervisory or, 'surgeon's' control panel, with the signal repeated on the main system control panel or BEMS. It is important that this indicator displays the actual measured temperature and not the selected temperature.

6.33 Where the supply and extraction systems are designed for ventilation only and there is a wet heating system to provide background heating, care must be taken to avoid one system trying to heat the space while the other system is trying to cool the area.

Frost battery control

6.34 Steam-supplied frost batteries must be operated as on/off devices with their sensor mounted upstream of the battery. This will give 'open loop' control. A set point of +1°C is recommended.

6.35 Low pressure hot water (LPHW)-supplied frost batteries should be controlled using the proportional mode. Their sensor should be located downstream of the battery to give 'closed loop' control. A set point of between 2°C and 5°C is recommended.

6.36 If the temperature downstream of the frost battery, as sensed by a serpentine thermostat, falls below the required set point over any part of the coil, the plant must automatically shut down in order to prevent damage to the other batteries. The serpentine thermostat must not be in direct contact with the coil.

Off-plant control

6.37 The control logic must prevent the chiller and pre-heater being on at the same time.

Humidity control methods and application

6.38 In order to prevent excessive condensation when starting up from a total plant shut-down, a time delay should be incorporated into the control system such that the humidifier does not start until 30 minutes after the ventilation plant starts up.

6.39 Irrespective of the method of control, a high-limit humidistat should be installed to ensure that when the humidifier operates, the condition of the air in the duct does not exceed 70% saturated, particularly during plant start-up.

6.40 With certain types of steam humidifiers, it may be necessary to install a thermostat in the condensate line from the humidifier's steam supply, to ensure that the steam at the control valve is as dry as possible before it is injected into the air supply.

6.41 The humidifier and cooling-coil control must be interlocked so that they cannot be on at the same time.

6.42 The humidifier control system should ensure that it is switched off with the fan. It is preferable to design the control system so that the humidifier is isolated for an adequate time before the fan is turned off so as to purge humid air from the system.

6.43 All control valves must fail safe (that is, close in the event of power failure) and the humidifier must be interlocked with the low airflow switch.

Multi-zone control methods and application.

6.44 Close control of all air-conditioning parameters may be difficult to achieve with multi-zone systems, since each zone will in theory require a re-heater and humidifier to give total control of humidity if that is what is required. In reality such close control is rarely required in practice. It is therefore usual with multi-zone systems to provide control of zonal temperature only, with humidity control where fitted being based on average conditions within all zones, or minimum conditions within one zone.

6.45 Where there is a requirement for close control of air-conditioning parameters in a number of zones (e.g. an operating department) separate plants should be provided for each zone in order to avoid the need for expensive over-cooling and reheating of individual zones.

6.46 Most multi-zone systems within healthcare premises are controlled based on off-coil control within the central plant, with trimmer heater batteries on individual zones.

Alarms and indication

6.47 Supply and extract systems should include indicator lamps on the control panels to confirm the operational status of each system. Where the usage is on

a regular daily pattern, time control with a user-operated timed manual over-ride should be provided.

6.48 Where a system is provided for a particular space, the indicator should be in, or immediately adjacent to, that space and local controls should be provided with labels clearly defining their function (eg. isolation suites.)

6.49 The 'plant failure' and 'low air-flow' alarms should be initiated by a paddle switch or other device located in the main air supply duct. This should operate when the air quantity fails to reach or falls to around 80% of the design value and will give indication of fan failure, damper closed, access door left open, or any other eventuality that could cause a reduction of air quantity. Monitoring the current drawn by the fan motor is not a substitute for a sensing device that is directly affected by the air-flow.

6.50 The 'filter fault alarm' should be initiated by a predetermined increase of pressure differential across the filters, thereby indicating a dirty filter.

6.51 Direct-reading gauges or manometers should be installed across filters to give maintenance staff an indication of their condition.

6.52 Visual indication should be provided at a manned staff location (for example, the reception or staff base) and on the main control panel and BEMS to show 'plant failure' and 'low air flow'.

BEMS

6.53 Control of most systems will be via a Building Energy Management System (BEMS). This will enable the operating conditions and control tolerances to be set and monitored. The BEMS may also be set to log the actual energy consumed by the system and recovered by the energy recovery system. This will provide a useful check on the overall operating efficiency and provide evidence that energy targets are being achieved.

7. Specialised ventilation systems

7.1 This section contains design information for a range of healthcare ventilation applications.

7.2 The following departments will require a degree of specialised ventilation.

- the Operating department;
  - treatment rooms;
  - endoscopy, day case and minimum invasive suites;
  - cardiology and operative imaging suites;
  - conventional operating theatres;
  - Ultra-clean ventilation (UCV) operating theatres;
  - barn theatres;
  - recovery and ancillary areas.
- Obstetrics;
  - maternity theatres;
  - birthing rooms;
  - LDRP Rooms;
  - SCBU.
- critical areas and high-dependency units of any type;
- Isolation facilities;
  - infectious diseases units;
  - bone marrow and other transplant units;
  - chemotherapy and oncology units.
- Sterile Supply and Decontamination Units;
  - wash rooms;
  - inspection and packing rooms;
  - sterile pack stores.
- the Pharmacy departments;
  - aseptic suites;
  - extemporaneous preparation areas;
  - radio pharmacies.
- the Pathology department;
  - laboratories;

  - cat 3 and 4 rooms.
- the Mortuary and Post mortem suite;
  - mortuaries;
  - post-mortem rooms;
  - specimen stores.
- Hydrotherapy units;
- Burns units;
  - burns theatres;
  - treatment rooms;
  - isolation rooms;
  - tissue banks.
- Emerging specialties;
  - gene therapy units;
  - stem-cell laboratories.
- Infrastructure;
  - plant rooms housing combustion equipment;
  - welding facilities;
  - wood working workshops;
  - electric vehicle charging areas.

7.3 Design information for many of these applications is given in Appendix 1 Table A1, Appendix 2 and in the following Chapters within this section.

7.4 It is not possible within this existing document to give definitive guidance for every healthcare specific ventilation application. Additional detailed guidance may be issued in due course in the form of supplements.

General information

7.5 The section on operating theatres is the most extensive and contains much information that is common to other applications. Each theatre suite should have its own dedicated air-handling unit and extract fan. Where no specific guidance is given the principles set out below should be followed:

- the foregoing sections of the document contain general information on healthcare-specific aspects of ventilation system design and specification;
- a set of standard solutions for the design of general operating theatre suites to conform to past and new standards is given in new standard layouts Nos 1, 3, 5 and 7 and those for UCV theatres in new standard layouts Nos 2, 4, 6 and 8 within Appendix 3;

- the CIBSE Guides A & B contain basic information on ventilation design that can be applied to most applications;
- where a British or European standard exists that is specific to the application (for example, a clean room) it should be used as the basis of the design requirement;
- air should always move from clean to less-clean areas. A hierarchy of room cleanliness is given in Table A2;
- differential pressure will prevent contamination between areas when doors are closed. Information on air leakage through closed doors and hatches for a range of differential pressures is given in Table A3;
- the flow of air will prevent contamination between areas when doors are open. Information on air leakage through open doors and hatches for a range of differential pressures is given in Table A4;
- if anaesthetic gases are used, 15 air changes per hour will be required;
- a methodology for calculating a design solution for a non-standard suite of operating rooms is given in Appendix 4. This may be adapted as necessary to suit other less complex applications where air is required to cascade from clean to less clean areas.

7.6 The supply of air to a room has four main functions:

- to dilute airborne contamination;
- to control air movement within such that the transfer of airborne contaminants from less clean to cleaner areas is minimized;
- to control the temperature and if necessary the humidity of the space;
- to assist the removal of and dilute waste gases where used.

7.7 Because of the complexities of controlling air-movement patterns, much design effort will be required for this aspect. It is important that the design makes the best possible use of the air available, as excessive supply airflows for the control of air movement should not be used. The amount of air supplied will be determined by the number of doors and desired air-change rate.

7.8 There are four routes whereby airborne contaminants may appear in a room:-

- through the supply air;
- shed directly by the room occupants;
- arising as a result of the work activities;
- transferred from adjacent spaces.

7.9 Particles entering with the supply air can be controlled by the selection of suitable filter grades.

7.10 Particles shed directly by the room occupants can be controlled by:

- restricting access to essential persons only;

- the choice of the occupants' clothing;
- the room's air-change rate.

7.11 Particles arising as a result of the work activity can be controlled by:

- enclosing, semi-enclosing or otherwise controlling the work-based source;
- the room air-change rate.

7.12 The transfer of particles from adjacent spaces can be controlled by:

- differential pressure;
- air-flow paths.

7.13 Air change rates are given in Table A1. These figures have been found to give sufficient dilution of airborne contaminants, provided the mixing of room air is reasonably uniform.

7.14 A downward-displacement turbulent air distribution is generally preferred. The supply and extract diffusers should be positioned to ensure that all parts of the room are actively ventilated and that where necessary the staff will be in a clean air-flow path. (See Section 5 for additional guidance on supply terminals).

7.15 Horizontal-flow room-air distribution with or without a Coanda effect can be a source of draughts and difficult to set up correctly. Its use should be confined to non-critical areas.

Air movement control

7.16 The design of the system should seek to minimise the movement of contaminated air from less clean to cleaner areas. Transfer grilles enable air to pass in either direction between rooms of equal class and pressure. Pressure stabilisers operate in one direction only; they allow excess air to be directed to the area desired and assist in maintaining room pressure differentials. When closed they prevent significant reverse air-flow.

7.17 The relative locations of supply and extract terminals and their design air-volume rates will determine the basic airflow between adjacent spaces. Transfer grilles and pressure stabilisers will permit and control the flow of air between spaces ensuring a flow from the clean to less clean areas. Failure to provide such devices will lead to uncontrolled air flows when personnel move between rooms. They may also result in doors being held partially open by air pressure

Temperature and humidity control

7.18 To achieve the required room conditions, supply flow rates are calculated conventionally, taking account of all heat and moisture gains and losses, and of maximum permissible temperature differences between the room and supply air. In most applications the base heating load will be provided by a heating

system. In critical systems the room or suite being considered will be within the heated building envelope so the ventilation will be sized to suit the casual gains or losses.

7.19 Temperature differences of up to 10K for winter heating and 7K for summer cooling must not be exceeded.

7.20 It is acceptable for the humidity to swing uncontrolled between 35% and 70% saturation.

Removal and dilution of waste anaesthetic gases

7.21 Anaesthetic gases are subject to occupational exposure limits. Waste anaesthetic gas must be contained and removed by a suitable gas-scavenging system. Some leakage from the anaesthetic equipment and the patient's breathing circuit will occur with all systems, particularly during connection and disconnection; and from the interface with the patient. The air movement scheme should ensure that this leakage is diluted and removed from the room. Anaesthetic agents are heavier than air so placing the supply terminal at high level with an extract at low level, adjacent to the anaesthetic gas terminal units will ensure that staff are in a clean air-flow path.

7.22 In LDRP and delivery rooms the use of anaesthetic gas is controlled on demand by the patient. This may result in significant leakage which, in order to reduce staff exposure, will need to be controlled by establishing a clean airflow path. A supply at high level at the foot-end of the bed with extract at low level at the head-end will provide such a path.

Fire aspects

7.23 When considering the overall airflow movement, careful thought needs to be given to the operation of the ventilation system, to limit smoke spread in the event of a fire.

Door protection

7.24 Air should flow from the cleaner to the less clean areas as shown in Table A2. There are several factors that affect the likelihood of a reverse air- flow through doorways:

- when a person passes through a doorway, both the passage of the person and the movement of the door flap cause a transfer of air between the areas separated by the door;
- when a door is left open there is a transfer of air between the two areas separated by the doorway. This is caused by air turbulence, but is greatly increased by any temperature differential between the areas (a 1.4m wide doorway may allow the transfer of 0.19 m^3/s of air in each direction when there is no temperature difference, but when the temperature differential increases to say 2K, the volume transferred may increase to 0.24 m^3/s).

7.25 Two methods of door protection are used in order to reduce the likelihood of contamination of clean area by a reverse air-flow from a less clean area:

- closed door protection – a pressure differential is created across a closed door so that any air leakage is from the clean to the less clean area. Table A3 gives details of closed door leakage rates for a range of differential pressures;
- open door protection – the pressure differential drops (See Table A5) and is effectively replaced by a flow of air through the doorway from the clean to the less clean area. The flow of air needs to be sufficiently large to ensure that significant reverse airflow cannot occur and will be related to the relative cleanliness of the areas being considered. Table A4 gives air-flow rates for open door protection related to door / opening size and classification of the adjoining areas.

7.26 Pressure stabilisers enable the room differential pressure to be set when the doors are shut, thus providing closed-door protection. When a door is opened the stabilisers will close, forcing air to be directed through the doorway thus providing open-door protection.

7.27 The recommended air-flow rates to achieve this are given in Table A3. Provided that the dilution criteria in Table A1 are met, the occasional small back-flows created (when two doors are opened simultaneously; or when there is a high temperature difference across an open door) will have little effect on the overall air cleanliness of the affected room.

7.28 In applications where it is critical to maintain a specific airflow and /or pressure regime (for example isolation rooms) all windows in the zone should be locked shut or sealed. Trickle vents, if fitted, will also need to be sealed.

Systems design

7.29 The design of the ventilation system for an area depends on the overall configuration of the department. Where the department is served by more than one AHU, the control of the units may need to be interlocked so that reverse air-flow patterns do not occur.

7.30 Dual-duct high velocity systems have advantages, but are noisy, costly and may give rise to unacceptable values of humidity. Single-duct, low velocity/pressure systems are preferred.

7.31 Extract grilles should be sited and balanced to promote air movement in the desired direction.

7.0 (a) Operating department ventilation systems

7.32 The information given in this section relates to general operating suites. It will be applicable to other types of theatre suite such as maternity, burns, cardiac, etc. The standard values given may need to be adjusted to reflect non-standard room sizes, pressure regimes and air change rates.

7.33 A method of obtaining a design solution for non-standard theatres is given in Appendix 4.

7.34 Additional information for Ultra-clean ventilation (UCV) theatres is given in Section 7.0 (b).

General

7.35 The supply of air to an operating room has four main functions:

- to dilute airborne contamination;
- to control air movement within the suite such that the transfer of airborne contaminants from less clean to cleaner areas is minimized;
- to control the temperature and if necessary the humidity of the space;
- to assist the removal of, and dilute, waste anaesthetic gases.

7.36 Because of the complexities of controlling air-movement patterns, much design effort will be required for this aspect. It is important that the design makes the best possible use of the air available, as excessive supply airflows for the control of air movement should not be used. The amount of air supplied to the operating room will be determined by the number of doors and desired air-change rate.

7.37 The detailed considerations upon which the supply air-flow rate is based are as follows.

Dilution of airborne bacterial contaminants

7.38 There are four routes that airborne contaminants may appear in an operating room:

- through the supply air;
- shed by operating staff;
- produced by the surgical activities;
- transferred from adjacent spaces.

7.39 Supply flow rates for the main rooms of the operating suite are given in Appendix 3. For the other areas where room sizes and activities vary from site to site, air-change rates are given in Table A1. These figures have been found to give sufficient dilution of airborne bacterial contaminants, provided the mixing of room air is reasonably uniform.

7.40 A downward-displacement air distribution is preferred; it may be either turbulent or laminar flow. For turbulent flow the supply-air diffusers should be positioned either in the centre of each quadrant of the ceiling or along a line between the centres of each quadrant. This should ensure that all parts of the room are actively ventilated and that there will be adequate air movement at the operating table. Laminar flow would be provided by a perforated plenum terminal centred

above the operating table. (See Section 5 for additional guidance on supply terminals).

7.41 Suspended articulated equipment is usually fitted in theatres. These require significant structural steelwork in the ceiling void to cater for the loads imposed by the resulting bending moments. It is important to ensure that the void is deep enough to accommodate both the steelwork and the ventilation ducts. The location of the steelwork must not prevent a suitable layout of the ventilation ductwork and correct positioning of the supply air terminals. It needs to be recognised that the correct ventilation of an operating theatre plays a significant part in controlling healthcare acquired infections and is not subordinate to the desire to make equipment easy to move.

7.42 Horizontal flow distribution with or without a Coanda effect can be difficult to set up correctly and are unlikely to be as effective in Theatre applications. It should not be used in new installations. However space constraints may force its retention or replacement when refurbishing existing installations. Where fitted, the supply grilles will require a means of directional adjustment.

7.43 For general operating theatres, the air supply would be filtered in the AHU. Terminal HEPA filters are not generally required.

Control of air movement within the suite

7.44 The design of the system should seek to minimise the movement of contaminated air from less clean to cleaner areas. Transfer grilles enable air to pass in either direction between rooms of equal class and pressure. In older designs suitably dimensioned door undercuts were often used in lieu of transfer grilles. Pressure stabilisers operate in one direction only; they allow excess air to be directed to the area desired and assist in maintaining room-pressure differentials.

7.45 The relative locations of supply and extract terminals and their design air-volume rates will determine the basic air-flow between adjacent spaces. Transfer grilles and pressure stabilisers will permit and control the flow of air between spaces ensuring a flow from the clean to less-clean areas of the suite. Failure to provide such devices will lead to uncontrolled airflows when personnel move between rooms and doors being held partially open by air pressure.

Temperature and humidity control

7.46 Supply flow rates to achieve the required room conditions, are calculated conventionally, taking account of all heat and moisture gains and losses, and of maximum permissible temperature differences between the room and supply air. In most applications the room being considered will be within the heated building envelope.

7.47 Temperature differences of up to 10K for winter heating and 7K for summer cooling must not be exceeded.

7.48 It is acceptable for the humidity to swing uncontrolled between 35% and 60% saturation.

Removal and dilution of waste anaesthetic gases

7.49 Anaesthetic gases are subject to occupational exposure limits. The air-movement scheme should ensure that staff are in a clean air-flow path. (See Paragraph 7.21).

7.50 Air extracted from operating suites should not be re-circulated, as it may contain malodorous contaminants. However an energy recovery system should be fitted in the extract in order to reduce the plant energy consumption. (See Paragraphs 4.142 - 4.147).

Fire aspects

7.51 When considering the overall air-flow movement, careful thought needs to be given to the operation of the ventilation system, to limit smoke spread in the event of a fire. However, this is a highly staffed department with a low fire risk/load status and these factors need to be recognised when developing the fire strategy. It is considered satisfactory to treat the complete operating department as a single fire compartment providing there are at least two exits from it. Over-compartmentalisation can lead to difficulties in establishing clean air-flow paths and room-air dilution rates. This will lead to an increased risk of healthcare-associated infections. Staff areas within the department should be treated as a sub-compartment. (See Paragraph 6.18).

Door protection

7.52 Air should flow from the cleaner to the less clean areas as shown in Table A2. The factors that affect the likelihood of a reverse airflow through doorways are discussed in Paragraphs 7.24 - 7.26.

7.53 It is not possible to design an air-movement scheme, within the restraints of the amount of air available that will protect the operating room when two doors are simultaneously opened. The design process that has been used considers that each door is opened in turn and ensures that the direction and rate of air-flow through any open doorway is sufficient to prevent any serious back-flow of air to a cleaner area.

7.54 Provided that the air-change rates in Table A1 are met, dilution will be sufficient to ensure that the occasional small back-flows created (when two doors are opened simultaneously; or when there is a high temperature difference across an open door) will have little effect on the overall air cleanliness of the affected room.

7.55 The following general points should be taken into consideration during the design of operating suites:

- Number of exits – the fewer the number of rooms (and therefore doorways) leading from the operating room the better, as traffic is reduced and less complicated air-movement control schemes are required.
- Scrub and hand-wash facilities – these may be a part of the operating room, often in a bay. The bay would count as part of the operating room volume and should have a low-level active or passive extract to remove the moisture-laden air. Should a separate room be required for the scrub area, a door between the scrub-up room and the operating room is an inconvenience to scrubbed staff, and could be replaced by an opening. This opening should be larger than a normal single doorway, but the scrub would not, in these circumstances, be considered part of the operating room volume.
- If an alcohol scrub regime is employed, individual theatre scrubs may not be required and would be replaced by a common departmental pre-/post-operation scrub position in the corridor. This would require local extract to prevent a build-up of moisture.
- Preparation 'Sterile Pack Store' (SPS) – if it is intended to 'lay-up' instruments in the operating room, the preparation room is then used simply as a sterile pack store. The nominal room pressure can therefore be the same as that of the operating room and the airflow between the two rooms in either direction. Air supplied to the preparation room may be directed into the operating room either through a door mounted transfer grille or if no door is fitted, through the opening. Alternatively, stock ready-use sterile items can be located in a bay within the theatre. In this case, a portion of the total theatre supply air should be provided in the bay to ensure it is actively ventilated.
- Preparation room 'lay-up' – when the preparation room is used as an instrument 'lay-up' room, it should be regarded as being of greater cleanliness than the operating room, and the design should minimise the transfer of air from the operating room to the preparation room. Air supplied to the room may be directed to the operating room through a pressure stabiliser taking care not to compromise the airflow pattern in the operating room. The air may also be directed into a corridor;
- Service corridor – if materials to be disposed of are placed in impervious material for transportation, it is not necessary to have a separate corridor for this purpose. However, a service corridor has many operational advantages it terms of the flow of materials through the theatre suite. It also permits routine service and maintenance access without compromising the use of adjacent theatre suites.

Standard air-movement control schemes

7.56 In the previous versions of this guidance standard air movement control schemes were given that provided a range of design solutions to typical operating suite layouts. These were satisfactory design solutions for 'standard' sized rooms within the suite but were never intended to be universal for any sized room or suite. Guidance on operating suites contained in HBN 26 (2004) has increased the recommended size of operating room from approximately

35m^2 to 55m^2. Associated room sizes and air change rates have also increased. This means that the original standard solutions are no longer appropriate for new-build installations.

7.57 Because of the resulting increase in the volume of air supplied to the theatre, provision needs to be made either to actively remove it or allow it to escape passively through pressure stabilisers. The increase in room size has also made the number and position of air-supply terminals critical to the effective ventilation of the room.

7.58 Four new standard solutions have been developed to reflect the current guidance on theatre suite layout and room sizes given in HBN 26 (2004) as well as the general increase in air-change rates.

7.59 The most commonly used original standard solutions have been revised and updated. They have been retained in this guidance, as they will remain applicable to older theatre suites that are being refurbished to their original performance standards. They will also be applicable in existing departments where space constrains do not permit the upgrading of suites to the latest standard of performance or where a pre-built "shell" is being fitted out.

7.60 It is important to recognise that in any situation where a "non-standard" room size or theatre suite layout is being considered, the designer must return to first principles when developing a solution. Examples of non-standard configurations would be:

- cardiac theatres that typically have an operating room half as big again as normal, a perfusion laboratory and no anaesthetic room;
- operating departments served by a central instrument lay-up preparation area rather than individual prep rooms;
- balanced-flow theatres for infectious cases.

Appendix 4 contains a methodology for assisting the designer to arrive at a suitable solution.

7.61 The new and revised standard design solutions are as follows:

No 1 – Typical Conventional theatre – room sizes as HBN 26;

No 2 – Typical UCV theatre – room sizes as HBN 26;

No 3 – HBN 26 illustrated Conventional theatre;

No 4 – HBN 26 illustrated theatre with UCV terminal fitted;

No 5 – Pre-2006 Conventional theatre, single corridor (former SHTM 2025; 1b);

No 6 – Pre-2006 UCV theatre, single corridor (former SHTM 2025; 1a);

No 7 – Pre-2006 Conventional theatre, two corridor (former SHTM 2025; 5b);

No 8 – Pre-2006 UCV theatre, two corridor (former SHTM 2025; 5a).

7.62 Details of these standard solutions are given in Appendix 3. They contain diagrams that show the relationship of rooms and the various doors and transfer devices between them, **but should not be regarded as architectural layouts.** The schemes have been developed using the calculation procedure described in Appendix 4. Important features of the solutions are:

- Zone trimmer heaters – a trimmer heater battery is advocated when calculations indicate that the temperature differential between rooms may be greater than 2K. Generally this will only be the case in the preparation room when designated as a lay-up.
- The preparation room (sterile pack store)/operating room interface – these rooms are deemed to be of equal cleanliness, and thus a transfer grille is required between these rooms or the door can be replaced with an opening wider than a standard door.
- Preparation (lay-up)/disposal room interface – pressure relief dampers are recommended here to provide an air path when doors are closed, while preventing back-flow when a door is opened elsewhere.
- Operating room/anaesthetic room interface – pressure stabilisers, or in some cases, carefully sized transfer grilles are recommended here, and between the anaesthetic room and corridor, and between the operating room and corridor.
- Operating room/scrub room interface – an opening is provided between these rooms. The flow of air through the opening provides protection, and gives bacterial dilution within the scrub room; the air is then exhausted to the corridor via a pressure stabiliser.

7.63 No mechanical supply or extract ventilation is provided in the scrub room, and thus when a door is opened elsewhere in the suite, the stabiliser will close, allowing the air to be re-directed to help protect the doorway. If the scrub is a bay within the theatre then a suitably positioned pressure stabiliser and / or active extract should be provided to ensure air movement and prevent a local build-up of moisture.

7.64 Any other scheme may be used and the standard solutions applied, if the following conditions are met:

- room relationships in air network terms are as shown in the plans;
- door-gap measurements approximate to those given in Scottish Health Technical Memorandum 58: 'Internal doorsets', (but see also Table A3 and Note 3);
- casual heat gains are accounted for;
- a trimmer battery is installed in the air supply system to the preparation room;
- leakage through the structure is kept to a minimum.

Note 3: It should be noted that many doors are now fitted with cold smoke seals as standard. These will significantly reduce the door leakage rate when new and undamaged. It is therefore recommended that provision for the design door leakage is factored into the sizing of the appropriate transfer grille or pressure stabiliser. Failure to do this will result in air gap whistles and doors being held partially open by air pressure.

7.65 It is recommended that every effort should be made to adopt one of the schemes described above.

Air terminals and air distribution within rooms

7.66 The selection and sighting of air diffusers will be critical in establishing an efficient pattern of mixing. To this end the diffusers selected must be fit for purpose. Ceiling mounted circular 'air master' style, square 'four-way blow' or similar diffuser designs that provide a downward displacement, turbulent airflow are the preferred option. (See Paragraph 5.68).

7.67 Plenum-type 'laminar'-flow-style diffusers with a footprint that encompasses the operating site are acceptable but may be prone to buoyancy effects as a result of temperature difference. Manufacturers' type-test data should be consulted to ensure that the terminal will achieve the required performance envelope. Note that these are not true laminar-flow systems in the strict sense of the word but produce a downward-displacement parallel-flow style of air distribution.

7.68 The diffuser equipment chosen should not cause 'dumping' and it should provide a velocity 1 metre above floor level at the operating position of between 0.2 m/s and 0.3 m/s.

7.69 In the operating room, the supply air terminals must be at high level, and should all be adjustable for rate of flow as well as being easily cleaned and silent in operation.

7.70 In order to ensure that all parts of the operating room are actively ventilated, there should be an air-out path on each face or in each corner of the theatre. This may be provided by a pressure stabiliser, transfer grille, active or passive extract terminal. A minimum of three, but preferably four, air-out paths - approximately equally spaced - should be provided.

Automatic control

7.71 The automatic control of ventilation in operating suites needs to be simple and robust. Over-reliance on complex room pressure and flow relationships linked to automatic fan speed control is unnecessary and in the long term have been shown to be unreliable. Complex software algorithms that can only be accessed and interpreted by off-site specialists should not be used. Whichever control strategy is chosen it is important that on-site staff have the facility to override the control system and keep the ventilation operating at least until the surgical procedure is complete. (See also Paragraph 6.11)

7.72 Theatre air-conditioning control sensors should be actively ventilated. They would typically be located in a sampling extract duct mounted in the surgeon's panel, positioned at normal working height (1.8m above finished floor level) and be accessible for cleaning and the removal of fluff and lint.

7.73 Wall-mounted passive-temperature and humidity sensors are not recommended.

7.74 Controls should be provided to enable operating department ventilation plants to be closed down when the operating suites are unoccupied. (See also Paragraphs 6.24 - 6.26)

7.75 When in the 'off' mode, the control system should ensure that the ventilation plant is automatically reinstated if the space temperature falls below 15°C.

7.76 The theatre control panel should include plant status indication; clearly-readable temperature and humidity indicating gauges; and means of adjusting the set point for temperature. Theatre ventilation plant status indication should be located at the staff control base.

7.77 Where it is considered necessary to fit a humidifier, it should be selected to humidify to 40% saturation at 20°C during the design winter outside conditions. The cooling coil should be able to remove sufficient moisture so that 60% saturation at 20°C is not exceeded during the design summer outside conditions.

7.78 Each operating suite should be served by an independent supply and extract plant.

Ventilation of operating department ancillary areas

General

7.79 There are advantages in providing mechanical ventilation to all areas of the department. Maintaining operating suite airflow patterns is simpler and grilles and diffusers can be sited to eliminate condensation on windows. Where radiators or embedded wall or ceiling panels are installed they should be confined to the corridors and staff-only areas of the department.

Ventilation requirements

7.80 Table A2 gives guidance on the operating department areas in descending order of cleanliness, and this should be considered in the overall design of the department ventilation systems. The specified flow rates of air through doors given in Table A4 for the operating suite are not necessary for other areas of the department. However, the air-flow directions must be maintained from the clean to the less clean areas.

7.81 All windows in the department should be double-glazed and hermetically-sealed in order to ensure that the desired airflow pattern is maintained under all

external environmental conditions and to avoid infestation. Trickle vents if fitted will need to be sealed.

Systems design

7.82 The design of the ventilation system for the ancillary rooms depends on the overall configuration of the department. The plant for the ancillary rooms may need to be interlocked to the theatre suite plants so that reverse air-flow patterns do not occur.

7.83 Extract grilles should be sited and balanced to promote air movement along the clean and access corridors towards the reception/transfer areas. This should not affect the air distribution in the operating suite(s).

Reception

7.84 The aim in these areas is to provide comfortable conditions having regard to the movement control requirements of the department as a whole. The number of air changes will depend on the particular design.

Sterile pack bulk store

7.85 The store needs to be maintained at a positive pressure in order to preserve the cleanliness of the outside of the packs; 6 air changes are recommended.

Recovery

7.86 The air-change rate in the recovery room will be rather higher than that needed merely to provide clean, comfortable conditions, as it is necessary to control the level of anaesthetic gas pollution; 15 air changes are recommended, with a balanced air flow.

7.87 The supply air terminals should be ceiling mounted above the foot-end of the recovery bed positions. Extract should be at low (bed height or below) level behind the bed head positions or in the corners. This will establish a clean airflow path so that staff do not inhale anaesthetic gases exhaled by recovering patients.

7.0 (b) Ultra-clean ventilation systems

General requirements

7.88 The design philosophy of a conventionally ventilated operating suite is based on the need to dilute contaminants and control both the condition and movement of air in an operating suite. Ultra-clean ventilation (UCV) is a means of significantly increasing the dilution effect by providing a large volume of clean filtered air to the zone in which an operation is performed and sterile items are exposed. Air is discharged above the operating zone and while not truly laminar, its downward displacement purges the clean zone of contaminants and

particles generated by the activities within it. The airflow in and around the clean zone also serves to prevent particles originating outside the zone from entering it. The resulting reduction in contaminants has been shown to reduce significantly post-operative sepsis following certain orthopaedic procedures.

7.89 The number of bacteria that are present in the air at the wound site and exposed surgical items is dependent on the operating team, their procedural discipline, choice of clothing and the type of UCV system. Ultra-Clean air is defined as that containing not more than 10 CFU/m^3.

7.90 UCV systems are very successful in reducing contaminants at the wound site so it is often considered that there is no need for complex air movement control schemes in the rest of the suite. However, when designing the ventilation scheme, it should be noted that the users may switch the UCV terminal to "set-back" when non-orthopaedic surgery is taking place. This is because the high airflow rates can cause increased moisture evaporation of exposed tissue that may be detrimental to the surgical outcome. In recognition of this, the ventilation scheme should be capable of providing operating conditions to at least a "conventional" theatre standard throughout the suite with the UCV in set-back mode. It should also be remembered that suitable levels of ventilation will always be required in the peripheral rooms.

7.91 UCV systems can be designed and built from first principles or a range of bespoke modular units of varying shapes and sizes are available with each manufacturer having a slightly different approach to UCV design. Some systems are fitted with partial or full walls to delineate the clean zone and direct a laminar or exponential downflow of air within it. Other designs utilise slotted linear supply terminals to produce an air curtain around the clean zone together with laminar-flow diffusers to provide a downward-displacement supply within it. **Notwithstanding any variation in the design philosophy, all UCV systems will be required to achieve completely the performance standard set out in the "Validation" section of this document**. (Section 8)

7.92 As with conventional theatres, each UCV operating suite should have its own dedicated air handling unit (AHU) to the standard set out in Section 4 of this document. To ensure operational flexibility and permit routine maintenance, air handling units should not be shared between suites.

7.93 In retrofit installations, site conditions may preclude individual AHUs for each suite. In these circumstances an AHU may be shared between not more than two operating suites providing each suite has its own control of temperature. An accessible airflow measurement test point should be provided in the supply branch duct to each theatre so that the primary air volume to each UCV canopy can be determined. In addition the branch supply and extract should be capable of being physically isolated and the main air-flow rate reduced so that either suite can be taken out of use without detriment to operating conditions in the other.

7.94 An inherent feature of a UCV system is its large airflow so it is essential to re-circulate the air supplied to the operating theatre and/or to recover its energy in order to optimise operating costs.

7.95 The primary fresh-air volume supplied to a UCV suite will be the same as in a conventional suite and it should be dispersed to the rooms in the suite in the same manner. This is an important aspect of the design and requests by UCV suppliers for increased primary air-supply volumes should be resisted.

7.96 Laying-up in the clean zone is preferable for infection control reasons. Where a Sterile Pack Store (SPS) Preparation room is provided a transfer grille will be required in the preparation room / theatre door.

7.97 If the Preparation room is intended to be used for laying-up instruments, a pressure stabiliser will be required between the prep room and theatre. It should be fitted with a stand-off baffle to prevent air transfer interfering with the ultra-clean airflow distribution.

7.98 Separate scrub-up or disposal facilities are not necessary for air cleanliness although operational policy may prefer such a provision. A separate anaesthetic room should, however, be provided.

7.99 There is no aerobiological reason why two or more UCV systems should not be installed in a common area as long as adequate spacing is provided. These are known as "barn theatres" and require special design considerations and operational discipline. The relative positions of the UCV units, temperature control range and location of doors and openings to other areas will all significantly affect the airflow at the operating positions.

Types of UCV system

Remote plant systems

7.100 In a remote plant system, all the air-conditioning equipment is located outside of the operating room, except for the unidirectional air-flow terminal, terminal filter, air diffuser and the return-air grilles (see Figure 6).

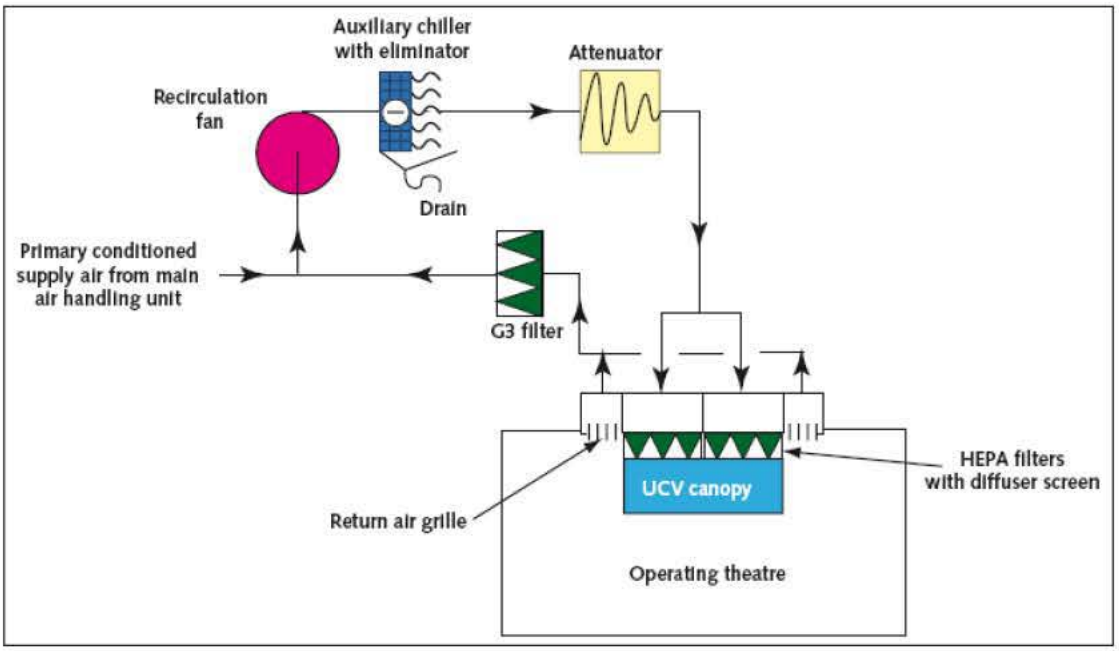

Figure 6: UCV theatre with remote air recirculation

7.101 This arrangement is the preferred option for new installations as it has the following advantages:

- the recirculation fans are out of the theatre thus reducing noise. Multiple recirculation fans can be replaced by a single fan unit with its drive out of the air stream;
- casual heat gains from recirculation fan(s), canopy lights, equipment and people within the theatre can be removed by a chiller battery in the return air stream. This will prevent heat build-up in the theatre;
- the return-air filters can be changed without needing access to the theatre making routine maintenance more feasible;
- the opportunity exists to locate the HEPA filter in the primary supply duct rather than the theatre terminal. This will reduce the number of filters required and allow them to be changed without entering the theatre.

Modular systems

7.102 Modular systems are frequently used in retrofit applications. Vertical or horizontal units are available.

7.103 Vertical-flow modular units comprise a ceiling-mounted air-terminal module containing return-air filters, return-air fans, final filter and air diffuser. Primary air is supplied by a remote air-conditioning unit at the volume and to the standard required for a conventional operating suite. (see Figure 7)

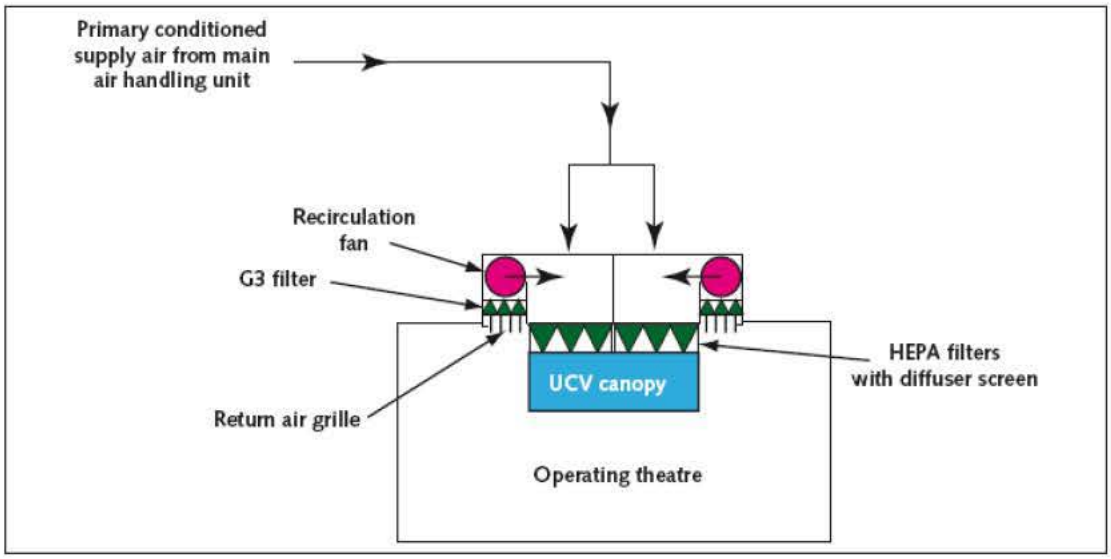

Figure 7: UCV theatre with modular system

7.104 Horizontal or cross-flow modular units comprise a wall-mounted air-terminal module standing vertically to produce a horizontal flow of air and containing final filter/diffuser, return-air filters and fans. The module may incorporate a cooling unit or be supplied with 'fresh air' from a separate primary cooling system.

Vertical flow UCV systems

7.105 Vertical-flow systems have a superior performance and are more effective at reducing infection risks. Air-curtain or partial-wall systems are acceptable, but are known to be more susceptible to problems arising from performance deterioration, poor operating-team discipline and high occupancy rates than is the case with full-wall systems. A full-wall is considered to be any wall terminating not more than one metre above the finished floor level.

7.106 Because of the large volume of air being moved in a relatively small space, the siting of the return-air grilles can cause short-circuiting of the air discharged through the UCV terminal. If the return-air grilles are positioned at high level, partial walls should be provided to control short-circuiting. The partial-walls shall be not less than 1m from the operating room walls and terminate at least 2m above floor level. The clearance should be increased proportionally for larger terminals (that is, 1.15m for 3.2m x 3.2m units and 1.25m for 3.5m x 3.5m units). In all cases, the sidewalls should terminate at 2m above floor level.

7.107 Siting the return-air grilles around the periphery of the theatre at low level will eliminate short-circuiting, remove the need for partial walls and give an improved airflow path. In any event there should be an air-out path on each face or in each corner of the theatre. These may be provided by combination of pressure stabilisers and passive or active low level extract grilles. Failure to provide air-out paths on all faces of the theatre may result in the surplus air causing entrainment into the clean zone.

7.108 Vertical systems should have a clean zone large enough to encompass the operating site and all of the instrument trays likely to be needed for the surgical procedures to be undertaken. Ophthalmic and minor hand surgery would

typically require a 1·4m circular or rectangular terminal. For major orthopaedic procedures a minimum size of 2·8m x 2·8m will be required. This is the area projected on the floor under the supply air terminal within the partial walls, full walls or air curtain. Any air outside this zone cannot be guaranteed to be ultra-clean although given the dilution factor the level of microbiological contamination will be much lower than the general level in a conventional operating room. The use of lines or a coloured area on the floor delineating the extent of the clean zone will assist staff and is therefore essential.

7.109 When upgrading an existing conventional theatre to an ultra-clean standard the only solution may be the installation of a modular system. In these units, the heat gains from the return-air fans and terminal lights may warrant the inclusion of supplementary cooling within the module although modern luminaries contribute substantially less unwanted heat. However issues of cooling coil drainage, condensate removal and maintenance access within the space constraints of the module may make this option impracticable. The additional cooling load should then be catered for by conditioning the primary air to compensate.

7.110 If an existing AHU is to be retained, it may require modification to ensure that it achieves the minimum standards set out in Section 4 of this document. The fan may need re-rating to accommodate the change in system resistance. The cooling coil may also need to be upgraded to cater for the increased load resulting from the return air fans and terminal lights. Failure to make adequate provision for this may make the theatre unusable during prolonged warm spells.

7.111 A factor affecting the air-flow pattern is the supply or room air temperature difference. When the supply-air temperature is significantly above room temperature, buoyancy effects will reduce the volume of air reaching the operating zone. If it is anticipated at design stage that this will be a regular occurrence, then a system incorporating full-walls should be used. Demountable extensions that convert a partial-wall to a full-wall unit are available.

7.112 Convection up-currents from the surgical team and operating lamp tend to counter the movement of clean air towards the operating site, hence the air velocity reaching the operating level is critical. The minimum velocity given below has been selected to take account of these factors and is greater than the theoretical minimum value.

7.113 For all vertical UCV systems the design discharge velocities will be as follows:

Air velocity 2 metres above floor level:

- partial-wall system = 0.38 m/s average;
- full-wall system = 0.30 m/s average.

Air velocity 1 metre above floor level:

- all systems = 0·2 m/s minimum within the operating zone.

The validation Paragraphs 8.75 – 8.86, gives details of the method of measurement.

7.114 Variable-speed recirculation fans with differential pressure control may be the most suitable solution for maintaining consistent performance and energy saving.

Horizontal UCV systems

7.115 Horizontal UCV air-flow systems have been shown to be less effective than vertical systems and are not the preferred solution. There may be occasions, however, where architectural, engineering, economic or workload considerations prevent the installation of a vertical-flow system and only a horizontal-flow system can be installed.

7.116 Horizontal- or cross-flow modular units comprise a wall-mounted air terminal standing vertically to produce a horizontal flow of air across the operating field. The terminal module contains the final filters, air diffuser, return-air grilles, filters and fans. The module may incorporate a full air-conditioning unit or be supplied with 'fresh-air' from a separate primary air-conditioning system. In the latter case the return-air fan power may warrant the inclusion of a supplementary cooling coil within the module.

7.117 The system should have sidewall panels at least 2·4m apart. The panels may fold to facilitate cleaning of the theatre. The minimum height of the terminal should be 2·1m and a deflector at the top of the filter/diffuser will be acceptable as an alternative to a full roof. These dimensions reflect currently available equipment and may impose operational constraints in addition to a lower level of performance common to these systems.

7.118 In the horizontal flow systems, personnel working between the filter and surgical wound will disperse bacteria that are more likely to contaminate exposed surgical instruments and enter the wound. This may be minimised by the use of improved clothing and operating procedure to reduce dispersion of bacteria. The use of lines on the floor delineating the extent of the clean zone and hatching or colour coding the 'no-entry' zone between the air diffuser and patient will serve to prompt staff and are therefore essential.

7.119 The air discharge velocity as measured 1m from the diffuser face should have a mean value of 0·4 m/s. The validation Section 8 gives details of the method of measurement.

Filters

7.120 The main plant primary and secondary filters should be to the standards and in the location set out in Section 4.

7.121 Terminal filters should be provided within the airflow terminal or in the air supply to it. High efficiency particulate air (HEPA) filters grade H10 as specified in BS EN 1822 will be required as a minimum. There is no aerobiological benefit in

fitting filters of a higher grade than this, although for practical reasons most UCV manufacturer recommend the fitting of H12-grade filters.

7.122 In some modular UCV units, the terminal filter is used as a pressure equaliser to balance airflow and filters of a higher grade with a greater pressure drop may be recommended by their manufacturer. The increased resistance may affect the velocity of air reaching the operating level and there will be penalties in terms of installed fan power and higher noise levels.

7.123 The final filters should be installed in a leak-proof housing in a manner that allows the terminal unit, filters and their seals to be validated. A challenge test will be carried out during commissioning to prove the effectiveness of the complete installation.

7.124 Where UCV units are constructed in sections, a means of measuring the pressure drop across the terminal filters in each section should be provided. The pressure test-points should be located outside of the partial wall, capped to prevent air leakage and accessible within the theatre without the need to open the unit inspection panels. Alternatively direct-reading pressure gauges should be fitted.

7.125 The UCV system will require a return-air filter to capture the relatively coarse particles that would otherwise significantly reduce the life of the final filter. This should be at least a G3 grade to BS EN 779. In remote recirculation systems there may be advantages in fitting a higher grade return air filter, as it will reduce the load on the terminal HEPA filters and extend their life.

Noise level

7.126 If sound-attenuating material is used to line any portion of the inside of the UCV unit it should be non-particle-shedding and fire-resistant. (Further guidance can be found in SHTM Firecode suite of documents).

7.127 The maximum noise level in an operating room fitted with a UCV terminal of any type shall not exceed 50 NR. The validation section gives details of the method of measurement.

Lighting and operating lights

7.128 CIBSE lighting guide LG2 and BS EN 12464-1 give detailed information of lighting requirements. Operating luminaires should comply with the photometric requirements detailed in relevant sections of BS EN 60601.

7.129 The position of the UCV light fittings and style of partial walls, where fitted, should neither adversely disturb the airflow nor result in significant spatial variations in illuminance levels.

7.130 In vertical units, specialised task lighting should be provided by toroidal, cruciform or small multiple dome-shaped luminaires as they have good aerodynamic properties. The ideal luminaire will have a minimal effect on the airflow regardless of where it is positioned. Large-diameter saucer-shaped

luminaires should not be used in vertical-flow systems as they will occlude the airflow in the critical central zone. It is important to consider the suitability of existing luminaires when retrofitting UCV systems.

7.131 In vertical UCV installations a minimum of 2·75m from floor to underside of the diffuser is required to allow for supporting mechanisms and lamp articulation. When upgrading existing systems this dimension may not be achievable. However, when parked, the lowest point of the central light stem, luminaire and articulation arms should never be less than 2m above floor level.

7.132 The traditional means of light support is a central column that passes through the UCV terminal and is rigidly fixed to the building structure. The position of the support therefore prevents air being supplied at the centre of the terminal. Separate supports displaced from the centre of the clean zone would lead to improved airflow. This approach was advocated in the 1994 version of HTM 2025 but at the time of writing no UK manufacturer has chosen to adopt this solution.

7.133 In horizontal units the size or shape of the specialised task luminaire has little effect on the air-flow pattern.

Controls and instrumentation

7.134 The functions of the supply AHU and extract ventilation should be continuously monitored by a BEMS control unit. The controls and instrumentation for the main plant are set out in Section 6.

7.135 UCV systems will additionally require:

- a set-back facility that can reduce the air supplied through the UCV terminal to a volume that equates to not less than 25 air changes per hour of the operating room gross volume whilst still leaving the supply AHU operating at full speed;
- a facility to turn the entire system, supply AHU and UCV terminal, off. (an emergency stop is not required);
- a read-out sufficiently large to be clearly visible from the operating table that shows the temperature of the air being supplied by the UCV terminal;
- a read-out sufficiently large to be clearly visible from the operating table that shows the relative humidity of the air being supplied by the UCV terminal;
- a red indicator light that will illuminate when either the supply AHU or the UCV terminal fails, either or both are switched off or are at set-back;
- an amber indicator light that will illuminate when the UCV terminal is at set-back and the supply AHU is running;
- a green indicator light that will illuminate when both the supply AHU and UCV terminal are operating at full speed;
- a blue indicator light that will illuminate when the UCV terminal air flow, as detected by a differential pressure sensor, falls below 80% of the design flow rate.

AHU	UVC terminal	Indicator light	Comment
Off or Fault	Off or Fault	Red	Ventilation not operating at a suitable level to commence surgical procedures
Off or Fault	On (set-back)		
Off or Fault	On (full speed)		
On (set-back)	Off or Fault		
On (full speed)	Off or Fault		
On (set-back)	On (set-back)		
On (full speed)	On (set-back)	Amber	Ventilation provided to at least conventional theatre standard
On (full speed)	On (full speed)	Green	Full UCV standard conditions
-	-	Blue	HEPA-filter resistance causing low air flow

Table 7: Indicator light logic table

7.136 The switching devices and indicators should be incorporated in the surgeon's panel and their functions clearly labelled. In retrofit installations an auxiliary panel for the UCV may be the most practical option. If fitted it should be mounted adjacent to the surgeon's panel and their control functions interlocked as necessary.

7.137 When a system is designed to have partial walls with full-wall extensions, a volume control facility may be incorporated to allow the system to be run with reduced velocity when the demountable full-walls are in place. It would be the responsibility of the user to ensure correct operation of the system. To assist the user an explanatory notice should be included on the theatre control panel.

7.138 A direct-reading gauge should be fitted in the theatre to show a representative pressure drop across the final filters. If the UCV control box is located out of the theatre and has a means of manually adjusting the return air-fan speed then it should also be fitted with a direct-reading differential pressure gauge. The means of adjusting the return-air fan speed should be lockable to prevent casual adjustment. The direct-reading gauges should be fitted with a means of indicating the correct operating pressure range.

7.139 The UCV-unit manufacturer's control box should be located in an accessible position preferably in the operating department adjacent to the operating theatre that it serves. A service corridor, if provided, is an ideal location. The control box should be clearly labelled with the identity of the operating theatre that it serves.

7.0 (c) Extract systems

7.140 Extracts may be provided for a variety of reasons including:

- simple odour control (for example in a WC or mortuary);
- to receive and remove moisture-laden air (for example, in a kitchen);
- as part of a combined supply/extract balanced system (for example, in an operating suite);

- to capture a hazardous substance at source (for example a safety cabinet).

7.141 Devices that use an inflow of air to control exposure of staff to hazardous substances are classified as Local Exhaust Ventilation (LEV) systems under the COSHH Regulations.

7.142 An LEV system may comprise a self-contained unit incorporating its own carbon filter such as a simple bench-top fume cupboard. Alternatively it may be a complete "ventilation system" comprising a make-up air supply, multiple-exhaust-protected work stations, branch and central extract ductwork, duplex extract fans and a high-level discharge terminal. It may also incorporate a special filtration system appropriate to the hazardous substance being controlled. Such systems could be required for workshops containing woodworking machinery or large centralised pathology laboratories housing multiple safety cabinets, dissection benches, fume cupboards and specimen stores.

7.143 It is important to recognise at the design stage whether an extract is being provided for comfort or as an LEV system. Typical systems in healthcare include:

- microbiological safety cabinets and Category 3 containment rooms;
- fume cupboards;
- welding-fume extracts;
- woodworking machinery duct collectors;
- battery-charging bay extracts;
- powered plaster and bone saws;
- pharmaceutical preparation cabinets and tablet machines;
- dissection benches, cut-up tables and some specimen stores;
- medium- and high-risk infectious disease isolation facilities;
- decontamination facilities;
- dental furnaces, grinders and polishers.

7.144 General design information and guidance for LEV systems is produced by the Health and Safety Executive (HSE) as HS(G)37. Information on the design and installation of microbiological safety cabinets is given in BS5726 and that for fume cupboards is given in BS EN 14175. Their recommendations should be closely followed.

7.145 LEV systems are statutory items that will be subject to an independent inspection every 14 months.

Hood extract systems

Special requirements

7.146 Extract canopies will be required over steam-and-heat-emitting appliances, for example sterilisers, catering and washing equipment; and for the extraction of toxic fumes over benches used for mixing, sifting and blending procedures.

7.147 Perimeter-drain gulleys and corrosion-proof grease eliminators should be provided on kitchen hoods.

Typical arrangements

7.148 The air-flow rate must be sufficient to ensure an adequate capture velocity in the vicinity of the process; typical values are as follows:

- evaporation of steam and like vapours 0.25 m/s to 0.5 m/s;
- chemical and solvent releases 1.0 m/s;
- vapour of gases 5 m/s to 6 m/s;
- light dusts 7 m/s to 10.0 m/s.

Excessive velocities will be wasteful of power and generate noise.

7.149 The lowest edge of the canopy should be 2m above finished floor level, with a minimum of 300mm overhang beyond the edge of the equipment on all sides.

7.150 A compact arrangement of equipment (but with access for maintenance) will minimise the canopy area, and hence reduce the air volume necessary to achieve the optimum capture velocity.

7.151 Hoods required for the control of heat gain and vapours may be connected to the general extract system when it is convenient to do so, but where non-corrosive ductwork materials are necessary, a separate discharge is preferred.

7.152 Lighting and internal divider plates are often required to be built into the perimeter of large canopies. However, built-in shelving systems are not recommended, as they interfere with the air-flow, and constitute a maintenance problem.

Control of hood extracts

7.153 Provided that it does not interfere with the operation of the department when not in use, the ventilation system for the hood extract and any associated supply can be shut down. To this end, local control should be provided.

Bench extract systems

Special requirements

7.154 Bench extract ventilation is required in departments such as pathology and mortuary, where activities involve the release of malodorous or toxic fumes that should not be inhaled. Where hazardous substances are being controlled, the system should be designated an LEV.

Typical arrangements

7.155 Each ventilated position will usually be accommodated in a continuous run of benching, which should not be more than 650mm from front to rear and which should be provided with a continuous upstand at the rear. Each position should have a 1200mm x 150mm linear extract grille mounted on a purpose-designed plenum box (incorporating guide vanes as necessary), with its face flush with the upstand. The bottom of the grille should be as close as practicable to the level of the working surface (usually 75mm above, to allow for cleaning). The minimum velocity across any part of the grille should be 1 m/s. The grille should be readily demountable to allow for cleaning.

Control of bench extract systems

7.156 Provided that it does not interfere with the operation of the department when not in use, the ventilation system for the bench extract and any associated make-up supply can be shut down. However, a run-on timer with a minimum setting of 30 minutes must be provided. To this end, local or automatic-use control should be provided.

7.157 Processes that produce hazardous vapours, fumes, dusts or noxious vapours should be enclosed or semi-enclosed in a suitable cabinet or exhaust protected workstation.

Safety cabinet and fume-cupboard extract systems

7.158 Safety cabinets and fume cupboards are devices that use an inflow of air to control exposure of staff to hazardous substances. The units, their exhaust systems, filters, fans and discharge terminals are all classified as Local Exhaust Ventilation (LEV) systems under the COSHH Regulations. The make-up air system to a room that contains an LEV system should also be considered as an essential part of the system and be included in the LEV classification. Information on the design and installation of microbiological safety cabinets is given in BS5726 and that for fume cupboards is given in BS EN 14175. Their recommendations should be closely followed.

7.159 The Advisory Committee on Dangerous Pathogens (ACDP) publishes 'The Management, Design and Operation of Microbiological Containment Laboratories' covering the general environment in which they are used and operational considerations.

Special requirements

7.160 The supply-air system should not distort the unidirectional and stable air pattern required for fume cupboards and microbiological safety cabinets. In general, supply-air ceiling diffusers should not discharge directly towards fume cupboards or safety cabinets, unless the terminal velocity is such that the air-flow pattern of the cabinet is unaffected. The design should ensure that high air-change rates, and/or the opening and closing of doors do not have any adverse effect on the performance of safety cabinets or fume cupboards. A damped door-closure mechanism may help.

7.161 In order to safeguard the user, all safety cabinets and fume cupboards must be fitted with a clear indication that they are operating correctly. Direct-reading gauges or falling-ball indicators are preferred (in addition to electronic pressure indicators). The system should be set to alarm audibly if the face velocity falls below the minimum safe operating level.

Arrangements for safety cabinet installations

7.162 The manufacture and installation of microbiological safety cabinets must be in accordance with the relevant national standards and guidance issued by the Advisory Committee on Dangerous Pathogens (ACDP).

7.163 A Class 1 microbiological safety cabinet must be specified for routine work involving Group 3 pathogens. It should be housed in a Category 3 containment room. Specific design information on containment rooms is issued by ACDP in conjunction with the Health and Safety Commission.

7.164 Siting and installation of microbiological safety cabinets are of particular importance because:

- the protection afforded to the operator by the cabinet depends on a specific and stable unidirectional air flow through the open front;
- the protection to the environment by the cabinet depends on the high efficiency particulate air (HEPA) filters. The exhaust air should never be considered as totally free from microbiological hazard.

7.165 Microbiological safety cabinet is HEPA filtered prior to being discharged to outside. The extract ductwork should as far as practicable be kept under negative pressure while inside the building.

7.166 Current standards permit the installation of microbiological safety cabinets with integral fans, provided that the extract ductwork can be kept short (that is, less than 2m); such an installation however, is likely to be noisy and is not recommended for use in new buildings.

7.167 The discharge from the cabinet should be fitted with a back-draft damper. In multiple installations where several cabinets discharge into a common extract and discharge duct, it must be possible to isolate each cabinet from the system when not in use.

7.168 Roof-level discharge, wherever practicable, is preferred since it removes much of the uncertainty over air re-entering the building through ventilation inlets and/or windows. In such an installation, the extract fan should be situated separately from the cabinet and close to the discharge outlet, to maintain the duct within the building under negative pressure. The discharge point on a flat roof should be through a 3m high terminal. This is required to safeguard staff who may need to access the roof periodically for maintenance. This requirement will also be applicable to fume-cupboard discharges.

7.169 Where this is impracticable, discharge into the room via a double HEPA filter has been accepted. The preferred method, however, is to discharge 3m above the roofline in line with the similar standard for fume cupboard designs.

Arrangements for fume cupboard installations

7.170 The manufacture and installation of fume cupboards must be in accordance with the relevant national standards and associated guidance.

7.171 The primary factors that contribute to the effective performance of fume cupboards include:

- an adequate volume of supply air;
- an effective exhaust system to promote the safe dispersal of waste products to atmosphere.

7.172 The air velocities through sash openings must be sufficient to prevent hazardous materials from entering the laboratory while avoiding excess flow rates that interfere with the investigation process. Average face velocities should be between 0.5 and 1.0 m/s, with a minimum at any point within 20% of the average, the upper end of the range being applicable to the containment of materials of high toxicity. The design velocity must be maintained irrespective of whether the sash opening is varied, or whether doors or windows are open or closed. Variable Air Volume (VAV) cupboards are available which offer a reduction in energy use.

7.173 The possibility of a fire or explosion that may not be contained by a fume cupboard must always be considered. A fume cupboard should not, therefore, be sited in a position where exit to an escape route will necessitate passing directly in front of it.

7.174 Fume-cupboard fans should be installed as near as possible to the termination of the duct, thus maintaining the maximum amount of ductwork at negative pressure.

7.175 Where there are adjacent buildings with opening windows, or where downdraughts occur, it may be necessary to increase the height of discharge ducts in order to achieve adequate dispersal. In complex locations, airflow modelling or wind tunnel tests may be required to determine the optimum height of the stack (see also Paragraph 7.167).

7.176 Fume-cupboards for certain processes must have separate extract systems. However, where appropriate, individual fume-cupboard exhaust systems may discharge via non-returning dampers into a single collection duct rather than having a large number of separate stacks. The collection duct should have a large cross-sectional area to minimise its effect on the individual exhaust systems; be open to atmosphere upstream of the first connection; and be designed to discharge a total air volume at least equal to the combined individual extract systems.

7.177 Individual fume-cupboard extract systems, discharging either directly to atmosphere or into a collection duct, do not require duplex fans. However, a collection duct designed to provide dispersal of effluent from a number of individual extracts, should have duplex fans with automatic changeover.

7.178 Some fumes are particularly corrosive, so the choice of material for the ductwork, and type of extract fan fitted should reflect the nature of the fume being conveyed.

Control of extract systems

7.179 It is desirable to provide local control of safety cabinets in order to maximise the life of the HEPA filter, and to permit the sealing of the cabinet and room for fumigation if spillage occurs.

7.180 To cope with the risk of an accident or spillage outside safety cabinets, a 'panic button' should be provided to switch off the supply to that area; and discharge all extracted air to atmosphere.

7.181 In pathology departments, it will be necessary to have one or more microbiological safety cabinets and one or more fume cupboards available for use at all times, including weekends, therefore, local overriding controls for all these items and any associated ventilation plant will be necessary.

7.0(d) Plantroom ventilation

General requirements

7.182 Plant rooms are required to be ventilated in order to maintain acceptable temperatures for satisfactory operation of the plant and controls, and for maintenance activities. In the case of plant rooms housing combustion equipment, a secondary function of the ventilation is to provide make-up air for the combustion process.

7.183 The air required for these purposes should be introduced into the space through inlets positioned to minimise the discomfort to occupants; they should be unlikely to be blocked, closed deliberately (except in the case of fire shutters if required), or rendered inoperative by prevailing winds.

7.184 Plantroom ventilation air should not be used for any other purposes, such as make-up air for extract; and where the plantroom contains combustion equipment, the appliance pressure must not fall below the outside air pressure.

7.185 Specialised healthcare air handling equipment must not be located in a fire compartment that houses combustion equipment.

7.186 Statutory regulations for plantroom ventilation are contained in the Scottish Building Regulations, and further guidance is given in CIBSE Guides A & B.

Assessment of ventilation levels

7.187 Ventilation requirements must take into account all heat sources within a plantroom, and where there are large glazing areas, solar gains. The ventilation rate should limit the maximum temperature within the plantroom to 32°C.

7.188 As the level of equipment operating during mid-season and summer is often lower than the winter condition, and the cooling effect of the outside air is reduced, it is necessary to calculate the minimum volume for each season of operation, and the inlet and outlet grilles or fan sizes should be chosen to cater for the largest seasonal air volume.

7.189 Replacement air should not be drawn through pipe trenches or fuel service ducts. Where metal ducts penetrate walls and floors, effective sealing should be provided to confine the ventilation to the boiler room and to meet fire protection requirements. Penetration of fire barrier walls by ventilation ducts should be avoided if possible.

7.190 Fire dampers in plant room ventilation ducts should be electrically interlocked with the boiler plant.

7.191 Care must be taken to prevent any noise generated in the boiler room emerging from natural or mechanical ventilation openings to the detriment of the surrounding environment. Particular care is necessary with mechanical flue draughts and fan-diluted flue systems.

7.192 Information on required air volumes in contained in the CIBSE Guide A & B.

7.193 Where combustion plant is installed, the high-level (outlet) openings should be sized to cater for the total ventilating air quantity; and the low-level (supply) openings sized to cater for the total combined ventilating and combustion air quantity.

Choice of ventilation system

7.194 Ventilation air may be introduced and exhausted by either natural or mechanical means or a combination of both. However, natural systems are preferred where possible.

7.195 Generally, small installations at or above ground level should have their combustion and ventilation air provided by natural means, employing both high- and low-level openings.

7.196 Basement, internal and large installations at or above ground level will usually require a combination of natural and mechanical ventilation. If the airflow rate is difficult, both supply and extract may require mechanical means.

7.197 Whether natural or mechanical, the system should be designed to avoid both horizontal and vertical temperature gradients. Both inlet and outlet openings should be placed on opposite or adjacent sites of the building to reduce the effect of wind forces.

7.198 Where mechanical air supply is employed, electrical interlocks with the boiler plant should be provided to prevent damage in the event of failure of the supply fan(s) once the air volume is established.

7.199 The necessary free opening areas for a naturally ventilated plantroom may be calculated using either the method in A4 of the CIBSE Guide A or the table in section B13 of CIBSE Guide B.

7.200 A combined natural and mechanical ventilation system should allow for natural extract at high level, to take advantage of convective forces in the room, with mechanical supply at low level. The high level natural ventilators should be sized to cope with the total quantity of ventilation air, as above.

7.201 To prevent leakage of flue gases and to ensure that the flue draught is not impeded at any time, the air pressure in the boiler room must not exceed the prevailing outside pressure. Therefore, the fan duty should exceed the calculated total combined combustion and ventilation air quantity by at least 25%. Fan-powered inlets should be arranged to flow outside air into the space at a point where cross-ventilation will ensure pick-up of heat without causing discomfort to occupiers.

7.202 Where it is impractical to provide sufficient natural ventilation to remove the heat emitted by the plant, both mechanical supply and extract will be required.

7.203 The high-level extract should be sized to cater for the total ventilating air quantity and the low-level supply should exceed the total combined combustion and ventilating air quantity by at least 25%, as above.

7.0(e) Ventilation of hydrotherapy suites

General requirements

7.204 In a hydrotherapy suite heat recovery should be via heat pump.

7.205 The quantity of supply air should be calculated as 25 litres/sec/m^2 wetted surface, with the wetted surface taken as 110% of the pool water surface area.

7.206 A re-circulation plant is recommended, with a minimum of 20% fresh air.

7.207 As far as practicable, re-circulated pool air should be provided to the ancillary changing and recover accommodation, with the only extract from the toilets, laundry/utility room and pool hall.

7.208 Supply air to the pool hall should be introduced at high level and directed towards the perimeter to mitigate condensation, with extract air taken from directly over the pool. Dampers should not be located over the pool water.

Control of hydrotherapy pool installations

7.209 The supply and extract fans should be interlocked so that the supply fan does not operate until flow is established within the extract system.

7.210 Time-clock control should be provided, with a local override switch to extend the normal operating period as required.

7.211 Night setback temperature (in the range of 21°C -25°C) and high humidity control (in the range of 60-75% sat) should be provided to override the time clock in order to prevent condensation. The exact set points should be ascertained post-installation.

7.212 A remote indication panel should be provided in the pool hall, giving a visual display of the pool water and pool air temperature.

8. Validation of specialised ventilation systems

Definitions

Commissioning - Commissioning is the process of advancing a system from physical completion to an operating condition. It will normally be carried out by specialist commissioning contractors working in conjunction with equipment suppliers. Commissioning will normally be the responsibility of the main or mechanical services contractor.

Validation - A process of proving that the system is fit for purpose and achieves the operating performance originally specified. It will normally be a condition of contract that "*The system will be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life.*"

Note: Commissioning is often sub divided into sections e.g. air handling unit, automatic controls, airside balance, building fabric and fittings. Each section may be commissioned by its specialist installer and they are often accepted in isolation. Validation differs from commissioning in that its purpose is to look at the complete installation from air intake to extract discharge and assess its fitness for purpose as a whole. This involves examining the fabric of the building being served by the system and inspecting the ventilation equipment fitted as well as measuring the actual ventilation performance.

It is unlikely that 'in house' staff will possess the knowledge or equipment necessary to validate critical ventilation systems such as those serving operating suites, pharmacy clean rooms and local exhaust ventilation systems. Validation of these systems should therefore be carried out by a suitably qualified independent Authorised Person appointed by the NHS Board.

It is anticipated that training in the validation of specialised healthcare ventilation systems for independent Authorised Persons will become available during the life of this SHTM.

Commissioning general

8.1 Commissioning is an essential process for ventilation systems. It is therefore important that adequate provision for the process be made at the design stage of the project. Procedures for commissioning air-handling systems are given in CIBSE Commissioning Codes and BSRIA Application Guide Set COMPAK 1.

8.2 The duct-sizing procedure should take into account the requirements of system balancing, and the position and number of regulating dampers included in the design should be sufficient for this purpose.

Location of dampers and test holes

8.3 Balancing/commissioning dampers will be required in each branch of the distribution ductwork.

8.4 Test holes for the measurement of air-flow will be required at carefully selected points in main and all branch ducts. The number and spacing of holes are given in the BSRIA Application Guide Set COMPAK 1. Their positions must be identified at the design stage.

8.5 The test positions need to be accessible for commissioning to take place. They may also be required for subsequent annual verification of the system performance, so they should not be covered by permanent lagging.

8.6 The measurement point should be in a straight length of duct as far away as possible from any upstream bends, dampers or other elements that could cause disturbance to the airflow. The actual location should be:

- at least 1.5 duct diameters upstream of sources of turbulence such as dampers and bends;
- if this is not possible, 10 diameters downstream of dampers, bends or tees, and 5 diameters downstream of eccentric reducers;
- where there is enough space round the duct to insert the pitot tube and take readings;
- where the duct has a constant cross-sectional area.

8.7 Test holes for measuring total airflow from a fan should be located either 4 diameters upstream or 10 diameters downstream of the fan. Provision should also be made for measuring the speed of rotation.

Information to be provided

8.8 It is essential that the designer should pass on his intentions fully to the commissioning engineer by indicating which parts of the system are high, medium and low pressure, and by providing:

- relevant parts of the specification;
- schematic drawings indicating performance data as indicated in Table 8;
- equipment schedules;
- controller and regulator schedule;
- fan performance curves;
- wiring diagrams for electrical equipment, including interlock details.

Items in system	Information to be provided
Fans	Fan total pressure Volume flow rate at high and low speed Maximum motor current
Plant items	Type and identification numbers from equipment schedules Fluid and air volume flow rates Fluid and air side pressure losses Dry bulb temperatures Wet bulb temperatures Humidity
Dampers, including motorised and fire dampers	Identification numbers from equipment schedules Location Identification number Volume flow rate
Main and branch ducts	Dimensions Volume flow rates and velocities Identification numbers from equipment schedules
Terminal	Location Identification number Grille or diffuser factor Volume flow rate and neck velocity Operating static pressure
Test holes and access panels	Location Identification number
Controllers	Set points

Table 8: Information to be provided on schematic drawings

Notes: For Table 8

1. Fan total pressure is the difference between the total pressure (static pressure + velocity pressure) at the fan outlet and the total pressure at the fan inlet.

2. Where volume flow rates are variable, maximum and minimum values should be provided.

Commissioning personnel

8.9 As one individual is unlikely to possess all of the required commissioning skills, a commissioning team is therefore usually needed. The objective of commissioning is to ensure that the necessary performance and safety requirements are met.

8.10 During the commissioning process a great deal of information will be generated which will form an invaluable future source of reference about the plant. It is essential to ensure that it is collected together in the form of a commissioning manual and handed over to the client on completion of the contract together with the 'as fitted' drawings. This information should be both in hard copy and electronic format.

8.11 In order to be successful the commissioning process must start before achieving practical completion as many parts of the system will become progressively less accessible. The correct installation of those parts will need to be witnessed and leak-rate tests carried out as construction proceeds. Failure to establish responsibility for commissioning early enough will delay the completion of the project or lead to unsatisfactory plant performance.

Commissioning brief

8.12 The commissioning team will require a detailed brief from the system designer. This should include:

- a 'user' brief comprising a description of the installation and its intended mode of operation;
- the precise design requirements with regard to the scheme of air movement, room static pressures, supply and extract air-flow rates and acceptable tolerances;
- full details of the design conditions both inside and out, for winter and summer together with the control strategy;
- equipment manufacturer's type test data, commissioning, operation and maintenance recommendations;
- drawings showing the layout of the system, positions of air-flow measurement test points, dampers, regulating devices and filters within the duct runs, together with sizes of ducts and terminal fittings. It will save time if these drawings are annotated with the design volumes and static pressures required at each branch and outlet point;
- wiring diagrams for all electrical equipment associated with the air handling systems including motor control circuit details and any interlocking and safety devices such as emergency-stop buttons adjacent to the item of plant.

8.13 The CIBSE Commissioning Code, Series 'A' – "Air Distribution", provides full guidance on the information that will be required by the commissioning team.

8.14 The designer should include in the contract document instructions on verifying the accuracy of test instruments that should be supported by reference to relevant calibration certificates.

8.15 The system, on completion, should be operated by the contractor as a whole and subject to performance tests in accordance with the contract requirements.

For critical systems, these may include independent validation of the system performance on behalf of the client.

8.16 Prior to dynamic commissioning, it is essential that builders' work in the area served by the system is complete, all rubbish and dust is removed, concealed plumbing (IPS-type) panels are in position and ceiling tiles are in place and clipped. Floors should be mopped and visible dust removed from all other surfaces.

8.17 Once the system is shown to meet the design intent the handover documentation should be completed. In the event of performance not being acceptable, the matter should be dealt with in accordance with the contract arrangements.

Pre-commissioning checks

8.18 The pre-commissioning checks consist of visual inspection, manual operation of equipment, static measurements and functional tests of individual components. They should be carried out prior to setting the system to work and undertaking the dynamic commissioning process set out in Paragraph 8.29 onwards of this guidance.

Standard of installation

8.19 During the installation of the system the following must be witnessed:

- that the plant and installations have been provided and installed in accordance with the design specification and drawings;
- that only approved sealants have been used in the installation;
- that all components function correctly;
- that the satisfactory sealing of access doors and viewing ports have been carried out;
- that air pressure tests and air-leakage tests on ventilation ducting have been carried out in accordance with the methods set out in the HVCA's DW/143: Ductwork Leakage Testing. It is usual to carry out these tests, a section at a time, as the ductwork is installed and before its insulation is applied. The results must be recorded in the commissioning manual;
- that gaps around doors and hatches are as specified in the design;
- that the correct operation of pressure stabilisers, control dampers, isolating and non-return dampers have been checked and installed in the correct orientation for air-flow;
- that test holes have been provided in their specified locations and are sealed with suitable grommets;
- that control dampers are secured and their quadrants fitted correctly;
- that any interlocks are operative and in accordance with specification;

- that the electric circuits are completed, tested and energised;
- that electric motors have been checked for correct direction of rotation both at full speed and set-back;
- that cooling and heating media are available at correct temperatures and pressures and in specified quantities;
- that the air-conditioning plant components and controls function correctly;
- that the air-conditioning plant interlocks and safety controls function correctly;
- that the plant is physically complete, insulation is applied and all ducts and pipework are identified as specified;
- that the building housing the ventilation plant is generally in a fit condition for commissioning and performance tests to commence, that is, windows, doors, partitions etc are completed, surfaces sealed and their final finish applied;
- that the areas containing the ventilation plant and those being served by it are clean;
- that access to all parts of the system is safe and satisfactory.

Cleanliness of installation

8.20 During installation it must be established that ductwork is being installed to the 'advanced level' as defined in the HVCA (2005) 'TR/19 – Guide to good practice: internal cleanliness of ventilation systems'. This specifically includes ensuring that ductwork sections arrive on site and are stored with their open ends sealed and that open ends remain sealed during installation to prevent the ingress of builders' dust.

8.21 Should any doubt exist whether the guidance has been observed, the ducts must be cleaned internally to restore them to this standard before being taken into use.

8.22 "Builders work" ducts of brick or concrete must be surface sealed to prevent the release of dust before being taken into use.

8.23 The area around the supply air intake must be free of vegetation, waste, rubbish, builders' debris or any other possible source of contamination.

Certification of equipment

8.24 The following test certificates should be assembled by the commissioning team and be available for inspection at any time during the contract period. They will form part of the handover information and should be placed in the commissioning manual:

- type-test performance certificates for fans;
- pressure-test certificates for:

  - heater-batteries;
  - cooling coils;
  - humidifiers (if appropriate);
- type-test certificates for attenuators;
- type-test certificates for primary and secondary filters;
- individual test certificates for high efficiency particulate air (HEPA) filters.

Equipment tests

8.25 Prior to setting the system to work, the checks in Paragraphs 8.26 - 8.28 should be witnessed, and proving tests should be carried out as detailed.

Filters

8.26 The quality of filter housing and in particular, the seals is a critical factor in maintaining the efficacy of the filtration system by ensuring that air does not bypass the filter panels. Therefore, the following checks should be made:

- filter seals should be fitted and in good condition;
- filters should be installed correctly with respect to air flow;
- bag filters should be installed so that the bags are vertical and their pockets free;
- HEPA filters should be installed in a sealed housing and their seals tested to DIN 1946 if specified;
- all filters should be checked to ensure they are free of visible damage;
- the differential pressure indicators should be checked for accuracy and that they are marked with the initial and final filter resistance.

Drainage arrangements

8.27 The drain should conform in all respects to the "Design considerations" of this SHTM. In addition the following must be proved:

- that the drain tray is easily removable;
- that a clear trap is fitted and is easily removable;
- that the drain has a clear air gap of at least 15mm;
- that the pipework is supported so that the air break cannot be reduced;
- that the drain system from each drain tray is independent up to the air break;
- that the operation of the drainage system is proved by introducing water into the duct at the drain tray and observing that it completely drains out. This check is to be repeated both at normal speed and set back once the fans

have been commissioned. At this time the clear trap can be marked to indicate the normal water level with the fan running.

Fire dampers

8.28 The following must be witnessed and proving tests should be carried out as detailed:

- the operation of all fire dampers;
- the access provided to enable the dampers' to be visually inspected and / or re-set should be sufficient for the purpose;
- indication should be provided of the dampers' position (open/tripped);
- indication of the fire dampers' location should be provided both on the ductwork and at a visible point on the building fabric if the ductwork is concealed.

Dynamic commissioning

Air-handling and distribution system

8.29 The fan drive, direction of rotation, speed and current drawn should be set in accordance with their manufacturer's instructions.

8.30 After the installation has been checked to ensure that it is in a satisfactory and safe condition for start-up, it should be set to work and regulated to enable the plant to meet its design specification. The proportional balancing method described in the CIBSE Commissioning Code "A" must be followed. The air-flow rates must be set within the tolerances laid down in the design brief. This will normally be the design airflow rate +10% -0%.

8.31 When combined supply and extract systems are to be balanced and the area that they serve is to be at or above atmospheric pressure then the supply should be balanced first with the extract fan switched off, and then the extract balanced with the supply fan(s) on.

8.32 For combined systems where the area that they serve is to be below atmospheric pressure then the extract should be balanced first with the supply fan switched off and then the supply balanced with the extract fan on.

8.33 On completion of the balance all volume air-flows in supply and extract ducts and from grilles and diffusers must be measured and recorded. The true air change rate can them be calculated from the data obtained.

8.34 The main supply and extract duct volume control dampers must be locked and their position marked.

8.35 All grille and diffuser volume control registers must be locked to prevent alteration and their final position marked.

Room air distribution

8.36 The pressure-relief dampers and pressure stabilisers must be set to achieve the specified room static pressures and locked. The grille direction control vanes and diffuser cones must be set to give the specified air-movement pattern. Visualisation techniques may need to be employed in order to prove that the required air-flow pattern is being achieved. This may be a potential requirement when commissioning LEV systems or rooms that contain them.

Air-conditioning plant

8.37 The specified flow rate and/or pressure drops must be set for all heater batteries, cooling coils and humidifiers. The methods described in the CIBSE Commissioning Codes "W" and "R" should be followed. On completion their regulating devices must be locked to prevent alteration.

Control system

8.38 The control system should not be commissioned until both the air distribution system and air-conditioning equipment have been commissioned.

8.39 Because of the specialised nature of control systems and the fact that each manufacturer's system will contain its own specialist components and settings, the commissioning should be completed by the supplier and witnessed by a representative of the user.

8.40 The location of all control and monitoring sensors should be checked and their accuracy proved.

8.41 The control system's ability to carry out its specified functions must be proved.

8.42 If the plant is provided with a "user's" control panel in addition to the one located in the plantroom then the operation of both must be proved. This will typically apply to operating departments and laboratory systems.

Specific performance standards

Air movement

8.43 The performance of the system should be measured and compared with information provided by the designer.

Plant capacity and control

8.44 When setting to work and proving the design, both the manufacturer of the air-handling plant and the control specialist should attend site together and jointly commission the system.

8.45 If any doubt exists as to the capacity of the installed system, then its ability to achieve the specified inside design conditions with the plant operating at winter

and summer outside design conditions must be proved. Artificial loads will be required in order to simulate the internal gains/losses and the outside design conditions.

8.46 On completion of the plant performance test, recording thermo-hygrographs should be placed in each room/area served by the plant and also the supply air duct upstream of the frost battery. The plant should be run for 24 hours with all doors closed. During this period the inside conditions must stay within the tolerances specified. The BEMS should be used to obtain the information required wherever possible. Periodic tests will be required during the defects liability period.

Noise levels - general

8.47 The commissioning noise level is the level measured with a sound-level meter in the unoccupied room and taking account of the external noise together with the noise generated by the ventilation system. When occupied and in use this commissioning level will constitute a continuous background noise that will allow the overall noise level to be achieved. The ventilation plant design noise level is that generated by the plant alone with no other noise source being considered. The levels suggested make recognised allowance for the ingress of environmental noise.

8.48 The noise levels apply at the maximum velocity for which the system is designed to operate. Acoustic commissioning tests should be carried out with all plant and machinery running normally and achieving the design conditions of airflow, temperature and humidity.

8.49 An industrial-grade sound-level meter to BS3489 or IEC 651 Type 2 will normally be sufficient to check the noise level.

8.50 The noise level readings are to be taken at typical normal listening position 1.5m above floor level and at least 1m from any surface and not on any line of symmetry. In critical rooms the noise should be measured at the centre of the room and at the centre of each quarter. The mean of the 5 readings should then be calculated.

8.51 In the event of a contractual deficiency, a Type 1 precision-grade sound-level meter should be used and the noise level determined by the procedure given in Scottish Health Technical Memorandum 08-01 (2011).

Filter challenge

General ventilation filters

8.52 In-situ performance tests will not normally be required for primary and secondary filters and their housings. However the filters should be visually inspected for grade, tears, orientation and fit within their housing. Filters should be clean and a replacement set available. Bag filters should be installed so that

their bags are vertical and spaced so that air can move through them freely. Any filter found to be wet should be replaced and the cause investigated.

HEPA filters (for exhaust protective enclosures and laboratories)

8.53 Pathogenic material may be discharged through damaged or badly installed HEPA terminal filters. The complete installation must be tested using the method set out in BS EN: 14644 'Method of Testing for the Determination of Filter Installation Leaks'.

8.54 The challenge tests may be carried out using either of the following techniques:

- use Dispersed Oil Generator (DOP) to provide the challenge and a photometer to detect leaks;
- use a Discrete Particle Counter (DPC) to detect leaks. (In order to obtain a sufficient challenge it may be necessary to remove temporarily the supply AHU secondary filters).

8.55 In both cases the upstream challenge should be measured. A measurement of particle penetration through a representative section of the HEPA filter media is then taken and used as the reference background level. These two readings enable the range of the detecting instrument to be set.

8.56 A challenge aerosol of inert particles of the type produced by a DOP generator should be introduced into the air, upstream of the HEPA filter. The downstream face of the filter, its mounting seal and housing would then be scanned for leakage using a photometer. A leak should be deemed to have occurred if a steady and repeatable reading on the photometer at any point exceeds 0.01% of the upstream reading.

8.57 Alternatively a Discrete Particle Counter (DPC) may be used. For the Discrete Particle Counter method the filter face is sampled at several points to establish the smallest non-penetrating particle size. If particles at or above this size are detected when subsequent scans of the filter face, its seal and housing are made, then there is deemed to be a significant leak at, or near, the test position.

8.58 Should the HEPA filter fail this test it must be replaced. Should the filter mounting seal or housing fail this test it may be repaired and the test repeated.

Bacteriological sampling

General ventilation systems

8.59 Bacteriological sampling will not normally be required for either general or local exhaust ventilation (LEV) systems unless otherwise specified.

Conventional operating rooms

8.60 The level of airborne bacteria introduced by the supply air can be checked by closing all doors and leaving the operating room empty with the ventilation system running for 15 minutes. An active air sampler set to 1 cubic metre and mounted on the operating table should then be activated remotely. Aerobic cultures on non-selective media should not exceed 10 bacterial and/or fungal colony forming units per cubic metre (CFU/m^3).

8.61 The results should be examined to establish the broad category of organisms present. A high preponderance of fungal organisms may be an indication of inadequate filtration for the particular installation. Precise guidance is inappropriate and will depend on local circumstances.

8.62 It may be appropriate to carry out a check of airborne bacteria during a surgical operation. If required this should be carried out as soon as possible after handover. Unless there are unusually high numbers of personnel or extensive activity in the room, the number of airborne bacterial and/or fungal CFU averaged over any five-minute period, would be unlikely to exceed 180 per cubic metre.

8.63 Information on the additional validation testing of UCV Operating suites is given in Section 8.0(a).

Ventilation system commissioning/validation report

8.64 Following commissioning and/or validation a full report detailing the findings should be produced. The system will only be acceptable to the client if at the time of validation it is considered fit for purpose and will only require routine maintenance in order to remain so for its projected life.

8.65 The report shall conclude with a clear statement as to whether the ventilation system achieved or did not achieve the required standard. A copy of the report should be lodged with the following groups:

- the user department;
- infection control (where required);
- estates and facilities.

8.0(a) Validation of UCV operating suites

General

8.66 Commissioning of a UCV terminal will normally be carried out by its supplier. Commissioning of the air-handling unit, fire dampers, distribution ductwork and control systems may be undertaken by different teams. It is therefore important to recognise that the UCV terminal is only one element of the specialised ventilation system serving the operating suite and it cannot be accepted in isolation.

8.67 In order to ensure that the complete system operates correctly it will be necessary to validate the system as a whole from the air intake through to the extract discharge. It is unlikely that "in house" staff will possess the knowledge or equipment necessary to undertake this process. Validation of Ultra-Clean operating theatre ventilation systems should therefore be carried out by a suitably qualified independent Authorised Person appointed by the client.

8.68 It is anticipated that training in the validation of specialised healthcare ventilation systems for independent Authorised Persons will become available during the life of this SHTM.

8.69 The following regime of inspection and testing should be applied to the validation of new installations designed to provide Ultra-Clean conditions in an Operating suite. The test regime has been devised to ensure that the system as installed fully achieves the design requirement for these systems as set out in Section 7.0(b) of this document.

Basic requirement

8.70 The operating suite to be validated should be physically complete with final finishes applied. All ventilation systems serving it should be operating correctly and delivering the design air-flow rates.

8.71 In order to avoid pre-loading the UCV terminal's recirculation ducts and HEPA filters, the Operating suite should be free of any obvious dust and at least "builders clean" before the recirculation fans are set to work.

8.72 The validation procedure for a conventional theatre suite should have been satisfactorily completed to the standard set out in Section 8 prior to attempting to validate the UCV unit. In particular:

- the supply AHU will have achieved the minimum standard;
- the operation of all fire dampers will have been proved;
- the supply and extract air-flow rates as measured in ducts and at room terminals will achieve their design values +10%; -0%;
- room differential pressures will be correct.

Evidence of the satisfactory achievement of the foregoing standard should be available for inspection and independently measured as necessary *prior to validating the UCV unit.*

UCV unit validation procedure

8.73 Tests to validate the suitability and performance of an ultra-clean operating suite should be undertaken in the order that they appear below. Should an item fail to meet the required standard it should be rectified and successfully retested before passing on to the next test.

Summary of test regime

- Challenge tests to ensure that:
  - the UCV terminal unit is correctly assembled and sealed so that no air will bypass the filters;
  - the terminal filters are correctly sealed in their housings;
  - the terminal filters are of the same grade, of uniform quality and undamaged.
- Air velocity measurements to ensure that
  - a sufficient quantity of air is being delivered by the terminal;
  - the terminal quadrants are in balance;
  - the air flow has sufficient velocity to reach the working plane.
- An entrainment test to ensure that contaminants arising outside of the UCV terminal footprint are not drawn into it.
- Visualisation techniques to gain an understanding of the overall system performance.
- Noise measurement to ensure that working conditions are satisfactory.
- Control system checks to ensure that the system operates as specified.
- Biological monitoring to determine how effective the system is in use.

Test and measuring conditions

8.74 While validating the UCV terminal, the conditions in the Operating room shall be stable and within the given ranges.

temperature: – 19°C - 23°C dry bulb.

humidity: – 30 – 65% relative humidity.

Test and measuring equipment

8.75 Any test or measuring equipment used should have a certificate to prove that it has been validated within the previous 12 months at a calibration facility using traceable national standards.

8.76 In the case of a noise meter, its “matched sound source” should have a certificate to prove that it has been validated within the previous 12 months at a calibration facility using traceable national standards. The noise meter should be calibrated to the sound source on each occasion that it is used.

Test grid – vertical units

8.77 A test grid should be constructed on the floor within the ultra-clean terminal footprint as projected by the inside dimensions of the sidewalls or boundary air

curtain. A suitably marked test sheet will provide a consistent standard of test grid.

8.78 The test grid should comprise test squares of 280mm each side.

8.79 The test grid should be aligned along the centre lines of the terminal footprint with its centre under the centre point of the terminal.

8.80 Any test square with 80% of its area within the UCV footprint should be used as a test position.

8.81 An inner zone should be designated that is not less than 36% of the total footprint. It should be made up of a number of test squares distributed symmetrically about the terminal footprint centre line. Regardless of the shape of the terminal footprint, the inner zone should comprise a minimum grid of 6 x 6 test squares.

8.82 Unless specified otherwise, a test position should be in the geometric centre of a test square.

8.83 Test position 1 should be the leftmost test square in the row nearest to the operating room wall that houses the surgeon's panel.

(For an example of a grid for a 2.8 x 2.8 metre terminal see Figure 8)

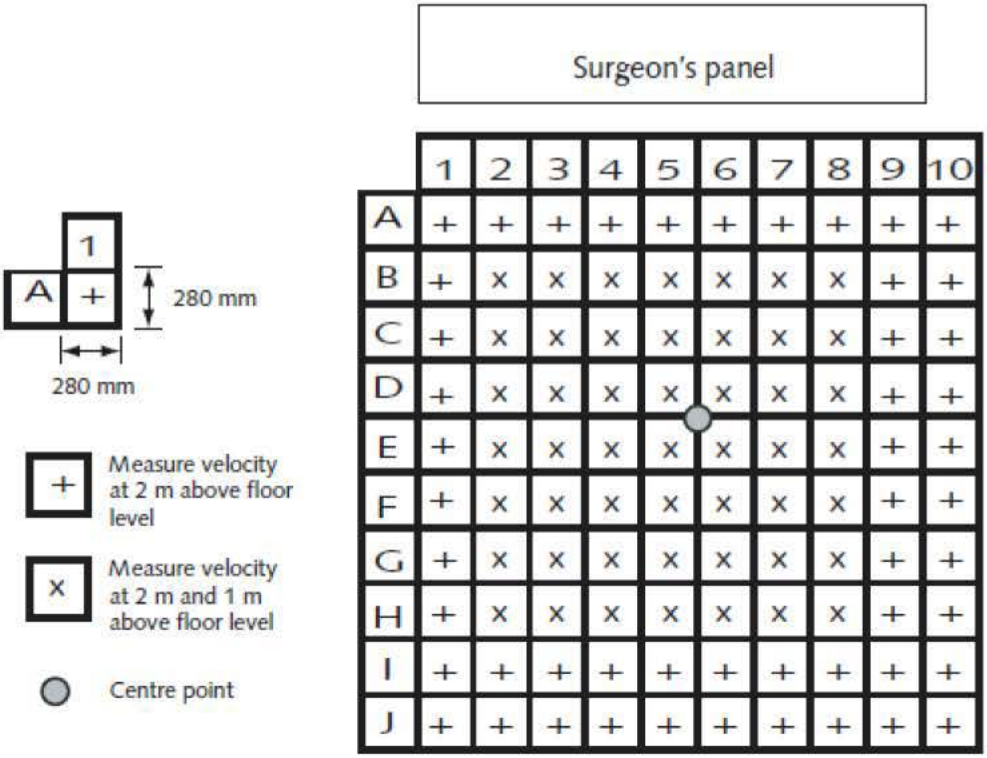

Figure 8: Example of a Test Grid for a 2.8m x 2.8m UCV Terminal

Test grid – horizontal units

8.84 A line of test positions should be marked on the floor 1m in front of the face of the UCV terminal.

8.85 A test position should be marked in the centre of the line. Additional test positions should be marked at 280mm spacing along the line either side of the centre position, up to the full-face width of the unit.

UCV terminal challenge tests (Vertical and horizontal systems)

8.86 The diffuser screen fitted below the face of the terminal HEPA filters should be lowered or removed while the challenge tests are being carried out.

8.87 The installed HEPA filters should be checked to ensure that their grade accords with the design specification and that their performance has been certified by the manufacturer.

8.88 The challenge tests may be carried out using either of the following techniques:

- use DOP to provide the challenge and a photometer to detect leaks;
- use a DPC to detect leaks. In order to obtain a sufficient challenge it may be necessary to remove temporarily the supply AHU secondary filters.

8.89 In both cases the upstream challenge should be measured. A measurement of particle penetration through a representative section of the HEPA filter media is then taken and used as the reference background level. These two readings enable the range of the detecting instrument to be set.

8.90 For the DOP test this should be set as the reference level and a leak will be declared significant if penetration greater than 0.01% of the range is detected. (See Paragraph 8.56 for details).

8.91 For the DPC method the filter face is scanned to establish the smallest non-penetrating particle size. If significant particles at or above this size are detected when subsequent scans are made then there is deemed to be a significant leak at, or near, the test position. (See Paragraph 8.57 for details)

UCV terminal unit clean zone leak test

8.92 This test will confirm that there is no unfiltered air bypassing the HEPA filter.

8.93 The joints and service penetration points under the UCV terminal within its side walls or boundary air curtain should be scanned to prove that there are no leaks.

8.94 A leak is defined as a significant rise above the background level.

Terminal HEPA filter seal leak test

8.95 The test will confirm that there is no unfiltered air bypassing the HEPA filter's seal.

8.96 Each HEPA filter's seal should be scanned to prove that there are no leaks.

8.97 A leak is defined as a significant rise above the background level.

Terminal HEPA filter media leak test

8.98 The test will confirm that the HEPA filters have not sustained damage while being installed.

8.99 The face of each HEPA filter should be scanned to prove that there are no leaks.

8.100 A leak is defined as a significant rise above the background level.

Vertical UCV terminal air velocity tests

Test set up

8.101 The terminal face diffuser screen should be in place for these tests.

8.102 Take spot readings to establish that the room is within the specified temperature and humidity test conditions.

8.103 Set out the test grid as described previously.

8.104 Swing the operating lamp arms and any other stem arms so that they align to present the least resistance to air flow, are perpendicular to the front edge of the test sheet and face the back edge. Any lamp and equipment heads should as far as practicable be outside of the UCV terminal footprint.

Test instrument

8.105 The measuring instrument should be a hot-wire anemometer with a digital read-out. The instrument resolution should be at least 0·01m/s, have a tolerance of ±0·015 m/s or 3% of that reading and be calibrated down to 0·15 m/s or lower. An alternative instrument may be used providing it is of no lesser specification.

Test method

8.106 The instrument should be mounted on a test stand and set to take a mean reading over a ten-second sample interval.

8.107 It is recommended that a printer be linked to the test instrument so that readings are recorded automatically. Alternatively they could be downloaded to a computer or data logger at the end of the test.

8.108 The test stand to be positioned on each test point in turn and the reading taken when the instrument has stabilised.

8.109 When taking a reading the test person should not stand within the same quadrant as the test instrument.

8.110 Readings are to be taken at the test positions with the instrument probe facing the wall housing the surgeon's panel, commencing at the first test position.

Readings are taken working along the row from left to right and back, or for all text positions in one quadrant at a time.

8.111 When all test positions under one half of the terminal have been covered, readings of temperature and humidity are then taken at the specified height in the centre of the terminal. The read-outs on the surgeon's panel should be recorded at the same time.

8.112 Having completed one half of the test grid, the operating lamp arms and any other stem arms should be swung round through 180° and the test stand reversed so that the wall housing the surgeon's panel is behind the test person. Readings are recommenced starting at the right of the test row and working from right to left a quadrant at a time, as above.

UCV high-level discharge velocity test

8.113 Measurements of air velocity are to be taken at every test position 2m above floor level and the results averaged.

8.114 The average of the total readings taken is to be not less than:

0.38 m/s for a partial-wall system;

0.30 m/s for a full-wall system.

The average air velocity for each quadrant should not exceed ±6% of the measured average velocity for the terminal

UCV low-level air velocity test

8.115 Measurements of air velocity are to be taken at each of the inner zone test position 1m above floor level.

8.116 The measured velocity at every test position in the inner (operating) zone shall be not less than 0·2 m/s.

Horizontal UCV terminal air velocity test

Test set up

8.117 Set out the line of test positions as described previously.

8.118 Swing the operating lamp arms and any other stem arms so that they align to present the least resistance to air flow and are perpendicular to the line of test positions.

Test instrument

8.119 See that specified for vertical systems (Paragraph 8.105 refers).

Test method

8.120 The instrument should be mounted on a test stand and set to take a mean reading over a ten-second sample interval.

8.121 It is recommended that a printer be linked to the test instrument so that readings are recorded automatically. Alternatively, they could be downloaded to a computer or data-logger at the end of the test.

8.122 The test stand should be positioned on each test point in turn and the reading taken when the instrument has stabilised.

8.123 When taking readings the test person should stand well downstream of the instrument.

8.124 Readings are to be taken at the test positions with the instrument probe facing the UCV terminal, commencing at the first test position on the left and working along the row from left to right at the specified height.

8.125 The instrument should be reset to the next specified height and the test repeated and so on.

8.126 Readings of temperature and humidity should be taken at the specified height in the centre of the terminal. The read-outs on the surgeon's panel should be recorded at the same time.

UCV discharge velocity test

8.127 Measurements of air velocity are to be taken at all test positions at 1m, 1·5m and 2m above floor level.

8.128 The average of the total readings taken should be no less than 0·4 m/s.

UCV entrainment test (Vertical systems only)

Rationale for the entrainment test

8.129 The performance of UCV systems may be compromised by room air being drawn into the ultra-clean airflow, a phenomenon known as "entrainment." Significant levels of entrainment could lead to microbial contamination of items left exposed on instrument trolleys laid out beneath the canopy.

8.130 UCV systems having permanently fitted full sidewalls do not need to be tested, as the sidewalls physically prevent entrainment.

Principle of the test

8.131 A source of particles is produced outside of the UCV terminal and is used to challenge the system. A detector is placed within the ultra-clean airflow and used to determine the percentage penetration of the test particles at predefined

locations under the UCV terminal footprint. The source and detector are moved in tandem around the UCV canopy and pairs of readings taken, from which the percentage penetration at specified locations is calculated. The degree of penetration should be below specified maximum limits if entrainment is to be declared not significant.

8.132 The entrainment test may be carried out using either of the following techniques:

- use DOPs to provide the challenge source at the specified release position and a photometer to measure the entrainment; or
- duct non-HEPA-filtered air to the specified release position and use a DPC to measure the entrainment.

Test set-up

8.133 The terminal face diffuser screen should be in place for these tests.

8.134 The test should be performed without any equipment in place beneath or closely adjacent to the UCV terminal.

8.135 The theatre lights should be moved to a central position beneath the terminal and raised to 2m above floor level, so as not to interfere with the peripheral airflows.

8.136 Take spot readings at the centre of the canopy, one metre from floor level, to establish that the room is within the specified temperature and humidity test conditions.

8.137 Set out the test grid as described previously.

8.138 For either of the following entrainment tests, a measurement of particle penetration through a representative section of the HEPA filter media is to be taken and used as the reference background level.

Test equipment, challenge source, measuring instrument and detector head

8.139 The challenge and detector equipment should be chosen so that:

- the tracer particles are mainly within the size range 0.3 to 5 microns and thus capable of remaining airborne for a substantial time;
- the particles used should not be able to penetrate the terminal filters in sufficient numbers to cause a background count that is more than 0.1% of the challenge count;
- the choice of particle and detector will enable a minimum of a three-logarithm (1,000-fold) range of counts to be recorded between the highest (that is, source) and lowest (that is, background) readings expected. (A concentration of approximately 10^5 particles per cubic metre of source air has been shown to be adequate.)

Source – Dispersed Oil Particles (D.O.P.)

8.140 The DOP generator should be able to produce a cloud of test particles in the form of a visible smoke. The test smoke should be delivered via an aperture so that it flows vertically downward from the lowermost edge of the partial wall, on the outside of the UCV canopy.

8.141 The test smoke is to be delivered via an aperture.

Note 4: To prevent undue contamination of the theatre and filters with deposits of oil, DOP should only be released for the minimum amount of time necessary to complete the test.

Challenge source – natural particles

8.142 The source unit should be a fan/blower or other method that takes non-HEPA-filtered air and expels it via a delivery head at the specified release position to provide the particle challenge. The challenge air should be delivered vertically downwards from the lowermost edge of the partial wall, on the outside of the UCV canopy, parallel to the airflow coming from the diffusers. The challenge air velocity should be the same as the measured average velocity at 2m from the terminal under test.

Note 5: The use of DOP for testing is gradually being phased out and replaced by a natural challenge measured with a DPC. At the time of writing research is under way to define more precisely a challenge source unit for natural particles. It is anticipated that such a unit, together with a matching test methodology, will become available during the life of this Scottish Health Technical Memorandum.

The detector (defined in terms of range and resolution)

8.143 This may be a photometer or a DPC. It is recommended that a printer be linked to the test instrument so that readings are recorded automatically. The instrument should be capable of sampling a minimum a 28.3 litres of air per minute and in the case of the DPC, provide readings for particle size ranges from 0.3 microns to 5.0 microns and greater. The instrument should be compliant with the requirements of BS EN ISO 14644-1. An alternative instrument may be used providing it is of no lesser specification.

Test positions and orientation of source and detector

8.144 The test positions should be at the centre of each test square, as defined for the velocity test.

8.145 For rectangular UCV terminals, measurements of penetration are to be taken at the four corner test squares of the test grid and at intermediate positions along the line of test squares between the corners. The number of intermediate test positions will be as equally spaced as possible around the periphery with no fewer than 3 and no more than 5 complete test squares between test positions.

8.146 A further series of measurements are to be obtained around the periphery of the inner zone. Measurements of penetration are to be taken at the four corner test squares of the inner zone of the test grid and if necessary at intermediate positions along the line of test squares between the corners as equally spaced as possible, with no fewer than 3 and no more than 5 complete test squares between test positions.

8.147 A single measurement should be taken at the geometrical centre of the UCV terminal footprint. The centre measurement will be taken with the detector head mounted vertically upwards 1 metre above floor level.

8.148 The centre of the challenge particle source should be aligned with the centre of the designated test square, with its longer edge against the outer edge of the partial wall and delivering the challenge from the lower edge of the partial wall. The air containing challenge particles is directed vertically downwards from the lower edge of the partial wall, in a plane parallel to the adjacent partial wall. Where there is physical interference due to obstructions such as gas pendants, the source will be moved to the next available non-obstructed test-square location nearest to the stipulated sampling position. The detector should then also be moved to remain opposite the source.

8.149 In the case of non-rectangular terminals, an interpretation of the above strategy should be adopted that will yield a no less searching examination of the unit's ability to control entrainment.

Test method

8.150 The sampling head of the detector instrument is mounted on a test stand with its sampling orifice facing outwards horizontally from the centre of the UCV canopy, 1m above floor level. The sampling head should be orientated at right angles to the partial wall when sampling along the sides of the test grid but will be set to bisect the angle when measuring at the corner test positions (Figure 88 illustrates the challenge and detector orientations when evaluating a 2.8m x 2.8m UCV terminal).

8.151 The test will commence at the first test position, this being designated the leftmost corner of the test grid when facing the wall housing the surgeon's panel. The penetration will also be measured at the corresponding test point on the inner zone commencing at the corner nearest to the first test position. When these tests have been completed, the source and detector equipment should be moved to the next test positions, working around the test grid in a clockwise direction.

8.152 The test stand should be positioned on each test point in turn and a pair of readings (challenge, then penetration) taken when the instrument has stabilised. The detector should be set to take a reading over a 15 second sample interval.

8.153 When taking a reading the test person should stand within the UCV terminal footprint but not in the same quadrant as the detector head.

Analysis and interpretation

8.154 The following standard is to be achieved:

- penetration to be not greater than 10% of the challenge at each test position in the outer zone;
- penetration to be no greater than 1% of the challenge at each test position in the inner zone;
- penetration to be no greater than 0·1% of the challenge at the centre of the test grid.

If a result is close to, or above the given limits, then a further reading must be obtained using a longer time base (1 minute) and the penetration must not exceed the given limit.

Basis of the test

8.155 Whyte W, Shaw BH, Freeman MAR. An evaluation of a partial-walled laminar-flow operating room. *J Hyg Camb* 1974; 73: 61 – 75.

Whyte W, Lidwell OM, Lowbury EJL, Blowers R. Suggested bacteriological standards for air in ultraclean operating rooms. *J Hosp Infect* 1983; 4: 133 – 139.

UCV visualisation

8.156 The use of smoke to gain an understanding of the overall performance of the system may prove useful at this stage in the validation process but cannot be relied on to produce a contractually definitive measure of performance.

UCV noise level

8.157 An industrial-grade sound-level meter to BS EN 61672 Type 2 fitted with a muff should be used to check the noise level. The instrument should be calibrated using a matched sound source prior to each set of readings.

Vertical systems

8.158 The noise level readings should be taken at typical normal listening positions 1·5m above floor level and at least 1m from any surface and not on any line of symmetry. Measurements should be taken under the centre of each quadrant of the UCV terminal and the four readings averaged.

Horizontal systems

8.159 The noise level readings are to be taken at typical normal listening positions 1·5m above floor level on the test line. The width of the unit should be divided

in two and a measurement taken in the centre of each half but avoiding any line of symmetry. The two readings should be averaged.

8.160 Measurements should also be taken in each room of the suite.

8.161 In the event of a contractual deficiency a Type 1 precision-grade sound-level meter complying with BS EN 61672 should be used. Readings should be taken at the positions specified above and in each case the logarithmic mean of the results should be calculated in order to determine the noise level. Further information can be found in SHTM 08-01 (2011).

8.162 For vertical or horizontal systems, the noise level shall not exceed:

- 50NR [55dB(A)] – for UCV operating rooms and spaces without doors that open directly on to it (for example the scrub);
- 40NR [45dB(A)] – for all other peripheral rooms of the suite.

UCV control system checks

Temperature

8.163 The readings of temperature taken under or in front of the UCV unit should be within ±1 K of each other and the read-out on the surgeon's panel.

Humidity

8.164 The readings of humidity taken under or in front of the UCV unit should be within ±5% of each other and the read-out on the surgeon's panel.

Direct-reading differential pressure gauges

8.165 The differential pressure across the terminal filter(s) should be measured to confirm the accuracy of the indicated reading of any gauge.

Control functions

8.166 The operation of all control functions provided on the surgeon's panel should be proved for conformity with the design specification.

8.167 If an auxiliary panel has been fitted then its interlocking with the main surgeon's panel control functions must be proved to conform to the design specification.

Panel indicator lights

8.168 The panel indicator lights should illuminate as appropriate when the control functions are selected or warning levels are reached

BEMS interface

8.169 The operation, monitoring and alarm functions must be proved to conform to those set out in the design specification.

UCV theatre microbiological tests

8.170 There is little value in performing microbiological sampling in a new theatre supplied with ultra-clean ventilation. The foregoing filter challenge tests, air velocity measurements and entrainment test should have proved that the system operates satisfactorily and achieves the contracted level of performance. The HEPA filters will remove bacteria-sized particles from the air supplied through the UCV terminal. Therefore there will be an insignificant number of bacterial and/or fungal CFUs present until the Theatre is actually used.

8.171 Once the theatre has been taken into use, microbial sampling during a surgical procedure should help to confirm the satisfactory performance of the system and discipline of the users. Before commencing bacteriological testing, the room and its ventilation system should have achieved a steady state condition: (see also Paragraph 8.74)

8.172 The installation should be tested during surgical procedure at intervals between the time of the first incision and final closure of the wound. On average, the air sampled within 300mm of the wound should not contain more than 10 CFU/m^3.

UCV validation report

8.173 Following validation a full report detailing the findings should be produced. The report shall conclude with a clear statement as to whether the UCV theatre suite achieved or did not achieve the standard set out above.

8.174 A copy of the report should be lodged with the following groups:

- operating department;
- infection control;
- estates and facilities.

Appendix 1: Table A1: Recommended air-change rates

Application	Ventilation	ac/Hour	Pressure (Pascals)	Supply Filter	Noise (NR)	Temp (°C)	Comments For further infomation see Section 6
General ward	S / N	6	-	G4	30	18-28	
Communal ward toilet	E	10	-ve	-	40	-	
Single room	S / E / N	6	0 or –ve	G4	30	18-28	
Single room WC	E	3	-ve	-	40	-	
Clean utility	S	6	+ve	G4	40	18-28	
Dirty utility	E	6	-ve	-	40	-	
Ward Isolation room	-	-	-	-	-	-	See SHPN 4; Supplement 1
Infectious disease Iso room	E	10	-5	G4	30	18-28	Extract filtration may be required
Neutropenic patient ward	S	10	+10	H12	30	18-28	
Critical Care Areas	S	10	+10	F7	30	*18-25*	Isolation room may be –ve press
Birthing Room	S & E	15	-ve	G4	40	*18-25*	Provide clean air-flow path
SCBU	S	6	+ve	F7	30	*18-25*	Isolation room may be –ve press
Preparation room (Lay-up)	S	>25	35	F7*	40	*18-25*	*H12 if a lay-up for a UCV Theatre
Preparation room / bay sterile pack store	S	10	25	F7	40	*18-25*	*50NR if a bay in a UCV Theatre
Operating theatre	S	25	25	F7	40	*18-25*	
UCV Operating theatre	S	25*	25	H12	40	*18-25*	Fresh air rate; excludes re-circulation
Anaesthetic room	S & E	15	>10	F7	40	*18-25*	Provide clean air-flow path
Theatre Sluice/dirty utility	E	>20	-5	-	40	-	
Recovery room	S & E	15	0	F7	35	*18-25*	Provide clean air-flow path

Table A1

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Application	Ventilation	ac/Hour	Pressure (Pascals)	Supply Filter	Noise (NR)	Temp (°C)	Comments For further information see Section 6
Recovery room	S & E	15	0	F7	35	*18-25*	Provide clean air-flow path
Cardiac catheterisation lab	S	15	+ve	F7	40	*18-22*	
Endoscopy room	S	15	+ve	F7	40	*18-25*	
Endoscopy cleaning	E	>10	-ve	-	40	-	
Day case theatre	S	15	+ve	F7	40	*18-25*	
Treatment room	S	10	+ve	F7	35	*18-25*	
Pharmacy aseptic suite	S	20	#	H14	-	*18-22*	# See EGGMP (Orange guide) a
Cat 3 or 4 containment room	#	>20	#	H14*	-	*18-22*	# See ACDP guide; *Filter in extract
Post mortem room	S & E	S = 10 E = 12	-ve	G4	35	*18–22*	Provide clean air-flow path
Specimen store	E	-	-ve	-	-	-	Fan accessible from outside of store

Table A1 continued

Notes: 18°C-22°C indicates the range over which the temperature may float

18°C-22°C indicates the range over which the temperature should be capable of being controlled

S = supply N = natural ventilation

E = extract [a] – European guidelines on good manufacturing practice published by the Medicines and Healthcare products Regulatory Authority (MHRA)

Appendix 2: Hierarchy of cleanliness

			Air-flow rate for bacterial contaminant dilution	
Class	**Room**	**Nominal pressure (Pa) a**	**Flow in or supply m^3/s**	**Flow out or extract m^3/s**
Sterile	Preparation room (a) lay-up (b) sterile pack store Operating room Scrub bay b	 35 25 25 25	See standard schemes in Appendix 3 for recommended design values	
Clean	Sterile pack bulk store Anaesthetic room c Scrub room	 +ve 14 c 14	6 ac/h The greater of 15 ac/hr or 0.15 -	- The greater of 15 ac/hr or 0.15 0.10
Transitional	Recovery room Clean corridor General access corridor Changing rooms Plaster room	3 0 0 3 3	15 ac/hr d e e 7 ac/hr 7 ac/hr	15 ac/hr d 7 ac/hr 7 ac/hr 7 ac/hr 7 ac/hr
Dirty	Service corridor Disposal room	0 -5 or 0	- -	f 0.41 or 0.10

Table A2

Notes (applicable to Table A2):

a. Nominal room pressures are given to facilitate setting up of pressure relief dampers, the calculation process, and the sizing of transfer devices. In practice, the resultant pressures are not critical, provided the desired airflow rates and movement are achieved.

b. An open or semi-open bay is considered to be part of the operating room; provided air movement is satisfactory, no specific extract is required. However if the layout means that air movement is poor, a local extract may be required to control local condensation on the building surfaces, which can result in mould growth.

c. For design purposes, anaesthetic should be assumed to be at 14Pa. When commissioning 10Pa is considered suitable.

d. 15 ac/hr are considered necessary for the control of anaesthetic gas pollution.

e. Supply airflow rate necessary to make up 7 ac/hr after taking into account secondary air from cleaner areas.

f. No dilution requirement. Temperature control requirements only.

Type	Pressure difference - Pa						
	5	10	15	20	25	30	40
Single door (CDB Size 2.4.3.2.6.)	.03	.05	.06	.06	.07	.07	.08
Double door (CDB)	.04	.08	.10	.11	.12	.13	.14
High permanent length of 3mm gap	.004	.008	.010	.011	.012	.012	.013

Table A3: Leakage flows in m^3/s through closed door gaps

Note: CDB = Component Data Base

It should be noted that many doors are now fitted with cold smoke seals as standard. These will significantly reduce the door leakage rate when new and undamaged. It is therefore recommended that provision for the design leakage is factored into the sizing of the appropriate transfer grille or pressure stabiliser. Failure to do this will result in air gap whistles and doors being held partially open by air pressure.

Factory-assembled door-sets with a steel frame and pre-hung leaves have become common. There is effectively no leakage across these doors when closed. Therefore, when this type of door assembly is fitted, the door leakage can be ignored and the design airflow into the room reduced accordingly. The design airflow would then become that required either (i) for open door

protection, or (ii) to achieve the specified air-change rate - whichever is the greater.

Room class		Dirty	Transitional	Clean	Sterile
Sterile	Hatch	0.3	0.24	0.18	
	Single door	0.47	0.39	0.28	0 or 0.28 a
	Double door	0.95	0.75	0.57	0 or 0.57 a
Clean	Single door	0.39	0.28	0 or 0.28 a	
	Double door	0.75	0.57	0 or 0.57 a	
Transitional	Single door	0.28	0 or 0.28 a		
	Double door	0.57	0 or 0.57 a		
Dirty	Single door	0	Open single door = 0.80m x 2.01m high		
	Double door	0	Open double door = 1.80m x 2.01m high		

Table A4: Recommended air flow rates in m^3/s through a doorway between rooms of different cleanliness to control cross-contamination

Designer's Notes:

a. The degree of protection required at an open doorway between rooms is dependent upon the degree of difference in cleanliness between them.

b. Flow rate required between rooms within the same class tends to zero as class reduces.

c. If two rooms are of equal cleanliness, no flow is required (in practice there will be an interchange in either direction) and the design of the air movement will assume zero air-flow. In certain cases, however, interchange is not permitted and protection airflow of 0.28 is assumed in the design, for example, in the case of a preparation room used as a "lay up".

		Effect on other rooms	
Door open between	Resultant pressure in these rooms (Pa)	Room	Pressure (Pa)
Operating room and corridor or Scrub bay and corridor	0	Anaesthetic Preparation – lay up Disposal Preparation – sterile pack store	0 12 -6 5
Operating room and anaesthetic room (or other series room with double doors)	17	Preparation – lay up Disposal Preparation – sterile pack store	26 -9 22
Operating room and disposal room or Operating room and preparation room	25	No change	
Anaesthetic room and corridor (or other series room with double doors)	0	Preparation – lay-up Disposal Operating room Preparation – sterile pack store	30 -6 20 25
Preparation room – corridor Disposal room & corridor	0	No change	
Disposal room & outer corridor	0	No change	

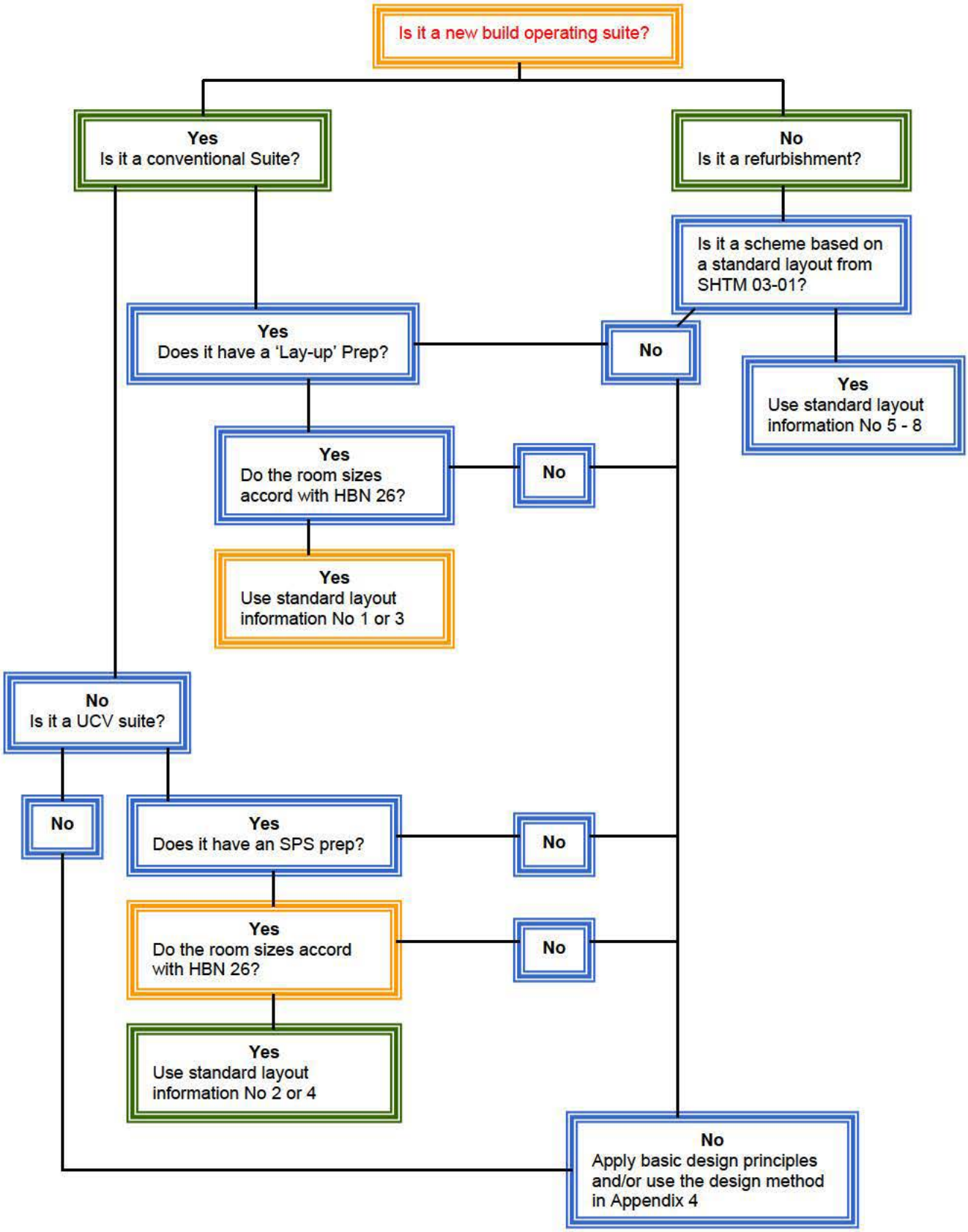
Table A5: Typical pressures in an operating suite when a given door is open

Notes: 1. The room differential pressure protects against reverse flows when the door is closed.

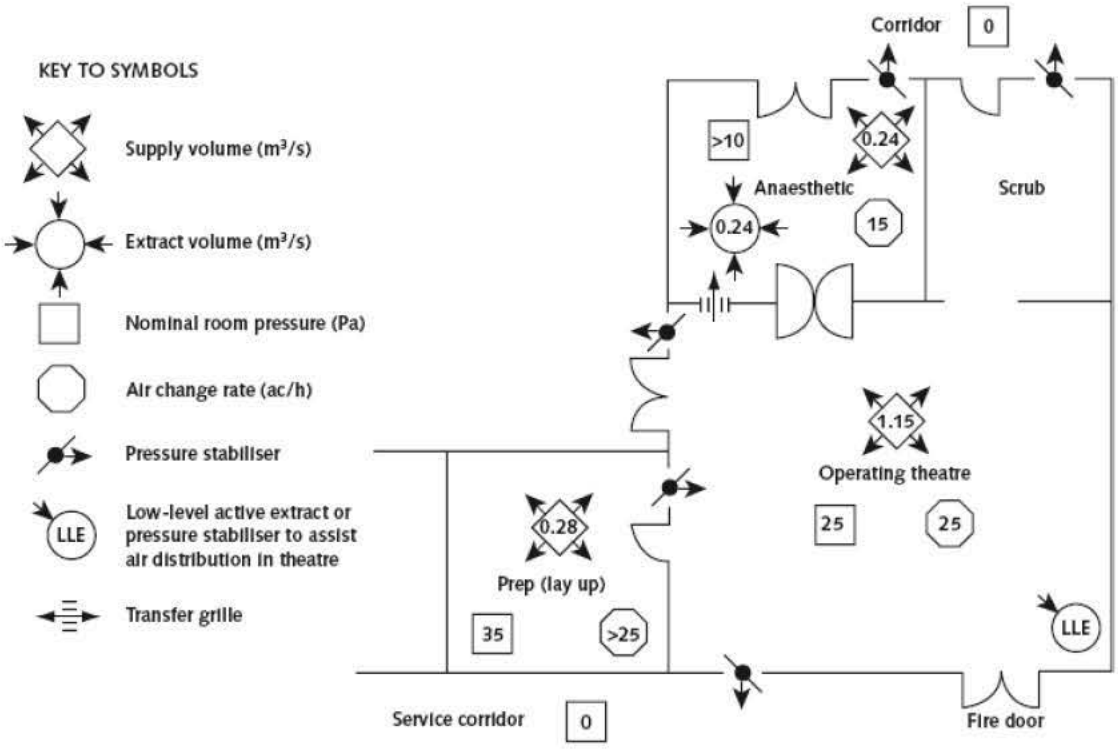
2. The flow of air through a doorway protects against reverse airflow when the door is open.

3. Pressure stabilisers control flow and ensure a known air-flow path between rooms when doors are closed and reduce back-flow between rooms when doors to other rooms are open.

Appendix 3: Operating suite design logic



New Standard Layout N° 1 - Suitable for a typical conventional theatre suite (Room sizes as specified in HBN 26)



Room	Size m³ Derived from HBN26	Air-Change Rate per hour	Nominal Pressure Pa	Flowrate m³/s
Theatre	165	25	25	1.15
Anaesthetic	57	15	>10	0.24
Lay-Up-Prep	36	>25	35	0.28**
Scrub	*	-	25	-

*This is a separate scrub and is not considered as being part of the theatre volume.

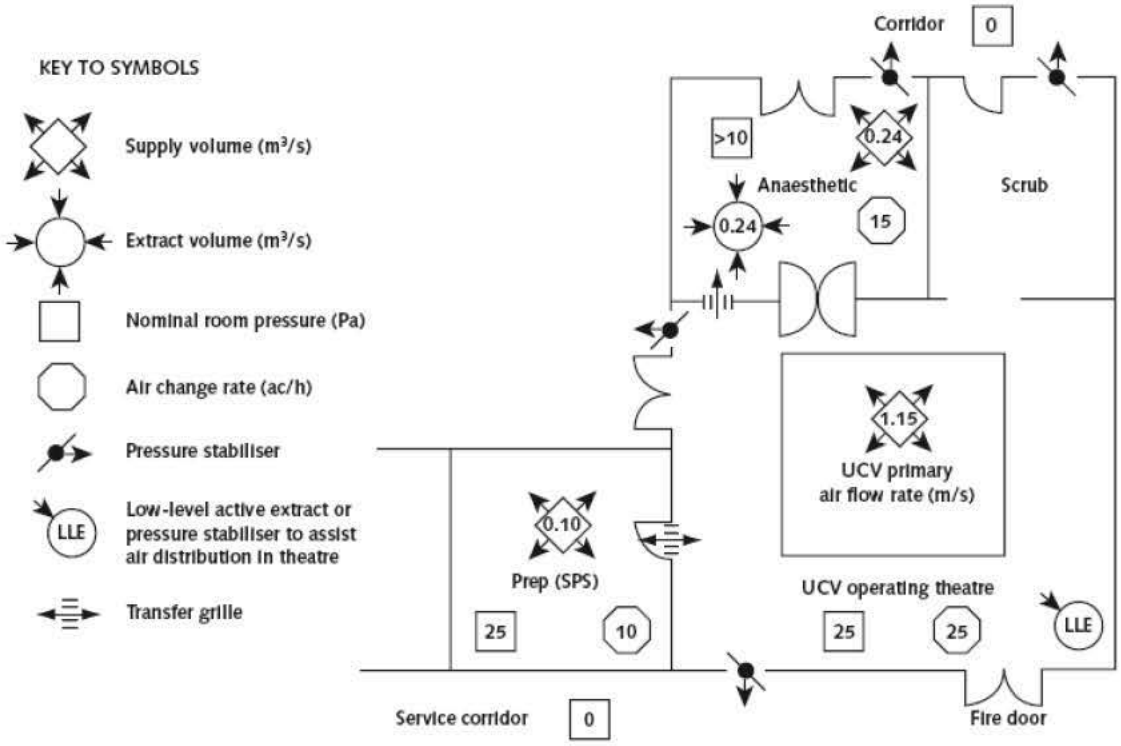
**Interchange is not permitted between the theatre and lay-up prep; therefore an airflow protection of 0.28 + 0.06 closed-door airflow is required as a minimum.

The volume of air to be extracted from the theatre should be determined by subtracting the airflow required for door protection at the exits from the total air entering the theatre space. The balance should be equally divided between the passive or active extract locations.

The extracts within the theatre may be either passive and fitted with pressure stabilisers or active and connected to the extract system. They should be

located at low level and positioned to promote the ventilation of all areas of the space.

New standard layout N° 2 - Suitable for a typical UCV theatre suite (Room sizes as specified in HBN 26)



Room	Size m³ Derived from HBN26	Air Change Rate per hour	Nominal Pressure Pa	Flowrate m³/s
Theatre	165	25	25	1.15**
Anaesthetic	57	15	>10	0.24
Sterile Prep	36	25	25	0.10
Scrub	*	-	25	-

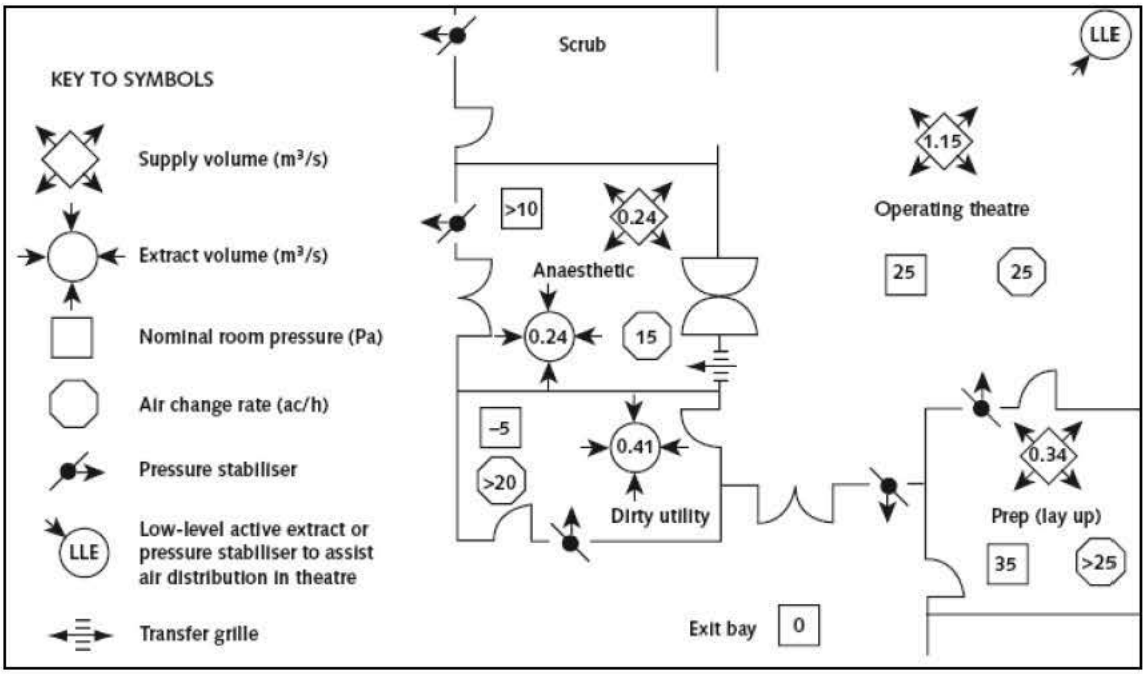
*Separate scrub and not considered as part of theatre volume

**Primary Fresh air Volume Only

The volume of air to be extracted from the theatre should be determined by subtracting the airflow required for door protection at the exits from the total air entering the theatre space. The balance should be equally divided between the passive or active extract locations.

The extracts within the theatre may be either passive and fitted with pressure stabilizers or active and connected to the extract system. They should be located at low level and positioned to promote the ventilation of all areas of the space.

New standard layout N° 3 - Suitable for a typical Conventional theatre suite (Layout and room sizes are as illustrated in HBN 26)



Room	Size m³ Derived from HBN26	Air Change Rate per hour	Nominal Pressure Pa	Flowrate m³/s
Theatre	165	25	25	1.15
Anaesthetic	57	15	14	0.24
Lay-Up Prep	36	>25	35	0.34**
Scrub	*	-	25	-
Dirty Utility	36	-	-5	0.41

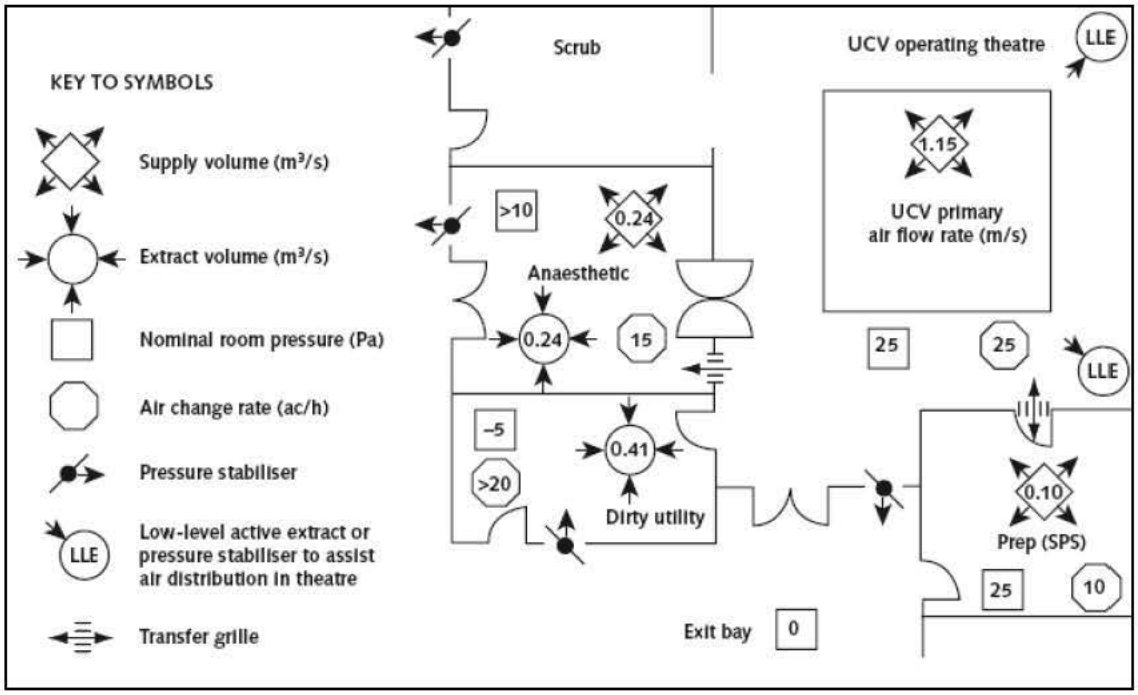
*Separate scrub not considered part of theatre volume.

**Interchange is not permitted between the theatre and lay up prep therefore as Table 4 an airflow protection of 0.28 + 0.06 closed door air flow is required as a minimum.

The volume of air to be extracted from the theatre should be determined by subtracting the airflow required for door protection at the exits from the total air entering the theatre space. The balance should be equally divided between the passive or active extract locations.

The extracts within the theatre may be either passive and fitted with pressure stabilizers or active and connected to the extract system. They should be located at low level and positioned to promote the ventilation of all areas of the space.

New standard layout N° 4 - Suitable for a typical UCV theatre suite (Layout and room sizes are as illustrated in HBN 26)



Room	Size m³ Derived from HBN26	Air Change Rate per hour	Nominal Pressure Pa	Flowrate m³/s
Theatre	165	25	25	1.15**
Anaesthetic	57	15	>10	0.24
Sterile Pack Prep	36	10	25	0.10
Scrub	*	-	25	-
Dirty Utility	36	-	-5	0.41

* Separate scrub not considered part of theatre volume

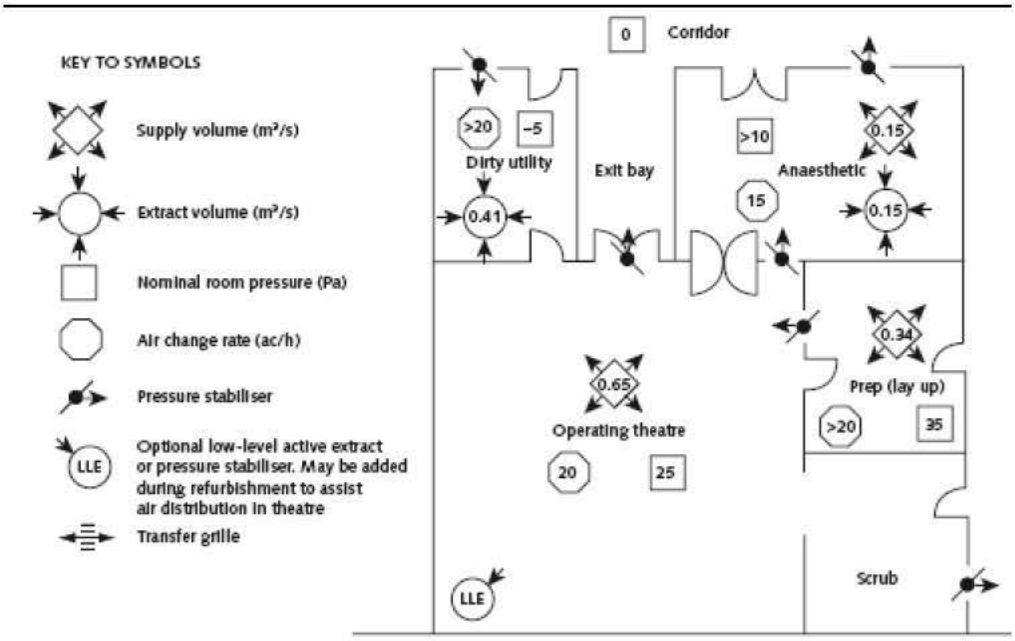
**Primary Fresh air Volume Only

The volume of air to be extracted from the theatre should be determined by subtracting the airflow required for door protection at the exits from the total air entering the theatre space. The balance should be equally divided between the passive or active extract locations.

The extracts within the theatre may be either passive and fitted with pressure stabilizers or active and connected to the extract system. They should be located at low level and positioned to promote the ventilation of all areas of the space.

New standard layout N° 5 - SHTM 2025 Existing standard plan '1b' typical layout for a conventional theatre suite

This layout and data is for historical purposes only. The information is to be used for the evaluating of existing systems or rebalancing following ventilation system cleaning.

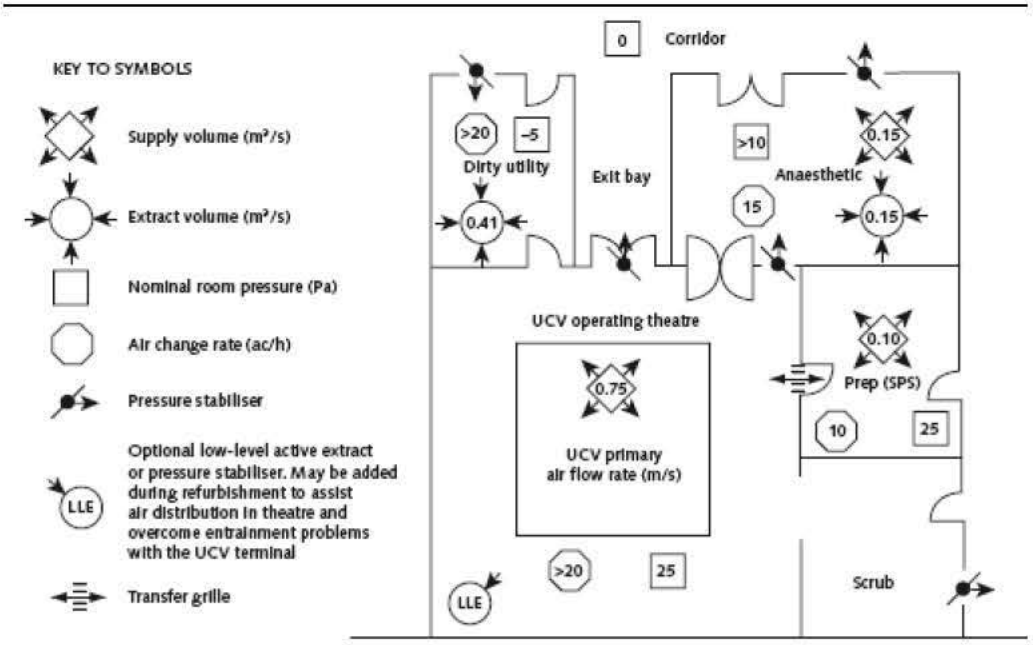


Room	Size m^3	Air Change Rate per hour	Nominal Pressure Pa	Flowrate m^3/s
Theatre	Existing Theatre Suite to Be measured on site	20	25	0.65
Anaesthetic		15	14	0.15
Lay-Up Prep		-	35	0.34
Scrub		-	25	Included within theatre
Disposal		-	-5	0.41

The disposal layout detailed will remain the same should a hatch be utilised instead of a door onto the outer corridor.

Standard layout No 6 - SHTM 2025 Existing standard Plan '1a' Typical layout for a UCV theatre suite

This layout and data is for historical purposes only. The information is to be used for the evaluating of existing systems or rebalancing following ventilation system cleaning.



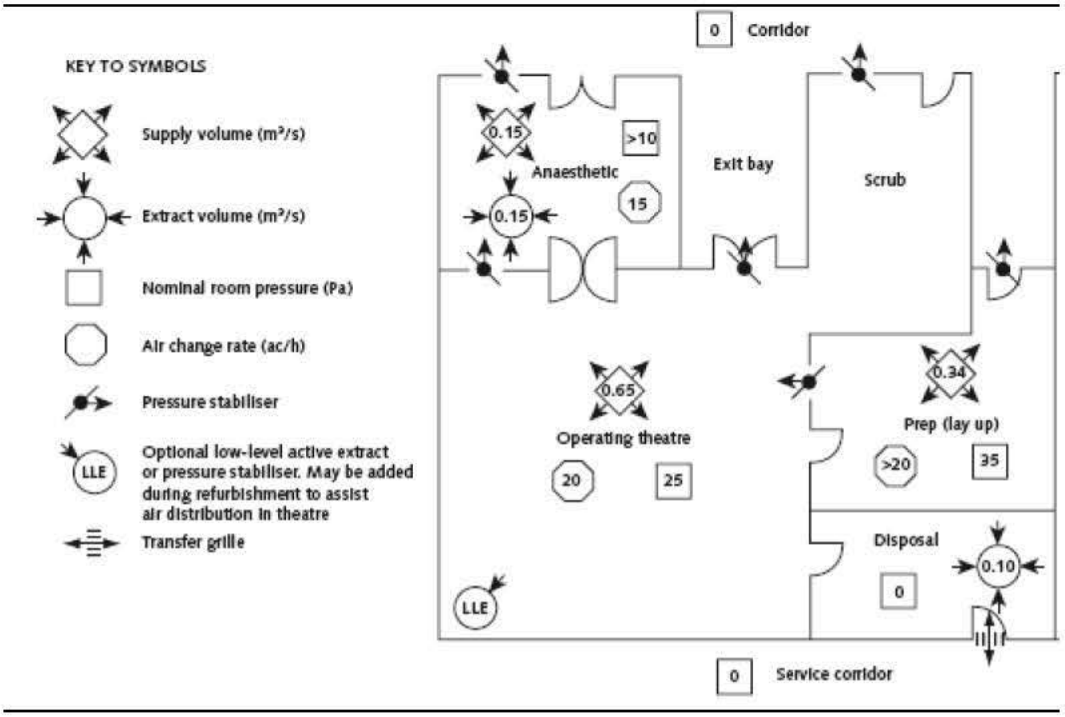
Room	Size m^3	Air Change Rate per hour	Nominal Pressure Pa	Flowrate m^3/s
Theatre	Existing Theatre Suite to be measured on site	20	25	0.75*
Anaesthetic		15	>10	0.15
Sterile Pack Prep		10	25	0.1
Scrub		-	25	Included within theatre
Disposal		-	-5	0.41

*Primary fresh airflow volume

The disposal layout detailed will remain the same should a hatch be utilised instead of a door onto the outer corridor.

Standard layout N° 7 - SHTM 2025 Existing standard Plan '5b' Typical layout for a conventional theatre suite

This layout and data is for historical purposes only. The information is to be used for the evaluating of existing systems or rebalancing following ventilation system cleaning.

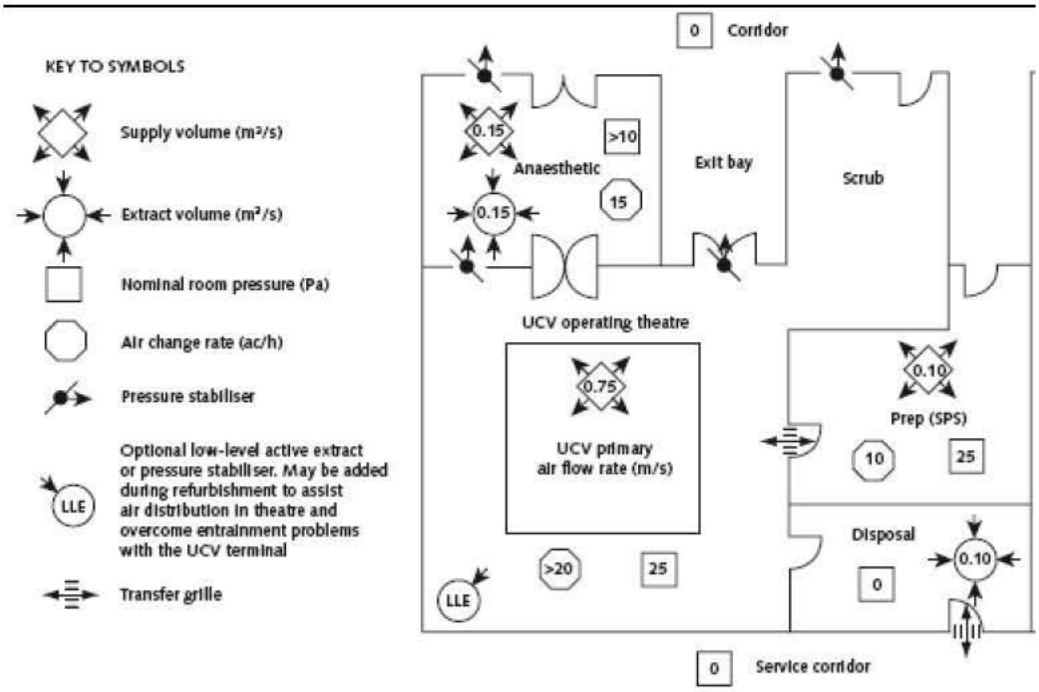


Room	Size m³	Air Change Rate per hour	Nominal Pressure Pa	Flowrate m³/s
Theatre	Existing Theatre Suite to be measured on site	20	25	0.65
Anaesthetic		15	>10	0.15
Lay-Up Prep		>20	35	0.34
Scrub		-	25	Included within theatre
Disposal		-	0	0.1

The disposal layout detailed will remain the same should a hatch be utilised instead of a door onto the outer corridor. Alternatively the disposal room could be omitted and replaced with a disposal hatch between the theatre and corridor.

Standard layout N° 8 - SHTM 2025 Existing standard Plan '5a' Typical layout for a UCV theatre suite

This layout and data is for historical purposes only. The information is to be used for the evaluating of existing systems or rebalancing following ventilation system cleaning.



Room	Size m^3	Air Change Rate per hour	Nominal Pressure Pa	Flowrate m^3/s
Theatre	Existing Theatre Suite to be measured on site	20	25	0.75*
Anaesthetic		15	>10	0.15
Sterile Prep		10	25	0.1
Scrub		-	25	Included within theatre
Disposal		-	0	0.1

*Primary fresh air-flow volume only

The disposal layout detailed will remain the same should a hatch be utilised instead of a door onto the outer corridor. Alternatively the disposal room could be omitted and replaced with a disposal hatch between the theatre and corridor.

Appendix 4: Design of air-movement control schemes for operating theatres.

General

A4.1 Standard operating suite design solutions are given in Appendix 3. If these standard solutions cannot be used, the following procedure should be adopted, which will result in an acceptable design. Note that the method employed can equally be used to provide a design solution to a ventilated suite of rooms for any application.

A4.2 The method is concerned with the calculation of airflow rates to ensure that correct air movement occurs between rooms when any one door is open. Under most circumstances, the air quantities required for air-movement control will approximate to those for either temperature control or bacterial contaminant dilution. This flow rate is sufficient to control the effects of any slight reverse flows occurring when a door is opened.

A4.3 The progression through the design procedure is shown in the airflow design procedure chart (Figure A4/3) and is supported by worksheets WS1 to WS7 described in Paragraph A4.4. It is recommended that a plan of the suite and an airflow network be made (Figure A4/2) to collate all information. Flow rates, air-transfer devices etc should be entered as required. The remainder of this Appendix may be treated as reference data to assist in the various steps. The following symbols are used:

S_S – supply airflow rate for summer temperature control;

S_W – supply airflow rate for winter temperature control;

S_D – supply airflow rate for dilution of bacterial contaminants;

S_L – supply airflow rate for heat loss;

S_G – supply airflow rate for heat gain;

E_D – extract airflow rate for dilution of bacterial contaminants;

S_F – final supply airflow rates;

E_F – final extract flow rates;

S_{AMC} – air-supply flow rate for air-movement control;

E_{AMC} – air-extract flow for air-movement control;

L_{OUT} – leakage airflow rate outward;

L_{IN} – leakage airflow rate inward;

$\sum_{OUT}$ – total airflow rate outward;

$\sum_{IN}$ – total airflow rate inward.

A4.4 To simplify the procedure, standard worksheets (WS1 to WS7) have been devised. For each operating suite, a set is required comprising one each of WS1, WS3, WS5, WS6a, WS6b and WS7, one WS4 for each corridor and one WS2 to cover each peripheral room. WS2 has five versions:

- WS2a single flow;
- WS2b parallel/series multi-flow;
- WS2c parallel multi-flow or series multi-flow (unbalanced);
- WS2d series multi-flow (balanced); and
- WS2e bay (semi-open).

Peripheral room type

A4.5 The rooms in the operating suite other than the operating room and corridor are referred to as peripheral rooms. Peripheral rooms have been classified according to the flows in and out. These room classifications are defined below in Paragraphs A4.6 – A4.11.

Single flow

A4.6 This is a room with only one door and a net surplus of supply or extract air.

Parallel multi-flow

A4.7 This is a room with two or more doors through each of which the air-flows either outwards (high-pressure) or inwards (low-pressure) (for example the Prep (lay-up) in standard layout 5).

Parallel/series multi-flow

A4.8 This is a room having a net surplus of supply or extract and with two or more doors. One or more doors will be to an area of equal cleanliness and need not be protected; hence, the flow may vary between inwards and outwards, the remaining door being to an area of greater or lesser cleanliness (for example the Prep (SPS) in standard layout 6).

Series multi-flow (unbalanced)

A4.9 This is a room having a net surplus of supply or extract and with two or more doors. Air flows inwards through one or more doors and outwards through one or more doors.

Series multi-flow (balanced)

A4.10 This is a room as in Paragraph A4.9 above, but having either no mechanical ventilation or no net surplus of supply or extract. (for example an anaesthetic room).

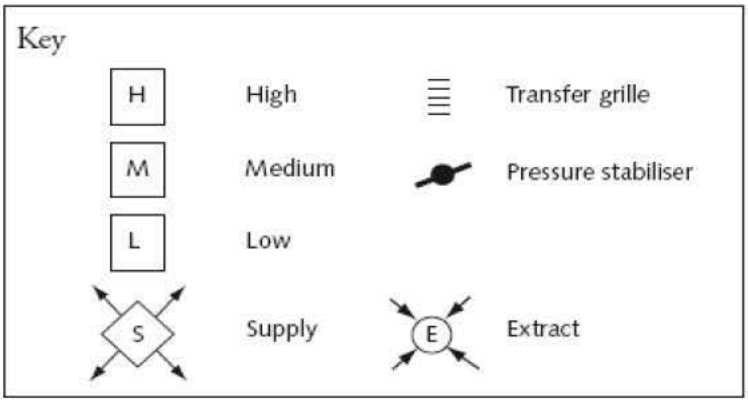
Bay

A4.11 A room that has a permanent opening to the operating room may be considered as a bay off the latter (for example a scrub). Two categories exist:

- open bay – the opening is larger than a normal single door opening. The bay may be considered as part of the main room;
- semi-open bay – the opening is no larger than a normal single door opening. In this case it is possible to protect the bay from the main room by provision of air supply or extract in the bay, or by passing air to or from another area.

Air-movement control in peripheral rooms

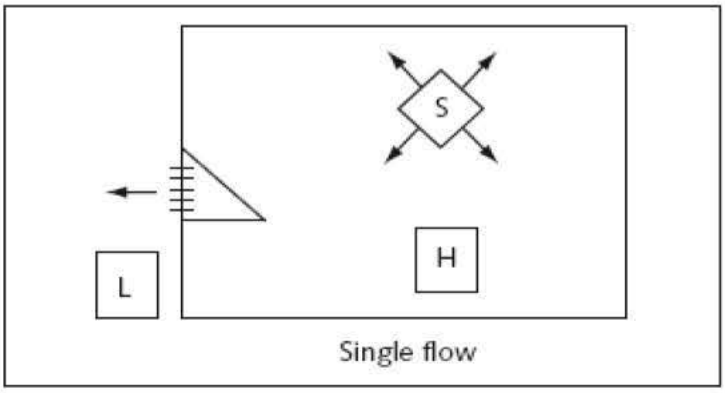
A4.12 For the design of air-movement control, two types of air-transfer device are considered. These are transfer grilles and pressure stabilisers. Each has a particular field of application within the design, as described in Paragraphs A4.34 – A4.43. Air movement is controlled in each of the different room types described in Paragraphs A4.13 – A4.31.



Note: This key applies to each diagram in A4.13 - A4.27.

Single flow rooms

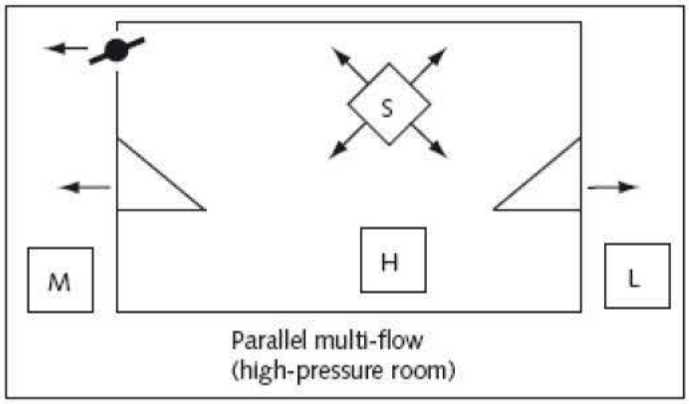
A4.13 An appropriately sized transfer grille should be located in or adjacent to the door of each single flow room to relieve the pressure differences across the door when closed.



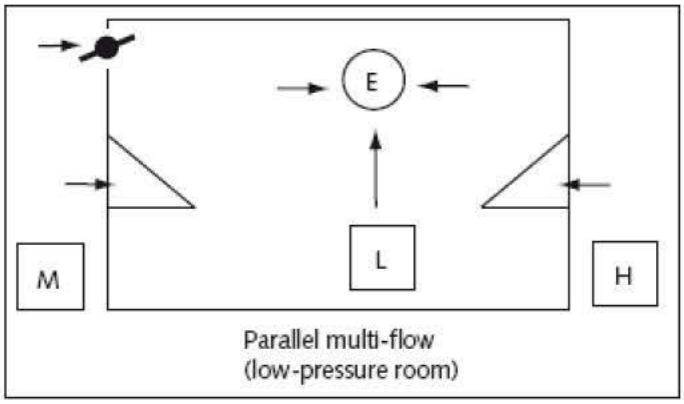
Single flow

Parallel multi-flow rooms

A4.14 The pressure difference across the closed doors must be relieved, but transfer grilles are not appropriate where two doors lead to areas of different pressures, because reverse flow could occur when the other door is open. For this reason, pressure stabilisers are used.



Parallel multi-flow
(high-pressure room)



Parallel multi-flow
(low-pressure room)

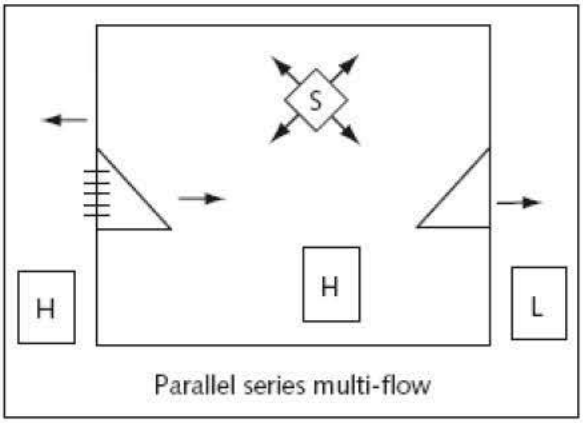
A4.15 These rooms will be either high-pressure or low-pressure with respect to the adjacent areas (see preparation lay-up room and disposal room, respectively, in standard layout 5). The pressure-relief damper is always situated between the room and area, which results in the smaller differential pressure to ensure best use of air.

A4.16 Just as reverse flow can occur if transfer grilles are used, it can similarly occur via door gaps when the other door is opened. It is not possible to avoid this,

except by using air locks, but due to the low flow rates and short durations involved, this is not considered to be of importance.

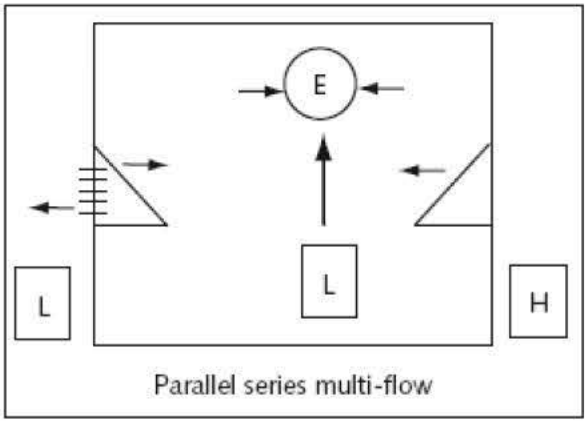
Parallel-series multi-flow rooms

A4.17 These rooms are similar to those in Paragraph A4.14 above, but because the room is of equal cleanliness to one of the adjacent rooms the nominal pressures will be equal and air may flow through the adjoining doorway in either direction. (for example the Prep (SPS) in standard layout 6).



Parallel series multi-flow

A4.18 Where the nominal room pressure equals that of the higher-pressure adjacent room, the best use of air is by supplying air required for bacterial dilution only and allowing this to exhaust via a transfer grille to the area of equal cleanliness. The doorway to the lower pressure area is protected by the combination of the supply air and the air that will flow inwards through the transfer grille from the area of equal cleanliness.

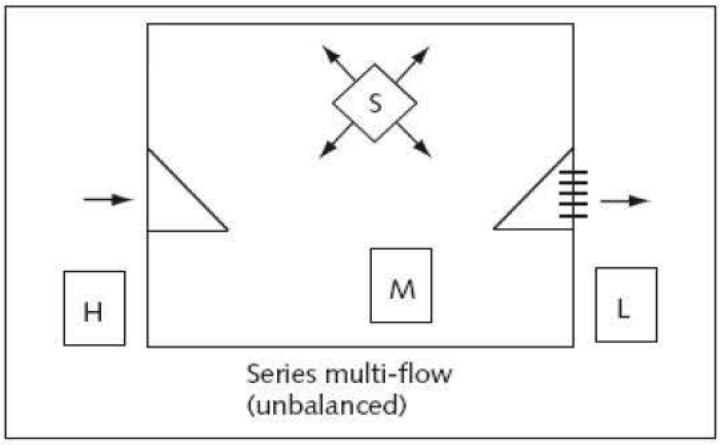


Parallel series multi-flow

A4.19 Conversely, where the nominal pressure equals that of the lower-pressure adjacent room, extract ventilation and a transfer grille to the lower pressure adjacent room should be provided. (for example, the disposal room in standard layout 8).

Series multi-flow (unbalanced)

A4.20 These rooms are somewhat similar to those in Paragraph A4.15 above, but because the pressure lies between that of the rooms on either side, the back-flow problem does not exist.



Series multi-flow (unbalanced)

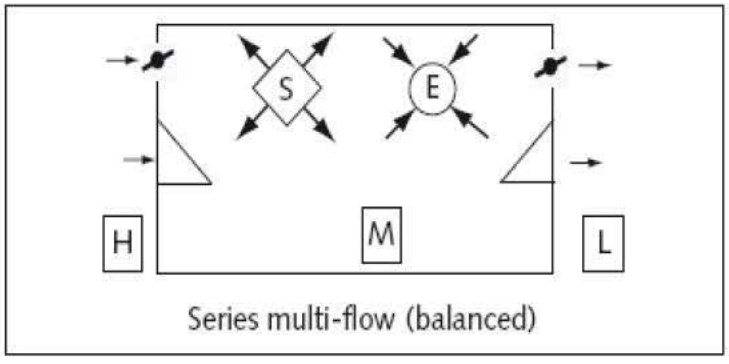
A4.21 Where the room has a net surplus of mechanical supply air, a transfer grille should be located in or adjacent to the door through which air flows outwards, and the mechanical supply flow rate to the room should be chosen to give protection when this door is open.

A4.22 Where the room has a net surplus of mechanical extract air, a transfer grille should be located adjacent to the door through which the air flows inwards, and the mechanical extract flow rate to the room should be chosen to give protection when this door is open.

A4.23 The grille must be sized for the protection requirement of the opposing door when open. When the room on the high-pressure side depressurises, there is a possibility of back-flow through gaps around the door, but this problem may be ignored.

Series multi-flow (balanced)

A4.24 In these rooms, a transfer device adjacent to each doorway is required in order to provide a flow path for the air required to protect the opposing door when opened.



Series multi-flow (balanced)

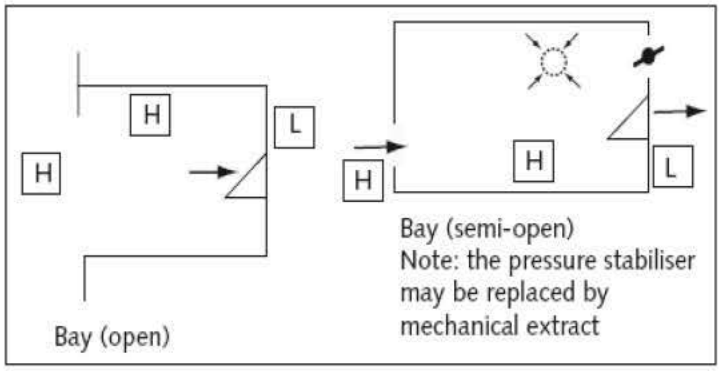
A4.25 These transfer devices will normally be pressure stabilisers, although transfer grilles may be used where a large amount of excess air is to be exhausted from the operating room when all doors are closed. (for example, anaesthetic rooms).

A4.26 The calculation procedure is to assume that pressure stabilisers are being used; then (if there is sufficient excess air) change to transfer grilles as described in Paragraph A4.50.

Bay

Open bay

A4.27 A bay of the open type (for example scrub-up) is considered to be part of the operating room. Provided air movement is satisfactory, no specific extract is required.



Semi-open bay

A4.28 In a bay of the semi-open type, protection of one area from the other is possible. (For example scrub-up).

A4.29 As stated previously, the need for protection between operating room and scrub-room is not very great. Better use of air can therefore be achieved in this case by installing a pressure stabiliser between the scrub-room and clean corridor. This will allow a flow of air through the scrub-room at all times, except when a door is opened elsewhere in the suite. The pressure stabiliser will then close and the air will be diverted to the other door. When it is considered necessary to protect the scrub-room at all times, either a transfer grille to the corridor or mechanical extract in the scrub-room should be provided.

Operating room

A4.30 Once the peripheral rooms have been considered, the operating room requirements may then be decided and the supply flow rate required for air-movement control calculated. This flow rate should be such that, with any one door open, the correct air movement directions are maintained. There will be one door in the suite that will require the largest supply flow rate to the

operating room for protection when open. This is called the "key door" and is discussed separately in Paragraph A4.33. Use of this concept avoids repetitive calculations for each door in turn. Having established the required supply flow rate, a relief route must be provided to the clean corridor for any excess air when the doors are closed. This would be via transfer grilles or pressure stabilisers through a series-flow room or via pressure stabilisers to the clean corridor directly.

Corridors

A4.31 All surplus air from the suite, except that lost through structure leakage and any passing to the outer corridor, will arrive in the patient/staff corridor. Should this air be insufficient to achieve the required air-change rate (see Appendices 1 and 2), some additional air supply should be provided. (The air balance should take account of structural leakage.)

Door opening

A4.32 Whereas the resulting pressures are dependent on ductwork layout, room relationships and characteristics of the fan, the generalisations shown in Appendix 2 can be used to estimate the change in room pressure when a door is opened.

A4.33 The "key door" will be the open double door which leaves the operating room at the highest pressure, and/or requires the largest air flow. This should be determined using the procedure in worksheet WS3.

Transfer grilles

A4.34 These may be used to limit the pressure differences across the closed door of a single-flow room or, in some instances, for protection of a series-flow or parallel-series-flow room. They allow airflow in both directions and may not be suitable for all applications.

A4.35 The free area of a grille is calculated from the following equation:

$$A = \frac{Q}{0.84\sqrt{\Delta P}}$$

where:

A is free area (m^2)

Q is flow rate (m^3/s)

P is pressure difference (Pa).

A4.36 The flow through a grille at a different pressure may be found from the following equation:

$$Q_2 = Q_1\sqrt{\frac{\Delta P_1}{\Delta P_2}}$$

where:

Q_1 and P_1 are original flow and differential pressure

Q_2 and P_2 are new flow and differential pressure.

A4.37 The transfer grille may be replaced by carefully proportioned door undercuts of the equivalent free area.

A4.38 The function of the transfer grille is to provide a means of airflow control by which the volume and pressure loss can be established. If a grille is used, it should have an easily removable core to facilitate cleaning.

Pressure-relief dampers

A4.39 The functions of a pressure-relief damper are now carried out by pressure stabilisers. Accordingly, all further mention of them has been removed from this document.

Pressure stabilisers

A4.40 Pressure stabilisers can be adjusted to hold the pressure constant over a wide range of flow rates. They are used where requirements exist for accurate room-pressure control or rapid shut-off on pressure fall.

A4.41 The installation of a grille or baffle in association with a stabiliser will alter the operating characteristics. It is recommended that a location be chosen to avoid the need for visual screening, for example, at high level. The location should be chosen to minimise the likelihood of damage.

A4.42 The stabilisers used should be virtually silent in operation, adjustable on site, maintenance-free and of a type that cannot be wrongly inserted. They should not be used in external walls or where the pressure difference is less than 5 Pa. The required size of a pressure stabiliser is dependent on the design pressure difference across it and flow rate through it. The manufacturer should provide data relating pressure difference to mean velocity (or flow rate per unit area). From this, the required area can be calculated and then rounded-up to the nearest size manufactured or nearest combination of smaller sizes.

A4.43 It is sometimes possible to arrange for a pressure stabiliser to perform two tasks. In an anaesthetic room, for example, the two pressure stabilisers may be made to pass the open door protection air, and also control the operating and anaesthetic room pressures with the door closed. To achieve this, the

stabilisers are sized for the flow rate required with one of the doors open, but the pressure setting is adjusted to be the value required with the doors closed. This is shown in Figure A4/1.

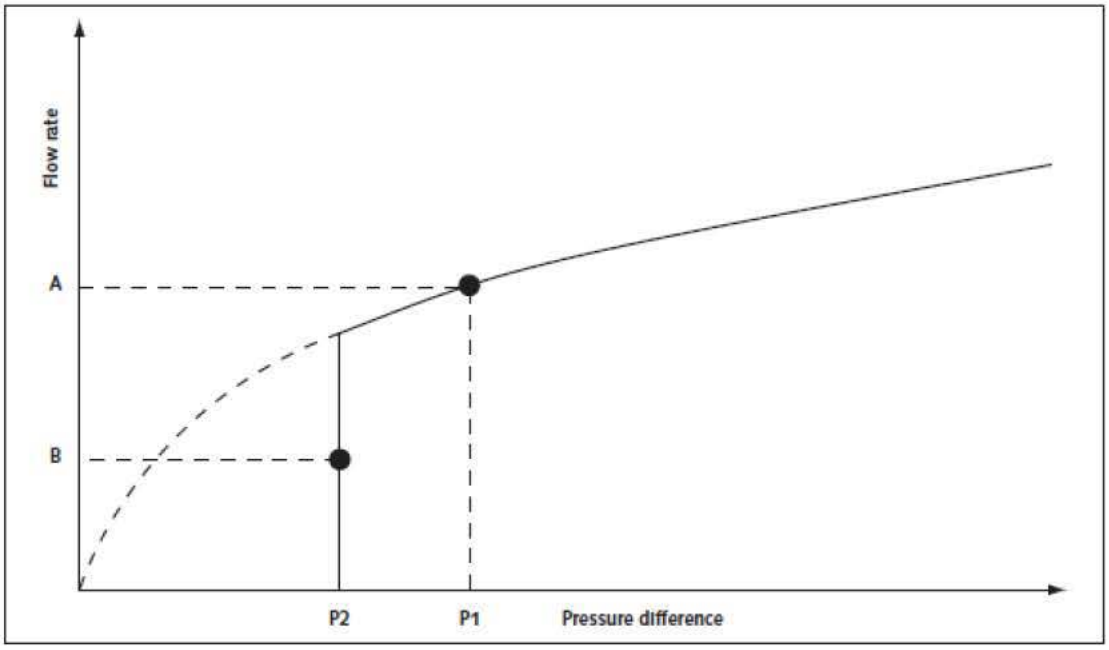


Figure A4/1

Door leakage flows

A4.44 For an air-movement control scheme to work satisfactorily, it is essential that the estimates of door-gap leakage made at the design stage are closely related to those which are achieved in practice. The calculation of gap-flows is complicated by the fact that such flows generally fall into the transition region between laminar and turbulent flow and hence do not follow the normal flow equations. The gaps assumed are 4mm along the bottom, 3mm at the top and sides, and 2mm between double leaves. Doors should not have wider gaps than these. Tighter gaps would result in lower flow-rate requirements and hence lower fan power, but care should be taken to ensure that all doors in the suite have similar gap dimensions. It may be possible to ignore the door leakage and so reduce the airflow requirement (see the notes in Appendix 3).

Room temperature estimation

A4.45 The air-flow rate required to prevent back-flow through an open door is dependent on the temperature difference across the door. The design figures shown in Appendix 3 are based on the temperature differences that will normally occur in practice, assuming heat gains and losses in accordance with Appendix 2.

A4.46 In accordance with the airflow design process, the temperature differences across the doors of all rooms classed as “sterile” is calculated. Worksheet WS6 is recommended for the calculations, using the following criteria:

- assume that the operating room is being controlled at 20°C and calculate the incoming air-supply temperature as shown on worksheet WS6;
- the calculation should be repeated for both summer and winter conditions, with an operation in progress;
- assume all doors are closed;
- use the room supply flow rates from WS1;
- use the inward air flows through air-transfer devices and closed door leakages from WS2a to WS2e;
- the formula used in worksheet WS6 is as follows:

$$T = \frac{(t_1Q_1 + t_2Q_2 + \cdots + t_nQ_n) + 0.828H}{(Q_1 + Q_2 + \cdots Q_n)}$$

where:

Q = flow rate from source (m^3/s)

t = the temperature of source (°C)

H = the room heat gain (kW).

A4.47 If the evaluated temperature differences between rooms do not exceed 2°C, the solution is satisfactory; otherwise proceed as follows:

- check the assumption on which the heat gains are based;
- take steps to reduce the heat gains;
- if the door is to a corridor, the flow through the open door will be larger than the value given in Appendix 2. Calculate on WS3, assuming it is the "key door" with door-flow unknown, and the supply as known;
- if the door leads to a room with mechanical supply, install a trimmer heater in the supply to the room controlled by either a differential thermostat or a thermostat slaved to the operating room thermostat to ensure that T is minimized.
- If the door leads to a room with no mechanical supply, increase the door protection flow as follows:

$$Q_{new} = Q_{old}\left[\frac{\Delta T + 1}{2}\right]$$

A4.48 These options should be considered in the above order, and the first three should be investigated thoroughly before proceeding to the latter two. The mechanical supply may need to be increased in order to achieve the desired air-change rates.

Relief of excess air from operating room when all doors are closed

A4.49 As the mechanical supply to the operating room is sized to provide an appropriate flow outward through any door that is opened, it follows that when all doors are closed, there will be more air supplied to the operating room than can exit from it via leaks etc. This "excess" air can be relieved by either of the two methods described in Paragraphs A4.50 - 4.54.

By transfer devices via the anaesthetic room

A4.50 For door protection, the transfer devices in the anaesthetic room are typically designed to pass 0.47 m^3/s at a differential pressure of 14 Pa. When the doors are closed, the differential pressure will change to 11 Pa between theatre and anaesthetic room, and 14 Pa between anaesthetic room and corridor; the volume of air passed by the transfer devices will be modified as shown in the following formula:

$$Q = Q_1\left(\frac{\Delta P_1}{\Delta P_2}\right)^{1/2}$$

$$= 0.47\left(\frac{11}{14}\right)^{1/2}$$

$$= 0.42\ m^3/s$$

where:

Q = "excess" air to be vented with doors closed;

Q_1 = air-flow required for door protection through transfer device;

ΔP_1 = nominal differential pressure with door to operating room closed and door to corridor closed;

ΔP_2 = nominal differential pressure between either the anaesthetic room and corridor when the operating room door is open, or the anaesthetic room and operating room when the corridor is open. This differential pressure is used when selecting size of both devices.

A4.51 If the "excess" air is less than 0.42 m^3/s, a pressure stabiliser is required to ensure that the correct protection airflow is available to pass through the door.

A4.52 If the "excess" air is greater than 0.42 m^3/s, a transfer grille is acceptable because at all times the airflow will exceed the flow required for door protection.

By pressure stabilisers to the corridor

A4.53 If it is undesirable to pass operating room air through the anaesthetic room, it may be passed directly to a corridor via a separate pressure stabiliser.

A4.54 If there is sufficient "excess" air, the transfer grille solution at Paragraph A4.52 should be adopted, as it provides the simplest solution and, once set up, will require no further maintenance. With less excess air, it is recommended that the air be passed through the anaesthetic room via the pressure stabilisers as at Paragraph A4.51, thus keeping the number of pressure stabilisers to a minimum. Both these solutions increase the air-change rate in the anaesthetic room, but care should be taken to avoid passing excessive amounts through that would cause discomfort to the occupants.

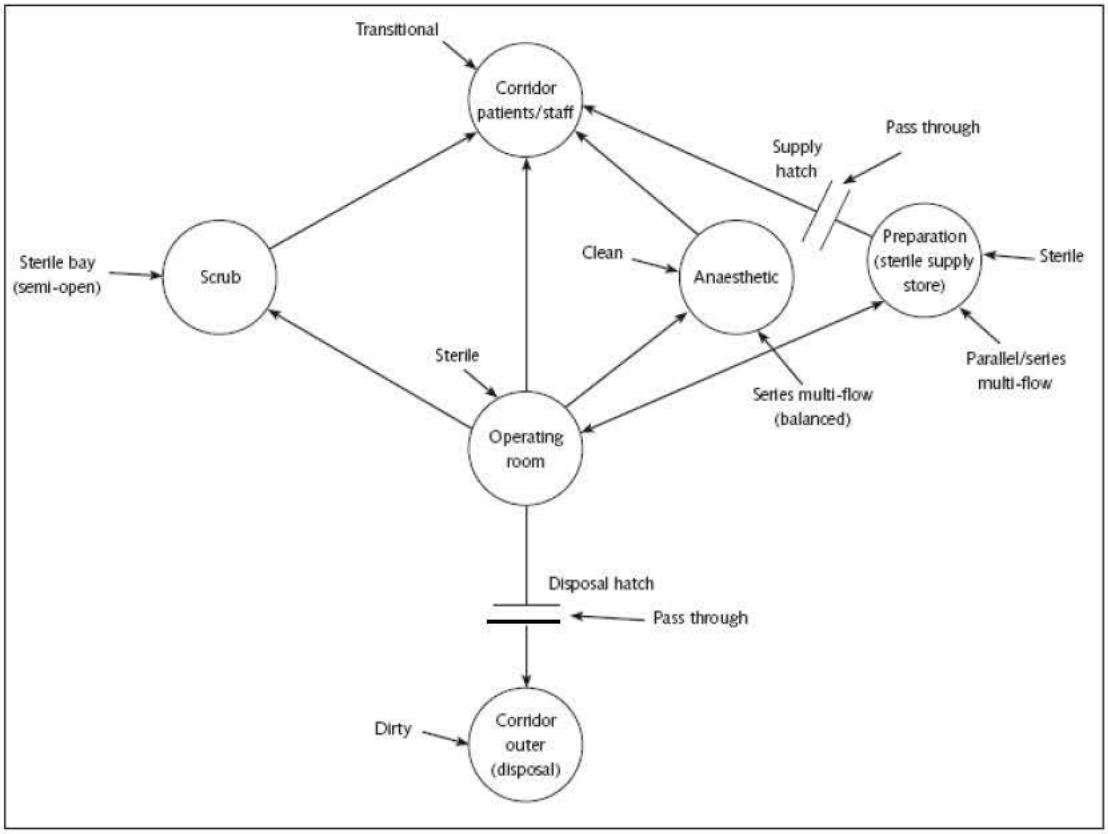
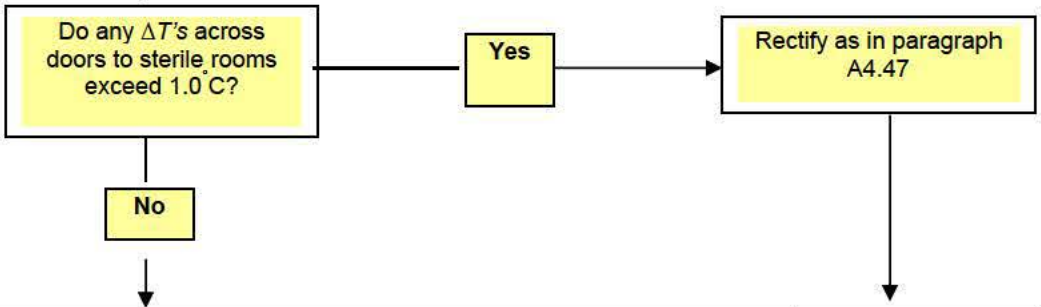


Figure A4/2: An example of an airflow network

Step	Description	Worksheet
1	Show nominal room pressures and air flow directions on the plan of the theatre suite and WS1	WS1
2	Enter heat/loss/gain data and calculate supply airflow rates for temperature control only. Categorise room types e.g. sterile, clean etc.	WS1
3	Enter airflows required for bacterial contamination control or air change rate whichever is the greater, add supply and extract volumes (S_D, E_D) on the plan.	WS1
4	Define peripheral room types, see paragraphs A4.5 - A4.11, and select appropriate worksheets.	Select from WS2a - WS2e
5	Locate air transfer devices, enter details on worksheets and locate on the plan and Figure A4/2	Selected worksheets from WS2a - WS2e
6	For each peripheral room, determine air flows through doors when open and calculate mechanical supply or extract and transfer device flows	As above
7	Select "Key Door" and calculate air supply for operating room	WS3

8	Transfer to WS1 and select final rate S_F and E_F	WS1. WS3
9	Make provision for relief of excess air with doors closed	Selected Worksheets and WS3
10	Calculate supply and extract flow rates for corridor(s)	WS4, WS5
11	Calculate room temperatures (all doors closed) and ΔT's	WS4, WS5



12	Make summary of flows	WS6a and WS6b
13	Size transfer devices, size ductwork, central plant etc	WS7
14	Design ductwork layout, control plant etc	

Figure A4/3: Airflow design procedures

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Calculation sheet for						**Worksheet WS1** **Reference:**
Room Name:						
1. Summer Temperature Control Heat Gain	kW					
2. Acceptable Δt	°C					
3. Air flow rate (S_G) $= \frac{\text{Gain}}{\Delta t \times 1.2}$	m^3/s					
4. Winter Temperature Control Heat Loss	kW					
5. Acceptable Δt	°C					
6. Air flow rate (S_L) $= \frac{\text{Loss}}{\Delta t \times 1.2}$	m^3/s					
7. Dilution of bacterial contaminations Air flow rate	m^3/s					
S_D or E_D						
8. Desired air change rate	ac/hr					
$\frac{\text{AC/hr x room volume } (m^3)}{3600}$	m^3/s					
9. Maximum of S_G, S_L, S_D or E_D or air change rate from Step 8	m^3/s					
10. Air movement control	S m^3/s					
Air flow for air movement control S_{AMC} or E_{AMC} (from WS2, WS3, or WS4)	E m^3/s					
11. Final Supply Flow Rate (S_F)	m^3/s					
12. Final Extract	m^3/s					
13. Total Supply		m^3/s				
14. Total Extract		m^3/s				

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Air Movement Control			**Worksheet WS2a**		
Peripheral Room ..... type, single flow			**Reference:**		
			Nominal Pressure: ..... Pa		
Consider door to ..... open					
			Air flow, m^3/s		
	Pa	Δt	Out	In	Remarks
Flow required through doorway to give protection					
Total					
S_{AMC} ($\sum$ OUT - $\sum$IN) ____ m^3/s or E_{AMC} ($\sum$ OUT - $\sum$IN) ____ m^3/s Transfer S_{AMC} or E_{AMC} to WS1					
Consider door to ..... closed					
	Pa	Δt	Out	In	Remarks
Closed door leakage					
Total					
Return S_F and E_F to WS1 ____ ____ Flow through transfer grille outward ($S_F - E_F - L_{OUT}$ ____ or Flow through transfer grille inward ($E_F - S_F - L_{IN}$) ____					

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Air movement control **Peripheral Room ..... type, parallel/series multi-flow**	**Worksheet WS2b** **References:** **Nominal Pressure: Pa**

Door from this room to ..... (room of equal cleanliness) is not to be protected.
A transfer grille is located in, or adjacent to, this door.

Consider door to ..... open

Room pressure now becomes [ ] or [ ] or [ ] Pa (see Appendix 6)

			Air flow, m^3/s		
			Out	In	Remarks
Flow required through doorway to give protection					
At above pressures leaks through closed doors	Pa	ΔP			
Mechanical supply or extract (S_F/E_F)					
		Total			

X ($\sum_{OUT} - \sum_{IN}$) [ ] Or Y ($\sum_{IN} - \sum_{OUT}$) [ ]

Transfer grille required:

from high-pressure zone Flow = *X*

or [ ] at [ ] ΔPa

to low-pressure zone Flow = *Y*

Size of transfer grille (free area) A1 [ ]

Consider doors and hatch closed – room pressure becomes [ ] Pa (nominal)

Closed door leakage from Appendix 4 (assuming no transfer grille)	Pa	ΔP	Out	In	Remarks
Mechanical supply or extract					
		Total			

Air flow required through transfer grille = IN – OUT = Z' [ ]

or OUT – IN = Z'' [ ]

Transfer grille required flow *Z' or Z''* [ ] @ [ ] ΔP

Size of transfer grille (free area) A2 = [ ]

Select larger of A1 or A2 [ ]

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Air movement control **Peripheral Room ..... type, parallel multi-flow high/low or series multi-flow (unbalanced)**	**Worksheet WS2c** **References:** **Nominal Pressure:** **Pa**

Consider door from this room to ..... open.

Room pressure now becomes [ ] or [ ] or [ ] Pa (see Appendix 6)

			Air flow, m^3/s		
			Out	In	Remarks
Flow required through doorway to give protection					
At above pressures leaks through closed doors	Pa	ΔP			
		Total			

S_1 ($\sum_{OUT} - \sum_{IN}$) [ ] Or E_1 ($\sum_{IN} - \sum_{OUT}$) [ ]

Consider door from this room to ..... open

Room pressure then becomes [ ] or [ ] or [ ] Pa

			Out	In	Remarks
Flow required through open doorway to give protection					
At above pressures leaks through closed doors are:	Pa	ΔP			
		Total			

S_2 ($\sum_{OUT} - \sum_{IN}$) [ ] Or E_2 ($\sum_{IN} - \sum_{OUT}$) [ ]

Consider doors closed. Closed doors leakage from Appendix 4

Door to:	Pa	ΔP	Out	In	Remarks
		Total			

Return S_F and E_F to WS1 [ ] [ ]

Flow through transfer grille outward ($S_F - L_{OUT}$) [ ] to .....

or

Flow through transfer grille inward ($E_F - L_{IN}$) [ ] from.....

Transfer grille [ ] Pressure relief damper [ ]

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Air movement control **Peripheral Room ..... type, parallel/series multi-flow**	**Worksheet WS2d** **References:** **Nominal Pressure:** **Pa**

Note: In this type of room the supply and extract air flow rates are equal and take no part in the air movement control (AMC)

First, open door to higher pressure area.

Room pressure then becomes [ ] or [ ] or [ ] Pa (see Appendix 2)

			Air flow, m^3/s		
			Out	In	Remarks
Flow required through doorway to give protection					
At above pressures leaks through closed doors	Pa	ΔP			
Total					

Q_1 ($\sum_{IN} - \sum_{OUT}$) [ ] (+ve inwards)

Next, open door to lower pressure area.

Room pressure then becomes [ ] or [ ] or [ ] Pa

			Out	In	Remarks
Flow required through open doorway to give protection					
At above pressures leaks through closed doors are:	Pa	ΔP			
Total					

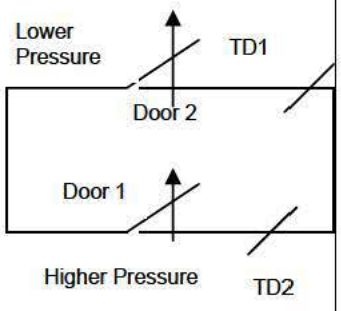
Q_1 ($\sum_{IN} - \sum_{OUT}$) [ ] (+ve inwards)

Flow through transfer device (TD1) to protect Door 1 = Q1 [ ]
at resultant

ΔP .....

Flow through transfer device (TD2) to protect Door 2 = Q2 [ ]
at resultant

ΔP .....



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Air movement control **Peripheral Room ..... type bay (semi-open)**	**Worksheet WS2e** **References:** **Nominal Pressure:** **Pa**

Note: If the room is of the open bay type (i.e. opening is larger than normal single doorway), then room should be considered part of the main room. No air movement control considerations need then be made, and this sheet can be discarded. Supply and/or extract flow ill be based on air distribution considerations.

Consider permanent opening

			Air flow, m^3/s		
			Out	In	Remarks
Flow required through doorway to give protection					
At above pressures leaks through closed doors	Pa	ΔP			
		Total			

E_{AMC} _____ or flow outward through transfer ($\sum_{IN} - \sum_{OUT}$) _____

Transfer S_{AMC} or E_{AMC} to WS1

Transfer device – transfer grille _____

– pressure stabiliser _____

Size select transfer device for flow rate _____ @ ΔP _____

Note: A door from the bay is considered with the peripheral room to which it leads or, if it leads to the corridor, it is considered with the main room.

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Air movement control **Operating Room**			**Worksheet WS3** **References:** **Nominal Pressure:** **Pa**		
Note: To avoid considering each door open in turn, the "key door" concept is introduced. This is the door which requires the greatest mechanical flow when open. See paragraph A4.33					
Select "key door" (see above). Consider this door open – room pressure now becomes _____ Pa (See Appendix 2) See Appendix 3 for room pressures					
			Air flow, m^3/s		
			Out	In	Remarks
Flow required through doorway to give protection					
Air flow "out" or "in" via doors, transfer devices etc.	Pa	ΔP			
Mechanical extract					
Total					
S_{AMC} $(\sum_{OUT} - \sum_{IN})$ _____ Transfer S_{AMC} to WS1 Consider all doors closed. Return S_F and E_F to WS1 _____ Room pressure now _____ Pa (nominal)					
Air flow "out" or "in" via door leakage, transfer devices etc	Pa	Δt	Out	In	Remarks
Mechanical extract					
Total					
Flow $(\sum_{IN} - \sum_{OUT})$ through transfer device _____ @ ΔP _____ to…… For final selection of transfer device see paragraphs A4.50 – A4.54					

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Air movement control **Corridor**			**Worksheet WS4** **References:** **Nominal Pressure:** **Pa**		
Consider all doors closed					
			Air flow, m^3/s		
			Out	In	Remarks
Flow required through doorway to give protection					
Leaks through closed doors, transfer devices, permanent openings etc.	Pa	ΔP			
Total flow inwards (S_1)					
Add mechanical input (S_2) if necessary to increase S_1 to give 7 AC/hr					
Total Flow Outwards and Inwards					
$S_{AMC} = (\sum_{OUT} - \sum_{IN} + S_2)$		Transfer to WS5			
or $E_{AMC} = (\sum_{IN} - \sum_{OUT} + S_2)$		Transfer to WS5			

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Air movement control **Corridor**	**Worksheet WS5** **References:**

Summary of Air Supply and extract for an Operating Suite

Consider all doors closed

Air Flow to Corridor	All Doors Closed	Anaesthetic (key door open)
	m^3/s	m^3/s
From Preparation		
From Operating Room		
From Scrub		
From Anaesthetic		
Total (a)		
Air Flow to Corridor from Disposal		
From other source		
Total (b)		
Other Room Supplies.....Total (c)		
Total Air Supply (a) + (b) + (c)		

Consider corridor ventilation (see Appendix 2) and calculate air volume required, based on 7 ac/hr (see Note 1)

	m^3/s
Additional Air to Ventilate Corridor	
Additional Air to Ventilate Service Corridor (see Note 2)	
Air Extract The size of the extract plant should be of the order of 10% below the supply to assist in maintaining the department under positive pressure relative to the outside departments.	
	m^3/s
Extract Plant = Supply less Leakage	
Less 10% of Supply	
Total Extract (see Note 3)	

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Room Temperature - Summer

Worksheet WS6a

References:

Find summer supply temperature T_{SS} = 20 – 0.828 H/(O/R) _____ = T_{SS} _____ °C

Q(O/R) _____

Note: The temperature of a space may be calculated from

$$T = \frac{t_1 Q_1 + t_2 Q_2 + \ldots\ldots\ldots\ldots + t_n Q_n + (0.828H)}{Q_1 + Q_2 + \ldots Q_n}$$

Where t_1 is temperature of source (1°C)
Q_1 is flow from source 1 when all doors are closed (m^3/s)
H is heat gain in space (kW)

Summary of Air Supply and extract for an Operating Suite

Consider all doors closed

Room	Heat Gain kWh	Supply		Flows Inwards										Temperature °C T
		Q	T_{SS}	From		From		From		From		From		
				Q	t	Q	t	Q	t	Q	t	Q	t	

Check Doors to Sterile Areas

Door Between	Calculated Room ΔT (°C)	Maximum ΔT Permitted	Remarks

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Room Temperature - Winter

Worksheet WS6b

References:

Find winter supply temperature $T_{SW} = 20 - 0.828$ H/(O/R) _____ = T_{SW} _____ °C

Q(O/R) _____

Note: The temperature of a space may be calculated from

$$T = \frac{t_1 Q_1 + t_2 Q_2 + \ldots\ldots\ldots\ldots + t_n Q_n + (0.828H)}{Q_1 + Q_2 + \ldots Q_n}$$

Where t_1 is temperature of source (1°C)
Q_1 is flow from source 1 when all doors are closed (m^3/s)
H is heat gain in space (kW)

Summary of Air Supply and extract for an Operating Suite

Consider all doors closed

Room	Heat Gain kWh	Supply		Flows Inwards										Temperature °C T
		Q	T_{SW}	From		From		From		From		From		
				Q	t	Q	t	Q	t	Q	t	Q	t	

Check Doors to Sterile Areas

Door Between	Calculated Room ΔT (°C)	Maximum ΔT Permitted	Remarks

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Transfer Grilles, Pressure Relief Dampers and Pressure Stabilisers	**Worksheet WS7** **Reference:**

Transfer Grilles – see paragraphs A4.34 – A4.38

Check Doors to Sterile Areas

No	Location	Pressure Difference Pa	Flow Rate m^3/s	Free Area m^2	Model	Resultant Δp Pa	Remarks

Pressure Relief Dampers – see paragraph A4.39

No	Location	Pressure Difference Pa	Flow Rate m^3/s	Free Area m^2	Pressure Setting Pa	Remarks

Pressure Stabilisers –see paragraphs A4.40 – A4.43

Note: where a stabiliser is acting both as series room door protection and operating pressure control, "pressure difference" and "flow rate" are from WS2d; "pressure setting" is from WS3

No	Location	Pressure Difference Pa	Flow Rate m^3/s	Free Area m^2	Pressure Setting Pa	Remarks

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References

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NB: Access to information related to the following Acts and Regulations can be gained via **www.legislation.gov.uk.**

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SCOTTISH HOSPITALS INQUIRY

Hearing commencing 24 April 2023

Bundle 12 - Substantive Core Participant responses to Provisional Position Papers and Supporting Documents (External Version) - Volume 1 (of 2)