Bundle of documents for Oral hearings commencing from 13 May 2025 in relation to the Queen Elizabeth University Hospital and the Royal Hospital for Children, Glasgow

Witness Statements – Volume 2

Week Commencing 19 May 2025

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Scottish Hospitals Inquiry
Witness Statement of
Alasdair Fernie

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The introduction, questions and answers are produced within the statement.

Personal Details and Professional Background

1. Name, qualifications, chronological professional history, specialism etc – please provide an up-to-date CV to assist with answering this question. Please provide details of your role working for Multiplex Construction Europe Limited previously, Brookfield Construction (UK) Limited until 21 February 2011 and thereafter Brookfield Multiplex Construction Europe Limited until 31 August 2016 (hereinafter referred to as 'Multiplex') during the time Multiplex was appointed as Contractor in respect of QEUH/RHC, providing details of when you started and left this role, your responsibilities.

A. My name is Alasdair Gordon Fernie. My date of birth is [redacted], and my address is c/o Multiplex Construction Europe Limited, 99 Bishopsgate, Second Floor, London, EC2M 3XD. I have a HND in Construction Management and a BSc (Hons) in Building Engineering & Management.

Project Experience up to starting as Project Manager for Multiplex.

2007 – 2010 | Balfour Beatty | Project Manager / Project Director | Victoria Hospital Glasgow

The Victoria Hospital Project was a state of the art highly serviced medical facility designed and built as a first- generation ambulatory care facility in Scotland. The construction value was £110M and it was one of the last major hospital facilities to be constructed under the Private Finance Initiative (PFI) in Scotland.

I was responsible for managing the design team through the planning and pre-construction stages as well as the completion of the construction stage through to handover. The project was delivered successfully.

2001 to 2006 – Balfour Beatty, Project Manager

Health Facility for the University of Glasgow Commercial Office blocks, Glasgow Police Training College, Glasgow

1997 to 2000 – Jarvis, Project manager

Health Facility for University College London

1995 to 1997 – Wates Construction, Site Manager

Graduate Programme

Prior to going to University, I had completed my apprenticeship as a City and Guilds Carpenter

Qualifications

1993 | HND Construction Management

1995 | BSc. (Hons) Building Engineering & Management

2005 | MCIOB (Member Chartered Institute of Builders)

2013 | FCIOB (Fellow Chartered Institute of Builders)

2015 | MRICS (Royal Institute of Chartered Surveyors)

I am a Fellow of the Chartered Institute of Builders (FCIOB) and a member of the Royal Institute of Chartered Surveyors (MRICS). I was involved in the Project from around February 2011 until its practical completion on 26 January 2015. When I joined the Project, it was as a Construction Project Manager for the Adults and Children's Hospital buildings. This area covered the substructure and superstructure of the building and as the project progressed, I would then manage the building envelope and the internal fit out. The Energy Centre was not part of my works package at that time. In September 2014 I was promoted to the position of Project Director following the sudden passing of Mr Mike Sharples the Project Director. I reported to Mike when I started as Project manager. On being promoted to Project Director I then reported to Ross Ballingall.

The role of the Construction Project Manager is to oversee all aspects of the physical construction of the project (within their area of responsibility regarding the building), ensure the works are completed safely, on time, within budget and to the required quality and standards that are set out in the design drawings and specifications. As the project and number of construction workfaces and activities I managed a larger team of construction managers and project managers. This would break down in to 3 main areas of the Adult Tower Works, The Adult Podium Works and Children's building works. Each area was managed by a Project Manager responsible for the delivery and coordination of the construction works within their zones and overall area of responsibility. There were also areas like the main adult's atrium space that was under the control of one Project manager and their team.

The role of the Project Director is to lead a team of contractors, designers, engineers and the project team made up of multiple professional teams and individuals. The Project Director reports progress to the clients and internally to Multiplex at board level. When the project achieved Practical completion, I was involved for a short period after this to manage the completion of the defects and assist the NHS team where possible in the Migration Strategy. I was moved to a new project some months after PC with the day to day responsibility of the defects then being managed by one of the Multiplex managers that has been involved with the delivery of the project for a number of years previous to my moving to the next project.

2. What previous experience or training, if any, did and you have to working as Director of Construction? How, if at all, did this experience serve you for the role in respect of the QEUH/RHC?

A. I have attached an outline setting out my experience and the projects and my roles on each prior to starting at Project Manager on the QEUH/RHC.

3. Please provide details of any other healthcare projects that you were involved in prior to the QEUH & RHC.

A. Victoria Hospital, Glasgow. University of Glasgow health facility building, Glasgow. UCLH Health Facility Building, London.

4. **Please refer to page 3 of Bundle 43, Volume 3, Document No. 12, Page 493**. The Inquiry understands that Multiplex refers to itself as having 'Specialist Contractor and Design Team staff'. Please explain what having a 'Specialist Contractor and Design Team' means, what this entails, what necessary qualifications/experience the team holds, the relevance of this specialism relative to building healthcare premises.

A. Specialist Contractor and Design Team means a contractor that has the experience within its supply chain and its staff to manage the construction of a healthcare project such as a hospital. In respect qualifications these are numerous across all the disciplines that make up the delivery team covering an enormous number of disciplines and specialists/professions. The above document (10.0 PEP) was written prior to my involvement with the Project. As such my statement above related to an in general statement.

5. On the Multiplex website it states:
'We [Multiplex] have a long track record of delivering world-class hospitals and aged care facilities that enhance wellbeing and safeguard the day-to-day running of existing operations…

Our teams are skilled in the detailed planning and robust scenario-testing required to ensure safety and surety of delivery in highly sensitive environments….

We are experts in delivering state-of-the-art medical facilities in collaboration with our specialist supply chain. Our UK portfolio includes the largest hospital campus in Europe, Scotland's largest children's hospital, and luxury later living accommodation in Chelsea, London.'

a) In delivering world-class hospitals, please explain the level of knowledge and understanding of healthcare regulations and guidance expected of Multiplex staff?

A. Multiplex Staff would be informed by the Specialist design teams and specialist subcontractors. Staff would also work to the relevant specification and requirements unless there had been an agreed derogation to the specifications or technical manuals and guidance.

b) Explain your personal knowledge, understanding and any relevant qualifications in

healthcare regulations and guidance?

A. Throughout the project. From when I started as a Project Manager and finishing as Project Director, I was able to access any regulations required be it directly or via the supply chain. My understanding of the regulations is that these are incorporated into the design and specification. This is then checked for compliance during the design sign off and construction sign off process. My qualifications are specific to the construction industry covering the disciplines of the construction/built environment and are set out on my CV.

c) Please explain your understanding of the importance of compliance with healthcare regulations and guidance for infection prevention and control?

A. My understanding is that compliance is of the upmost importance for the building success and end user success and ultimately patient and staff care. In some instances, there are agreed derogations/changes to the regulations on a project. These are reviewed with the client and normally their compliance team. Signed off and then incorporated into the design and specification.

d) Who from the QEUH team provided Infection Control input and at what stage?

A. I do not recall specifically who provided this information but there was an infection control team that worked with the NHS GGC project team. This would have started prior to my involvement with the project at the design stage. And continued through the duration of the project until completion David Louden or Alan Seabourne may be better placed to answer this.

Appointment as Contractor

6. The Inquiry understands that Multiplex was appointed as Contractor to undertake the works for the QEUH & RHC. The works under the Building Contract were to be carried out in stages: Stage 1 (Construct Laboratories), Stage 2 (Detailed design of hospital to FBC submission), Stage 3 (Construction), Stage 3A (Demolition surgical block and landscaping) **(Please refer to Bundle 17, Document No. 12, Page 613)**

a) Describe the appointment process leading up to the Multiplex's appointment as Contractor.

A. I was not working for Multiplex at the time this appointment was made. I joined the

project in Feb 2011.

b) Describe your role and remit, in particular provide details regarding Multiplex's role, responsibility and authority in respect of the design and build of QEUH/RHC.

A. I joined the project as a Project Manager for the Adult and Children buildings. My role was to manage the construction process of both of these buildings, which at this time excluded the Energy Centre, external landscaping and link bridges. I have set out my responsibilities during this time in answer A1. When I joined the project, I would not have in the first 12 to 24 months have been involved in the design of the building other than perhaps refining some structural elements during the coordination of the sub structure, structure, facades and internal fit out. In September 2014 I was promoted to the role of Project Director. At this time the design was mainly completed so was responsible for coordinating the completion of the overall project. Multiplex employed a large number of specialist design teams to provide the design for the hospital and coordinated the design programme with its Design Management team.

c) Who was responsible for ensuring that Multiplex complied with the terms of the contract with NHS GGC in respect of the QEUH/RHC project?

A. This responsibility was across all of the disciplines involved with the project so many individuals were involved with this process.

d) What responsibility, if any, did Multiplex have for ensuring that the built hospital complied with relevant guidance such as SHTM and SHFN?

A. Multiplex would be responsible for making sure the design and construction was compliant with the hospital standards and building standards or working to an agreed change/derogation to this. This would be reflected within the contract.

e) Describe how derogations from the Employers Requirements were signed off by NHS GGC. What role, if any, did you have in respect of this? Who was responsible for ensuring that the Board signed off on derogations?

A. From memory, the derogations would have been signed of prior to me becoming PD in September 2014, as such I do not have the detail behind this and do not recall having any significant involvement in derogations either as Project Manager or the Project Director, I would have viewed this as contracted works and would have worked to this.

f) Describe your working relationship with NHS GGC prior to appointment, had you worked with any members of the NHS GGC Project Team prior to appointment, if so whom and when?

A. Before joining Multiplex, I worked for Balfour Beatty. I was Project Manager and then Project Director for the ACADS Victoria Hospital in Glasgow. I worked with Karen Conelly from the estates department during this time. Karen was responsible for the migration of staff from the existing Victoria Hospital to the new hospital. This I believe would have been 2 years before working for Multiplex

g) Describe your working relationship with NHS GGC during the terms of your appointment, including day-to-day dealings with the NHS GGC Project Team, details of who you worked with and in respect of what matters?

A. As project manager I worked with many of the NHS GGC project team. I shared the same office building so would see the staff from the NHS GGC Project Team on a daily basis and would also at times take the staff on site to see the progress of the building programme. As time on the project passed and the project size and scale grew. I would attend meetings with the NHS GCC Project Team to report progress of the building programme across the Adult and Children's buildings. I reported this to Alan Seabourne and then David Louden (Normally with the Multiplex Project Director, Mike Sharples in attendance during the monthly project meetings and at times attended numerous meetings in relation the construction updates with the NHS GGC project team discussing site-based issues. Moving to the role of Project Director my relationship with the NHS GGC project team I believe was professional and focused on working together, towards delivering the project as a team.

h) Describe your working relationship with Currie & Brown prior to appointment, had you worked with any members of Currie & Brown who worked on QEUH/RHC prior to appointment, if so whom and when?

A. I did not work on the project prior to the appointment as joined Multiplex around Feb 2011. I do not recall working with any of the Currie & Brown managers, however, I may have during the ACADS Victoria hospital project

i) Describe your working relationship with Currie & Brown during the terms of your

appointment, including day-to-day dealings, and details of whom you worked with?

A. The relationship was professional. This led to a good communicative environment during meetings. I would attend meetings that the Currie & Brown team would be in attendance like the progress review meetings. This would be more so when I was promoted to Project Director. I do not recall all the names of the Currie & Brown managers, but David Hall and Douglas Ross would have been my main contacts

j) Describe Currie and Brown's role and responsibilities in respect of the project. Are you aware of any changes to their role during the project, if so, please explain.

A. From memory, they had a number of managers working with the NHS team. They reported on cost and project management. They were involved in the majority of the senior team meetings when Multiplex reported on progress of the project and early warning meetings. I do not recall any changes during my time involved with the project.

k) What role, if any, did Currie & Brown have in ensuring contractual compliance?

A. My recollection is that the members of the C&B team would carry out reviews and give advice to the NHS project team and were I believe involved in reviewing the design process leading to approved drawings for construction.

l) Describe your working relationship with Capita prior to appointment, had you worked with any members of Capita who worked on QEUH/RHC prior to appointment, if so whom and when?

A. I did not work on the project prior to the appointment as joined Multiplex around Feb 2011. I do not recall working with any of the Capita managers prior to me joining the project, however, I may have during the ACADS Victoria hospital project.

m) Describe your working relationship with Capita during the terms of your appointment, including day-to-day dealings, and details of whom you worked with?

A. The relationship was professional. This led to a good communicative environment during meetings In General, I would not meet Capita on a week to week bases and my interactions with the Capita team would be more likely to be that at a meeting with the MPX and NHS delivery team like a progress meeting or early warning meetings. I very rarely had individual interaction with Capita team other than if we passed in the

office or out on site. I would often ask then how things where and if they were happy with how the project was progressing during these informal meetings but most of my interaction was at formal meetings.
Main contact would have been John Redmond

n) Describe your understanding of Capita's role and responsibilities in the project.

A. From memory, Capita had a number of managers working on behalf of the NHS GGC project team. These managers were on site daily and produced monthly reports that were issued at the main progress meetings between MPX and the NHS GGC project team. These reports included commentary on quality issues on site which would in turn be reviewed by the MPX team and actioned where required. The Capita managers provided commentary on quality and compliance for the onsite works across all of the construction activities/works throughout the duration of the project. The Capita managers were also present for the testing and witnessing of the commissioning results and this covered the main buildings and the Energy Centre this was in conjunction with the Multiplex commissioning management team.

o) What role, if any, did Capita have in ensuring contractual compliance?

A. I do not know their contractual requirements in relation to this.

p) Who did you report to on a day-to-day basis?

A. When I joined the project in Feb 2011, I reported to the Project Director Mike Sharples and then from September 2014 I reported to Ross Ballingall. When reporting the project to the NHS, I would report to David Louden

q) In respect of other contracts and sub-contractors, explain which contractors and sub-contractors Multiplex had worked with prior to appointment, describe your day-to day working relationship with them, and details of whom you worked with?

A. I do not recall the full list of the subcontractors MPX would have worked with before, however, I think Mercury, Structal, Prater, Astins had worked on previous MPX projects. From memory the relationship with the managers of the supply chain across the project was professional and conducive to working together to deliver the project.

r) Describe Mercury's role and responsibilities in respect of the project.

A. Mercury's role and responsibilities were for the management of the MEP installation across the project. This involved managing the design development of the consultant's design into what is known as shop or working drawings, having these agreed and signed off, procuring the material and labor and installing these materials then testing the materials / equipment against the required outputs and agreed design and to, and achieving the contracted requirements.

Review of the 'Works Information'

7. What information was provided to Multiplex to assist with the planning and costing of the project to enable Multiplex to prepare the Contractor's Proposals?

A. This information was issued to MPX prior to my involvement with the Project for MPX. The team involved in the completion of the FBC would be better placed to answer this.

8. The Inquiry understands that NHS GGC provided a list of guidance documents (e.g. SHTM/SHPN) that the design had to comply with, please confirm what elements of the design contained in the Contractor's Proposals, did not comply with guidance, and why and how any non-compliances were highlighted during the tender process and ITPD process?

A. This information was issued to MPX prior to my involvement with the Project for MPX. The team involved in the completion of the FBC would be better placed to answer this.

9. What consideration was given to the impact of any non-compliances on patient safety/infection prevention? At what point, if any, was advice sought from Infection Prevention and Control Staff? If advice was sought, from whom was it sought and what was the advice given?

A. Infection prevention and the hospital design where in general I believe completed prior to me joining the project. I do not know dates as to when the Infection Prevention and Control Staff were involved with the design process. I was aware of their involvement during the construction process.

a) In what ways were Infection Prevention and Control Staff involved in the construction process? Please provide details.

A. They were I understand involved in the design process reporting to the NHS GGC project team. I believe they were involved in the sample approval process. The sample approval room was set up on site next to the NHS GGC project team office to allow inspection of all the building elements. This allowed the NHS GGC project team to have the teams reporting to them or providing support to view the proposed materials and products like window finishes with interstitial blinds and proposed taps for the toilets through to light fittings and ventilation grills etc. There was a very large selection of samples provided and subsequently approved due to the size if the project. I believe the infection control were on site during the construction process. My own involvement with the infection control team was very limited due to the timing of each of my roles.

b) Who from NHS GGC infection prevention and control was involved in the construction process?

A. I am unable to provide any real detail here but, believe the main input for the infection control team was carried out prior to me taking over as Project Director. Any infection control matters raised when I was the Project Director would have been through the NHS project team at early warning meetings or project reporting meetings. David Louden may be better placed to advise on this.

10. Did Multiplex propose any changes to the exemplar/reference design? If so, please provide details of the changes and why?

A. I was not involved in the project at the stages (having joined in February 2011) where changes to the exemplar would have been suggested or derogated into the contract and do not believe I was involved in any proposed design change decisions when I was project manager. The team involved in the completion of the FBC would be better placed to answer this.

11. The Inquiry is aware of the agreed ventilation derogation recorded in the M&E Clarification Log. **(Please refer to Bundle 16, Document No. 23, Page 1662)**

a) Describe Multiplex's role in respect of the proposals leading to the ventilation derogation.

A. I was not involved with the project at this stage having joined in February 2011. The

team involved in the completion of the FBC would be better placed to answer this.

b) What was the reason for the ventilation derogation?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

c) Who drafted the M&E Clarification Log and who was responsible for updating the Log? Following updates to the log, please provide details of who the log would have been distributed to?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

d) What was the scope of the agreed ventilation derogation recorded in the M&E Clarification Log? In particular, was it restricted to general wards only? If so, (a) how is this interpretation evidenced within the documentation; and (b) where is the specification located for areas that required specialist ventilation and isolation rooms?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

e) At the time what concerns, if any, did you have regarding the derogation? Did you raise any concerns, if so with whom?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this

12. Refer to the ZBP Ventilation Strategy Paper dated on or around 15 December 2009? **(Please refer to Bundle 16, Document No. 21, Page 1657)**

a) What was your/Multiplex's involvement in this document being instructed?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

b) What was the intended purpose of this document?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

c) When did you first have sight of this document?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this. I do not recall when first seeing this document.

d) Who was the document shared with?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

e) How was Multiplex satisfied that the proposals set out in the above document were suitable for use in a healthcare setting?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

f) What concerns if any did you have on reading this document? If so, did you escalate these concerns and to whom?

A. I do not recall when I seen the document or what concerns I had if any at this time.

13. Are you aware of any risk assessments, whether in compliance with the standards in HAI Scribe or otherwise, that NHS GGC carried out in respect of the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper dated 15 December 2009? **(Please refer to Bundle 16, Document No. 21, Page 1657)**

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

14. Describe the advice sought, if any, or the involvement, if any, of GGC Infection Prevention and Control staff in respect of the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper dated 15 December 2009?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

15. Who from the GGC Project Team and Board were aware of the ventilation derogation?

A. I was not involved with the project at this stage having joined in February 2011. The

team involved in the completion of the FBC would be better placed to answer this.

16. How was the ventilation derogation communicated to the wider Project Team?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

17. What impact did the requirement for a BREEAM excellent rating have on Multiplex's proposed design in particular in respect of ventilation?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

18. What impact did the energy usage target of no more than 80kg of CO2 per square meter have on Multiplex's proposed design?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

a) When, if at all, did you become aware of the ventilation derogation? Who informed you of the ventilation derogation?

A. I do not recall.

b) Upon becoming aware of the ventilation derogation, what concerns if any did you have? If you had any concerns what action, if any, did you take?

A. I do not recall having any concerns. The MEP Multiplex team would have been working to a set of agreed drawings. These drawings would not have reached the construction team if they had not been agreed by the MPX and NHS GGC project teams during the design review periods. When these drawings where agreed they would have been viewed as the contractual requirements for the works to be installed to and completed against. As such there would be no concerns when proceeding with these works.

c) Upon becoming aware of the ventilation derogation, what assurances, if any, and from whom, did you seek in respect of the ventilation derogation?

A. As stated above, this information would have been through the approval process and sign off process prior to the construction delivery team implementing the works. As such that information would have been taken by me and the construction delivery team

as the requirements for that sections / area of works.

d) At any time did you seek assurance that a risk assessment in respect of the ventilation derogation had been carried out and from whom did you seek this assurance?

A. No, as set out above, the information would have already been through a process being agreed by the MPX and NHS GGC project teams. This was what the NHS GGC team had requested so risk assessments would I believe have been carried out, by the NHS GGC project team and the medical specialists for that area/department prior to implementing the derogation.

e) From the point you started on the QEUH/RHC project in your role at Multiplex, what importance and value, if any, was attached to achieving BREEAM excellence?

A. It was the same as achieving all of the building requirements. There was no significant emphasis on BREEAM being achieved over any other building performance requirements, we worked to complete the works to the contracted requirements.

f) Was the ventilation 'fixed' when you came on board?

A. If the question relates to the design of the ventilation being fixed then I do not recall at what stage the ventilation was fixed. I was not from memory involved in any detailed design discussions surrounding the ventilation as this was managed by the Multiplex MEP team. Darren Pike MEP Manager or Darren Smith Design Manager may be able to provide more detail.

g) You must have understood what you were was building and that the ventilation was not in compliance with SHTM presumably? Please explain your position.

A. As set out in the answer above, the construction team take the information that is provided throughout the design approval process and proceed on that basis. I did not consider any of the works being constructed to be non-compliant, I considered them to be approved under the contract and this is what MPX and NHS GGC were asked to do.

19. The Inquiry is aware that Chilled Beam Units were proposed by Multiplex and accepted for use through the QEUH/RHC. What was the basis for Multiplex proposing to use Chilled Beam Units? Is the use of Chilled Beam Units appropriate throughout

hospitals? At the time, what concerns, if any, did you have regarding the use of Chilled Beam Units?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this. The question of if chill beams are appropriate throughout hospitals would be best answered by the Designers ZBP. I had no reason to have concerns over the use of chill beams as no concerns had been, from memory, brought to my attention.

20. Would it have been possible to achieve the sustainability requirements (BREEAM excellent rating and 80kg of CO2 per square meter) if Chilled Beams were not selected for use in the QEUH/RHC?

A. I do not know.

Full Business Case

21. Under 'Services Systems' confirmation was required "that the design fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current legislation". The Inquiry is aware of several departures from SHTM 03-01 Guidance in relation to air change rates, pressure differentials and filtration requirements. There was also a variation to the primary extract arrangement for PPVL isolation rooms from that set out in SHPN 04 Supplement 01. Was Multiplex aware at the time, of these non-compliances? If so, please confirm how Multiplex communicated these non-compliances to the NHS GGC Project Team. If no action was taken by the NHS GGC Project Team what obligations, if any, did Multiplex have to report matters further and to whom?

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

a) Please refer to **Bundle 12, Document No.96, Page 785**. In respect of the variation to the primary extract arrangement for PPVL isolation rooms from that set out in SHPN 04 Supplement 01 and you provide advice in this regard to David Loudon of NHS GGC. Explain your involvement in this matter. What concerns if any did you have regarding this variation?

A. This was after the project was completed, however, as the Project Director any letters

in relation to the project after completion would have been addressed to me. I would liaise with David Wilson and or Fergus Shaw who were part of the Multiplex team that remained on the project when I had moved to a new project. I would ask them to inform me on any technical issues raised by the NHS GGC project team like this letter from David Louden. I would ask them to set out a response, provide advice, which I would then issue to the NHS team believing this to be an appropriate and suitable response. As some time has passed since I sent this response, I do not recall what if any concerns I would have had.

b) Who from the Board and Capita signed off this solution?

A. I do not know.

c) How often were you asked for advice in respect of compliance with healthcare guidance from NHS GGC?

A. I do not recall being asked specifically about this. This would have been discussed during the design developments and reviews with the NHS GGC project team and the Multiplex design teams.

d) What was the outcome of these discussions with David Loudon?

A. I do not recall now.

22. Was the ventilation derogation noted in the M&E Clarification Log, recorded in the Full Business Case? Who was responsible for doing this? If you were aware that it had not been recorded in the Full Business Case, please explain what action, if any, you took.

A. I was not involved with the project at this stage having joined in February 2011. The team involved in the completion of the FBC would be better placed to answer this.

Design and Construction and Role in the QEUH/RHC Project

23. The Inquiry understands that ward layouts and Room Data Sheets (RDS) were approved through the reviewable Design Data (RDD) process. Describe your role, if any, in the RDD process and the user groups.

A. I was not involved with the RDD process or the User Groups.

24. How were members selected to be part of a user group?

A. I was not involved with the RDD process or the User Groups.

25. Confirm who attended the user groups meetings from Multiplex, the NHS GGC Project Team, IPC, Estates and Clinical teams for the following areas: Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU RHC – RHC; All Isolation rooms.

A. I was not involved with the RDD process or the User Groups.

26. How often were user group meetings scheduled to review design proposals and agree the design with the user groups?

A. I was not involved with the RDD process or the User Groups

27. How were designs and the RDS approved to proceed to construction?

A. I was not involved in this process but it would have been managed by the Design Leads for MPX and the consultant design teams in conjunction with the NHS GCC delivery team and the sign off process agreed to allow designs to proceed to construction.

28. How was the ventilation derogation communicated to users during the RDD process?

A. I was not involved with the RDD process.

29. Please describe how the technical requirements (air change rates, pressure differentials and filter requirements) for each ward were managed and approved during the user group meetings and the RDD process, including your role and involvement.

A. I was not involved with the RDD process or user group meetings.

30. Were any requests made by the User Groups during the RDD process that were refused – please provide details.

A. I was not involved with the RDD process or user group meetings.

31. Please refer to **Bundle 17, Document No.75, Page 2881.** Appendix 3 states: "Commissioning settings for all elements of the works, including microbiological testing proposals for operating theatres and specialist ventilation… Confirmation that

the design team fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current legislation".

a) Describe the intended use and purpose of the following wards in QEUH/RHC: Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU RHC – RHC; all Isolation rooms.

A. there has been a significant passage of time passed since I was involved in the delivery of the QEUH/RHC Hospitals. I am unable to recall the specifics of ward areas.

b) At the time were you aware of there being a Ward for immune compromised paediatric patients?

A. There has been a significant passage of time passed since I was involved in the delivery of the QEUH/RHC Hospitals. I am unable to recall the specifics of ward areas. As a Project Manager or even as a Project Director my focus is delivering the building to the construction information. These drawings and specifications are the culmination of a detailed design development and review process. Drawings and information would have gone through a number of statuses as per the contract until they were issues as construction status. On such a large project the focus was to ensure not stepping outside that of construction issue information.

c) At the time would you have been aware of the intended use and purpose of Wards? If not, why not?

A. As my statement in point B) above. There has been a significant passage of time passed since I was involved in the delivery of the QEUH/RHC Hospitals. I am unable to recall the specifics of ward areas but I would have had an overview of the intended use of the departments. The detail of these would have been discussed during the design and construction process, to which I do not recall the specifics now. As my statement sets out above, the focus was on delivering the project to the agreed construction status information and contract.

d) What were the specifications of these wards?

A. There has been a significant passage of time passed since I was involved in the delivery of the QEUH/RHC Hospitals. I am unable to recall the specifics of ward areas.

e) What guidance was considered in the design of these wards, what processes were in place to ensure guidance compliance?

A. I was not involved in the design process, ZBP, Nightingale, The MPX FBC Team may be better placed to answer this.

f) Were there any changes to the design during the design and build, if so, please describe any such changes, describe the impact, if any, on guidance compliance as set out in Appendix 3, and describe the sign off process for any such changes, your involvement and how any changes were communicated to the Board. Was external advice ever sought in respect of design changes?

A. I was not involved in the design process. During the construction phase, I recall, it would not have been normal practice to change the design as this may have affected the programme to completion. From memory, Change was not often implemented by the NHS team either as this again would have impacted time and cost of the project. Any changes that where considered a requirement would from memory have been raised as an early warning. There was also a formal change order process which involved the NHS requesting the change carried out over a number of hold point. These hold points would have been early dialogue on what a change may or may not impact. This would then be instructed to MPX to carry out a programme and cost assessment on the proposed change. This change may or may not be instructed at this point. This instruction may have been to progress the design and the programme and stop for review. Or a full instruction to design, programme and construct the works and incorporate into the final project.

32. Describe your involvement and understanding, if any, of the decision to remove carbon filters? What was the rationale behind this decision, who was involved and what advice, if any, was sought in reaching this decision?

A. I do not recall being involved in the decision to remove carbon filters.

33. Were any specialist design workshops required? If so, please provide details.

A. I do not recall this now.

34. Were Value Engineering meetings/workshops held during the design phase? Please provide details of any agreed value engineering elements.

A. I was not involved with the main design phase the team involved in the FBC would be

better placed to answer this. During the construction process the design substantially completed with minor comments on some drawings but the time for VE would most likely have been before this.

Ward 4B and 4C

35. The Inquiry understands that Ward 4B in the QEUH was originally intended to provide accommodation for Renal and Haemato-oncology patients. The 2009 NHS Clinical Output Specification for the Haemato-oncology ward stated, “Please note the haemato-oncology ward area has a very specific function and a considerably higher than average requirement for additional engineering support/infrastructure. There should be no opening windows, no chilled beams. Space sealed and ventilated. Positive pressure to rest of the hospital and all highly filtered air >90%, probably best HEPA with adequate number of positive pressure sealed HEPA filtered side rooms for neutropenic patients as in the Beatson West of Scotland Cancer Centre.” **(Please refer to Bundle 16, Document No.15, Page 1595)**. However, following a Change Order Request in July 2013 by Jonathan Best **(Please refer to Bundle 16, Document No.29, Page 1699)** it was confirmed that the Bone Marrow Transplant (BMT) service would transfer to Ward 4B in the QEUH and the Haematology patients that were originally planned to accommodate Ward 4B would move to Ward 4C.

a) Please confirm how this change was communicated to Multiplex and how this change was captured in the revised design and specification documentation, following the Change Order Request.

A. I was not involved in this change process. I do not know how this communicated. I was aware there was a change in the design of that area which I believe would have been reflected on the design information issued as construction status this is the information the construction team would have worked to.

b) If you were not involved, who from Multiplex was involved?

A. As set out above, not being involved I am unsure as to who was involved. Ross Ballingall, Darren Smith and Darren Pike may be better placed to advise on this item.

c) Describe your understanding, if any, of the impact of the change order?

A. As set out above, not being involved I am unsure as to who was involved. Ross

Ballingall, Darren Smith and Darren Pike may be better placed to advise on this item.

d) What actions, if any, to assess the feasibility and impact of the change order were carried out by Multiplex?

A. As set out above, not being involved I am unsure as to who was involved. Ross Ballingall, Darren Smith and Darren Pike may be better placed to advise on this item.

e) Please confirm if Multiplex highlighted any risks with the proposal to move the adult BMT Unit to the QEUH.

A. I was not involved with this workstream at this time, so unable to comment

f) As Project Director, with the benefit of hindsight, is this not something you should have been aware of at the time?

A. This change, I believe, was before I took over as Project Director. Due to the timing nearing completion of the project, when I took over as PD my focus would have covered a many workstreams. As this change had been agreed some time before it is not an item that would have been a focus.

g) Did Multiplex advise the GGC Project Team that the requirements set out in SHTM 03-01 relating to air change rates, pressure differentials and filtration requirements would not be achievable in Ward 4B at the QEUH?

A. I was not involved with this workstream at this time, so unable to comment

h) Is this something that you would have expected to have happened?

A. I would have expected to work to the agreed drawings and specification included within the contract. MPX would give advice in relation to construction and building performance.

i) Who approved the lower specification from the GGC Project Team and the Board for the adult BMT service?

A. I was not involved with this workstream at this time, so unable to comment

j) As Project Director for Multiplex at the time, describe your awareness, if any, of the lower specification?

A. I would have taken the construction information and progressed the works on that basis. There would have been no consideration by me of any lowering of specification.

k) Why were suspended ceilings installed in Ward 4B given that the original Clinical Output Specification (COS) referred to 'space sealed' – did Multiplex raise this as a non-compliance with the 'Works Information'?

A. I was not involved with this workstream at the time of the design being approved, so unable to comment. This area would have been constructed in accordance with the agreed construction drawings and celling plans by the construction team. I do not know if MPX raised a noncompliance.

l) Following the change order, do you recall any issues being raised in respect of suspended ceilings in Ward 4B, please explain your answer.

A. I do not recall.

m) Please confirm who approved the reflected ceiling plans for this area.

A. I do not know

n) As construction progressed on site, please confirm if suspended ceilings were highlighted as non- compliant with the COS (works information).

A. I do not recall specifically if this was raised

o) With the benefit of hindsight, is this something which should have been raised?

A. The benefit of hindsight often brings clarity to complex building and construction issues. If the suspended ceilings, be it tile and grid or dryline/sheet material have led to there being an issue then hindsight would allow the team to reflect on this and seek to improve / mitigate issues in future.

p) Why was no back up Air Handling Unit (AHU) provided for Ward 4B? Who approved this decision? And what strategy was agreed for PPM or equipment failure?

A. I was not involved in the design process for this area and I do not recall discussing this during the construction phase. I cannot now recall the PPM arrangements.

q) In respect of Ward 4C, what was the specification of this ward at the point of the Change Order? Did you understand that Ward 4C was to be used to house immunocompromised patients? If so, what was the justification from departing from SHTM guidance in respect of ventilation, pressure and filtration requirements and who signed this off?

A. I am unable to recall the specification for Ward 4C at the point of the change and was not involved in the change process from a design perspective. The use of wards and what sort of patients would be treated in them I am now no longer recall.

r) At the time would you have been aware of the intended use and purpose of Ward 4C? If so, what would have been the justification for departing from SHTM guidance in respect of ventilation, pressure and filtration requirements and who would have signed this off?

A. I do not recall what I would have been aware of specifically in relation to ward 4C. A this time I and the Multiplex team would have been working to the approved design/construction for this area. These drawings and information would have been through the design approval process which I was not involved with directly. Darren Smith or Darren Pike may be able to provide further information in relation to this item.

s) What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 4B and 4C, and was this the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A. At the design stage of the project, the level of detail outlined in this question would have been managed by the design team and the review process with MPX and NHS and later by the construction site team during the construction phase. When I took over as Project Director, I engaged with the MEP and commissioning site team to gain an understanding of the overall progress of the MEP works, including an overview of the programme, installation, and commissioning. I do not recall the specific individual requirements, in relation to departments and wards at this time. I do not recall any conversations regarding an inability to comply with the contract in relation to air changes. My understanding was that the team was in the process of commissioning the AHUs and balancing the system, an expected and routine activity given the scale of the project. An inspection team, working on behalf of the NHS, mainly Capita, was

involved in witnessing the commissioning rates of all departments, along with the Multiplex MEP commissioning management team. If any concerns had arisen during the construction phase, I would have expected them to be flagged either by the MPX team or, as an additional safeguard, by the Capita team. From memory, a matrix was in place and managed by the MPX MEP commissioning managers, to track outstanding elements across all systems within the building. Each of these elements were reviewed, closed out, and agreed upon with the inspection and quality team.

Ward 2A/ 2B RHC

36. The Inquiry understands that Ward 2A/2B is the paediatric-oncology Unit and includes the Teenage Cancer Trust and the paediatric Bone Marrow Transplant (BMT) Unit - the department is known as the Schiehallion Unit.

a) Confirm your understanding regarding the intended use and purpose of the Ward 2A/2B, what guidance was considered in the design of these wards, what processes Multiplex put in place to ensure guidance compliance?

A. Due to the passage of time the specifics surrounding individual wards and rooms I do not now recall. I was not involved in the design process for these wards. For compliance MPX would have had a testing and commissioning programme followed by inspection and sign off in accordance with the signed off design.

b) Please provide copies of the testing and commission programme.

A. I don't have access to this information as have left Multiplex some time ago. Multiplex Legal team may be able to provide this information.

c) Who would have carried out the inspection and signed off?

A. MPX MEP Team David Wilson lead the commissioning team on this and Fergus Shaw as Project Manager for the children's hospital section may also have been involved. Both may be able to provide further information on this item.

d) What changes, if any, were made to the design during construction? Please describe any such changes, describe the impact, if any, on guidance compliance, and describe the sign off process for any such changes and your involvement. Was external advance ever sought in respect of design changes?

A. I am unable to recall if any specific changes were made during construction period but there may well have been changes if they happened would have been part of an early warning or a discussion with the NHS GCC delivery team and agreed formally before being carried out.

e) Describe the IPC involvement in the design of Wards 2A and 2B, who was involved and who signed off the final design and when?

A. I was not involved with this process at this time but NHS team may be able to answer this

f) Who from Multiplex would have been involved at the time?

A. This would have been led by Darren Smith and the design teams working for Multiplex.

g) What concerns, if any, did you have regarding the final design specification of Wards 2A and 2B, and what action, if any, did you take in respect of these concerns?

A. I was not involved with this process. But would unlikely have concerns based on the sign off process reaching the constructions stage.

h) Who from Multiplex would have been involved at the time?

A. Darren Smith, Darren Pike and or Fergus Shaw may be able to provide further information on this.

37. What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 2A and 2B, and was this the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A. With the passage of time, I do not recall the specifics of Ward requirements. The air change requirements and testing of these would have been managed by the MPX MEP commissioning team and witnessed by the Client Inspection Team normally Capita along with the supply chain specialist team responsible for this. The results would have been recorded and signed off by each of these parties. Had there been any irregularities I would have expected this to have been raised during the commissioning schedules sign off and any concerns raised to the senior team via the

MPX or Capita Reports

Isolation Rooms

38. Describe how the number and location of the isolation rooms was agreed? Who approved the final number and locations in the QEUH and RHC?

A. I was not involved with the process for this so unable to advise who approved.

a) Who from Multiplex would have been involved at the time?

A. I am unable to assist the enquiry as was not involved. Darren Smith may be able to provide further information on this or Ross Ballingall.

39. Who was responsible for producing the drawings and the specification for isolation rooms; who approved these from the NHS GGC Project Team?

A. I was not involved with the process at this time

a) Who from Multiplex would have been involved at the time? Who would have been responsible?

A. I do not know specifically, but would think Nightingale the architects and ZBP. Darren Smith may also be able to provide further information on this item.

40. What concerns, if any, did you have regarding isolation rooms and compliance with SHTM/HTM? What action, if any, did you take in respect of any such concerns?

A. I recall there being a number of conversations around room pressures being achieved. The rooms when constructed would have been subject to a pressure test and this would have been witnessed by MPX and the NHS inspection team. The testing would in some instances lead to further works being required to ensure the pressure requirements where achieved. This in some instances in some rooms required multiple testing and works before these achieved the required rates. I do not recall having any other concerns highlighted in relation to the Isolation Rooms.

41. The Inquiry has reviewed the RDS in excel format and notes that there is an entry under 'Design Notes' relating to Ward 2A isolation rooms, the entry states:
"WARNING NOTICE: This room is based on a theoretical design model; which has not

been validated (see paragraph 1.8 of HBN 4 Supplement 1). Specialist advice should be sought on its design. The lamp repeat call from the bedroom is situated over the door outside the room."

a) Was this note entered on the RDS? If so, why and by whom?

A. I was not involved in this process.

b) Who from Multiplex would have been involved at the time?

A. Darren Smith or Darren Pike, Nightingale architects and ZBP.

c) What specialist advice was sought relating to the design of these rooms

A. I was not involved in this process.

d) What was the final agreed design for isolation rooms and who approved this?

A. I was not involved with this process.

e) Who from Multiplex would have been involved at the time?

A. As I was not involved in this process, I do not know exactly who would have been involved from Multiplex. Darren Smith or Darren Pike as design manager and MEP manager may be able to provide the enquiry further information.

f) Why was the main extract placed in the patient's bedroom and not the ensuite as outlined in SHPN 04 Supplement 01? Why was this change requested, who requested this change and who approved this from the NHS GGC Project Team?

A. I was not involved with this process

g) Who from Multiplex would have been involved at the time?

A. Darren Smith as Design Manager and Darren Pike as MEP manager.

<u>Water and Taps</u>

42. Describe your involvement, if any, in respect of the decision to use Horne taps.

A. I do not recall being directly involved in this decision.

a) What indirect involvement did you have, if any?

A. I was in meetings that the taps where discussed, but the details around these I do not recall. Darren Pike, would I believe have had a more detailed discussion on this matter.

b) What concerns, if any, did you have regarding the use of Horne taps?

A. None.

c) What risk assessments were carried out in respect of the use of Horne taps?

A. Having not been directly involved I do not know.

d) Who from Multiplex would have been involved at the time?

A. Darren Pike or Darren Smith, Mercury Engineering.

e) Who was involved in, and who signed off the use of Horne taps?

A. I do not know.

f) Did you attend the meeting regarding the use of Horne taps in 2014? If so, why was the decision made to proceed with Horne taps?

A. I do not recall attending this meeting.

g) Did the use of Horne taps depend on thermal disinfection? If so why, if not, why not? What action, if any, was taken regarding this, and your involvement, if any?

A. I was not involved in this directly.

43. Are you aware of the water system having been filled prior to handover on 26 January 2015? If so, who filled the system, why was it filled and what concerns, if any, did you have. If you had concerns to whom did you escalate these concerns?

A. The water system was filled. I do not know who filled the system but the MPX MEP team may be able to advise. I was not aware of any concerns at the time and do not recall having any other than when filling was being carried out this was done some in a managed fashion, safely and monitored for any leaks.

a) Who from the MPX MEP team should the Inquiry discuss this matter with?

A. Darren Pike or David Wilson may be able to provide the Inquiry further information on the item.

b) The Inquiry understands from **Enc 1- PROJECT STEERING GROUP - 25092012 details – Please refer to Bundle 40, document 175, page 854** that it was intended that there would be no water in the pipes until March 2013.
The Inquiry understands that the water system was likely filled sometime between March 2013 and September 2014, what was the purpose of the water system being filled at this time? With the benefit of hindsight, should there have been concerns at the time with filling the water system between March 2013 and September 2014? If so, please describe what these concerns should have been and why.

A. Not involved in this item. I would advise the Inquiry that the works would have been managed by David Wilson Commissioning manager or Darren Pike MEP manager.

Commissioning and Validation

44. In respect of commissioning and validation please confirm the following:

a) Describe your role in the lead up to commissioning. What action, if any, did you take to ensure that the wards within RHC and the QEUH met the guidance requirements of SHTM?

A. The duration of the commissioning process lasts a considerable amount of time for such a large project over a number of years. When I was moved to the role as Project Director there was an established team in place that were managing the commissioning process. This was made up of MPX staff who then managed a team of supply chain partners. I would have asked for an overview of the progress as part of the reporting progress across all of the different workstreams. As the project neared completion, the number of workstreams would reduce and the number of outstanding/remaining systems to be commissioned would be reducing also. Commissioning progress would be on a schedule allowing the teams to focus on areas still to be completed or achieve there required outputs. Had I been made aware of any areas being unable to achieve their design requirements I would have discussed this with the MEP/Commissioning senior team to understand the overall impact to the project and if this would in turn affect the completion of a department or building.

b) Describe what commissioning of the water and ventilation system took place prior to handover, and your involvement, if any.

A. I was not involved directly with this process but would have received updates from the MEP/commissioning team. The granular detail behind commissioning the water I can no longer recall.

c) Can you recall any details regarding the commissioning of the ventilation system of the QEUH/RHC?

A. The commissioning works were managed by David Wilson. David produced a monthly commissioning update as the project progressed and neared completion. The commissioning of the ventilation system was on an inspection bases with members of the MPX and NHS GGC project team witnessing the rates and ultimately achieving the contractual requirements.

d) Who was responsible for ensuring that commissioning of the water and ventilation system was carried out, and who signed off that it had been carried out?

A. The responsibility for the actual process would have been with Mercury the MEP specialist supply chain partner. Ensuring this was achieved to the correct requirements would have been the responsibility of the MEP/commissioning team for MPX. The sign of process would have been a combined process involving the specialist supply chain partner, MPX MEP/Commissioning/Quality team and the NHS Capita inspection team during the witnessing process.

e) Please refer to **Bundle 16, Document No.13, Page 1357**. Clause 8.2.28.4. of the ERs require the Contractor to demonstrate and certify to the Board the successful completion of all commissioning, testing and compliance with all relevant standards. Was it not part of your role as Project Director for Multiplex to ensure that such certification could be made?

A. As Project Director I was aware of the management process. The detail was managed by David Wilson the commissioning manager for Multiplex. As part of the completion and handover at the end of the project. On the day the project achieved PC all parties involved in the acceptance of completed building advised they were happy with the building and building performance. A list of defects was attached to the Practical Completion Certificate. Multiplex retained a team on site to deal with these defects

and sign off with the NHS GGC project team. I do not recall any issues surrounding lack of certification at that time.

45. Clause 6.8.2 of the Employer's Requirements requires the Contractor to provide a Final Commissioning Programme setting out details of all commissioning tasks, including the timing and sequence of events. This was also to include the relevant testing and commissioning elements of other parties, such as the Control of Infection Officer, the Supervisor and the Independent Commissioning Engineer. **(Please refer to Bundle 16, Document No. 13, Page 1357)**

a) Was the Final Commissioning Programme prepared? If so, by whom and who was it shared with? If not, why not?

A. From memory, there was a commission programme prepared; this was prepared by the MEP/commissioning team and the MPX planning engineers for MPX. This programme was shared with those that were required to review the process/progress like the MEP team, the supply chain and the NHS team to allow the programme to be monitored by the NHS/MPX teams.

46. Clause 6.8.4.2 of Employer's Requirements, states that the Contractor was required to arrange, "all factory testing and shall furnish the Board, its Project Manager and its Supervisor with the opportunity to witness all factory testing and sign off marked items of Plants and Materials. The Board, its Technical Advisors and the Supervisor shall be given fourteen days notices of such testing." **(Please refer to Bundle 16, Document No.13, Page 1357)**

a) Was Capita given the opportunity to witness all factory testing and sign off on marked items of Plants and Materials?

A. With the passage of time, I cannot say now if they were given the opportunity for all of the factory testing, however, had they not received this opportunity I would have expected this to have been raised as an early warning by that team for rectification by the MPX team

b) If Capita was given the opportunity to witness all factory testing, please describe the process.

A. I do not recall the specifics surrounding the process of this but this would have been managed jointly between the MPX delivery team and the specialist supply chain and the NHS inspection team.

c) If Capita was not given the opportunity to witness all factory testing, why not? How did this impact, if at all, Capita's role as NEC3 Supervisor?

A. I do not recall an instance of this happening, but it could have happened. This would not have been intentional.

47. The Inquiry understands that NHS GGC decided to forgo the requirement to have an independent commissioning engineer. Who made this decision? What was the rationale was behind this decision? What was the impact, if any, of this decision? In hindsight, do you think that it was the correct decision?

A. I was not involved in this decision so do not know who decided this. Until reading this question I have not given any consideration to wither this was the correct decision. The responsibility to manage the commissioning was with MPX and its specialist supply chain partners and there commissioning engineers as an example, H&V Commissioning. This would then be witnessed by the NHS inspection team. This was done in an open environment with opportunity afforded to the inspection team across all of the systems to review the results and be involved in live on site witnessing/ testing rather than just a desktop results schedule issued.

a) Did Multiplex have any concerns about its ability to demonstrate and certify to the Board the successful completion of all commissioning, testing and compliance with all relevant standards given that the hospital systems were not being checked by an independent third party as recommended by the guidance. If so, please describe these concerns. If not, why not?

A. No concerns because the process was being managed in line with the contractual requirements and standards. David Wilson was managing this process and this had been agreed with the NHS GGC project team some time before.

48. **Please refer to Bundle 15, Document 7, Page 606**. SHTM 04-01, part E states that, "any pipes delivered unprotected or with open ends should be rejected". The Inquiry understands that Capita highlighted on a number of occasions that pipework was being left open during the construction work making them vulnerable to contamination. What was done to rectify this issue? Was such pipework subsequently rejected?

A. The granular detail of this remediation I do not recall in each instance, but the works would have been rectified to the satisfaction of the MPX managers and the NHS

inspection team, this may have involved replacing pipework. It would have also led to further emphasis on the pipework having capped ends as it arrived on site or cut on site.

49. Was the energy centre commissioned prior to NHS GGC taking occupation of QEUH? If so, describe what you know about the commissioning of the energy centre. Provide details of the intricacies in relation to its completion.

A. The commissioning of the energy centre was in tandem with the main building. From memory there was a schedule of elements being progressed by the MPX and NHS MEP management team at PC. This I recall as being an agreed list at PC.

50. Describe your involvement, if any, in the decision for the energy centre to be retained by Multiplex following handover. What as the rationale/when was the energy centre handed over to NHS GGC, and what was your involvement, if any? Describe your knowledge and understanding, if any, of a payment being made by NHS GGC to Multiplex in respect of the energy centre following the same being handed over.

A. From memory, the energy centre was included within the completion certification. MPX accessed the energy centre under a permit to work system that was controlled by the NHS estates team. I have no knowledge of the payments being refer to in this question

51. Please describe what role Multiplex had, if any, in ensuring that validation was carried out? Was this required to be carried out prior to handover? If so, by whom? The Inquiry understands that validation was intended to be carried out by an independent party. Did this happen? If not, why not?

A. Validation would I believe, have been by the NHS management team so this would be best placed to discuss with that team.

a) Are you aware of validation being carried out? If so when and by whom?

A. I do not recall any elements validation now.

b) At what point did Multiplex advise NHS GCC Management Team that validation could be carried out?

A. I do not recall any specific conversations surrounding this.

c) What requirement was there for validation to be carried out prior to handover?

A. This was not a Multiplex requirement and was I understand to be managed by the NHS GCC project team.

d) What is your knowledge, if any, of the SHTM requirement for NHS GGC to carry out/ ensure that validation had been carried out prior to handover?

A. Because validation was not part of the requirements and not something that I had given consideration detailed consideration to.

e) What allowance was made by you/ Multiplex, if any, for validation by NHS GCC prior to handover in the programme? What communications, if any, did you, or your Team have with NHS GGC about this at the time, given that you talk about working 'hand in glove' with NHS GGC.

A. Because validation was not part of the requirements and not something that I had given consideration detailed consideration to.

f) In that spirit of working 'hand in glove' with NHS GGC, should you have raised the issue?

A. As this element of works was not to be completed by Multiplex our and my focus would have been delivering the building works. The NHS GGC project team had a migration period of some 15/16 after practical completion was achieved. I thought any validation prior to patients arriving after this migration period would have been carried out during this period.

Handover

52. Describe your role in the lead up to NHS GGC accepting handover.

A. As PD I would report the progress and completion of the works across the project to the NHS GGC Delivery team. This would be on a monthly, weekly bases and in some instances daily bases. I would have a number of members of the MPX team prepare areas of the report under their supervision and these in turn would be used to give a full report on all of the workstreams across the project. I would attend these meetings with the MPX leads for Safety, design/planning, construction and commissioning. These meetings were recorded with actions allocated.

a) At the point of handover, how satisfied were you that all areas of QEUH/RHC accepted by NHS GGC, were designed to the intended specification and suitable for the intended patient cohort, meeting all the relevant guidance requirements?

A. I was satisfied that we had followed the process to achieve handover and that the NHS team where happy to accept the building. In the spirit of the project MPX worked hand in glove with the NHS team during their Migration Period. All areas were I believe, constructed as per the design information.

b) How were you assured that the wards met the requirements of the specific patient cohorts?

A. I was not aware of any concerns at the time of PC

c) Were any wards not handed over, or only partially handed over, please confirm. If so, why they were they held back? Was there any financial consequence to both Multiplex and NHS GGC of the ward(s) being held back? What works were carried out in order to allow this ward(s) to be handed over to the NHS GGC?

A. I do not recall any areas being held back.

d) Describe the process for approving the defects listed on the Stage 3 Sectional Completion Certificate (Please refer to Bundle 12, Document No. 3, Page 23) Who saw the Stage 3 Section Completion Certificate before it was signed? Why was the Stage 3 Sectional Completion Certificate signed when there were a number of outstanding defects listed?

A. The exact process I am now not able to recall but would comment that this would have been a list agreed between MPX and the NHS team of outstanding defects to be completed in a serious of agreed dates. The defects listed is a common practice at the completions of large projects. This highlights normally minor works to be completed and signed off. This also talks to NHS subcontractors' requirements an example would be Imaging equipment supplied by the NHS supply chain, supported by MPX. Loose furniture and comms would be another example of this and damages during this installation rectified by MPX.

e) Do you think that the Stage 3 Sectional Completion Certificate accurately listed all of the defects with the QEUH/RHC? If not, please describe the inaccuracies.

A. I do not recall if the certificate listed the remaining defects. MPX issue an outstanding

list of defects as agreed with the NHS inspection team. This list was worked on throughout the migration period.

53. Who oversaw contractual compliance? Who was responsible for ensuring that the paperwork was produced to confirm contractual compliance? What action, if any, did you take to ensure that paperwork was in place to ensure contractual compliance? Was validation of the ventilation system a contractual requirement? If so, who signed off on contractual compliance given the lack of validation?

A. MPX and Capita Symonds managed the contractual compliance, MPX management team worked in tandem with NHS compliance team to ensure the paperwork was in place. This would have been led by the MPX quality team.

a) How was the contractual compliance documentation made available to end-users? Do you think that document sharing system made the contractual compliance documentation easily accessible to such users? If so, why? If not, why not?

A. From memory a document control system called Zutec was in place, training was made available for that system. The estates team where I understood happy with the formatting and a training programme was put in place for a small number of NHS GGC estate managers that where available at the time.

54. Explain what the Building Contract says about a retention period in which some money would be held back pending completion of the QEUH/RHC. In doing so, please explain if the retention period was enforced?

A. Retention would be held as set out in the contract. This would have been paid on completion of the defects period

55. Who was responsible for providing asset tagging. Why was there no asset tagging? Who decided to proceed without it?

A. Tagging was the responsibility of MPX. This tagging system would have been agreed with the NHS estates team which from memory took some time to agree in relation to how it should best work and operate for the estates department. I do not now recall to the extent this was in place. The MPX commissioning and MEP management team may have the detail from then.

a) Given that asset tagging was a responsibility of Multiplex, who decided to proceed without asset tagging? When was this decision made, and who, if anyone, from NHS GGC signed off on this decision?

A. I was not involved in the decision regarding asset tagging but I recall Darren Pike was working with the NHS project team and the NHS estate team to agree what and how the tagging should look and work. Darren Pike would be able to provide further information on this item.

56. Did you consider it appropriate for the handover of QEUH/RHC to take place when the energy centre was not operational due to design issues? Did you appreciate at the time of handover that it would take almost a year before the energy centre was in a position to be brought online?

A. The hospital would have been unable to function and open if the energy centre was not operational. There was an agreed list of works that were to be completed and these were carried out under a permit system managed by the NHS Estates FM team to allow access to the energy centre or the hospital buildings. This would have been carried out after approvals from the NHS Estates FM department of risk assessments. From memory the energy centre was under the control of the NHS management team after PC and was part of the overall handover.

a) Did you consider it appropriate for the handover of QEUH/RHC to take place when the CHP system was not operational due to design issues? Did you appreciate at the time of handover that it would take almost a year before the CHP system was in a position to be brought online?

A. The building was working and operational. I do not now recall the specific issues surrounding the CHP but I believe it was working at the point of practical completion. David Wilson may be able to provide the Inquiry with the detail on this item.

57. The Inquiry understands that no validation was carried out in respect of the ventilation system of QEUH/RHC prior to handover. When did you become aware of this? How did handover come to be accepted without the ventilation system being validated? Who was responsible for this and who signed off on this?

A. MPX had commissioned the systems and signed this off with the NHS team. Validation would have been by the NHS team. I would not have had any conversations around Validation or in any real detail.

58. Describe Multiplex's involvement in works carried out following handover. Describe the nature of these works, whether remedial or new works, the cost and responsibility of payment of these works, details of who instructed the works and when.

A. After completion and PC, I was moved by MPX to a new project in early 2015 before being moved I recall that there was an agreement that all members of the MPX construction team requiring access to the hospital estate would do so through a permit to work system. This would have been to complete the outstanding list of defects at PC and also any issues the NHS team had with the operating and maintenance of the hospital. There was a drive by the MPX team across all the disciplines to ensure the transition from the point of PC project to a live hospital was one of supportive and responsive to any and all concerns. This was essential during the migration period and was the spirit of the project between MPX and its supply chain and the NHS team. I do not recall payments for works or individual instructions.

59. Describe the build condition of the QEUH/RHC as at Final Defects Certificate (CI 43.3) Completion of Whole Works – Stage 3 Adults and Child's Hospital and Energy Centre dated 26th January 2017 **(Please refer to Bundle 12, Document No. 113, Page 848)**.

A. The building condition was complete with systems operational. There was a list of defects to be competed as per the agreed schedule at PC. Prior to PC there had been a number of site "walks" across all the departments with the NHS team paired with MPX project managers responsible for their areas inspecting the building. This was carried out a number of times in the lead up to PC with a final inspection on the morning and afternoon of the date of PC

a) Describe the build condition, with a particular focus on the ventilation and water systems, as at contractual handover on 26th January 2015?

A. From memory, the ventilation was completed in accordance with the requirements of the contract there may have been some defects as part of the completion certification. The build conditions were completed to the level that allowed all parties to sign off the Practical completion certification with defects list. There were some areas that the NHSGGC project team had contractors working in, perhaps installing medical and IT equipment not included in the Multiplex contract. This work required that they removed ceiling tiles and drilled holes in walls to allow cables to be installed. Areas

like the Imaging Department had a number of areas where ceilings were left down to allow the Boards works to be completed. There was also a large area of landscaping to be completed by Multiplex but that was agreed as part of the programme phasing and did not directly affect the running of the buildings.

b) Describe your post contractual handover knowledge of whether or not the wards were compliant with the relevant NHS guidance and relevant regulation, particular in respect of water and ventilation, in particular the isolation rooms within the Schiehallion Unit?

A. I have limited knowledge of this because I left the project soon after PC. But the works were carried out accordance with the contract requirements. Fergus Shaw as Project Manager and an after-care team manager may be able to provide further information on this item.

c) The Inquiry has heard evidence from a number of witnesses in the August 2024 hearings that suggests that the QEUH/RHC site looked like a building site at handover. What would you say to this?

A. The build conditions were completed to the level that allowed all parties to sign off the Practical completion certification with defects list. There were some areas that the NHSGGC project team had contractors working in, perhaps installing medical and IT equipment not included in the Multiplex contract. This work required that they removed ceiling tiles and drilled holes in walls to allow cables to be installed. Areas like the Imaging Department had a number of areas where ceilings were left down to allow the Boards works to be completed. There was also a large area of landscaping to be completed by Multiplex but that was agreed as part of the programme phasing and did not directly affect the running of the buildings.

d) The Inquiry has heard evidence during the August 2024 hearings that many of the outstanding issues at handover were far from ‘minor’. Please comments and confirm your position and understanding at the time. What, if anything, was done to address these issues?

A. After practical completion was agreed, I was then moved to a new project a few weeks after this. Multiplex had in place an aftercare team after handover. The size and number of managers in this team was agreed with the NHS GGC project team. This was to ensure the weeks leading up the hospital receiving patients and operating

as a live hospital that the NHS GGC project team and the team of estates managers had support managing the running of such a complex building. This team was also responsible for clearing the list of defects as set out on the completion certificate. Work on the defects list was carried out after practical completion by that team to the satisfaction of the NHS GGC project team. Any items arising out with that list brought by the NHS GGC project team or the Multiplex managers would also be managed by the aftercare team.
The Hospital buildings were operational at practical completion.
Numerous inspections had taken place across all of the departments, plantrooms and public spaces over many months prior to practical completion by the relevant Multiplex managers and NHS GGC project team members.

In the last few weeks leading up to practical completion, these teams were split into specific areas of the building to carry out a final inspection. This was to give the correct level of confidence that the building works where finished prior to the NHS GGC project team accepting the building. This involved a visual inspection of every single room of the many thousands of rooms inside the buildings, all of the plant rooms and all off the communication spaces / public spaces. There were no areas of the building that were left of this inspection. The Multiplex delivery team and the NHS GGC project team carried out these inspections together and would agree on a list of defects for their respective areas. I accompanied David Louden and Peter Moyer on a number of inspections to ensure what was being report by the inspection teams was reflective of the condition of the building.

On the day of Practical completion, I believe I spent most of that morning and afternoon with both David Louden and Peter Moyer walking around the building to again ensure that the defects list and building condition was completed. The NHS GGC project team agreed that the building was in a suitable condition allowing the signature of the practical completion certificate in the afternoon of that day.

DMA Canyon

60. Prior to handover, who was the Duty Holder in respect of the water system at QEUH/RHC?

A. I do not recall who the duty holder was

61. What responsibility, if any, did Multiplex have in respect of carrying out L8 testing prior to handover? If Multiplex had such a responsibility, was the L8 testing carried out and by whom, and where would the records of the testing be sorted? Were these records made available to NHS GGC?

A. I do not recall the contract requirements for this question.

62. Who became Duty Holder when NHS GGC took handover of the QEUH/RHC site on 26 January 2015?

A. I do not recall who became Duty Holder

63. SHTM 03 01 remains an obligatory part of the contract except insofar as derogated from. Is it not your/ Multiplex's job to ensure that what you/ Multiplex deliver complies with it?

A. The Multiplex's requirement is to deliver what is set out in the contract and agreed in the construction information.

64. Do you have any further information that you consider relevant or interest to the Inquiry?

Declaration

65. I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

A50091098 - Bundle 12 - Estates Communications
A47664054 - Bundle 15 - Water PPP
A47851278 - Bundle 16 - Ventilation PPP
A49342285 - Bundle 17 - Procurement History and Building Contract PPP
A52281466 - Bundle 40 - Miscellaneous Minutes from Design and Construction Phase
A52725667 - Bundle 43 - Volume 3 - Procurement, Contract, Design and Construction, Miscellaneous Documents

Scottish Hospitals Inquiry

Witness Statement of

David Wilson

Personal Details and Professional Background

1. Name, qualifications, chronological professional history, specialism etc. – please provide an up-to-date CV to assist with answering this question. Please provide details of your role working for Multiplex Construction Europe Limited previously, Brookfield Construction (UK) Limited until 21 February 2011 and thereafter Brookfield Multiplex Construction Europe Limited until 31 August 2016 (hereinafter referred to as 'Multiplex') during the time Multiplex was appointed as Contractor in respect of QEUH/RHC, providing details of when you started and left this role, your responsibilities.

A David Alexander Wilson
BSc Quality Management & Engineering Technology
Member of the Institute of Engineering and Technology
(MIET) Commissioning Specialist Association Grade 4
1995-1996 – Junior Mechanical Engineer – James Ramsay
Glasgow Ltd
1996-1998 – Commissioning Engineer – Cardiff Commissioning Ltd
1998-1999 – Senior Commissioning Engineer OPM Management Services
Ltd
1999- 2001 – Assistant Commissioning Manager – OPM Management
Services Ltd
2001-2003 – Commissioning Manager / Technical Writer – OPM Management
Services Ltd
2003–2005 - Commissioning Manager / Technical Writer – H&V Commissioning
Services Ltd
2005-2007 – Building Services Manager HBG/.BAM Construction Ltd
2007-2011 – Senior Building Services Manager – HBG/BAM
Construction Ltd
2011-2015 – Commissioning Manager – Brookfield Multiplex Ltd

2015-2017 – National Commissioning Manager – Multiplex Construction Ltd
2017-2018 – Head of Trials & Commissioning – BAE Systems Ltd
2018-now –National Commissioning Manager / Commissioning Lead – Multiplex Construction Ltd
Specialism – Building Services Commissioning
Role at QEUH/ RHSC – Commissioning Manager 2012-2015, Soft landings Manager Feb 2015 – August 2015 (Full time), August 2015 – May 2017 (part Time)

2. What previous experience or training, if any, did you have to work as Director of Construction? How, if at all, did this experience serve you for the role in respect of the QEUH/RHC?

A I was the Commissioning Manager on the project, not the Director of Construction. Before working as Commissioning Manager for Multiplex I had 8 year's experience as a Commissioning Engineer and Commissioning Manager and 6 years as Building Services / Senior Building Services Manager with commissioning as part of my responsibilities. During the years I was trained in BMS and HVAC commissioning as well as electrical training (BS7671C&G 2931) and gained experience through commercial, secondary / tertiary education, life science/ laboratory and healthcare projects

3. Please provide details of any other healthcare projects that you were involved in prior to the QEUH & RHC.

A Llantrisant General Hospital – South Wales – HVAC Commissioning Engineer
Glasgow Royal Infirmary - ICU extension – Snr Building Services Manager
Glasgow Royal Infirmary A&E Extension – Snr Building Services Manager RHSC Edinburgh (Initial Design) – Snr Building Services Manager

4. Please refer to **Bundle 43 Volume 3, Document 12, Page 493 at page 3**
The Inquiry understands that Multiplex refers to itself as having 'Specialist Contractor and Design Team staff'. Please explain what having a 'Specialist Contractor and Design Team' means, what this entails, what necessary qualifications/experience the team holds, the relevance of this specialism relative to

building healthcare premises.

A I was not involved at the pre-contract stage of the project and was not involved in the selection of specialist contractors or design team staff, however my view is that specialist contractors are contractors who have experienced and suitably qualified staff for the products and services they design / supply / install and commission (if relevant) This would be similar for design staff, suitably qualified and experienced for the systems they are designing. As a principal contractors Multiplex outsources (sub-contracts) specialist contractors and design teams

5. On the Multiplex website it states:
'We [Multiplex] have a long track record of delivering world-class hospitals and aged care facilities that enhance wellbeing and safeguard the day-to-day running of existing operations…
Our teams are skilled in the detailed planning and robust scenario-testing required to ensure safety and surety of delivery in highly sensitive environments….
We are experts in delivering state-of-the-art medical facilities in collaboration with our specialist supply chain. Our UK portfolio includes the largest hospital campus in Europe, Scotland's largest children's hospital, and luxury later living accommodation in Chelsea, London.'

a) In delivering world-class hospitals, please explain the level of knowledge and understanding of healthcare regulations and guidance expected of Multiplex staff?

A This question would be better answered by a Multiplex director.

b) Explain your personal knowledge, understanding and any relevant qualifications in healthcare regulations and guidance?

A Before working on the project I had a working understanding of the HTM/SHTM guidance documents relating to design, installation and commissioning.

c) Whilst working on the project what actions did you take, if any, to ensure that your knowledge of the HTM/SHTM guidance documents, in so far as it related to design, installation and commissioning, remained up to date?

A I read the relevant SHTMs outlined in the ERs and if I was made aware of any updates to SHTMs I would review changes.

d) Please explain your understanding of the importance of compliance with healthcare regulations and guidance for infection prevention and control?

A My understanding of the SHTM guidance documents are that they are an important starting point for design of systems and this coupled with user group / Infection control workshops would provide an agreed design (and derogations list) that once installed and commissioned will provide the infection prevention required.

e) Who from the QEUH team provided Infection Control input and at what stage?

A I don't know who was involved during the design stage. The first person I recall was during the domestic water sampling, January 2015, when Ian Powrie was arranging for someone (I can't recall who) from Infection control to witness the sampling. I then recall meeting Dr Christine Peters and Dr Teresa Inkster around June 2015 when reviewing the ventilation design.

Appointment as Contractor

6. The Inquiry understands that Multiplex was appointed as Contractor to undertake the works for the QEUH & RHC. The works under the Building Contract were to be carried out in stages: Stage 1 (Construct Laboratories), Stage 2 (Detailed design of hospital to FBC submission), Stage 3 (Construction), Stage 3A (Demolition surgical block and landscaping) **(Please refer to Bundle 17, Document No. 12, Page 613)**

a) Describe the appointment process leading up to the Multiplex's appointment as Contractor.

A I was not involved in the appointment process as I started with Multiplex in 2011 but worked on the laboratory building until 2012.

b) Describe your role and remit, in particular provide details regarding Multiplex's role, responsibility and authority in respect of the design and build of QEUH/RHC.

A My role was building services Commissioning Manager on the Laboratory building and then the adults and children's hospital. My remit was to manage the building services commissioning process and had the added responsibility of managing the ICT computer and hub room process and liaise with the GGC project team for

commissioning related activities. Multiplex's role and responsibility was the design and build of the laboratory and the adult and children's hospital. I was not part of the pre-appointment team.

c) Who was responsible for ensuring that Multiplex complied with the terms of the contract with NHS GGC in respect of the QEUH/RHC project?

A Ultimately the Project Director, but all staff would have had to play their part in that.

d) What responsibility, if any, did Multiplex have for ensuring that the built hospital complied with relevant guidance such as SHTM and SHFN?

A Various SHTMs / SHFNs were included within the Employers Requirements so Multiplex had a responsibility to design in line with the guidelines.

e) Describe how derogations from the Employers Requirements were signed off by NHS GGC. What role, if any, did you have in respect of this? Who was responsible for ensuring that the Board signed off on derogations?

A I was not involved in the derogation process and don't know who was involved. Darren Smith was the design manager and may have been involved.

f) Describe your working relationship with NHS GGC prior to appointment, had you worked with any members of the NHS GGC Project Team prior to appointment, if so whom and when?

A I worked on two NHS GGC projects prior to this appointment although do not recall working with any of the Project Team. I did know of Iain Powrie before appointment but had not worked directly with him before.

g) Describe your working relationship with NHS GGC during the terms of your appointment, including day-to-day dealings with the NHS GGC Project Team, details of who you worked with and in respect of what matters?

A I did not work with the Multiplex during the appointment

h) Please confirm whether you worked with NHS GGC project Team members during the project. If so, whom? Describe your working relationship with them.

A I worked with Ian Powrie, Alasdair Smith, Karen Connelly, Eleanor McColl, Peter Moir,

Frank Cairnie, David Loudon. I generally had a good working relationship with the NHS GGC Project team and had good lines of communication particularly with Ian Powrie, Karen Connelly, Elenor McCall and Frank Cairnie.

i) Describe your working relationship with Currie & Brown prior to appointment, had you worked with any members of Currie & Brown who worked on QEUH/RHC prior to appointment, if so whom and when?

A I did not work with the Multiplex prior to appointment. I don't recall working with Currie & Brown on any previous projects.

j) Describe your working relationship with Currie & Brown during the terms of your appointment, including day-to-day dealings, and details of whom you worked with?

A I did not work with the Multiplex during the appointment. My first involvement with Currie and Brown would have been during the handover of the Laboratory building and worked with David Hall.

k) Describe Currie and Brown's role and responsibilities in respect of the project. Are you aware of any changes to their role during the project, if so, please explain.

A Currie and Brown were the Clients projects managers. I was not aware of any changes to their role.

l) Describe your working relationship with Capita prior to appointment, had you worked with any members of Capita who worked on QEUH/RHC prior to appointment, if so whom and when?

A I did not work with the Multiplex prior to appointment. I had worked with David Ramsay on a previous project.

m) Describe your working relationship with Capita during the terms of your appointment, including day-to-day dealings, and details of whom you worked with?

A I did not work with the Multiplex during the appointment. My first involvement with Capita would have been during the commissioning of the Laboratory building and had a good working relationship with John Redmond, Allan Follet, Graham Bruce and Douglas Wilson.

n) Describe your understanding of Capita's role and responsibilities in the project.

A Capita were the NEC 3 contract administrators. Their responsibilities included site quality inspections and to witness the testing and commissioning.

o) Who did you report to on a day-to-day basis?

A Darren Pike

p) In respect of other contracts and sub-contractors, explain which contractors and sub-contractors Multiplex had worked with prior to appointment, describe your day-to day working relationship with them, and details of whom you worked with?

A I did not work with the Multiplex prior to appointment; however, I was aware that Multiplex had worked with Mercury Engineering on the Peterborough Hospital project before QEUH. I had not worked with Mercury before although had worked on previous projects with various Mercurys sub-contractors.

q) Describe which contractors you worked with during the projects, their role on the project, your day-to-day working relationship with them and provide details of which individuals you worked with.

A I worked mostly with Mercury Engineering and their subcontractors such as Schneider Engineering (Building Management and Electrical Management Systems), Scotshield (Fire detection and Alarm), Boston Networks (security and ICT infrastructure). I worked with Robbie O'Donovan, Jim Kennedy, Ciaran Kellegher, Sinead Rogan, Declan O Donavan, Ciaran Rogan, Jack Whittam. My relationship was in the most part good although frustrations could set in from time to time if we were not receiving information on time or work was falling behind programme, no different from any sub-contractor.

r) Describe Mercury's role and responsibilities in respect of the project.

A Mercury was the Building Services sub-contractor for the project. They were responsible for the installation and commissioning of the building services installations.

Review of the 'Works Information'

7. What information was provided to Multiplex to assist with the planning and costing of the project to enable Multiplex to prepare the Contractor's Proposals?

A I was not involved in this process as I did not start with Multiplex until 2011 and was working on the Laboratory building on commencement of employment

8. The Inquiry understands that NHS GGC provided a list of guidance documents (e.g. SHTM/SHPN) that the design had to comply with, please confirm what elements of the design contained in the Contractor's Proposals, did not comply with guidance, and why and how any non-compliances were highlighted during the tender process and ITPD process?

A I was not involved in this process

9. What consideration was given to the impact of any non-compliances on patient safety/infection prevention? At what point, if any, was advice sought from Infection Prevention and Control Staff? If advice was sought, from whom was it sought and what was the advice given?

A I was not involved in this process

10. Did Multiplex propose any changes to the exemplar/reference design? If so, please provide details of the changes and why?

A I was not involved in this process

11. The Inquiry is aware of the agreed ventilation derogation recorded in the M&E Clarification Log. **(Please refer to Bundle 16, Document No. 23, Page 1662)**

a) Describe Multiplex's role in respect of the proposals leading to the ventilation derogation.

A Although I was aware of the ventilation derogation during the later stages of the project I was not involved in any discussion at this stage.

b) Question for Witness: When did you become aware of the derogation?

A I don't recall exactly when I was aware of the derogation. I was asked by the board

about air change rates around June 2015 which is when I reviewed the M&E Clarification log.

c) Question for Witness: When you became aware of the derogation, what was your understanding of the derogation?

A I understood that the derogation changed the air change rate from the guidelines set out within SHTM 03-01.

d) Question for Witness: When you became aware of the derogation, what impact, if any, did you understand the derogation to be?

A I understood the derogation changed the ventilation design and the air change rate in bedrooms. This had no impact on construction or commissioning progress as the air change amendment was during the design stage of the project.

e) Question for Witness: When you became aware of the derogation, what was your understanding, if any, of why there was a ventilation derogation?

A I was not involved in the process but understood part of the decision to derogate was to reduce operational energy costs and carbon emissions.

f) What was the reason for the ventilation derogation?

A I was not involved in this process

g) Who drafted the M&E Clarification Log and who was responsible for updating the Log? Following updates to the log, please provide details of who the log would have been distributed to?

A I was not involved in this process and don't know who drafted the log.

h) What was the scope of the agreed ventilation derogation recorded in the M&E Clarification Log? In particular, was it restricted to general wards only? If so, (a) how is this interpretation evidenced within the documentation; and (b) where is the specification located for areas that required specialist ventilation and isolation rooms?

A I was not involved in this process

i) At the time what concerns, if any, did you have regarding the derogation? Did you raise any concerns, if so with whom?

A I was not involved in this process

12. Refer to the ZBP Ventilation Strategy Paper dated on or around 15 December 2009? **(Please refer to Bundle 16, Document No. 21, Page 1657)**

a) What was your/Multiplex's involvement in this document being instructed?

A I was not involved in this process and was not aware of the instruction

b) What was the intended purpose of this document?

A I was not involved in the process but would have thought the purpose of the document was to outline the ventilation design principles to communicate with the project team.

c) When did you first have sight of this document?

A I do not recall seeing the document prior to seeing it in the bundle

d) Who was the document shared with?

A I don't know

e) How was Multiplex satisfied that the proposals set out in the above document were suitable for use in a healthcare setting?

A I want not involved in the process

f) What concerns if any did you have on reading this document? If so, did you escalate these concerns and to whom?

A I do not recall seeing the document prior to seeing it in the bundle

g) What concerns, if any, do you have now on reading the document?

A Given the current debate around the air changes in bedrooms my only comment would be that the document did not refer to infection control in relation to the reduction from 6ach to 2.5ach.

13. Are you aware of any risk assessments, whether in compliance with the standards in HAI Scribe or otherwise, that NHS GGC carried out in respect of the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper dated 15 December 2009? **(Please refer to Bundle 16, Document No. 21, Page 1657)**

A I was not involved in the process and not aware of any risk assessments

14. Describe the advice sought, if any, or the involvement, if any, of GGC Infection Prevention and Control staff in respect of the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper dated 15 December 2009?

A I was not involved in the process

15. Who from the GGC Project Team and Board were aware of the ventilation derogation?

A I was not involved in the process

16. How was the ventilation derogation communicated to the wider Project Team?

A I was not involved in the process

17. What impact did the requirement for a BREEAM excellent rating have on Multiplex's proposed design in particular in respect of ventilation?

A I was not involved in the process but not aware of any changes in relation to BREEAM and ventilation.

18. What impact did the energy usage target of no more than 80kg of CO2 per square meter have on Multiplex's proposed design?

A I was not involved in the process

19. The Inquiry is aware that Chilled Beam Units were proposed by Multiplex and accepted for use through the QEUH/RHC. What was the basis for Multiplex proposing to use Chilled Beam Units? Is the use of Chilled Beam Units appropriate throughout hospitals? At the time, what concerns, if any, did you have regarding the use of Chilled Beam Units?

A I was not involved in the process but was not aware of any restriction on using chilled beams in hospitals.

20. Would it have been possible to achieve the sustainability requirements (BREEAM excellent rating and 80kg of CO2 per square meter) if Chilled Beams were not selected for use in the QEUH/RHC?

A I was not involved in the design process so don't know the answer.

Full Business Case

21. Under 'Services Systems' confirmation was required "that the design fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current legislation". The Inquiry is aware of several departures from SHTM 03-01 Guidance in relation to air change rates, pressure differentials and filtration requirements. There was also a variation to the primary extract arrangement for PPVL isolation rooms from that set out in SHPN 04 Supplement 01. Was Multiplex aware at the time, of these non-compliances? If so, please confirm how Multiplex communicated these non-compliances to the NHS GGC Project Team. If no action was taken by the NHS GGC Project Team what obligations, if any, did Multiplex have to report matters further and to whom?

A I was not involved in the process

22. Was the ventilation derogation noted in the M&E Clarification Log, recorded in the Full Business Case? Who was responsible for doing this? If you were aware that it had not been recorded in the Full Business Case, please explain what action, if any, you took.

A I was not involved in the process

Design and Construction and Role in the QEUH/RHC Project

23. The Inquiry understands that ward layouts and Room Data Sheets (RDS) were approved through the reviewable Design Data (RDD) process. Describe your role, if any, in the RDD process and the user groups.

A I was not involved in the process

24. How were members selected to be part of a user group?

A I was not involved in the process

25. Confirm who attended the user groups meetings from Multiplex, the NHS GGC Project Team, IPC, Estates and Clinical teams for the following areas: Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU RHC – RHC; All Isolation rooms.

A I was not involved in the process

26. How often were user group meetings scheduled to review design proposals and agree the design with the user groups?

A I was not involved in the process

27. How were designs and the RDS approved to proceed to construction?

A I was not involved in the process

28. How was the ventilation derogation communicated to users during the RDD process?

A I was not involved in the process

29. Please describe how the technical requirements (air change rates, pressure differentials and filter requirements) for each ward were managed and approved during the user group meetings and the RDD process, including your role and involvement.

A I was not involved in the process

30. Were any requests made by the User Groups during the RDD process that were refused – please provide details.

A I was not involved in the process

31. Please refer to **Bundle 17, Document No.75, Page 2881.** Appendix 3 states: "*Commissioning settings for all elements of the works, including microbiological testing proposals for operating theatres and specialist ventilation… Confirmation that the design team fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current*

legislation".

a) Describe the intended use and purpose of the following wards in QEUH/RHC: Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU RHC – RHC; all Isolation rooms.

A Ward 4 b was the Haemato Oncology ward but changed to Bone Marrow Transplant ward. QEUH/RHC Critical card wards were multi bed wards for critically ill patients. Ward 2A and Ward 2b were for children with / recovering from cancer., PICU RHC, was the Pediatric Intensive Care Unit which was a multi bed ward for critically ill young children. The RHC isolation rooms were single bed rooms with ensuite toilets (in some of the rooms) and pressurised lobby's and increased air change rates. I'm unable to recall the purpose of Ward 4C or Level 5 QEUH.

b) What were the specifications of these wards?

A I don't recall the specifications of the wards with the exception of Ward 4b as the specification changed post-handover and I was directly involved with the change. The specification for the ward was discussed with NHS GGC in July 2015 and the upgrade involved upgrading the existing AHU to achieve a higher volume flow rate and a differential pressure (rooms to the corridor) of between 6 and 8Pa, the ceilings were changed from lay in grid type to plasterboard ceilings with sealed joints (room pressure testing was carried out) and a room differential pressure indication and alarm system installed.

c) You say the specification changed? From what? Where did you find the pre-existing specification for that ward?

A The pre-handover requirements / specification for Ward 4b was the basis of ZBPs ventilation design and what the ward was commissioned to.

d) Question for Witness: Were you in charge of the commissioning of that ward prior to July 2015?

A I managed the commissioning process for Multiplex which included Ward 4b.

e) Question for Witness: Most of the changes you list appear as if they should have been in place previously, can you help the Inquiry as to why they were not.

A I was not involved in the design process so don't know why they were not part of the

original design.

f) Who were Wallace Whittle working for at this stage?

A Wallace Whittle took over ZBP so were working for Multiplex in 2015.

g) What guidance was considered in the design of these wards, what processes were in place to ensure guidance compliance?

A I was not involved in the design process with the exception of the post-handover upgrade to Ward 4b. In this case NHS GGC provided guidance on their requirements and Wallace Whittle would have carried out the design.

h) Were there any changes to the design during the design and build, if so, please describe any such changes, describe the impact, if any, on guidance compliance as set out in Appendix 3, and describe the sign off process for any such changes, your involvement and how any changes were communicated to the Board. Was external advice ever sought in respect of design changes?

A I was aware of changes to Ward 4b during the build stage of the project but was not involved in the change process. I was involved in the post-handover design changes and NHS GGC were fully involved in the process.

32. Describe your involvement and understanding, if any, of the decision to remove carbon filters? What was the rationale behind this decision, who was involved and what advice, if any, was sought in reaching this decision?

A I was not involved in the process but aware that there had been agreement not to include them in the design

33. Were any specialist design workshops required? If so, please provide details.

A I was not involved in the process

34. Were Value Engineering meetings/workshops held during the design phase? Please provide details of any agreed value engineering elements.

A I was not involved in the process

Ward 4B and 4C

35. The Inquiry understands that Ward 4B in the QEUH was originally intended to provide accommodation for Renal and Haemato-oncology patients. The 2009 NHS Clinical Output Specification for the Haemato-oncology ward stated, “Please note the haemato-oncology ward area has a very specific function and a considerably higher than average requirement for additional engineering support/infrastructure. There should be no opening windows, no chilled beams. Space sealed and ventilated. Positive pressure to rest of the hospital and all highly filtered air >90%, probably best HEPA with adequate number of positive pressure sealed HEPA filtered side rooms for neutropenic patients as in the Beatson West of Scotland Cancer Centre.” **(Please refer to Bundle 16, Document No.15, Page 1595)**. However, following a Change Order Request in July 2013 by Jonathan Best **(Please refer to Bundle 16, Document No.29, Page 1699)** it was confirmed that the Bone Marrow Transplant (BMT) service would transfer to Ward 4B in the QEUH and the hematology patients that were originally planned to accommodate Ward 4B would move to Ward 4C.

a) Please confirm how this change was communicated to Multiplex and how this change was captured in the revised design and specification documentation, following the Change Order Request.

A I was aware of the change but not involved in the process

b) Please confirm if Multiplex highlighted any risks with the proposal to move the adult BMT Unit to the QEUH.

A I was not involved in the process

c) Did Multiplex advise the GGC Project Team that the requirements set out in SHTM 03-01 relating to air change rates, pressure differentials and filtration requirements would not be achievable in Ward 4B at the QEUH?

A I was not involved in the 2013 change but was involved in the post completion change in 2015, where we advised the project team that the plant and rooms were not designed to achieve the air change rate and positive pressure they now required.

d) What ACH did Ward 4B achieve prior to the works in 2015?

A I believe the air change rate was 6ac/h based on the supply ventilation being 80l/s.

e) Following the Ward Change Order in 2013, are you aware of any changes being made to the specification of the requirements if Ward 4B prior to the works in 2015?

A No

f) How were these works categorised, as additional works or defects?

A Additional works, Multiplex were instructed to carry out the works.

g) Question for Witness: You use the phrase ‘now required’. Were these ACH and pressures not always required once the BMT Unit was to be in QEUH? Would you be aware of that as in charge of commissioning?

A The air change rate and pressures the board now required were different to the ZBP design. I was aware of the design requirements and the ventilation was commissioned in accordance with that.

h) Who approved the lower specification from the GGC Project Team and the Board for the adult BMT service?

A I was not involved in the 2013 changes but the changes made in 2015 were instructed by the GGC team, David Loudon/Peter Moir.

i) Why were suspended ceilings installed in Ward 4B given that the original Clinical Output Specification (COS) referred to ‘space sealed’ – did Multiplex raise this as a non-compliance with the ‘Works Information’?

A I was not involved in the process

j) Please confirm who approved the reflected ceiling plans for this area.

A I was not involved in the process

k) As construction progressed on site, please confirm if suspended ceilings were highlighted as non- compliant with the COS (works information).

A I was not involved in the process

l) Why was no back up Air Handling Unit (AHU) provided for Ward 4B? Who approved this decision? And what strategy was agreed for PPM or equipment failure?

A I was not involved in the process

m) Describe in detail the works carried out to Ward 4B, including but not limited to any changes in specification, works to ceilings, changes to venting and ductwork. Please explain why these works were carried out, what impact these works had on the specifications for Ward 4B.

A The works for ward 4B included removal of the lay in grid ceiling and changing to a solid plasterboard ceiling and sealing up of all joints in preparation for a room air permeability test to each room. The building services work carried out included upgrading the AHU serving the ward to provide more air to assist in achieving the positive pressure required, re-clean the ductwork, re-balance the supply and extract ventilation, install and commission a room differential pressure display and monitoring system and replace all HEPA filters and retest.

The works were carried out as the ward was now deemed as not suitable by the clinical staff/ Infection control.

The works carried out met the specification agreed with the board.

n) Question for Witness: What was your understanding, if any, at the time of the impact the necessary works had on patients.

A I recall patients were moved out in July 2015.

o) Question for Witness: Describe the involvement and role of infection control staff in the works to Ward 4B in 2015.

A Dr Christine Peters was involved in June 2015. She was reviewing the ventilation design. Dr Terisa Inkster was involved as she (or her team) were carrying out microbiological platelet testing within some clinical rooms in the building including Ward 4b. I can't recall exactly but I think that Dr Inkster was involved in the review of upgrade works to Ward 4b.

p) Question for Witness: At any time do you recall anyone raising questions or issues, as to why the works in 2015 were not incorporated into the design and building at the time of the Ward Change Order in 2013?

A I don't recall exactly but Dr Peters may have queried it.

q) Question for Witness: At any time do you recall the ventilation derogation being discussed relative to Ward 4B?

A I don't recall it being mentioned

r) Question for Witness: What requirement in 2015 was there to replicate the standards offered at the Beatson in Ward 4B?

A I recall that there was the desire from the clinical team from the Beatson wanted to Ward 4B to replicate the facilities at the Beatson although the 10ach could not be replicated with the existing AHU and ductwork.

s) In respect of Ward 4C, what was the specification of this ward at the point of the Change Order? Did you understand that Ward 4C was to be used to house immunocompromised patients? If so, what was the justification from departing from SHTM guidance in respect of ventilation, pressure and filtration requirements and who signed this off?

A I was not involved in the process

t) Although you state you were not involved, what was your understanding, if any, at the time of the ventilation specification of the Ward at the time, and what was the justification for departing from SHTM guidance?

A I don't recall Ward 4C being an issue it was Ward 4B conditions that were problematic to the clinical team and infection control.

u) What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 4B and 4C, and was this the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A I was aware of the design air flow rate required for each room (as per the ZBP/Wallace Whittle design schedules and drawings and Mercurys commissioning documentation) which was achieved during the commissioning of the ventilation system. This equated to 6ac/h for Ward 4b. I don't recall Ward 4c

v) Question for Witness: Did the ACH for Ward 4B equate to 6ACH pre or post the 2015 you refer to above?

A The Ward 4B air change rate was 6ach before the remedial works in 2015

w) Question for Witness: Describe the working relationship with Mercury during the works to Ward 4B in 2015? Please refer to **Bundle 43 Volume 1, Document 63, Page 324**. This document appears to show a strained relationship with Mercury during this process please discuss.

A I don't recall a strain, but we were under pressure to get the ward completed and commissioned which brought in frustrations.

Ward 2A/ 2B RHC

36. The Inquiry understands that Ward 2A/2B is the paediatric-oncology Unit and includes the Teenage Cancer Trust and the paediatric Bone Marrow Transplant (BMT) Unit - the department is known as the Schiehallion Unit.

a) Confirm your understanding regarding the intended use and purpose of the Ward 2A/2B, what guidance was considered in the design of these wards, what processes Multiplex put in place to ensure guidance compliance?

A I was not involved in the design process but my understanding was that the wards would hold child cancer patients.

b) Although you were not involved in the design process, what processes, if any, did Multiplex put in place to ensure guidance compliance? If so, please provide details.

A The design would have been reviewed by Multiplex design managers, to check for compliance and if the design was in line with client's requirements.

c) What changes, if any, were made to the design during construction? Please describe any such changes, describe the impact, if any, on guidance compliance, and describe the sign off process for any such changes and your involvement. Was external advance ever sought in respect of design changes?

A I was not aware of any changes during construction although I was not directly involved in design changes.

d) Describe the IPC involvement in the design of Wards 2A and 2B, who was involved and who signed off the final design and when?

A I was not involved in the design process

e) What concerns, if any, did you have regarding the final design specification of Wards 2A and 2B, and what action, if any, did you take in respect of these concerns?

A I was not involved in the design process and accepted that the systems that were designed, installed and commissioned were in accordance with the design agreed with NHS GGC.

f) The inquiry has heard evidence indicating that problems were identified in Ward 2A almost immediately on occupation. Can you assist the Inquiry as to how that is consistent with what you say?

A My recollection is that the issues identified were around design / specification of the ward rather than the commissioning which was completed in accordance with the design.

g) The Inquiry has also heard evidence that full examination of Ward 2A revealed a range of issues. Please refer to **Bundle 6, Documents 33 and 34** to assist**.** Can you assist the Inquiry as to how that relates to your evidence suggesting everything was done correctly?

A The issues identified within the reports by Innovated Design are design and specification issues. The ventilation systems within Ward 2A were commissioned in line with the approved design at the time.

37. What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 2A and 2B, and was this the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A I would have been aware of the design air flow rate required for each room (as per the output ZBP/ Wallace Whittle design schedules and drawings) which was achieved during the commissioning of the ventilation system. The wards had several Isolation rooms which would have had greater design flow rates (therefore air changes) and a pressure regime. I was aware of the recommended air change rates

detailed in SHTM 03-01 but considered the design air flow rates detailed within the ZBP design schedules were agreed with NHS GGC. I was not involved in the design process or approval of the design.

Isolation Rooms

38. Describe how the number and location of the isolation rooms was agreed? Who approved the final number and locations in the QEUH and RHC?

A I was not involved in the design process

39. Who was responsible for producing the drawings and the specification for isolation rooms; who approved these from the NHS GGC Project Team?

A I was not involved in the process but drawings and specifications were generally produced by ZBP/Wallace Whittle for the building services.

40. What concerns, if any, did you have regarding isolation rooms and compliance with SHTM/HTM? What action, if any, did you take in respect of any such concerns?

A I did not have any concerns with the Isolation Rooms at the time of commissioning as the installation was as per the design drawings and my understanding was that the design of the isolation rooms was based on the NHS GGC requirements.

a) What was your understanding based on?

A That the drawings had been reviewed by both Multiplex design managers and the NHS GGC project team and its advisors.

41. The Inquiry has reviewed the RDS in excel format and notes that there is an entry under 'Design Notes' relating to Ward 2A isolation rooms, the entry states: *"WARNING NOTICE: This room is based on a theoretical design model; which has not been validated (see paragraph 1.8 of HBN 4 Supplement 1). Specialist advice should be sought on its design. The lamp repeat call from the bedroom is situated over the door outside the room."*

a) Was this note entered on the RDS? If so, why and by whom?

A I was not involved in the process

b) What specialist advice was sought relating to the design of these rooms

A I was not involved in the process

c) What was the final agreed design for isolation rooms and who approved this?

A To my knowledge the final agreed design for the isolation rooms was positive pressure lobby (10pa) with main extract from the bedroom and 10ac/h as per the ZBP/Wallace Whittle drawings and schedules. I am not aware who approved the design as I was not involved in the process.

42. Why was the main extract placed in the patient's bedroom and not the ensuite as outlined in SHPN 04 Supplement 01? Why was this change requested, who requested this change and who approved this from the NHS GGC Project Team?

A I was not involved during the design process

a) Please refer to **Bundle 12, page 781**. Please explain what the issues were being discussed. Why you wanted to keep matters 'high level' what concerns did you have at this time?

A There were a lot of parties some of whom were not building services engineers and I wanted to keep the response to the issue around the compliance with SHPN-04 supplement 1 which was the important question.

<u>Water and Taps</u>

43. Describe your involvement, if any, in respect of the decision to use Horne taps.

A I was not involved in the process but aware that there was discussions and workshops with Multiplex and NHS GGC

a) What concerns, if any, did you have regarding the use of Horne taps?

A I did not have any concerns as my understanding was that the use of the Horne taps was agreed with the Multiplex, design team and NHS GGC.

b) What risk assessments were carried out in respect of the use of Horne taps?

A I was not involved in the process and not aware of Risk Assessments

c) Who was involved in, and who signed off the use of Horne taps?

A I don't recall who signed it off but aware that Multiplex was involved in the process.

d) Did you attend the meeting regarding the use of Horne taps in 2014**?** If so, why was the decision made to proceed with Horne taps?

A I don't recall attending any meetings.

e) Did the use of Horne taps depend on thermal disinfection? If so why, if not, why not? What action, if any, was taken regarding this, and your involvement, if any?

A I was not aware of the requirement for thermal disinfection although understand that the taps were designed to be (relatively) easily removed and replaced to allow NHS GGC estates team to remove and replace the taps and carry out thermal disinfection to the removed taps. At one point there was a plan to install a thermal disinfection station in plantroom 31to allow thermal disinfection of multiple taps at the same time.

f) Question for Witness: You were aware of the planned process for disinfection of Horne taps. Can you assist the Inquiry as to why they were installed and used without that process being operational?

A The thermal disinfection station was to be instructed by NHC GGC as it was not part of the original design. It was to assist the Estates Engineers in thermally disinfecting multiple taps at a time. The taps could still be removed and thermally disinfected by the FM team by autoclave or by immersion in hot water.

44. Are you aware of the water system having been filled prior to handover on 26 January 2015? If so, who filled the system, why was it filled and what concerns, if any, did you have. If you had concerns to whom did you escalate these concerns?

A I was aware that the systems were filled before January 2015. The systems were filled by Mercury Engineering (mechanical and electrical installation, testing & commissioning contractor). The systems had to be filled prior to January 2015 as if not we would not have been able to complete the testing, commissioning, disinfection and sampling of the water systems before handover. Although I can't remember exactly when the systems were filled (they were filled in phases) the process would have been ongoing through 2014. Mercurys process was that the system was initially tested with air (to ensure there were no open ends) prior to being filled with water for

a hydraulic pressure test to ensure the pipes were sound with no leaks before ceilings and finishes were installed. I had no concerns when the systems were filled as my understanding was that Mercury and H&V Commissioning (Mercurys water specialist) would manage the water in the systems between after the filling and testing before flushing, commissioning, disinfection, sampling and post disinfection draw off. It is usual practice to fill water system to hydraulically test before finishes are installed. After the system were filled with water they were to be handed to H&V Commissioning.

b) What, if any, precautions were taken in respect of filling the water system?

A Mercury took samples of the Scottish Water incoming water and had it microbiologically tested before using it to fill the systems.

c) Are you aware of whether the water system was flushed following testing? Is this something that you would have expected to have happened? Please explain your answer.

A Yes I expected this to have happened as it was part of the process and part of the HSE guidelines. I was aware of draw offs and flushing taking place by Mercury.

Commissioning and Validation

45. In respect of commissioning and validation please confirm the following:

a) Describe your role in the lead up to commissioning. What action, if any, did you take to ensure that the wards within RHC and the QEUH met the guidance requirements of SHTM?

A My main role in the lead up to commissioning was to plan the commissioning activities and produce a commissioning programme in collaboration with Mercury Engineering. My role was to check systems were programmed to be commissioned (in the correct sequence) and that RAMS were produced and agreed (I reviewed the majority of the commissioning RAMS)

b) What do you mean by “commissioning RAMS”? Please provide details.

A Commissioning RAMS are commissioning Risk Assessments and Method

Statements. The RAMS would include the method and process for the relevant commissioning activity as well as the health and safety process to be followed by the engineer carrying out the commissioning activity.

c) Describe what commissioning of the water and ventilation system took place prior to handover, and your involvement, if any.

A I was involved in the planning and progress monitoring of the commissioning of both the water and ventilation system. I also organised the demonstration/witnessing of the systems by the Multiplex team (on some occasions I witnessed system testing/commissioning) and invites were sent to Capita (Allan Follet and Graham Bruce early in the contract then Douglas Wilson) and members of the GGC Project Team (generally Ian Powrie and Alastair Smith) I liaised and worked with Mercury (and their specialists) to ensure that (to the best of my ability) that the systems were tested and commissioned in accordance with the design drawings / specifications / schedules and RAMS.

The water system testing /commissioning (by Mercury Engineering and H&V Commissioning Services) commenced with pressure testing - compressed air then hydraulic pressure test thereafter the system was managed by Mercury / H&V commissioning until system commissioning. The commissioning process was leachate flushing, then hot water system thermal balancing, TMV (Thermostatic Mixing Valves) setting / testing then tap/outlet temperature check. The final commissioning activity was disinfection followed by bacteriological sampling and water management/ bi weekly draw offs. Various items of plant were tested / commissioned at stages, including Storage Tanks, Filtration Unit, Booster Sets.

The ventilation system testing / commissioning commenced with a pressure / integrity test (a percentage of each system was tested), Fire damper / smoke damper testing, ductwork cleaning (where specified), system commissioning and proportional balancing, pressure regime checks / adjustments (on certain systems such as theatres and Isolation rooms) and HEPA filter testing (where specified).

d) How did you decide which tests to invite Capita and the GGC Project Team to? Was a representative from Capita and the GGC Project Team invited to witness every test? If not, why not?

A The process was to invite the agreed people from Capita (Allan Follet, Graham Bruce, Douglas Wilson) and the NHS project team (Ian Powrie, Alistair Smith) to all commissioning activities. Invites were generally issued via Aconex but on some occasions, there may have been a phone call or a face to face invite.

e) Did you have any difficulty ensuring that the systems were tested and commissioned in accordance with the design drawings / specifications / schedules and RAMS? If so, please describe those difficulties and any action you took to overcome them.

A I don't recall all the issues or any specifics, but problems and issues are often uncovered during testing and commissioning. Mercury would have dealt directly with most of the issues when they arose but there would have been occasions where we would have workshops with Mercury and their specialists to review issues and plans to resolve.

f) Why did Capita not countersign commissioning statements?

A I don't think it was in Capitas remit to review and comment on Commissioning RAMS.

g) Who was responsible for ensuring that commissioning of the water and ventilation system was carried out, and who signed off that it had been carried out?

A Mercury Engineering were responsible for ensuring systems were commissioned correctly in line with the design criteria, manufacturers guidelines and RAMS and I was responsible for monitoring this on behalf of Multiplex. The systems were signed off by the relevant Commissioning Engineer and signed as witnessed (most systems were sample witnessed as opposed to witnessing all commissionable parameters) by Multiplex. Capita and representatives of the GGC Project team were invited to witness commissioned systems and in most cases a representative attended (Capita – Allan Follet, Graham Bruce, Douglas Wilson. NHS GGC – Ian Powrie, Alastair Smith) but generally did not sign the commissioning certificates.

h) Please explain the process involved in "sample witnessing" and why this witness testing protocol was followed in relation to testing the QEUH/RHC building systems as opposed to "witnessing all commissioning parameters."

A Sample witnessing is common in the construction industry and refers to picking a random selection of parameters to check that they are as detailed within the

commissioning engineers report. For example, on a ventilation system with 50 grilles, 10% or 5 grilles would be checked. If any grilles were not as per the engineers report, the engineer would be asked to investigate and rectify before the system would be re-witnessed. All systems would be witnessed.

46. Clause 6.8.2 of the Employer's Requirements requires the Contractor to provide a Final Commissioning Programme setting out details of all commissioning tasks, including the timing and sequence of events. This was also to include the relevant testing and commissioning elements of other parties, such as the Control of Infection Officer, the Supervisor and the Independent Commissioning Engineer. **(Please refer to Bundle 16, Document No. 13, Page 1357)**

a) Was the Final Commissioning Programme prepared? If so, by whom and who was it shared with? If not, why not?

A I produced the building services commissioning programme with Mercury which included system testing and commissioning activities. A programme was produced for each build / commissioning stage of the works starting with Plantroom 21 then Plantroom 31 and 22, Plantroom 32,33 and Towers and plantroom 41 and associated areas with a final Global commissioning programme for system serving the entire building such as water, medical gas, Fire alarm etc. The programmes were issued to NHS GGC and Capita. All system testing and commissioning witnessing activities were communicated to Capita and NHS GGC via Aconex invites. We expected the GGC project team to invite any other people that they thought would be relevant to witnessing such as the Infection Control Officer. I recall that the board also produced a what they termed a commissioning programme for their commissioning and migration post-handover.

a) What reference, if any, was made to the requirements of SHTM 03 01 during commissioning?

A The commissioning elements noted with SHTM 03-01 were reviewed and in many cases outlined in the normal building services commissioning processes which were also outlined within the Commissioning RAMS. For example, SHTM03-01 outlines specific commissioning process for UCV theatre canopies which would have been replicated within the Commissioning RAMs and carried out by the UCV canopy commissioning engineer.

b) SHTM 03 01 provides for validation as a step to be taken before handover is accepted. Were you aware of this? What provision in the programme was made for it to be carried out successfully?

A Yes I was aware of validation within SHTM 03-01. It was not included within the Multiplex programme as this was a board activity

47. Clause 6.8.4.2 of Employer's Requirements, states that the Contractor was required to arrange, "all factory testing and shall furnish the Board, its Project Manager and its Supervisor with the opportunity to witness all factory testing and sign off marked items of Plants and Materials. The Board, its Technical Advisors and the Supervisor shall be given fourteen days notices of such testing." **(Please refer to Bundle 16, Document No.13, Page 1357)**

a) Was Capita given the opportunity to witness all factory testing and sign off on marked items of Plants and Materials?

A My involvement in the Factory testing was limited as I was working on the Laboratory at the time. I recall that only a selection of the main plant was required to be Factory tested which is not unusual.

b) If Capita was given the opportunity to witness all factory testing, please describe the process.

A I was not directly involved in the process this was managed by the relevant system M&E Manager and Mercury so I don't know if Capita were invited.

c) If Capita was not given the opportunity to witness all factory testing, why not? How did this impact, if at all, Capita's role as NEC3 Supervisor?

A I was not involved in the process

48. The Inquiry understands that NHS GGC decided to forgo the requirement to have an independent commissioning engineer. Who made this decision? What was the rationale was behind this decision? What was the impact, if any, of this decision? In hindsight, do you think that it was the correct decision?

A I was not involved in the process, but my understanding was the GGC project team accepted that Multiplex were to manage the commissioning process therefore the Commissioning Manager was to be employed by them. Any independent engineer

would have had less impact in managing the process if they were not part of the Multiplex team.

a) Please explain your reference to ‘less impact’.

A Normally independent commissioning engineers or a client commissioning engineer has an observation and witnessing role and not a close managerial role.

b) Do you accept that an Independent Commissioning Engineer would have meant commissioning could not have been concluded without an independent view on compliance? Please refer to your answer at Q53a when considering your answer.

A. That would have depended on the remit of the independent commissioning engineers. If their role was to witness the commissioning based on the design there would have there been little benefit as the commissioning was carried out in accordance with the design. There were already members of Capita and the NHS GG&C project team witnessing commissioning to ensure they were happy that it was in line with the design.

49. Please **refer to Bundle 15, Document 7, Page 606. SHTM 04-01, part E** states that, “any pipes delivered unprotected or with open ends should be rejected”. The Inquiry understands that Capita highlighted on a number of occasions that pipework was being left open during the construction work making them vulnerable to contamination. What was done to rectify this issue? Was such pipework subsequently rejected?

A Although I was not directly involved in the delivery process, my understanding was that the pipework was delivered protected. The issues highlighted by Capita were that in some instances pipes were installed and had been left without the ends being capped / covered. As far as I was aware this was dealt with by the Multiplex Site Managers and Mercury Supervisors and signed off by capita when the issue was resolved.

50. Was the energy centre commissioned prior to NHS GGC taking occupation of QEUH? If so, describe what you know about the commissioning of the energy centre. Provide details of the intricacies in relation to its completion.

A The systems within the energy centre (MTHW, CHW, HV supply, generators,

switchboards etc.) were commissioned prior to handover to NHS GGC. The CHPs, although commissioned had not been fully integrated into the MTHW system controls at the time of handover.

51. Describe your involvement, if any, in the decision for the energy centre to be retained by Multiplex following handover. What as the rationale/when was the energy centre handed over to NHS GGC, and what was your involvement, if any? Describe your knowledge and understanding, if any, of a payment being made by NHS GGC to Multiplex in respect of the energy centre following the same being handed over.

A To my knowledge the energy centre was handed over for NHS GGC to operate at handover and was not retained by Multiplex.

52. Please describe what role Multiplex had, if any, in ensuring that validation was carried out? Was this required to be carried out prior to handover? If so, by whom? The Inquiry understands that validation was intended to be carried out by an independent party. Did this happen? If not, why not?

A Multiplex (sub-contractors) role was to commission the systems and did not have any role in validation which was the responsibility of NHS GGC

Handover

53. Describe your role in the lead up to NHS GGC accepting handover.

A My role as Commissioning Manager was managing the final commissioning process, monitoring progress, chasing final certification and organising the system witnessing. I was also reviewing O&M information produced by Mercury and organising Mercurys system training to NHS GGC (Client training)

a) At the point of handover, how satisfied were you that all areas of QEUH/RHC accepted by NHS GGC, were designed to the intended specification and suitable for the intended patient cohort, meeting all the relevant guidance requirements?

A At the point of handover I was satisfied that the life safety systems had been commissioned to achieve a building control temporary habitation certificate and that the majority of systems were complete and commissioned in accordance with the ZBP/ Wallace Whittle design. However, there were systems that were still being

worked on and instructed works being completed post-handover. patients were not moving into the building at building handover, there was a period for NHS commissioning before the first patient cohort moved in.

b) How were you assured that the wards met the requirements of the specific patient cohorts?

A My job did not involve making sure wards met the requirements of patient cohorts which was a job of NHS GGC.

c) Were any wards not handed over, or only partially handed over, please confirm. If so, why they were they held back? Was there any financial consequence to both Multiplex and NHS GGC of the ward(s) being held back? What works were carried out in order to allow this ward(s) to be handed over to the NHS GGC?

A I don't recall if any wards were not handed over, however there were fit out works by NHS GGC and some works instructed to Multiplex post-handover. I was not involved in any financial negotiations

d) Describe the process for approving the defects listed on the Stage 3 Sectional Completion Certificate **(Please refer to Bundle 12, Document No. 3, Page 23)** Who saw the Stage 3 Section Completion Certificate before it was signed? Why was the Stage 3 Sectional Completion Certificate signed when there were a number of outstanding defects listed?

A The process was that Multiplex and sub-contractors would address the defects and Capita would then inspect / review and sign off. Regular meetings were held with Capita to review progress.

e) Do you think that the Stage 3 Sectional Completion Certificate accurately listed all of the defects with the QEUH/RHC? If not, please describe the inaccuracies.

A I don't recall being involved in that part of the process although would have seen the document at some stage. My recollection was that NHS GGC were keen to take control of the building and accepted that Multiplex would address the defects during the defect liability period

f) On what do you base your understanding of NHS GGC wanting to take control of the building notwithstanding defects? The inquiry has heard extensive evidence about apparently significant issues with Wards 2A and 4B. Can you assist the inquiry to understand why none of these issues were apparently identified at the time of the Completion Certificate?

A Ward 4b and 2A had been completed and commissioned in accordance with the design. I don't recall anyone querying the design at project handover.

g) Do you think that the Stage 3 Sectional Completion Certificate accurately listed all of the defects with the QEUH/RHC? If not, please describe the inaccuracies.

A I don't recall the contents of the completion certificate at the time of handover but on viewing now, it looks accurate

54. Who oversaw contractual compliance? Who was responsible for ensuring that the paperwork was produced to confirm contractual compliance? What action, if any, did you take to ensure that paperwork was in place to ensure contractual compliance? Was validation of the ventilation system a contractual requirement? If so, who signed off on contractual compliance given the lack of validation?

A Capita oversaw contractual compliance. Mercury were responsible for producing the building services test and commissioning certification for contractual compliance. I chased Mercury to issue certification and tracked the certification and met with Capita to review (test and commissioning certification was uploaded to Zutec – digital online data storage platform). As far as I was aware our contract was to commission system, validation was by others.

a) **Please refer to Bundle 16, Document No. 13, Page 1357**. As per clause 8.2.28.4. of the Employer Requirements it was Multiplex's ultimate responsibility to, "to demonstrate and certify to the Board the successful completion of all commissioning, testing and compliance with all relevant standards." How satisfied were you that all testing and commissioning certification for contractual compliance had been uploaded to Zutec prior to handover?

A Not all commissioning certificates had been uploaded to Zutec at the date of handover. We were still chasing Mercury for any remaining certificates.

55. Explain what the Building Contract says about a retention period in which some money would be held back pending completion of the QEUH/RHC. In doing so, please explain if the retention period was enforced?

A I did not deal with retention

56. Who was responsible for providing asset tagging. Why was there no asset tagging? Who decided to proceed without it?

A Multiplex / Mercury were responsible for asset tagging of the building services which involved fixing a QR code to the relevant assets. The physical asset tagging was completed post-handover. NHS GGC had not agreed the CAFM system they were going to use. My understanding was that there was an agreement to transfer the asset list and PPM (planned Preventative Maintenance) from Zutec to the chosen system (by NHS GGC) post-handover and the assets would be physically tagged at the same time. I don't know who from NHS GGC agreed this.

a) Describe your post-handover knowledge, if any, of all contractual retentions; b) post-handover additional payments made to Multiplex by NHSGGC; and c) any additional payment for achieving energy targets/ BREEAM.

A I was not involved in the retention or post-handover payments so don't have any knowledge.

b) For clarity are you saying NHS GGC agreed that asset tagging would not be done by handover?

A Yes.

57. Did you consider it appropriate for the handover of QEUH/RHC to take place when the energy centre was not operational due to design issues? Did you appreciate at the time of handover that it would take almost a year before the energy centre was in a position to be brought online?

A The energy centre was operational and provided sufficient power, heat and cooling to satisfy the demands of the hospital so I did not see any issues or inappropriate for the handover to take place. The plant that was not operational was the three CHP Units (Combined Heat & Power units). The Boilers that were installed and operational at handover provided adequate amounts of heat to satisfy the demands

of the hospital which was confirmed by Wallace Whittle.
As noted above the energy centre was online at handover however I did not appreciate at the time of handover that it would take so long to get the MTHW system accepted by Zurich (written scheme of examination) and then the CHPs brought back on line.

58. The Inquiry understands that no validation was carried out in respect of the ventilation system of QEUH/RHC prior to handover. When did you become aware of this? How did handover come to be accepted without the ventilation system being validated? Who was responsible for this and who signed off on this?

A The ventilation systems were commissioned by Mercury / H&V Commissioning and ultimately accepted by Capita before handover. The systems worked in line with the design intent. Validation was a responsibility of NHS GGC.

a) Who agreed to proceed without validation?

A I don't know.

59. Describe Multiplex's involvement in works carried out following handover. Describe the nature of these works, whether remedial or new works, the cost and responsibility of payment of these works, details of who instructed the works and when.

A We were very involved in the works carried out after handover. The works consisted of completing some items of commissioning, defect rectification and various elements of instructed works. I was not involved in the payment and can't recall who issued instructions but instructions (Or Project Managers Instructions) were issued by NHS GGC.

60. Describe the build condition of the QEUH/RHC as at Final Defects Certificate (CI 43.3) Completion of Whole Works – Stage 3 Adults and Child's Hospital and Energy Centre dated 26th January 2017 **(Please refer to Bundle 12, Document No. 113, Page 848)**.

A By the end of the defects liability period I was less involved in the project and don't recall the condition of the building.

DMA Canyon

61. Prior to handover, who was the Duty Holder in respect of the water system at QEUH/RHC?

A I don't recall NHS GGC appointing a Duty Holder prior to handover but it may have been Ian Powrie. Mercury were responsible for the installation and commissioning of the water system prior to handover.

62. What responsibility, if any, did Multiplex have in respect of carrying out L8 testing prior to handover? If Multiplex had such a responsibility, was the L8 testing carried out and by whom, and where would the records of the testing be sorted? Were these records made available to NHS GGC?

A The ACoP L8 document provides advice on the control of legionella bacteria in water systems. Mercury carried out the testing and commissioning of the hot and cold water system in line with the ZBP/Wallace Whittle design, specification and guidelines such as ACoP L8 . The testing and commissioning included parameters that are defined in the ACoP L8 document such as temperatures for hot and cold water systems but also flushing as outlined in the SHTM. All testing and commissioning information relating to the hot and cold water systems was to be uploaded to Zutec (by Mercury). NHS GGC had access to Zutec. Regarding the L8 Risk Assessment, this was carried out by DMA Canyon who were appointed by NHS GGC.

a) Is the Inquiry correct to understand that the L8 risk assessment was to be pre-handover? If so, was it not the responsibility of Multiplex?

A. I don't recall if the L8 risk assessment was required to be pre-handover but expected it to be completed before patient occupation.

b) Who was responsible for ensuring these did not exist?

A. I don't understand the question

63. Who became Duty Holder when NHS GGC took handover of the QEUH/RHC site on 26 January 2015?

A I think Ian Powrie was the duty holder

64. SHTM 03 01 remains an obligatory part of the contract except insofar as derogated from. Is it not your/ Multiplex's job to ensure that what you/ Multiplex deliver complies with it?

A My role was to ensure that the commissioning was carried out in line with the approved design.

65. Do you have any further information that you consider relevant or interest to the Inquiry?

A No

Declaration

66. I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

The witness was provided access to the following Scottish Hospital Inquiry bundles/documents for reference when they completed their questionnaire/statement.

Appendix A

A43293438 - Bundle 6 – Miscellaneous Documents
A50091098 – Bundle 12 – Estates Communications
A47664054 – Bundle 15 – Water PPP
A47851278 – Bundle 16 – Ventilation PPP
A49342285 – Bundle 17 – Procurement History and Building Contract PPP
A52449706 – Bundle 43 Volume 1 - Procurement, Contract, Design & Construction
A52706440 – Bundle 43 Volume 3 - Procurement, Contract, Design & Construction

Scottish Hospitals Inquiry
Witness Statement of
Darren Pike

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The introduction, questions and answers are produced within the statement.

Personal Details and Professional Background

1. Name, qualifications, chronological professional history, specialism etc. – please provide an up-to-date CV to assist with answering this question. Please provide details of your role working for Multiplex Construction Europe Limited previously, Brookfield Construction (UK) Limited until 21 February 2011 and thereafter Brookfield Multiplex Construction Europe Limited until 31 August 2016 (hereinafter referred to as 'Multiplex') during the time Multiplex was appointed as Contractor in respect of QEUH/RHC, providing details of when you started and left this role, your responsibilities.

A. Darren Pike

BEng – Mechanical Engineering

1997-2010 – Haden Young, Positions held; Project Engineer, Design Manager, Project Manager, Pre-Construction Manager (Healthcare)

2010-Present – Multiplex, M&E Manager (2010-2016) Project Director (2016-present)

I joined Multiplex in March 2010 as an M&E manager. Initially my role was focused on the Laboratory Building and the infrastructure & enabling works for the new hospital. In the latter part of 2010 I was involved in the conclusion of the ITPD for the hospital. From early 2011 I became the lead M&E manager for the Multiplex M&E team on the project.

Through 2011-2015 I was managing the Multiplex M&E team, liaising frequently with our supply chain, designers, NHS GGC project team and advisors as well as the other Multiplex departments within the project delivery team. Ie design, commercial, construction.

My role involved overseeing the MEP team for multiplex, which consisted of 10 direct employees who each had a role and a specialism that formed part of the overall project delivery. ZBP were the MEP designers contracted to Multiplex to fulfil the design requirements with regard MEP services and they worked closely with Nightingales architects to produce the design for construction.

Mercury Engineering were the main MEP subcontractor and they were contracted to install the M&E services, commission and set them to work.

I left the project in early 2015 shortly after PC was granted.

2. What previous experience or training, if any, did and you have to working as Director of Construction? How, if at all, did this experience serve you for the role in respect of the QEUH/RHC?

A. 13 years' experience working with Haden Young, in the roles above and in relation to healthcare the projects listed below.

3. Please provide details of any other healthcare projects that you were involved in prior to the QEUH & RHC.

A. New Law Hospital, Stobhill & Victoria ACADs, Fife Acute

4. Please refer to **Bundle 43, Volume 3, Document No. 12, Page 493.** The Inquiry understands that Multiplex refers to itself as having 'Specialist Contractor and Design Team staff. Please explain what having a 'Specialist Contractor and Design Team' means, what this entails, what necessary qualifications/experience the team holds, the relevance of this specialism relative to building healthcare premises.

A. I wasn't with Multiplex at the time this was written. However, I would take this to be in relation to being able to bring a complete team with relevant experience to a project, the team being made up of several different companies that each have the relevant experience and expertise to deliver a particular project.

5. On the Multiplex website it states:

'We [Multiplex] have a long track record of delivering world-class hospitals and aged care facilities that enhance wellbeing and safeguard the day-to-day running of existing operations…

Our teams are skilled in the detailed planning and robust scenario-testing required to ensure safety and surety of delivery in highly sensitive environments….

We are experts in delivering state-of-the-art medical facilities in collaboration with our specialist supply chain. Our UK portfolio includes the largest hospital campus in Europe, Scotland's largest children's hospital, and luxury later living accommodation in Chelsea, London.'

a) In delivering world-class hospitals, please explain the level of knowledge and understanding of healthcare regulations and guidance expected of Multiplex staff?

A. Multiplex staff will typically have a working knowledge, experience and background in an area relevant to the project in which they operate.

b) Explain your personal knowledge, understanding and any relevant qualifications in healthcare regulations and guidance?

A. Having worked on several healthcare projects I had a working knowledge of the regulations and guidance.

c) Please explain your understanding of the importance of compliance with healthcare regulations and guidance for infection prevention and control.

A. The guidance is written with the intent of applying all previous lessons and best practice for the safe operation of a healthcare facility. Whilst compliance with the guidance is always the starting point, as it is written to cover a large variety of applications and range of facilities it is not uncommon to work to an agreed deviance from the guidance on a specific case basis, so long as suitable assessed and agreed by the parties.

d) Please explain how important the input of Infection Control is to the assessment and development of the design of a healthcare facility?

A. Infection control play a key role in healthcare and design of healthcare facilities. Whilst at Multiplex we are aware of their involvement, it is through the NHSGGC project team that they are engaged. I recall the NHS GGC team having an Infection Control liaison as part of their team through the design phase. As well as infection Control undertaking site reviews during the construction period.

Appointment as Contractor

6. The Inquiry understands that Multiplex was appointed as Contractor to undertake the works for the QEUH & RHC. The works under the Building Contract were to be carried out in stages: Stage 1 (Construct Laboratories), Stage 2 (Detailed design of hospital to FBC submission), Stage 3 (Construction), Stage 3A (Demolition surgical block and landscaping) **(Please refer to Bundle 17, Document No. 12, Page 613)**

a) Describe the appointment process leading up to the Multiplex's appointment as Contractor.

A. This was prior to me joining Multiplex

b) Describe your role and remit, in particular provide details regarding Multiplex's role, responsibility and authority in respect of the design and build of QEUH/RHC.

A. My role during the project was to ensure multiplex had sufficient people with the range of knowledge required within the M&E team, that the information from designers was produced to facilitate installation of systems timeously to meet the construction programme. To liaise with designers, sub-contractors and the client and their team a necessary to facilitate construction and delivery of the project.

c) Who was responsible for ensuring that Multiplex complied with the terms of the contract with NHS GGC in respect of the QEUH/RHC project?

A. From Multiplex's perspective there is not one person responsible for Multiplex complying with the terms of the contract. Several departments, commercial, design, technical, operations, quality are all involved and sub teams within each of those. Capita had a role for the NHS GGC whereby they were also ensuring Multiplex complied with the terms of the contract.

d) What responsibility, if any, did Multiplex have for ensuring that the built hospital complied with relevant guidance such as SHTM and SHFN?

A. Multiplex had a responsibility to comply with the contract and the standards that were applicable within it, along with any agreed derogation to those standards and guidance.

e) Describe how derogations from the Employers Requirements were signed off by NHS GGC. What role, if any, did you have in respect of this? Who was responsible for ensuring that the Board signed off on derogations?

A. Derogations were put forward usually after some discussion between Multiplex and NHSGGC project team. They could be proposed by either MPX or the NHSGGC project team. As far as I am aware derogations proposed by Multiplex would be consulted on internally within the NHS and either accepted or rejected. The responsibility for ensuring sign off could fall to several people within MPX depending on the nature of the derogation.

f) Describe your working relationship with NHS GGC prior to appointment, had you worked with any members of the NHS GGC Project Team prior to appointment, if so whom and when?

A. This was prior to me joining Multiplex. I had previously worked with Hugh McDermid and Peter Moir.

g) Describe your working relationship with NHS GGC during the terms of your appointment, including day-to-day dealings with the NHS GGC Project Team, details of who you worked with and in respect of what matters?

A. Positive working relationships. Day-to-day dealings would have been with, Peter Moir, Francis Wrath, Alan Seabourne, Shona Frew

h) Describe your working relationship with Currie & Brown prior to appointment, had you worked with any members of Currie & Brown who worked on QEUH/RHC prior to appointment, if so whom and when?

A. I had not worked with Currie & Brown prior.

i) Describe your working relationship with Currie & Brown during the terms of your appointment, including day-to-day dealings, and details of whom you worked with?

A. Good working relationships with the C&B team. Predominantly I worked with Mark Baird at the end of the ITP process and then David Hall through the project.

j) Describe Currie and Brown's role and responsibilities in respect of the project. Are you aware of any changes to their role during the project? If so, please explain.

A. Currie and Brown had the roles of project cost consultants and project technical advisors. I am not aware of any particular changes to their role. They were appointed and managed by NHSGGC.

k) Describe your working relationship with Capita prior to appointment, had you worked with any members of Capita who worked on QEUH/RHC prior to appointment, if so whom and when?

A. I had not worked with Capita prior

l) Describe your working relationship with Capita during the terms of your appointment, including day-to-day dealings, and details of whom you worked with?

A. Good working relationship, worked with Alan Follett and John Redmond, as necessary where issues were escalated.

m) Describe your understanding of Capita's role and responsibilities in the project.

A. Capita had the role of Project Supervisor which involved reviewing the quality of the works, inspection and testing, witnessing commissioning and reviewing the completed facility in line with the contractual requirements.

n) What role, if any, did Capita have in ensuring contractual compliance?

A. See answer above.

o) Who did you report to on a day-to-day basis?

A 2010- mid 2014 Mike Sharples, Mid 2014-early 2015 Alasdair Fernie. With a functional link to our head of M&E Chris Lovejoy.

p) In respect of other contracts and sub-contractors, explain which contractors and sub-contractors Multiplex had worked with prior to appointment, describe your day-to-day working relationship with them, and details of whom you worked with?

A ZBP had worked with Multiplex previously on healthcare projects. I mainly worked with Steve Pardy and Andrew Percival. Who were the leads for their organisation.
Mercury had worked with Multiplex on previous projects including healthcare schemes. I mainly worked with Ed McIntyre, Robert O'Donovan and Ciaran Kellagher

q) Describe Mercury's role and responsibilities in respect of the project.

A. Mercury Engineering were the main M&E subcontractor. Who's responsibility it was for installation, commissioning and setting to work the M&E systems. Mercury also carried out design work on certain systems, but not the ventilation or water systems.

Review of the 'Works Information'

7. What information was provided to Multiplex to assist with the planning and costing of the project to enable Multiplex to prepare the Contractor's Proposals?

A. My understanding around May 2009 MPX were invited to participate in Competitive Dialogue and provided with the ERs to use as basis of preparing the Contractors Proposals. However, I was not involved in this process as I did not join the project until March 2010

8. The Inquiry understands that NHS GGC provided a list of guidance documents (e.g. SHTM/SHPN) that the design had to comply with, please confirm what elements of the design contained in the Contractor's Proposals, did not comply with guidance, and why and how any non-compliances were highlighted during the tender process and ITPD process?

A. I was not involved in this process as I did not join the project until March 2010.

9. What consideration was given to the impact of any non-compliances on patient safety/infection prevention? At what point, if any, was advice sought from Infection Prevention and Control Staff? If advice was sought, from whom was it sought and what was the advice given?

A. I was not involved in this process as I did not join the project until March 2010.

10. Did Multiplex propose any changes to the exemplar/reference design? If so, please provide details of the changes and why?

A. I was not involved in this process as I did not join the project until March 2010 However I am aware of a set of clarification logs that formed part of Multiplex Contractors Proposals.

11. The Inquiry is aware of the agreed ventilation derogation recorded in the M&E Clarification Log. **(Please refer to Bundle 16, Document No. 23, Page 1662)**

a) Describe Multiplex's role in respect of the proposals leading to the ventilation derogation.

A. I was not involved in this process as I did not join the project until March 2010 and therefore, I was not party to the discussions held in 2009 to reach agreement.

b) What was the reason for the ventilation derogation?

A. I am not aware of the reasoning for the derogation

c) Who drafted the M&E Clarification Log and who was responsible for updating the Log? Following updates to the log, please provide details of who the log would have been distributed to?

A. I don't know who originally drafted the log. I was part of the review team during the 2010 ItP update. This team reviewing looked at items that remained open from 2009 and agreed a position on these for moving forward. Items within the logs that were previously agreed were not re-opened. With regards distribution during the 2010 update, it was distributed from us to Currie & Brown.

d) What was the scope of the agreed ventilation derogation recorded in the M&E Clarification Log? In particular, was it restricted to general wards only? If so, (a) how is this interpretation evidenced within the documentation; and (b) where is the specification located for areas that required specialist ventilation and isolation rooms?

A. As I understand it ZBP through dialogue with Nightingales captured the agreed requirements and these were ultimately reflected in the user group workstream / Room Data Sheet (RDS) output process

e) Can you assist the Inquiry as to how those reading the derogation are to know what it applies to? Where did ZBP 'capture' the agreed requirements from?

A. Those reading the derogation log would do so alongside the Employers Requirement's and other contractual documents, giving the contractual requirements that apply throughout the project. In the event that any clarification was required this would be raised with the NHSGGC project team. My understanding is ZBP captured these agreed requirements this way. However, ZBP may be better placed to answer.

f) At the time what concerns, if any, did you have regarding the derogation? Did you raise any concerns, if so with whom?

A. I did not have specific concerns and understood the derogation to have been reviewed and agreed by all parties. ZBP, MPX NHSGGC and its team.

12. Refer to the ZBP Ventilation Strategy Paper dated on or around 15 December 2009? **(Please refer to Bundle 16, Document No. 21, Page 1657)**

a) What was your/Multiplex's involvement in this document being instructed?

b) What was the intended purpose of this document?

c) When did you first have sight of this document?

d) Who was the document shared with?

e) How was Multiplex satisfied that the proposals set out in the above document were suitable for use in a healthcare setting?

f) What concerns if any did you have on reading this document? If so, did you escalate these concerns and to whom?

A. As I did not join the project until March 2010 and therefore, I was not party to the discussions held in 2009 that led to the production of this paper.

g) Please can you respond to points (e) and (f) from the perspective of when you started on the project.

A. As the paper had been discussed and an outcome and way forward agreed I did not revisit either the document or the agreed solution.

13. A re you aware of any risk assessments, whether in compliance with the standards in HAI Scribe or otherwise, that NHS GGC carried out in respect of the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper dated 15 December 2009? **(Please refer to Bundle 16, Document No. 21, Page 1657)**

A. I am unable to assist as this predates my involvement in the project

14. Describe the advice sought, if any, or the involvement, if any, of GGC Infection Prevention and Control staff in respect of the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper dated 15 December 2009?

A. I am unable to assist as this predates my involvement in the project

15. Who from the GGC Project Team and Board were aware of the ventilation derogation?

A. I am unable to assist as this predates my involvement in the project

16. How was the ventilation derogation communicated to the wider Project Team?

A. I am unable to assist as this predates my involvement in the project

17. What impact did the requirement for a BREEAM excellent rating have on Multiplex's proposed design in particular in respect of ventilation?

A. As above this predates my involvement in the project. However, during the currency of the project I'm not aware of the BREEAM excellent rating having any impact on the design solution. I understand the Board employed Ecoteric to advise on BREEAM and sustainability compliance of the Employers Requirements. Similarly Multiplex employed WSP to advise on sustainability / environmental engineering compliance.

18. What impact did the energy usage target of no more than 80kg of CO2 per square meter have on Multiplex's proposed design?

A. I was not party to the initial discussions in formulating the energy strategy and submitting the bid in 2009. However, I would expect that there would have been extensive reviews and input from all design parties at the time to assess how the target could be met. Through the currency of the project the 80kg target was forefront in consideration during the development of the design. Ecoteric had a remit to supervise and ensure compliance with this target, including through the use of a low carbon tracker.

19. The Inquiry is aware that Chilled Beam Units were proposed by Multiplex and accepted for use through the QEUH/RHC. What was the basis for Multiplex proposing to use Chilled Beam Units? Is the use of Chilled Beam Units appropriate throughout hospitals? At the time, what concerns, if any, did you have regarding the use of Chilled Beam Units?

A. I was not party to the discussions and agreement as part of the Contractors Proposals to use chilled beams. I am not aware of the technical advisors comments on ZBP proposals to propose these as part of the 2009 CP proposals submission. I am aware that the use of chilled beams was within the current SHTM at the time when this design solution was proposed.

20. Would it have been possible to achieve the sustainability requirements (BREEAM excellent rating and 80kg of CO2 per square meter) if Chilled Beams were not selected for use in the QEUH/RHC?

A. Whilst I was not involved in this discussion – Both ER requirements are complex in nature and not simply a tick box to achieve a certain criterion. From my understanding the 80kg target is achieved by utilising all components of the building not just one aspect. By betterment in one area, this can negate other areas. A detailed review of the modelling and assessments would be required to be carried out by an expert in this area to respond to this question with accuracy.

Full Business Case

21. Under 'Services Systems' confirmation was required "that the design fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current legislation". The Inquiry is aware of several departures from SHTM 03-01 Guidance in relation to air change rates, pressure differentials and filtration requirements. There was also a variation to the primary extract arrangement for PPVL isolation rooms from that set out in SHPN 04 Supplement 01. Was Multiplex aware at the time, of these non-compliances? If so, please confirm how Multiplex communicated these non-compliances to the NHS GGC Project Team. If no action was taken by the NHS GGC Project Team what obligations, if any, did Multiplex have to report matters further and to whom?

A. I was not party to the discussion back in 2009 and cannot help on how the agreement reached.

22. Was the ventilation derogation noted in the M&E Clarification Log, recorded in the Full Business Case? Who was responsible for doing this? If you were aware that it had not been recorded in the Full Business Case, please explain what action, if any, you took.

A. I was not party to the discussion in 2009 and do not know what was recorded in the full business case.

Design and Construction and Role in the QEUH/RHC Project

23. The Inquiry understands that ward layouts and Room Data Sheets (RDS) were approved through the reviewable Design Data (RDD) process. Describe your role, if any, in the RDD process and the user groups.

A. The RDD process for ward layouts and RDS process were through a workstream led by Nightingale and supported by ZBP as required by Nightingales, dependent on what was raised at the user group meetings. MPX MEP team were not involved with this workstream. This was through a separate user group workstream to develop the ward layouts and review RDS as an output of the agreed 1:50s which would capture the environmental requirements and design. These would then be submitted through RDD process for approval and signoff by NHS Board.

a) Why was the Multiplex MEP Team not involved in this workstream? Who from Multiplex had oversight over the RDD process?

A. MEP design went through an RDD process of its own the output of which informed the RDS's. These RDS's went through an RDD with the rest of the design led by Nightingales who produced the RDS's. The design management team of MPX had oversight of the process, with the MEP team having oversight of the M&E RDD.

b) For clarification how were issues like ventilation requirements taken through the process. Are you saying they were not part of the RDS process itself? Was there a separate process as you suggest in 28 and 29? If so, can you say who from the Board's TA approved these issues? How was that recorded and where?

A. MEP RDD went through as its own workstream within the overall RDD process. The output of these went into the RDS's. The individual involved varied depending on the availability and subject going through RDD, typically NHSGGC, Currie and Brown and Capita were in involved in MEP RDD reviews. These were recorded in the return of the RDD with status and comments marked on the RDD information packs.

24. How were members selected to be part of a user group?

A. Multiplex MEP Team were not part of the User Group Workstream, this was led by Nightingales with input from ZBP as required. I am not able to comment further.

25. Confirm who attended the user groups meetings from Multiplex, the NHS GGC Project Team, IPC, Estates and Clinical teams for the following areas: Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU RHC – RHC; All Isolation rooms.

A. Multiplex MEP Team were not part of the User Group Workstream, this was led by Nightingales with input from ZBP as required. I am not able to comment further.

26. How often were user group meetings scheduled to review design proposals and agree the design with the user groups?

A. I don't recall the exact extent of the process, but from memory there were user group meetings in 2010 and 2011.

27. How were designs and the RDS approved to proceed to construction?

A. Nightingales and ZBP took the output from the user group meetings and updated their design accordingly. The RDS would then have been submitted under RDD and the M&E information incorporated into the M&E design and also submitted for RDD

28. How was the ventilation derogation communicated to users during the RDD process?

A. Derogations were captured within the contract logs. This information was then reflected in the RDS process between Nightingale / ZBP and captured within the RDS for the project. These RDS packs were then submitted for RDD sign off.

29. Please describe how the technical requirements (air change rates, pressure differentials and filter requirements) for each ward were managed and approved during the user group meetings and the RDD process, including your role and involvement.

A. Multiplex MEP Team were not part of the User Group Workstream, this was led by Nightingales with input from ZBP as required. I am not able to comment further with regards user groups. M&E RDD was undertaken with the Boards technical advisors and MPX MEP team. Where pre RDD information packs would be produced, circulated for initial review and comment. Then a meeting held to review the formal RDD submission.

30. Were any requests made by the User Groups during the RDD process that were refused – please provide details.

A. I am unable to comment as I was not present at user group meetings.

31. Please refer to **Bundle 17, Document No.75, Page 2881.** Appendix 3 states: "Commissioning settings for all elements of the works, including microbiological testing proposals for operating theatres and specialist ventilation… Confirmation that the design team fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current legislation".

a) Describe the intended use and purpose of the following wards in QEUH/RHC: Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU RHC – RHC; all Isolation rooms.

A. My understanding is that this would be as per the clinical output spec and then as agreed during RDD including any variance within the contract or change process.

b) Do you recall what the intended use and purpose was? If not, would you have been aware at the time?

A. Given the passage of time I don't recall the specific intended use of the wards listed. At the time I would have had some awareness, my focus would have been on the construction delivery of the design that had been submitted, reviewed and approved by the NHSGGC team through the RDD process.

c) What were the specifications of these wards?

A. My understanding is that this would be per the clinical output spec and then as agreed during RDD including any variance within the contract or change process.

d) What guidance was considered in the design of these wards, what processes were in place to ensure guidance compliance?

A. This would be a question for ZBP & Nightingales & NHSGGC Board – MPX MEP team would have undertaken a number of sample reviews across the project as part of the pre RDD submissions.

e) Please explain what you mean by “sample reviews”?

A. Typically the information for review at both the Pre-RDD would be reviewed by one of the MEP team. This was not a full design review, more of a sample review looking at things like, buildability, future access, air or water velocity, grille positions, potential for excess noise, coordination with structure & services.

f) Was it not a Multiplex responsibility to ensure design of these areas to suit the patient cohorts? If so, how was that ensured?

A. Patient cohorts would be an area for the NHS. Multiplex have a responsibility to meet the contract and the output specifications within.

g) Were there any changes to the design during the design and build, if so, please describe any such changes, describe the impact, if any, on guidance compliance as set out in Appendix 3, and describe the sign-off process for any such changes, your involvement and how any changes were communicated to the Board. Was external advice ever sought in respect of design changes?

A. I recall there were changes within ward 4, however I don’t recall the detail of these changes. The changes would have been formally raised to Multiplex and then the design team would have responded by producing a design for sign off to the specification of the change request.

32. Describe your involvement and understanding, if any, of the decision to remove carbon filters? What was the rationale behind this decision, who was involved and what advice, if any, was sought in reaching this decision?

A. From memory a decision to remove the carbon filters was taken after a review of their impact on energy performance and operational cost v’s the likelihood of them serving a purpose of removing odours from the incoming fresh air.

a) Who made the decision to remove carbon filters? Who did they consult in the process of making the decision?

A. I don’t recall who specifically made the decision. I do recall several discussions on the matter but don’t know who outside of the project team was consulted.

b) Can you elaborate on your comment on the 'likelihood 'of the filters removing odours and how you understand that impacted the decision.

A. The lab building had been operational for a while with no known adverse effects on the internal conditions from odours from the adjacent Scottish Water works. The lab was much close to the Scottish Water works and lower down than the hospital ventilation intakes.

33. Were any specialist design workshops required? If so, please provide details.

A. Specialist design workshops were held for the following. Medical Gases, Renal wards & water, HV infrastructure, HV/LV power generation and distribution, Incoming utilities.

34. Were Value Engineering meetings/workshops held during the design phase? Please provide details of any agreed value engineering elements.

A. I don't recall specific VE meetings during the currency of the project.

a) **Please refer to Bundle 43 Volume 1, Document No. 32, Page 113**. Is the Inquiry correct in understanding that this document proposes the use of chilled beams in renal dialysis and a reduction in ACH from 10 to 2.5?

A. That would appear correct.

b) What was the purpose of this proposal, who signed it off from NHS GGC? What risk assessments were carried out in respect of this proposal? What is your understanding, if any, of the impact of this proposal?

A. The purpose appears to be to ensure a temperature range is maintained whilst being energy efficient and providing adequate air changes for the area. I don't know who form NHSGGC signed off the proposal, or the risk assessments carried out. The impact of the change was reduced air changes and improved energy efficiency.

Ward 4B and 4C

35. The Inquiry understands that Ward 4B in the QEUH was originally intended to provide accommodation for Renal and Haemato-oncology patients. The 2009 NHS Clinical Output Specification for the Haemato-oncology ward stated, “Please note the haemato-oncology ward area has a very specific function and a considerably higher than average requirement for additional engineering support/infrastructure. There should be no opening windows, no chilled beams. Space sealed and ventilated. Positive pressure to rest of the hospital and all highly filtered air >90%, probably best HEPA with adequate number of positive pressure sealed HEPA filtered side rooms for neutropenic patients as in the Beatson West of Scotland Cancer Centre.” **(Please refer to Bundle 16, Document No.15, Page 1595)**. However, following a Change Order Request in July 2013 by Jonathan Best **(Please refer to Bundle 16, Document No.29, Page 1699)** it was confirmed that the Bone Marrow Transplant (BMT) service would transfer to Ward 4B in the QEUH and the hematology patients that were originally planned to accommodate Ward 4B would move to Ward 4C.

a) Please confirm how this change was communicated to Multiplex and how this change was captured in the revised design and specification documentation, following the Change Order Request.

A. The change would have been discussed and then issued to MPX. Then Nightingales and ZBP would have produced a design pack of information for review under RDD. Which would have then gone into construction following comments and any changes.

b) Who was responsible for the original ie pre-change order specification of the 4B requirements?

A. The pre-change order specification would have been set by NHS GGC and the original M&E design for ward 4B was produced by ZBP.

c) Please confirm if Multiplex highlighted any risks with the proposal to move the adult BMT Unit to the QEUH.

A. I don’t recall anything specific. However, I would see this as a clinical decision and therefore a matter for the NHS GGC.

d) In 2013, please confirm if Multiplex highlighted any risks with the proposal to move the adult BMT Unit to the QEUH.

A. I don't recall any risks being highlighted by MPX.

e) Please describe the impact, if any, of issues of non-compliance with guidance not being highlighted to NHS GGC in terms of any risks with the proposal to move the adult BMT Unit to the QEUH.

A. In relation to any non-compliance with guidance, the design for these areas was revised and subject to scrutiny through the change process and subsequent RDD.

f) Did Multiplex advise the GGC Project Team that the requirements set out in SHTM 03-01 relating to air change rates, pressure differentials and filtration requirements would not be achievable in Ward 4B at the QEUH?

A. I don't recall the specifics of what was discussed. I do recall walking the areas in question as works were put on hold to review what changes were possible and what the impact of alterations would be on the programme.

g) When did you do your walk through(s) of Ward 4B?

A. I don't recall the specific date, it was likely after receipt of the change instruction to stop work in that area.

h) You don't recall the specifics of what was discussed. Can you assist by advising who was involved in the discussions?

A. We were reviewing the extent of services already installed and the viability of changing or re-coordinating them in the ceiling voids. I recall myself and Robert O'Donovan of Mercury being there, but do not recall who else was in attendance.

i) Who approved the lower specification from the GGC Project Team and the Board for the adult BMT service?

A. I don't recall this would be a question for NHS GGC

j) Why were suspended ceilings installed in Ward 4B given that the original Clinical Output Specification (COS) referred to 'space sealed' – did Multiplex raise this as a non-compliance with the 'Works Information'?

A. I wasn't involved during the specifying of the design solution. I don't recall any non-compliances being raised.

k) Please confirm who approved the reflected ceiling plans for this area.

A. I am not aware who approved, this would be a question for NHS GGC

l) As construction progressed on site, please confirm if suspended ceilings were highlighted as non- compliant with the COS (works information).

A. Ceiling types and Reflected Ceiling Plans were subject to RDD review and would have been again as part of the change process.

m) Why was no back up Air Handling Unit (AHU) provided for Ward 4B? Who approved this decision? And what strategy was agreed for PPM or equipment failure?

A. I don't recall the detail of this aspect. PPM and maintenance was put through a workstream for review with NHS GGC estates, but I don't know who specifically agreed it.

n) In respect of Ward 4C, what was the specification of this ward at the point of the Change Order? Did you understand that Ward 4C was to be used to house immunocompromised patients? If so, what was the justification from departing from SHTM guidance in respect of ventilation, pressure and filtration requirements and who signed this off?

A. Design and M&E services designed from 2009 agreements taken forward into contract. Justification is a question for ZBP and NHSGGC. I'm not aware who signed off from NHS GGC.

o) Can you confirm whether you were aware the ward was to house immunocompromised patients? If Multiplex was to comply with SHTM 03 01 except insofar as specifically derogated from how did Multiplex meet this requirement in the original design of Wards 4B and 4C? You refer to ZBP but was it not for Multiplex to ensure ZBP met the contract requirements?

A. I can't recall what the original function of ward 4C was to be. As far as I am aware Multiplex met its contractual requirements in relation to wards 4B and 4C.

p) What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 4B and 4C, and was this the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A. My understanding of ward 4B and C in relation to SHTM guidance were designed in accordance of meeting the SHTM along with any deviations agreed through the contract. I am aware that this area was subject to a change during the contract and resubmitted for approval during this change process. Im not aware who specifically signed it off or of the risk assessments and consultation on the NHSGGC side.

q) Who would have been aware of the risk assessments and consultations with NHS GGC from Multiplex?

A. I don't think any Multiplex employee would have seen the specifics of the risk assessments. Awareness of consultation would likely have come through general conversation with the NHSGGC project team and status update around the change.

r) Were you aware of any deviations agreed for 4B and 4C prior to the change order?

A. Only in so far as the ward air change rate for single bed rooms.

s) Did you understand the room pressures to be complaint with guidance in respect of the intended patient cohort?

A. I understand it to be in compliance with the design as reviewed and approved through the RDD process.

t) The Inquiry is aware that Ward 4B appeared to be so far off what was required by the patient cohort that the highly unusual event occurred of patients moving in and then having to move out. Can you assist the Inquiry to understand why that arose?

A. As part of the change instruction, the design was revisited, amended and resubmitted to NHSGGC for approval through RDD. This was subsequently constructed.

u) The Inquiry has heard that Ward 2A appeared to have multiple issues almost immediately after handover and subsequent investigations into the ventilation revealed multiple apparent areas of concern. Can you assist the Inquiry as to how that arose?

A. I was not aware of these issues and am surprised they were not raised during the defect period if they pertained to incorrect work by Multiplex, its designers and sub-contractors.

Ward 2A/ 2B RHC

36. The Inquiry understands that Ward 2A/2B is the paediatric-oncology Unit and includes the Teenage Cancer Trust and the paediatric Bone Marrow Transplant (BMT) Unit - the department is known as the Schiehallion Unit.

a) Confirm your understanding regarding the intended use and purpose of the Ward 2A/2B, what guidance was considered in the design of these wards, what processes Multiplex put in place to ensure guidance compliance?

A. Ward 2a & 2b were for child cancer treatment. Guidance considerations is for the designers ZBP. Multiplex put in place a system of sample reviews and cross checks of M&E design and RDS content to check they aligned.

b) Did Multiplex have in place any processes to flag any concerns about the design and its compliance with guidance during its cross checks? If so, please describe what these were. If not, why not?

A. No, Multiplex checked compliance with the contract and any contract compliance issues found then Multiplex would raise an early warning to the relevant parties.

c) While the Inquiry is aware of the involvement of ZBP do you accept that, unless derogated from, it was a Multiplex obligation to comply with guidance specified as obligatory in the contract?

A. Yes, to the NHS GGC and ZBP had the same obligation to Multiplex.

d) As these were wards dealing with particularly vulnerable patients did Multiplex take any special steps to ensure the environment was compliant?

A. No additional steps or processes than those across the whole project, which in itself is complex and populated with special requirements throughout.

e) The Inquiry understands that Contractor's Tender Return Submission by Multiplex, Volume 7 SHTM confirms that ventilation will comply with SHTM 03-01 as a mandatory requirement. Given that this was a mandatory requirement, please confirm whether this guidance was considered in the design of these wards? And if not, why not? Please refer to **Bundle 17, Document No. 11, Page 589.**

A. This was Mulitplex's tender return, prior to me joining the project. However, Multiplex did to my understanding comply with this unless varied within the contract.

f) What changes, if any, were made to the design during construction? Please describe any such changes, describe the impact, if any, on guidance compliance, and describe the sign off process for any such changes and your involvement. Was external advance ever sought in respect of design changes?

A. I don't recall any changes in relation to 2A

g) Describe the IPC involvement in the design of Wards 2A and 2B, who was involved and who signed off the final design and when?

A. This would be a question for NHS GGC.

h) The Inquiry appreciates that GGC may know the answers but it would be helpful to have your understanding. Can you identify a document which would assist?

A. I'm afraid I am not able to assist further on this question.

i) What concerns, if any, did you have regarding the final design specification of Wards 2A and 2B, and what action, if any, did you take in respect of these concerns?

A. I had no concerns at the time. The design had been reviewed and communicated through the project team per the project protocols.

j) The Inquiry appreciates that GGC may know the answers, but it would be helpful to have your understanding. Can you identify a document which would assist?

A. I don't understand the context of this question in relation to the above question 36i.

37. What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 2A and 2B, and was this the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A. My understanding is that air change rates are contained within the SHTM for various areas of the facility. The design catered for a mixture of treatments and patient types as specified in the Employers Requirements. The designer's solution responded to this with isolation rooms, single bedrooms and specialist treatment rooms put forward through RDD and agreed with NHS GGC. I'm not aware who specifically signed this off or what risk assessments were considered within the NHS GGC team.

Isolation Rooms

38. Describe how the number and location of the isolation rooms was agreed? Who approved the final number and locations in the QEUH and RHC?

A. I wasn't part of this process. However, my understanding is they would have been quantified and located to meet the clinical output requirements. Approval would come from NHS GGC.

a) Who, from Multiplex, would have been involved at the time? Please describe details of their involvement.

A. The Multiplex design management team from the bid. I wasn't party to the detail of the involvement.

39. Who was responsible for producing the drawings and the specification for isolation rooms; who approved these from the NHS GGC Project Team?

A Nightingale would produce the room drawings & 1:50's ZBP would capture the M&E requirements on their drawings and within their specifications.

a) Who, from Multiplex, would have been involved at the time? Please describe details of their involvement.

A. This would have been the multiplex design management team for the project, along with the Multiplex MEP team for the project where relevant to the ventilation and services design. For the MEP team their involvement would have been to get the design from ZBP at the right time and submit for pre RDD and RDD and then ensure all comments were taken forward into construction.

40. What concerns, if any, did you have regarding isolation rooms and compliance with SHTM/HTM? What action, if any, did you take in respect of any such concerns?

A. I had no concerns as the design solution met with the required parameters and had been reviewed through RDD

41. The Inquiry has reviewed the RDS in excel format and notes that there is an entry under 'Design Notes' relating to Ward 2A isolation rooms, the entry states:
"WARNING NOTICE: This room is based on a theoretical design model; which has not been validated (see paragraph 1.8 of HBN 4 Supplement 1). Specialist advice should be sought on its design. The lamp repeat call from the bedroom is situated over the door outside the room."

a) Was this note entered on the RDS? If so, why and by whom?

A. I don't know. My understanding is this his note was added prior to my involvement.

b) Who, from Multiplex, would have been involved in the RDD process and would have seen this note at the time? Please describe details of their involvement.

A. I am afraid I am unable to help further on with this question.

c) What specialist advice was sought relating to the design of these rooms

A. I don't know. My understanding is this his note was added prior to my involvement.

d) What was the final agreed design for isolation rooms and who approved this?

A. These were subject to RDD review process

42. Why was the main extract placed in the patient's bedroom and not the ensuite as outlined in SHPN 04 Supplement 01? Why was this change requested, who requested this change and who approved this from the NHS GGC Project Team?

A. From recollection ZBP had concerns over the air short circuiting from the lobby to the ensuite and not refreshing the air in the patient area. This went through RDD approval process. ZBP may be able to assist further with more detail.

a) What action do you recall being taken by ZBP in respect of these concerns?

A. They raised their concerns with Multiplex and then we took that to the NHS to revise the design, which then went forward for review by the NHS and their advisors.

b) What discussions and with who (or refence to what documents) gives rise to your understanding on this topic?

A. I recall a discussion with Steve Pardy of ZBP on the issue.

c) The Inquiry has been advised that Multiplex decided that in PPVL room the main extract should be in the bedroom not in the en-suite as recommended in Guidance. Who made that decision, how was it communicated to GGC, if it was agreed by GGC who did so and how was that agreement recorded?

A. This was ZBP's proposal for reasons stated above. This proposal went into review in RDD.

<u>Water and Taps</u>

43. Describe your involvement, if any, in respect of the decision to use Horne taps.

A. I was part of the review group. My role facilitated getting the tap specialist, mercury and the NHS together to discuss tap selection.

a) What concerns, if any, did you have regarding the use of Horne taps?

A. No concerns as a very thorough dialogue and review process had been undertaken with all stakeholders involved to reach the conclusion of using the Horne tap. I am aware that at that time, best practice in terms of tap selection and use was changing fairly frequently.

b) What risk assessments were carried out in respect of the use of Horne taps?

A. Design reviews along with maintenance assessments and reviews

c) Who was involved in, and who signed off the use of Horne taps?

A. Myself from Multiplex, Mercury and the NHS GGC project team. I think Ian Powrie was the person involved directly, who would consult other NHS GGC personnel and advisors as necessary.

d) Did you attend the meeting regarding the use of Horne taps in 2014**?** If so, why was the decision made to proceed with Horne taps?

A. I was not present at the meeting on the 5th of June 2014

e) Did the use of Horne taps depend on thermal disinfection? If so why, if not, why not? What action, if any, was taken regarding this, and your involvement, if any?

A. I don't recall the technical details of the taps.

f) The Inquiry understands that concerns regarding the use of Horne Taps following an SBAR. The concerns pertaining to the issues in using Horne Taps following the deaths associated with their use in Northern Ireland. The Inquiry understands from the evidence of Mr Powrie that the flow straighteners could not be removed. Were you at this point, aware of the concerns associated with the use of Horne Taps? Did you have any views regarding these concerns? Did you make and recommendations or escalate any concerns?

A. My role was to ensure the people with the right level of knowledge had access to each other to ascertain the best solution.

44. Are you aware of the water system having been filled prior to handover on 26 January 2015? If so, who filled the system, why was it filled and what concerns, if any, did you have. If you had concerns to whom did you escalate these concerns?

A Yes the system was filled as it had to be prior to MPX completion. This was complex operation and left until the last moment feasible in the run up and timing of handover. The standard process was followed of pressure testing the system. Then filling, then cleaning and disinfecting the system. After which a maintenance regime for turning over the water was put in place with Mercury Engineering employing a squad of personnel to turn the water over and run outlets to a set pattern, signing off on the sheets in situ.

These sign off sheets were left in place for the NHS estates team to continue the flushing regime once they became the owners of the system. I had no concerns as so far as I am aware all processes and protocols were followed correctly.

a) The Inquiry understands from the Project Steering Group Action Note dated 25 September 2012 **(Bundle 43, Volume 3, Document No. 38, Page 1497),** that it was intended that there would be no water in the pipes until March 2013. The Inquiry understands that the water system was likely filled sometime between March 2013 and September 2014. With the benefit of hindsight, should there have been concerns at the time with filling the water system between March 2013 and September 2014? If so, please describe what these concerns should have been and why.

A. From the best of my recollection those minutes are referring to the heating system not the domestic water system. We were reviewing the possibility of bringing in background heat for fabric protection purposes during the construction.

Commissioning and Validation

45. In respect of commissioning and validation please confirm the following:

a) Describe your role in the lead up to commissioning. What action, if any, did you take to ensure that the wards within RHC and the QEUH met the guidance requirements of SHTM?

A. The projects commissioning manager reported to me. I would be involved in general knowledge of progress, issues and any escalation requirements.

b) Describe what commissioning of the water and ventilation system took place prior to handover, and your involvement, if any.

A. The water and ventilation systems were commissioned by specialist H&V commissioning on behalf of Mercury in line with the guidance and agreed protocols.

c) Who was responsible for ensuring that commissioning of the water and ventilation system was carried out, and who signed off that it had been carried out?

A. H&V commissioning carried out the commissioning of the water and ventilation systems. The systems were witnessed by Multiplex, Mercury, ZBP/WW (as necessary), the Boards technical advisors and the Project Supervisor (Capita) who ultimately signed off the commissioning.

d) How did Multiplex decide which tests to invite Capita and the NHS GGC Project Team to? Was a representative from Capita and the NHS GGC Project Team invited to witness every test? If not, why not?

A. As far as I recall the protocol was to invite Capita and NHSGGC to all final witnessing. Some pre-tests and air tests would be undertaken by the multiplex supply chain to ensure the systems were as designed prior to offering to Captia and the NHS for final witnessing.

e) Given Capita's role as Project Supervisor, why did Capita not countersign commissioning statements?

A. I don't know why this is the case.

46. Clause 6.8.2 of the Employer's Requirements requires the Contractor to provide a Final Commissioning Programme setting out details of all commissioning tasks, including the timing and sequence of events. This was also to include the relevant testing and commissioning elements of other parties, such as the Control of Infection Officer, the Supervisor and the Independent Commissioning Engineer. **(Please refer to Bundle 16, Document No. 13, Page 1357)**

a) Was the Final Commissioning Programme prepared? If so, by whom and who was it shared with? If not, why not?

A. Yes the final commissioning programmes were produced and shared with the project team and commissioning group.

b) How were the final commissioning programs shared with the NHS GGC Project Team and Commissioning Group?

A. On Aconex and emails.

c) Clause 6.8.4.2 of Employer's Requirements, states that the Contractor was required to arrange all factory testing and shall furnish the Board, its Project Manager and its Supervisor with the opportunity to witness all factory testing and sign off marked items of Plants and Materials. The Board, its Technical Advisors and the Supervisor shall be given fourteen days notices of such testing." **(Please refer to Bundle 16, Document No.13, Page 1357)** Was Capita given the opportunity to witness all factory testing and sign off on marked items of Plants and Materials?

A. I can't recall the detail around who attended what factory tests. Factory tests were undertaken on main plant i.e. Generators, Switchgear etc.

d) If Capita was given the opportunity to witness all factory testing, please describe the process.

A. I can't recall who was invited to each set of tests.

e) If Capita was not given the opportunity to witness all factory testing, why not? How did this impact, if at all, Capita's role as NEC3 Supervisor?

A. I have no further expansion to assist further from d) above.

47. The Inquiry understands that NHS GGC decided to forgo the requirement to have an independent commissioning engineer. Who made this decision? What was the rationale was behind this decision? What was the impact, if any, of this decision? In hindsight, do you think that it was the correct decision?

A The requirement for an independent commissioning engineer contractually sat with Multiplex to provide. After consideration and discussion with NHS GGC Multiplex employed a specific individual to undertake the role of commissioning manager. The rational for this had a few strands. one closer working with the project teams and easier access by the NHSGGC project team and advisors rather than going through Multiplex to a sub-contractor being one. The contractual obligation in multiplex providing commissioning services and systems being independently commissioned did not change being another. Specialist commissioning engineer(s) were employed by Mercury and who were H&V commissioning. This combined with the detailed witnessing and sign off process for the commissioning of the hospital gave comfort that there was a robust process in place.

a) Did you have any concerns about Multiplex's ability to demonstrate and certify to the Board the successful completion of all commissioning, testing and compliance with all relevant standards in relation to the water/ventilation systems given that the water/ventilation systems were not checked by an independent third party as recommended by the guidance? If so, please describe these concerns.

A. I had no concerns, Multiplex carry out the commissioning and testing in accordance with the contract. In the context of this question the role of "Independent third party" as the question and "independent commissioning engineer" per the contract are completely different things which appear to be being merged. The "independent commissioning engineer" was a defined administrative role and not one of checking and acceptance. The "Independent third party" if referring to validation exercise, would ordinarily be an exercise carried out by a third party appointed by the NHS.

b) Your explanation is noted. Do you accept that one consequence is that the individual lacked the quality of independence from MPX?

A. No, as the role was clearly defined, and it was an administrative role.

48. Please **refer to Bundle 15, Document 7, Page 606**. SHTM 04-01, part E states that, "any pipes delivered unprotected or with open ends should be rejected". The Inquiry understands that Capita highlighted on a number of occasions that pipework was being left open during the construction work making them vulnerable to contamination. What was done to rectify this issue? Was such pipework subsequently rejected?

A. Pipes were delivered with caps and protection in accordance with the SHTM referenced. Mercury had a robust regime in place and the practice of protecting open ends across the project was good. Pipework either arrived from the prefabricators on modules and all ends capped or from the merchants where it was racked and capped. On occasion a pipe cap would be removed for the ongoing works and jointing. In some instances, the cap may have been dislodged, where it was replaced whenever this was discovered. Pipework deemed not suitable for installation was removed from the project.

a) Do you agree that unprotected pipes was a regular feature of the Supervisor reports?

A. No. It was in a few reports, across a long timeframe and large project.

49. Was the energy centre commissioned prior to NHS GGC taking occupation of QEUH? If so, describe what you know about the commissioning of the energy centre. Provide details of the intricacies in relation to its completion.

A. Yes it was commissioned. All items were commissioned however an issue with the CHP controls meant they were disconnected from the system initially.

50. Describe your involvement, if any, in the decision for the energy centre to be retained by Multiplex following handover. What as the rationale/when was the energy centre handed over to NHS GGC, and what was your involvement, if any? Describe your knowledge and understanding, if any, of a payment being made by NHS GGC to Multiplex in respect of the energy centre following the same being handed over.

A. I don't recall the energy centre being retained by Multiplex. My recollection is that the Energy Centre was handed over at PC.

51. Please describe what role Multiplex had, if any, in ensuring that validation was carried out? Was this required to be carried out prior to handover? If so, by whom? The Inquiry understands that validation was intended to be carried out by an independent party. Did this happen? If not, why not?

A. I can't assist as I had left the project by the time any validation was carried out.

a) Did you advise NHS GGC of its obligation to organise the validation of the water/ventilations system prior to the handover of the QEUH? If not, why not?

A. I personally did not advise the NHS to undertake validation. Ordinarily this would not take place prior to handover.

<u>Handover</u>

52. Describe your role in the lead up to NHS GGC accepting handover.

A. In the run up to handover my role changed into a more general management role which entailed ensuring the construction areas were ready for inspection and to be commissioned.

a) While this was a question for NHS GGC was it not also a question for Multiplex?

A. I do not understand the context of this question in relation to point 52 above.

b) At the point of handover, how satisfied were you that all areas of QEUH/RHC accepted by NHS GGC, were designed to the intended specification and suitable for the intended patient cohort, meeting all the relevant guidance requirements?

A. At the time of handover I was satisfied that all areas were as designed and intended by the contract. Save for those on the outstanding defects list. With the NHS satisfied to move into the migration phase.

c) Were you assured that all areas of QEUH/RHC accepted by NHS GGC were suitable for the intended patient cohort? If so, how were you assured if you knew that validation of the ventilation system had not been carried out?

A. Patient cohorts is a matter for the NHS. I'd anticipate validation to occur during the migration phase.

d) How were you assured that the wards met the requirements of the specific patient cohorts?

A This is more a question for NHSGGC

e) Were any wards not handed over, or only partially handed over, please confirm. If so, why they were they held back? Was there any financial consequence to both Multiplex and NHS GGC of the ward(s) being held back? What works were carried out in order to allow this ward(s) to be handed over to the NHS GGC?

A. I don't recall any wards not being handed over.

f) Describe the process for approving the defects listed on the Stage 3 Sectional Completion Certificate (Please refer to Bundle 12, Document No. 3, Page 23) Who saw the Stage 3 Section Completion Certificate before it was signed? Why was the Stage 3 Sectional Completion Certificate signed when there were a number of outstanding defects listed?

A. Part 1 – I can't comment on who saw the certificate prior to signing. Part 2 this is standard contractual practice, a number of these listed defects are works that either could not be undertaken at the time or were agreed to be completed post completion. The term defects in this context is the contractual NEC term for any works not fully complete at the time of PC.

g) Do you think that the Stage 3 Sectional Completion Certificate accurately listed all of the defects with the QEUH/RHC? If not, please describe the inaccuracies.

A. From memory I believe it does.

h) **Please also refer to Ian Powrie's witness statement at paragraph 33 (Witness Bundle - Volume 1, Document No. 7, Page 208).** When asked about the state of the QEUH at handover Ian Powrie replies, "Having reviewed document 3 above, I do not believe that this completely represents the condition of the building at point of hand over, I don't see any reference to the RHC's status, there were also multiple elements of finishing works required around the Adults building not included within the Capita defect report, unfortunately I cannot recall the detail of these works other than the following major Items:

a. The Energy Centre Combined Heat & Power Plant (CHP) was not handed over until Dec 2015 and was not brought online until Jan 2016.

b. The ETFE Roof burn-off was not operational until Sept 2015."

What do you think of this comment by Ian Powrie?

A. The CHP was handed over with the energy center, however the units were subject to works under the contract defect protocol. The roof was operational at the time of handover and remained so, I believe that a test setting feature was not operational until September 2015 and was dealt with under the projects defect protocol.

53. Who oversaw contractual compliance? Who was responsible for ensuring that the paperwork was produced to confirm contractual compliance? What action, if any, did you take to ensure that paperwork was in place to ensure contractual compliance? Was validation of the ventilation system a contractual requirement? If so, who signed off on contractual compliance given the lack of validation?

A. Capita oversaw contractual compliance. I worked with the commissioning manager and our Quality manager to ensure the Multiplex part of the process was completed correctly. Validation is a post commissioning activity conducted by an independent party on behalf of the NHS

a) **Please refer to Bundle 16, Document No. 13, Page 1357**. As per clause 8.2.28.4. of the Employer Requirements it was Multiplex's ultimate responsibility to, "to demonstrate and certify to the Board the successful completion of all commissioning, testing and compliance with all relevant standards." How satisfied were you that all testing and commissioning certification for contractual compliance had been uploaded to Zutec prior to handover?

A. All testing and witnessing was complete and demonstrated to the NHS and its advisor team. I wasn't directly involved in the uploading of certification to Zutec.

b) While validation is, as you say, a post commissioning process do you agree it is also a pre-handover process. As Multiplex would be aware of this what provision in programming was made for it to be satisfactorily completed?

A. No, I do not agree that it is a pre-handover process for Multiplex. If it were to be a pre handover process for Multiplex it would alter the construction programme and it would have been included as an activity on the construction programme.

54. Explain what the Building Contract says about a retention period in which some money would be held back pending completion of the QEUH/RHC. In doing so, please explain if the retention period was enforced?

A. I wasn't personally involved in the administration of retention. However, I believe it was administered in line with the contract.

55. Who was responsible for providing asset tagging. Why was there no asset tagging? Who decided to proceed without it?

A. Asset tagging was the responsibility of Multiplex and its sub-contractors. For the assets bought and installed by them. Asset tagging was in place per the agreement reached with the NHS. However, the process leading to this was long and drawn out due to an inability by the NHS to advise what type of asset tagging they wanted, this was I think related to them changing FM systems at the time.

a) Who decided to proceed to handover of the hospital without asset tagging being done?

A. I wasn't directly involved in asset tagging and I don't know who decided to proceed with handover.

b) When you say asset tagging was in place do you mean at handover. The Inquiry has heard evidence that it was not in place and took a period of years to be done. Can you comment?

A. I do recall that several assets were tagged, however ongoing discussion about the tags, types, reference and compatibility with NHS FM system meant there was a delay in completing all asset tagging.

56. Did you consider it appropriate for the handover of QEUH/RHC to take place when the energy centre was not operational due to design issues? Did you appreciate at the time of handover that it would take almost a year before the energy centre was in a position to be brought online?

A. The energy centre was operational at handover.

57. The Inquiry understands that no validation was carried out in respect of the ventilation system of QEUH/RHC prior to handover. When did you become aware of this? How did handover come to be accepted without the ventilation system being validated? Who was responsible for this and who signed off on this?

A. I had left the project by this time period and only became aware of this many years later. Validation would normally be undertaken by the NHS and take place near the time of system being put into operation, during the migration period.

58. Describe Multiplex's involvement in works carried out following handover. Describe the nature of these works, whether remedial or new works, the cost and responsibility of payment of these works, details of who instructed the works and when.

A. I had left the project by this point in time.

59. Describe the build condition of the QEUH/RHC as at Final Defects Certificate (CI 43.3) Completion of Whole Works – Stage 3 Adults and Child's Hospital and Energy Centre dated 26th January 2017 **(Please refer to Bundle 12, Document No. 113, Page 848)**.

A. I was not involved at this stage of the project.

DMA Canyon

60. Prior to handover, who was the Duty Holder in respect of the water system at QEUH/RHC?

A. My understanding is that Mercury Engineering have the responsibility to maintain the system pre handover.

61. What responsibility, if any, did Multiplex have in respect of carrying out L8 testing prior to handover? If Multiplex had such a responsibility, was the L8 testing carried out and by whom, and where would the records of the testing be sorted? Were these records made available to NHS GGC?

A. Multiplex via its supply chain partner Mercury had a responsibility to test and commission the water systems in accordance with the L8 requirements. This testing was undertaken by H&V commissioning and results witnessed and uploaded to Zutec for the NHS GGC.

a) Was an L8 pre-occupation risk assessment done preoccupation by Multiplex?

A. I do not believe that a pre-occupation L8 risk assessment was undertaken by Multiplex or its sub-contractors.

62. Who became Duty Holder when NHS GGC took handover of the QEUH/RHC site on 26 January 2015?

A. NHS GGC – I don't recall who the specific duty holder was.

63. SHTM 03 01 remains an obligatory part of the contract except insofar as derogated from. Is it not your/ Multiplex's job to ensure that what you/ Multiplex deliver complies with it?

A. Multiplex's job is to comply with the contract requirements.

64. Do you have any further information that you consider relevant or interest to the Inquiry?

A. Nothing further at this time.

Declaration

65. I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

A47069198 – Bundle 12 – Estates Communications

A47664054 – Bundle 15 - Water PPP

A47851278 – Bundle 16 – Ventilation PPP

A49342285 – Bundle 17 – Procurement History and Building Contract PPP

A49612241 - Witness Bundle – Volume 1

A52725667 - Bundle 43, Vol 3 – Procurement, Contract, Design and Construction, Miscellaneous Documents

A52399188 – Bundle 43, Vol 1 – Procurement, Contract, Design and Construction, Miscellaneous Documents

Scottish Hospitals Inquiry
Witness Statement of
Ross Ballingall

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The introduction, questions and answers are produced within the statement.

Personal Details and Professional Background

1. Name, qualifications, chronological professional history, specialism etc – please provide an up-to-date CV to assist with answering this question. Please provide details of your role working for Multiplex Construction Europe Limited previously, Brookfield Construction (UK) Limited until 21 February 2011 and thereafter Brookfield Multiplex Construction Europe Limited until 31 August 2016 (hereinafter referred to as 'Multiplex') during the time Multiplex was appointed as Contractor in respect of QEUH/RHC, providing details of when you started and left this role, your responsibilities.

A. John Ross Ballingall. BSc Honours in Civil Engineering (Strathclyde University), Chartered Engineer, Member of the Institution of Civil Engineers, Fellow of the Royal Institution of Chartered Surveyors. Following graduation in 1984 I spent 3 years working as a Graduate Consulting Engineer for Dinardo & Partners in Paisley. From 1987 to 1990 I spent 3 years working as an Estate Agent with Slater Hogg & Howison. In 1990 I joined Laing Construction as a Senior Engineer. In 1992 I was promoted to Regional Engineer for Scotland and in 1996 promoted to Regional Engineer for Scotland & Northern Ireland. In 1998 I was moved to Norwich to take on the role of Engineering Manager on the £250m New Norfolk & Norwich University Hospital PFI project. I was involved in this project from day 1 until completion. In addition to the Engineering role I was also made responsible in 1999 for the Management of the Design Process. In 2002 I was appointed Head of Design Services for Laing Construction. This was a Group role covering Design Management, Building Information Management and Graphics. Following the acquisition of Laing by the O'Rourke Group I was appointed Head of Technical Services for Laing O'Rourke

Southern. This gave me responsibility for all Civil/Structural Engineers and Design Managers. In 2004 I was appointed Project Director for Alfred McAlpine for the £80m Elective Care Centre PFI at Addenbrookes Hospital. In 2006 I was appointed Project Director by Multiplex for the £350m Peterborough Hospitals PFI. I was appointed a Director of Multiplex in October 2006. In July 2009 I led the Multiplex team that bid and won the QEUH Project and stayed as Project Director until my appointment as Managing Director for Multiplex on 1st January 2011. In June 2019 I became a Non Exec Director working 90 days a year for Multiplex covering Europe, Middle East and Canada. I retired on 19th June 2020. In my role as Project Director on QEUH I was responsible for leading the Multiplex Design and Build team and ensuring that we worked as one team with the QEUH team and their advisors. Whilst this was a long time ago and a lot of the detail has gone from my memory I will try as best I can to explain how things worked. I will start with the Bid period as this is where our design proposals were developed with the QEUH team. Following prequalification Multiplex were invited to participate in Competitive Dialogue on 1 May 2009. Multiplex and the other bidders were issued the same set of Employers Requirements that set out the QEUH teams exemplar design and project requirements.

To provide the best solution and proposals we could I put together a team of healthcare professionals most of whom we had worked with before on Peterborough Hospitals PFI. This team was made up of Nightingales as Lead Designer and Architect, Tribal as Health Planners, Zisman Bowyer and Partners as Mechanical and Electrical Consultant, WSP as Civil/Structural Engineers and Fire Consultants, Gillespies as Landscape Architects and Doig & Smith as Cost Consultants. From our supply chain I appointed Mercury Engineering as our Mechanical & Electrical Contractor, Dunne Civil Engineering as our Concrete frame contractor, Astins as our Internal partition contractor and Structal as our curtain walling contractor. In addition I had my own team of Construction Managers, Design Managers, M&E Managers, Commercial Managers, Legal team, Planning (Time) Managers. All of these parties, with the exception of the Dunne Group, had worked with Multiplex and me on Peterborough Hospitals PFI. My role was to manage the input of all these parties as we developed our design, construction and cost proposals with the QEUH team. The bid process involved a series of half day dialogue session. These sessions covered Design (5 separate sessions), Laboratories, Logistics and Commercial/Legal (all 3 separate sessions). These sessions took place over a 2 month period starting in May 2009. At

each session we tabled our proposals for these topics to the QEUH team and received their feedback on whether they liked it or not. Between sessions my team worked on addressing the QEUH team comments we had received at the previous sessions. My role in this was to ensure that my team knew what they had to do and had the resources to do it in the time frame. I led the Dialogue sessions providing an executive update on what we had been doing since the last session. It was then up to my team to go through the detail with the QEUH team. The QEUH team comprised the parties who had been responsible for developing the Exemplar design. It comprised Currie and Brown (Project Managers), HLM (Architects), Buchan Associates (Health Planners), Wallace Whittle (Mechanical & Electrical Consultant), URS (Civil/Structural Consultant) Susan Logan (Energy Consultant). Infection Control feedback was provided through the QEUH team. Members from these organisations attended the Dialogue Sessions as required to provide feedback. So there were a lot of parties involved in developing a significant amount of information for our bid. The intended Contract Form – NEC3, encourages collaboration between all parties and as the dialogue sessions continued the relationships between all parties became very strong. From the Multiplex side it was my responsibility to ensure that my team were working collaboratively both internally and with the QEUH team. Alongside the developing design I had teams working on many fronts – Laboratories construction methods and cost and programme, overall site logistics, construction methodology, construction programmes, costs for each stage and Contract negotiations. Following the last Dialogue session on July 2009 the bidders had until October to develop the documentation needed to support their bid. This was a significant amount of work in a short period of time, but my view was that the more we could give the QEUH team the better they would be able to understand and mark our submission. Our submission comprised everything the QEUH team asked for in their bid documentation. The list is extensive but worth going through as it demonstrates the detail that had been agreed through the Dialogue Groups.

The drawings provided were: 1:500 masterplan showing the entire campus and how it would work, 1:500 departmental relationship drawings showing department sizes, adjacencies and patient flows, 1:200 department layout plans, 1;200 Elevations, 1:200 exemplar sections through the buildings, 1:50 room layout drawings with Elevations for the rooms requested by the QEUH team, 3D images of some of the public spaces and parks, 1:500 landscaping drawings. This main suite of drawings was supported

by written documentation: Wayfinding Strategy, Finishes Schedule, Door & Ironmongery Schedule, Acoustic Strategy, Arts Strategy, Fire Engineering Design Strategy including drawings, Structural Engineering Design Strategy including drawings, Drainage Design Strategy, Main Incoming Utilities Design/Connection Strategy, Water Services Strategy, Heating Strategy, Ventilation and air treatment Design Strategy, Mains and Sub Power Distribution Strategy, Lighting Strategy, Lift Engineering Design Strategy, Medical Gases Design Strategy with schematic drawings, Pneumatic Tube System Design Strategy with schematic drawings, Plant Room Design Strategy, Control System including Building Management System schematic drawings, Sustainability Design Statement, BREEAM Scoring Schedule and Energy Strategy with approach to Renewables. As you can see a significant amount of documentation sitting alongside our bid submission. This was all submitted with our cost proposals and contract commentary. My role was making sure it all happened and was of a high quality. Following the submission of our bid there was a period of 2 or 3 months during which the QEUH team and their advisors assessed the 3 bids. There were questions and answers back and forth clarifying our submission. All bids were scored against the criteria set out in the tender documentation and In December 2009 Multiplex were awarded the Contract. Following appointment, I continued as Project Director and led the Multiplex team. We were appointed to carry out the construction of the Laboratories Building. This work started pretty much immediately on an already cleared area of the campus. We were also appointed to progress the detailed design of the Adult and Children's Hospitals. This work had a clearly defined set of deliverables all geared to allowing the QEUH team to develop their Full Business Case for approval by the Government.

Whilst I obviously had responsibility for overseeing the Laboratory Construction this was a lesser part of my role. My main focus was on the design progress and on the construction methodology for the main Adult and Children's Hospital. One of the first activities was to agree a stage 2 programme for User Groups and Reviewable Design Data. The Adult Hospital was split in 23 User Groups covering all the departments. The Children's Hospital was split into 22 User Groups. Through workshops with the QEUH team a programme was agreed allowing for either 2 or 3 User Group meetings for each department to review and finalise the 1:200 layout drawings. This was then followed by 3 User Group meeting for each department to review and sign off the 1:50 layout drawings, elevations and Room Data Sheets. This programme started in

December 2009 and ran through until October 2010. From the Multiplex side the User Group meetings were attended by Nightingale Architects, Tribal Health Planning, ZBP M&E Consultant, WSP Civil & Structural Consultant, Doig and Smith Cost Consultant, ACL Acoustic Consultant, WSP Fire Consultant and Multiple Design Management staff. THE QEUH team were represented by their own Project Managers, their advisors and the review teams from the User Departments. Not everybody had to be at every meeting. The programme for achieving sign off of the Health Planning was critical in allowing The QEUH team to go to Full Business Case and for Multiplex to develop the suite of construction information needed to start work on site as soon as Government approval was reached. My role in this was to make sure everything kept running smoothly, that resource was where it needed to be and to help clear any blocking points. I worked very closely with the QEUH team in doing this. In tandem with the User Group meetings there was a considerable amount of other design information required for the QEUH team full Business Case. This information was set out in Appendix K of the Contract and was split into 2 parts. The first part was the information the QEUH team needed to agree prior to Full Business Case and Part 2 was the rest of the information they wanted to agree. A process called Reviewable Design Data was put in place by Currie and Brown. This documented the level of sign off of each piece of information whether it be a drawing, a specification or other design information such as sample boards or material data. Again, my role in this was to make sure the process ran smoothly and clear any blockages. As the design progressed Multiplex continued to develop their construction methodology and programmes.

My Multiplex team at this time would have been circa 60 people covering construction management, engineering, design management, health and safety, commercial management, programme management etc. Having appointed our key Trade Contractors to work on the Project with Multiplex we were in a fortunate position of not having to procure too many trades ahead of Full Business Case. Some specialist packages such as Piling and Site accommodation were procured early to meet the programme requirements. The site accommodation was shared between the QEUH team and the Multiplex team ensuring that there was a very high level of collaboration on all fronts. Relationships were very strong throughout the entire Project team. High level blockages were dealt with at the weekly Project Management Group meetings. These were attended by senior management from each party and were very effective

in keeping the project on track. At the end of 2010 the team had achieved the goals required for Full Business Case. This was successful and Multiplex were then appointed to move onto Stage 3, the construction of the Adult and Children's Hospital.

On the 1st January 2011 I was appointed Managing Director of Multiplex Europe. I was replaced as Project Director by Mike Sharples who had successfully delivered the Peterborough Hospitals PFI project. I carried on attending the Project Management Group meeting for a few months until Mike was full in control. My involvement beyond that was to attend Monthly Project Reviews. These were pretty high level with my main focus being on progress, financials, staffing and any blockages I could assist with. I would also have a site walk looking at progress, quality and Health & Safety. I attended Monthly Project Reviews on all of our Projects. At the time of becoming Managing Director we had roughly 8 live projects. When I stepped down we had over 20 live Projects and an annual turnover of £1.2 billion

2. What previous experience or training, if any, did you have to working as Director of Construction? How, if at all, did this experience serve you for the role in respect of the QEUH/RHC?

A. My healthcare experience started on the £250m Norfolk and Norwich Hospital PFI project in 1998. I originally joined the Project as Engineering Manager but soon took over the role of Design Manager as well. This experience taught me very quickly the iterative nature of design in healthcare premises and the need to have very clear processes for its development and approval. I was later appointed Project Director by Alfred McAlpine for their £80m Elective Care Centre PFI at Addenbrookes Hospital then appointed as Project Director by Multiplex for the £350m Peterborough Hospitals PFI. All 3 projects were completed successfully on time. Whilst the QEUH/RHC is not a PFI the processes you go through to manage the design, procurement and construction are pretty much the same.

3. Please provide details of any other healthcare projects that you were involved in prior to the QEUH & RHC.

A. As above plus 2 peer reviews on the Fiona Stanley Hospital in Perth, Australia. I also advised on some bids for Hospital Projects in the Middle East and Canada.

4. **Please refer to page 3 of Bundle 43, Volume 3, Document No. 12, Page 493.** The Inquiry understands that Multiplex refers to itself as having 'Specialist Contractor and Design Team staff'. Please explain what having a 'Specialist Contractor and Design Team' means, what this entails, what necessary qualifications/experience the team holds, the relevance of this specialism relative to building healthcare premises.

A. The full statement reads "the key Brookfield, Specialist Contractor and Design Team staff who have worked so effectively with the Board's team etc" which puts a different emphasis on the statement. What Multiplex are saying here is that the key people in the Multiplex team, the specialist contractor teams and the design team will carry on from bid stage onto the Project. The Specialist Contractors (as opposed to the Main Contractor – Multiplex) are Mercury Engineering who were the Mechanical & Electrical Contractor. Dunne Group who were the Structures and Civils Contractor, Structal the Curtain Walling Contractor and Astins the Internal Partitions Contractor. All had input through the bid phase on design, buildability and costs. The key design team was Nightingales the Architect, Tribal the Health Planners, WSP the Civil/Structural Consultant and ZBP the Mechanical and Electrical Consultants. Again all had been involved through the bid stage and team continuity into the next stage was crucial.

a) Why, in your opinion, was the continuity of the Specialist Contractor and Design Team staff to the next stage of the bid process crucial?

A. Because they had all been an integral part of our bid team and were collectively responsible for our bid submission and ownership of the content. They had detailed knowledge of the dialogue discussions and agreements with the QEUH team in relation to the development of the exemplar design and that knowledge had to continue into the next phase.

5. On the Multiplex website it states:
'We [Multiplex] have a long track record of delivering world-class hospitals and aged care facilities that enhance wellbeing and safeguard the day-to-day running of existing operations…

Our teams are skilled in the detailed planning and robust scenario-testing required to ensure safety and surety of delivery in highly sensitive environments….

We are experts in delivering state-of-the-art medical facilities in collaboration with our specialist supply chain. Our UK portfolio includes the largest hospital campus in Europe, Scotland's largest children's hospital, and luxury later living accommodation in Chelsea, London.'

a) In delivering world-class hospitals, please explain the level of knowledge and understanding of healthcare regulations and guidance expected of Multiplex staff?

A. Multiplex staff would not necessarily have a deep knowledge of healthcare regulations and guidance. This knowledge would sit within our Design Team, who would ensure that the regulations and guidance are followed or clarified and that those decisions are captured in the suite of documents that become Construction Information. This would include drawings and specification as well as Room Data Sheets. If the Construction Information refers to compliance with a regulation or guidance relevant to the stage of work being carried out by the Multiplex Employee, then the Multiplex employee is expected to be/become familiar with those requirements.

b) Explain your personal knowledge, understanding and any relevant qualifications in healthcare regulations and guidance?

A. I am aware of Healthcare Regulations and Guidance but do not have a deep knowledge.

c) Please explain your understanding of the importance of compliance with healthcare regulations and guidance for infection prevention and control?

A. It is very important, and Infection Control sign off was a key part of the design process. Knowledge of the requirements sits within our Design team who developed their designs in conjunction with the QEUH team. The QEUH team provided Infection Control input and approval of the developing design.

d) Who from the QEUH team provided Infection Control input and at what stage?

A. I am sorry I cannot remember the lady's name, but she was an NHS employee and worked with the QEUH team. It was the responsibility of the QEUH team to get sign off from their Infection Control adviser.

e) Why was it important to follow guidance in respect of the QEUH project?

A. It was important to follow guidance along with all the other documents that collectively defined what the Client wanted. The Employers Requirements, derogation and the

various clarification logs also had to be followed.

Appointment as Contractor

6. The Inquiry understands that Multiplex was appointed as Contractor to undertake the works for the QEUH & RHC. The works under the Building Contract were to be carried out in stages: Stage 1 (Construct Laboratories), Stage 2 (Detailed design of hospital to FBC submission), Stage 3 (Construction), Stage 3A (Demolition surgical block and landscaping) **(Please refer to Bundle 17, Document No. 12, Page 613)**

a) Describe the appointment process leading up to the Multiplex's appointment as Contractor.

A. I think I pretty much answered this in question 1 but will repeat the relevant parts for clarity. Following prequalification Multiplex were invited to participate in Competitive Dialogue on 1 May 2009. Multiplex and the other bidders were issued the same set of Employers Requirements that set out the QEUH teams exemplar design and project requirements. The bid process involved a series of half day dialogue session. These sessions covered Design (5 separate sessions), Laboratories, Logistics and Commercial/Legal (all 3 separate sessions). These sessions took place over a 2 month period starting in May 2009. At each session we tabled our proposals for these topics to the QEUH team and received their feedback on whether they liked it or not. Between sessions my team worked on addressing the QEUH team comments we had received at the previous sessions. My role in this was to ensure that my team knew what they had to do and had the resources to do it in the time frame. I led the Dialogue sessions providing an executive update on what we had been doing since the last session. It was then up to my team to go through the detail with the QEUH team. The QEUH team comprised the parties who had been responsible for developing the Exemplar design. It comprised Currie and Brown (Project Managers), HLM (Architects), Buchan Associates (Health Planners), Wallace Whittle (Mechanical & Electrical Consultant), URS (Civil/Structural Consultant) Susan Logan (Energy Consultant). Infection Control feedback was provided through the QEUH team. Members from these organisations attended the Dialogue Sessions as required to provide feedback.

So, there were a lot of parties involved in developing a significant amount of

information for our bid. The intended Contract Form – NEC3, encourages collaboration between all parties and as the dialogue sessions continued the relationships between all parties became very strong. From the Multiplex side it was my responsibility to ensure that my team were working collaboratively both internally and with the QEUH team. Alongside the developing design I had teams working on many fronts – Laboratories construction methods and cost and programme, overall site logistics, construction methodology, construction programmes, costs for each stage and Contract negotiations. Following the last Dialogue session on July 2009 the bidders had until October to develop the documentation needed to support their bid. This was a significant amount of work in a short period of time, but my view was that the more we could give the QEUH team the better they would be able to understand and mark our submission. Our submission comprised everything the QEUH team asked for in their bid documentation. The list is extensive but worth going through as it demonstrates the detail that had been agreed through the Dialogue Groups.

The drawings provided were: 1:500 masterplan showing the entire campus and how it would work, 1:500 departmental relationship drawings showing department sizes, adjacencies and patient flows, 1:200 department layout plans, 1;200 Elevations, 1:200 exemplar sections through the buildings, 1:50 room layout drawings with Elevations for the rooms requested by the QEUH team, 3D images of some of the public spaces and parks, 1:500 landscaping drawings.

This main suite of drawings was supported by written documentation: Wayfinding Strategy, Finishes Schedule, Door & Ironmongery Schedule, Acoustic Strategy, Arts Strategy, Fire Engineering Design Strategy including drawings, Structural Engineering Design Strategy including drawings, Drainage Design Strategy, Main Incoming Utilities Design/Connection Strategy, Water Services Strategy, Heating Strategy, Ventilation and air treatment Design Strategy, Mains and Sub Power Distribution Strategy, Lighting Strategy, Lift Engineering

Design Strategy, Medical Gases Design Strategy with schematic drawings, Pneumatic Tube System Design Strategy with schematic drawings, Plant Room Design Strategy, Control System including Building Management System schematic drawings, Sustainability Design Statement, BREEAM Scoring Schedule and Energy Strategy with approach to Renewables. As you can see a significant amount of documentation

sitting alongside our bid submission. This was all submitted with our cost proposals and contract commentary. My role was making sure it all happened and was of a high quality. Following the submission of our bid there was a period of 2 or 3 months during which the QEUH team and their advisors assessed the 3 bids. There were questions and answers back and forth clarifying our submission. All bids were scored against the criteria set out in the tender documentation and in December 2009 Multiplex were awarded the Contract.

b) Describe your role and remit, in particular provide details regarding Multiplex's role, responsibility and authority in respect of the design and build of QEUH/RHC.

A. I was the Project Director from bid stage in 2009 to the end of 2010. My role was to lead the Multiplex team which included all of our Design Consultants and Trade Contractors. Multiplex and their team were fully responsible for the design and construction of the QEUH/RHC. Multiplex were provided with a set of Employers Requirements including the exemplar design. Multiplex developed this set of Employers Requirements into their own design which was progressively signed off by the QEUH team, through User Groups and the Reviewable Design Process, as what they wanted.

c) Who was responsible for ensuring that Multiplex complied with the terms of the contract with NHS GGC in respect of the QEUH/RHC project? What responsibility, if any, did Multiplex have for ensuring that the built hospital complied with relevant guidance such as SHTM and SHFN?

A. Multiplex were responsible for complying with the list of guidance, including SHTM's and SHFN's, laid out in the Employers Requirements. These included the various clarification logs which amended those requirements. As the design developed through the User Groups some of the requirements were amended by the QEUH team.

d) Describe how derogations from the Employers Requirements were signed off by NHS GGC. What role, if any, did you have in respect of this? Who was responsible for ensuring that the Board signed off on derogations?

A. Derogations were captured and signed off through the various clarification logs. I managed the process from Multiplex's side. It was managed by Mark Baird from Currie & Brown on behalf of the QEUH team and he was responsible for getting their

approval to any derogations. These various logs captured changes to the Employers Requirements.

e) Describe your working relationship with NHS GGC prior to appointment, had you worked with any members of the NHS GGC Project Team prior to appointment, if so whom and when?

A. The relationship with the NHS GGC team was very professional and engaging through the bid period. They were clearly looking for a team they could work collaboratively with. I had not worked with any members of the NHS GGC project team prior to appointment.

f) Describe your working relationship with NHS GGC during the terms of your appointment, including day-to-day dealings with the NHS GGC Project Team, details of who you worked with and in respect of what matters?

A. The working relationship was excellent between all parties. The entire Project team was based in a purpose-built project office allowing for very easy and quick communication amongst the team. I had day to day dealing with a wide number of the QEUH team both NHS and their professional advisers. My key point of contact was with Alan Seabourne, the QEUH Project Director. I also worked closely with Peter Moir from the NHS. As Project Director I was overseeing all aspects of the Project so my discussions with the QEUH team would have covered pretty much anything that needed my involvement. With Alan Seabourne the main topics would have been: progress to Full Business Case, progress of the design process, progress of the Laboratory Building construction, high level risks, Appendix K agreement and Costs/Contract including the various logs. With Peter Moir discussions would have been more about design progress and sign off, Planning Approval progress, Schedule of Accommodation, Appendix K and mock ups and samples.

g) Describe your working relationship with Currie & Brown prior to appointment, had you worked with any members of Currie & Brown who worked on QEUH/RHC prior to appointment, if so whom and when?

A. The relationship with Currie and Brown was very professional and engaging through the bid period. I had not worked with any members of the Currie & Brown team prior to appointment.

h) Describe your working relationship with Currie & Brown during the terms of your

appointment, including day-to-day dealings, and details of whom you worked with?

A. The working relationship with Currie and Brown was very good. Currie & Brown were a pretty seamless part of the QEUH team and had a role in most things. The main people I dealt with were Mark Baird, Douglas Ross and David Hall. Through 2010 most of my dealings with the Currie and Brown team would have been in relation to the Construction Contract for Stage 3. There was a lot of work done on capturing the Contractors Proposals and providing clarity to the agreements through various logs. The main logs were: the BIW log which detailed what of the NHSGGC Employers Requirements remained relevant and what had been replaced by Multiplex information, The RFI (Request for Information) log which tracked queries and responses, The M&E Log which captured agreements on M&E Matters and the Clarification Log which covered pretty much anything else. These logs were used to capture changes from the Employers Requirements. The other area of involvement with Currie & Brown was on the costings and agreement of the Target Price.

i) Describe Currie and Brown's role and responsibilities in respect of the project. Are you aware of any changes to their role during the project, if so, please explain.

A. Currie and Brown were the NSGH Boards Lead Consultant and led the Technical Advisory Team.

The consultancy services they provided were: Lead Consultant/Project Manager, Employers Agent, Architectural Design and Site Masterplanning, Healthcare Planning, Civil & Structural Engineering, Building Services Engineering and IT Infrastructure, Cost Consultancy/Quantity Surveying/Lifecycle costing, CDM Coordinator, Procurement and Construction Management advice, Landscape Architect, Risk and Value Management advice and Facilities Management advice (soft and hard FM.

Currie And Brown were involved in the preparation of the Employers Requirements and ran the bid process for the QEUH team. They were then responsible for providing the above services to the QEUH team through the design and construction phase of the Hospital. They led the signoff process of the Multiplex design checking for compliance against the Employers Requirements. They also managed all payments to Multiplex. Throughout they were an integral part of the QEUH team.

I am not aware of any changes to their appointment through the course of the Project.

j) Describe your working relationship with Capita prior to appointment, had you worked

with any members of Capita who worked on QEUH/RHC prior to appointment, if so whom and when?

A. I had not worked with any members of the Capita team prior to appointment.

k) Describe your working relationship with Capita during the terms of your appointment, including day-to-day dealings, and details of whom you worked with?

A. I did not have a lot to do with Capita, who I think only joined the QEUH team towards the end of 2010.

l) Describe your understanding of Capita's role and responsibilities in the project.

A. Capita were the QEUH team Supervisor. Their primary role was to carry out testing and inspections to confirm that the works completed by Multiplex were compliant with the contract. Where issues were found, Capita would issue a defects note which Multiplex would resolve. They also monitored the programme, agreed payments and advised the QEUH team on the implications, cost and time, of any changes. I believe Capita issued the final completion certificate with agreed schedule of defects.

m) Who did you report to on a day-to-day basis?

A. The Board of Multiplex Europe.

n) In respect of other contracts and sub-contractors, explain which contractors and sub-contractors Multiplex had worked with prior to appointment, describe your day-to day working relationship with them, and details of whom you worked with?

A. The main subcontractors at the time of my involvement in the QEUH were Mercury Engineering – M&E Contractor, Dunne Group – Concrete Contractor, Astins - Drylining Contractor, Structal – Curtain Walling Contractor and Praters – Cladding Contractor. I had worked with all of these businesses on Peterborough Hospital with the exception of Dunne Group. Day to day working relationships were extremely good. I dealt with the Managing Directors of each business as well as their Project Directors where applicable. Mercury Engineering's Project Director was Ed McIntyre and MD Mick Kennedy. Dunne Group Chief Executive was Gordon Dunne supported by Kevin Graham. Astins Chief Executive was Dominic Tutt with Jim Flinn as Project Director. Structals Managing Director was Charles Lawton. Sorry I can't remember their Project Directors name. Praters MD was Richard Unwin supported by Andy Newman. The Multiplex design team comprised Nightingale Architects where Neil

Murphy was my main contact, ZBP (WW) as M&E consultant where Steve Pardy was my main contact and WSP as Civil/Structural Engineers where Peter Dunbar was my main contact. I had worked with them all before and relationships were very strong.

o) Describe Mercury's role and responsibilities in respect of the project.

A. Mercury was the Mechanical, Electrical and Public Health Engineering Contractor appointed by Multiplex. They were responsible for design (where specified), manufacture, supply, installation, commissioning and set to full operation of the Mechanical, Electrical and Public Health works.

Review of the 'Works Information'

7. What information was provided to Multiplex to assist with the planning and costing of the project to enable Multiplex to prepare the Contractor's Proposals?

A. The Invitation to participate in Commercial Dialogue was issued in 3 Volumes of information. Volume 1 titled "Project Scope and Commercial Documents" contained a narrative covering the following: Project Scope, Project Management, Programme, Procurement Strategy, Competitive Dialogue Strategy, Guidance to Bidders, Project Organisation and Bid Returns and Evaluation. This basically set out how the QEUH team wanted the bid stage to run. Volume 2 titled "Employers Requirements" set out the technical and clinical requirements. These included Clinical Output Specifications for all Departments, masterplan and exemplar design information, output specifications regarding the construction works, building and engineering services to be provided plus ADB Room Data Sheets, Schedule of Accommodation and Equipment Lists. Volume 3 titled "Bid Return and Evaluation" detailed the range of deliverables required from bidders and the evaluation strategy and scoring approach that would be applied.

8. The Inquiry understands that NHS GGC provided a list of guidance documents (e.g. SHTM/SHPN) that the design had to comply with, please confirm what elements of the design contained in the Contractor's Proposals, did not comply with guidance, and why and how any non-compliances were highlighted during the tender process and ITPD process?

A. The NHS GGC did provide a list of guidance documents that the design had to

comply with. As part of Multiplex's submission we provided a commentary on what Guidance we would/would not follow. Throughout our Contractors Proposals there would have been elements that did not comply with Guidance either in whole or in part. These were clarified in the various Strategy Documents submitted. Prior to signing of the contract these "non- compliances" were captured in the various Logs included in the Contract. Any changes proposed by the Multiplex team to the exemplar design and requirements would have been discussed with the QEUH team and their advisors at the various Competitive Dialogue Sessions. At these sessions we got feedback on what was/was not acceptable and what the QEUH team liked/didn't like.

a) When you refer to "Strategy Documents" which documents are you referring to exactly?

A. There were numerous strategy documents included with our bid. These covered Wayfinding, Architectural Design, Acoustics, Art, Fire Engineering, Structural Engineering, Drainage design, Main Incoming Utilities design, Water Services, Heating design, Ventilation and Air Treatment design, Lighting, Lift Engineering, Medical Gases, Pneumatic Tube, Plantrooms, BMS and Maintenance & Plant Replacement.

b) Describe the sign off process for any changes to the exemplar design and requirements.

A. The development of the Exemplar design was controlled through the User group meetings and the reviewable design process. In the user group meetings, the QEUH Team would clarify to my team of designers/health planners/Engineers exactly what they wanted and how they wanted each department to work. These requirements were then worked up by my design team and captured on the design documentation for each room – 1:50 layouts, room data sheets and elevations. This information was reviewed at subsequent user group meeting then ultimately approved through the reviewable design data process.

c) Describe any changes to the exemplar design and requirements and your involvement.

A. Any changes would have been proposed by the Multiplex design team either as part of our bid submission or as part of the user group process. The Exemplar design was

very well defined, and the role of Multiplex was to add value to it rather than change it. One example would be the repositioning of the multi storey carpark to create space for a much larger children's play park. My involvement was to manage the various processes and make sure my team was delivering what it was expected to, when it was expected to such that the QEUH team could decide what it wanted.

9. What consideration was given to the impact of any non-compliances on patient safety/infection prevention? At what point, if any, was advice sought from Infection Prevention and Control Staff? If advice was sought, from whom was it sought and what was the advice given?

A. Infection Control was a consideration throughout the design. The QEUH team had an Infection Control expert who signed off the design as it went. Sorry I can't remember the Lady's name. She worked with the QEUH team.

a) What advice did the infection control expert in the QEUH team give on the impact of any non-compliances to patient safety/infection prevention?

A. The input of the QEUH Infection Control expert was managed by the QEUH team. Multiplex would only have been advised of any issues raised.

10. Did Multiplex propose any changes to the exemplar/reference design? If so, please provide details of the changes and why?

A. The exemplar design was very well advanced so the opportunities for Multiplex were to improve on the Exemplar where possible. Some examples are: the shape of the building changed to allow all rooms to have a view, the Masterplan changed to provide a Children's park where the carpark had been, roof play areas were added and the extent of the Basement was reduced. All proposed changes were discussed with the QEUH team and either accepted by them as being an improvement to the exemplar or rejected for not meeting their needs.

11. The Inquiry is aware of the agreed ventilation derogation recorded in the M&E Clarification Log.

(Please refer to Bundle 16, Document No. 23, Page 1662)

a) Describe Multiplex's role in respect of the proposals leading to the ventilation derogation.

A. As part of the Multiplex design submitted at bid stage Chilled beams were introduced

by ZBP in the wards. This reduced the required number of air changes from 6 per hour to 2.5 per hour. The use of chilled beams with the reduced requirement for air changes was seen as a more efficient design solution that saved energy.

b) Why did you/Multiplex consider that it was important for the "design solution" to save energy? Did you/Multiplex consider energy efficiency as the most important aspect of the ventilation system in the QEUH/RHC wards? If so, why? If not, why not?

A. The Energy target and Breeam excellent rating were QEUH team requirements not Multiplex requirements. Multiplex design addressed those requirements and was accepted by the QEUH team as their preferred solution. I did not consider energy efficiency as the most important aspect of the ventilation system although it was clearly important to the QEUH team. The ventilation system still had to meet the Employers Requirements.

c) What was the alterative design solution, if any, to the use of chilled beams?

A. Our bid was based on the use of chilled beams, so I do not believe there was an alternative. Clearly if the QEUH team had decided against the use of chilled beams the design would have changed.

d) 6 ACH is required by SHTM. Explain how a chilled beam 'reduces' that requirement. Is it still not required? Was there a risk assessment. What was IC input? What evidence was put forward of chilled beams operating over a period in rooms with ill patients?

A. Sorry I am not a design Engineer. The matter was discussed at length between my team (Steve Pardy of ZBP and Chris Lovejoy of Multiplex) and the QEUH teams technical advisers (Currie & Brown and Wallace Whittle). Infection Control input was controlled by the QEUH team.

e) You have explained that the Multiplex bid introduced chilled beams with the effect that ACH could be reduced from 6 ACH to 2.5 ACH. Do you accept that such a proposal was not consistent with the requirement for 6 ACH in a General Ward in SHTM 03-01 (Draft), Appendix 1, Table A1 and if yes why did Multiplex propose the construction of a hospital that was not consistent with SHTM 03-01 (Draft)? **(Please refer to Bundle 13, Volume 5, Document No.52, Page 2016)**

A. Yes, I accept that the proposal was not consistent with SHTM 03-01. The solution was developed by ZBP to provide an Energy efficient solution and reflected what the

QEUH team wanted to meet their various requirements.

f) What was the reason for the ventilation derogation?

A. The derogation was to capture the QEUH teams approval of the change from 6 air changes per hour to 2.5 air changes per hour along with the use of chilled beams.

g) Is the Inquiry correct in understanding your answer to 11.a) above that the reason for the derogation was to accommodate the use of Chilled Beams in the Wards?

A. Yes, along with the reduction in air change rate.

h) Who drafted the M&E Clarification Log and who was responsible for updating the Log? Following updates to the log, please provide details of who the log would have been distributed to?

A. I think Currie and Brown drafted the M&E Clarification log. On the Multiplex side it would have been distributed to Steve Pardy at ZBP and Ed McIntyre at Mercury Engineering. Multiplex's M&E Director Chris Lovejoy, Commercial Director Tim Bicknell and Legal Director Ben Keenan would also have been on the distribution. While the log was prepared by Currie & Brown it progressively captured comments from Multiplex and its team of advisors. Comments would be sent back to Currie & Brown who would tidy it all up and reissue.

i) What was the scope of the agreed ventilation derogation recorded in the M&E Clarification Log? In particular, was it restricted to general wards only? If so, (a) how is this interpretation evidenced within the documentation; and (b) where is the specification located for areas that required specialist ventilation and isolation rooms?

A. From memory it related to general wards. This would have been evidenced on the Room Data Sheets under the Environmental Conditions section. For areas that require specialist ventilation this would also have been captured on the Room Data Sheets for those areas. It is the Room Data Sheets that would have been signed off by the QEUH Team for each specialist area.

j) Where in the derogation does the restriction to general wards appear (in order to instruct the later processes). The 6ACH is long standing guidance and was in an SHTM to be complied with. Were you not concerned with its dismissal as 'unnecessary' or reliance on Building Standards (not specific to healthcare)?

A. It doesn't, my understanding is that it related to General Wards. I was not concerned with its dismissal as I was being advised by my Design team (Steve Pardy at ZBP) who agreed the solution with the QEUH teams technical advisors (Stuart McKecknie at Wallace Whittle). The QEUH team were happy to adopt the solution as their requirements.

k) At the time what concerns, if any, did you have regarding the derogation? Did you raise any concerns, if so with whom?

A. I had no concerns.

12. Refer to the ZBP Ventilation Strategy Paper dated on or around 15 December 2009? **(Please refer to Bundle 16, Document No. 21, Page 1657)**

a) What was your/Multiplex's involvement in this document being instructed?

A. Sorry I cannot remember whether the QEUH team requested the document or the Multiplex team offered it.

b) What was the intended purpose of this document?

A. The purpose was to explain the ward ventilation strategy and explain the reasoning behind the introduction of chilled beam with a reduced no of air changes. This was a pretty common design solution.

c) When did you first have sight of this document?

A. When it was produced.

d) Who was the document shared with?

A. The document was produced by ZBP with the input of Stewart McKechnie of Wallace Whittle the QEUH teams advisor. It was distributed within the QEUH team and discussed with them by Steve McKechnie prior to the team accepting the change.

e) How was Multiplex satisfied that the proposals set out in the above document were suitable for use in a healthcare setting?

A. The proposals were put together by the Multiplex Design Team at bid stage. My M&E Director, Chris Lovejoy, was involved in the discussions. My understanding is that it was a common design solution.

f) Just to confirm that you mean that the proposals were a “common design solution” in a healthcare care setting? If not, what did you mean by “common design solution”?

A. I understood it to be an increasingly common design solution in a healthcare setting.

g) To clarify, the proposal set out in the ZBP Ventilation Strategy Paper is a ‘common design solution’ in healthcare premise/ settings notwithstanding the non-compliance with SHTM 03-01 guidance in respect of ventilation?

A. Yes, that is my understanding and that is what was accepted by the QEUH team as meeting their requirements.

h) What concerns if any did you have on reading this document? If so, did you escalate these concerns and to whom?

A. I did not have any concerns.

i) What assurances, if any, were you given in respect of the proposal having regard to the non-compliance with guidance?

A. The solution complied with the requirements of our contract and took account of the Employers Requirements, derogations and the various logs as well as guidance. It was agreed between Steve Pardy of ZBP and Stuart McKechnie of Wallace Whittle and adopted by the QEUH team as an efficient way of meeting their requirements.

13. Are you aware of any risk assessments, whether in compliance with the standards in HAI Scribe or otherwise, that NHS GGC carried out in respect of the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper dated 15 December 2009? **(Please refer to Bundle 16, Document No. 21, Page 1657)**

A. I am not aware of whether the QEUH team did or did not do any risk assessments in respect of the change. They did have their M&E Technical advisor involved in it before it was signed off.

14. Describe the advice sought, if any, or the involvement, if any, of GGC Infection Prevention and Control staff in respect of the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper dated 15 December 2009?

A. Infection Control sign off was managed by the QEUH team. Sorry I can’t remember the lady’s name.

15. Who from the GGC Project Team and Board were aware of the ventilation derogation?

A. The following would have been involved: Alan Seabourne the Project Director, Stewart McKechnie the QEUH teams M&E advisor, Mark Baird at Currie and Brown and I assume Mairi MacLeod and Heather Griffin who were the Children's and Adult Hospital Project Manager respectively.

16. How was the ventilation derogation communicated to the wider Project Team?

A. It was captured in the design documents – drawings, specifications, room data sheets etc.

17. What impact did the requirement for a BREEAM excellent rating have on Multiplex's proposed design in particular in respect of ventilation?

A. I don't know the technical answer to that but it would have been a consideration in developing the design solutions.

a) How important a consideration was the requirement for a BREEAM excellent rating on Multiplex's proposed design in particular in respect of ventilation?

A. It was an important requirement of the QEUH team that influenced the design solution.

18. What impact did the energy usage target of no more than 80kg of CO2 per square metre have on Multiplex's proposed design?

A. Again I don't know the technical answer to that but it would have been a consideration in developing the design solutions.

19. The Inquiry is aware that Chilled Beam Units were proposed by Multiplex and accepted for use through the QEUH/RHC. What was the basis for Multiplex proposing to use Chilled Beam Units? Is the use of Chilled Beam Units appropriate throughout hospitals? At the time, what concerns, if any, did you have regarding the use of Chilled Beam Units?

A. I believe it was an efficient way of reducing the number of air changes required and reducing the energy required. I believe that chilled beams are used commonly in hospitals. I had no concerns.

a) To your knowledge are chilled beams appropriate throughout every ward in a hospital?

A. I am not technically qualified to answer that question. If they are not appropriate in specific wards this should have been picked up through the user group meetings and captured on the room data sheets.

b) You state that the function of chilled beams is to reduced ACH? If this is the case, why would these be recommended when this reduced the ACH required in terms of SHTM? What mitigation was put in place to address the reduced ACH?

A. To assist in meeting some of the other requirements of the QEUH team namely BREEAM excellent and the Energy target.

20. Would it have been possible to achieve the sustainability requirements (BREEAM excellent rating and 80kg of CO2 per square meter) if Chilled Beams were not selected for use in the QEUH/RHC?

A. Sorry I don't know the answer to that but would suspect it could not have been achieved.

Full Business Case

21. Under 'Services Systems' confirmation was required "that the design fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current legislation". The Inquiry is aware of several departures from SHTM 03-01 Guidance in relation to air change rates, pressure differentials and filtration requirements. There was also a variation to the primary extract arrangement for PPVL isolation rooms from that set out in SHPN 04 Supplement 01. Was Multiplex aware at the time, of these non-compliances? If so, please confirm how Multiplex communicated these non-compliances to the NHS GGC Project Team. If no action was taken by the NHS GGC Project Team what obligations, if any, did Multiplex have to report matters further and to whom?

A. Sorry I don't know the detail of this but Multiplex would have been aware at the time. The ventilation strategy for Isolation Rooms was described in our submission document

Ventilation Specification. Following bid stage any clarification required to the Isolation

Room Ventilation would have been captured in one of the various logs, probably the M&E Log. The NHS GGC team would also have been aware of and approved the clarifications.

22. Was the ventilation derogation noted in the M&E Clarification Log, recorded in the Full Business Case? Who was responsible for doing this? If you were aware that it had not been recorded in the Full Business Case, please explain what action, if any, you took.

A. I am not 100% sure but I think the various Logs were captured as part of the Full Business Case documentation.

a) Do you recall the abandonment of the general requirement of 6ACH being mentioned in the FBC given it was going to SG whose Guidance it was?

A. The Full Business Case was produced by the QEUH team and submitted by them. I am not aware whether air changes were covered in it or not.

Design and Construction and Role in the QEUH/RHC Project

23. The Inquiry understands that ward layouts and Room Data Sheets (RDS) were approved through the reviewable Design Data (RDD) process. Describe your role, if any, in the RDD process and the user groups.

A. My only role in the Reviewable Design Process was input into the development of Appendix K, which I think captured all the documentation the QEUH team wanted to see and approve. I also had to make sure that the programme of meeting and submissions was kept on track. Attendees from the Multiplex team would have been our design consultants and Design Managers.

24. How were members selected to be part of a user group?

A. From Multiplex side our designers and Managers attended the user groups that related to their areas of responsibility.

25. Confirm who attended the user groups meetings from Multiplex, the NHS GGC Project Team, IPC, Estates and Clinical teams for the following areas: Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU RHC – RHC; All Isolation rooms.

A. Sorry I have no idea of who attended these meetings.

26. How often were user group meetings scheduled to review design proposals and agree the design with the user groups?

A. I think there were 3 rounds of meeting to review the 1:200 layouts then a further 3 meetings to review the 1:50 layouts and Room Data Sheets. The user group process took the whole of 2010 and probably continued beyond that.

27. How were designs and the RDS approved to proceed to construction?

A. Through the reviewable design data process. I think there were 3 levels of approval – A proceed to Construction, B Minor comments to take on board then proceed to construction and C not approved amend and resubmit.

28. How was the ventilation derogation communicated to users during the RDD process?

A. It would have been communicated through our M&E consultant ZBP and captured in the Environment section of the Room Data Sheets.

29. Please describe how the technical requirements (air change rates, pressure differentials and filter requirements) for each ward were managed and approved during the user group meetings and the RDD process, including your role and involvement.

A. These would have been discussed at User Group Meetings by our design team then captured in the Environment Section of the Room Data Sheets.

30. Were any requests made by the User Groups during the RDD process that were refused – please provide details.

A. Sorry I can't answer that.

31. **Please refer to Bundle 17, Document No.75, Page 2881.** Appendix 3 states: "Commissioning settings for all elements of the works, including microbiological testing proposals for operating theatres and specialist ventilation… Confirmation that the design team fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current legislation".

a) Describe the intended use and purpose of the following wards in QEUH/RHC: Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A &

2B – RHC; PICU RHC – RHC; all Isolation rooms.

A. Sorry I was not involved at that level of detail.

b) With the benefit of hindsight, was the intended use and purpose of Wards not a relevant and material consideration when considering the ZBP Ventilation Strategy Paper?

A. No, not in my role. I managed the processes and had a team of designers and managers who dealt with the design detail. My design team met with the various user groups who set out their clinical requirements for each area of the hospital. Any requirements for specialist areas would have been captured on the room data sheets.

c) Who, if anyone, form Multiplex would have been aware of the intended use and purpose of Wards?

A. Our Architects (Nightingales), M&E Engineers (ZBP) and Multiplex's design managers would have been aware.

d) How, if at all, would it be possible to ensure that "the design team fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current legislation" if the intended use and purpose of the Wards was not known?

A. There was a user group process where my design team met with the QEUH team and discussed the clinical requirements for every area of the hospital including wards.

e) What were the specifications of these wards?

A. Sorry I was not involved at that level of detail.

f) What guidance was considered in the design of these wards, what processes were in place to ensure guidance compliance?

A. Sorry I was not involved at that level of detail, but I believe our submission had a section in it confirming what guidance we were adopting and what we were not adopting. As discussed earlier the Logs were used to capture clarifications then the Drawings, specifications and Room Data Sheets were signed off through the Reviewable Design Process.

g) Who from Multiplex would be in a position to answer this question?

A. Steve Pardy from ZBP and Emma White from Nightingales.

h) Were there any changes to the design during the design and build, if so, please describe any such changes, describe the impact, if any, on guidance compliance as set out in Appendix 3, and describe the sign off process for any such changes, your involvement and how any changes were communicated to the Board. Was external advice ever sought in respect of design changes?

A. The design of a hospital is a very iterative process so yes there would have been design changes as the detailed design was completed. These changes would be in the detail of the design and not in the design principals agreed. Changes may also have been requested by the QEUH team. Changes would have been managed through the Reviewable Design Process and the issue of Project Managers Instruction if instigated by the QEUH team.

32. Describe your involvement and understanding, if any, of the decision to remove carbon filters? What was the rationale behind this decision, who was involved and what advice, if any, was sought in reaching this decision?

A. Sorry I had no involvement in this decision or knowledge of it.

33. Were any specialist design workshops required? If so, please provide details.

A. I am sure there would have been but have no recollection of what they were.

34. Were Value Engineering meetings/workshops held during the design phase? Please provide details of any agreed value engineering elements.

A. Most Value Engineering would have been carried out at the bid stage and been captured in our design and submission. I don't recall specific workshops with the QEUH team.

a) **Please refer to Bundle 43, Volume 1, Document No.11, Page 35**. This document highlights the potential Value Engineering items in respect of the QEUH/ RHC. The Inquiry understands that this was document prepared by ZBP, who were the mechanical and electrical engineers appointed by Multiplex. At point 6 it states: *'Reduce primary fresh air from 4 to 2 ½ air changes (revert to bid proposal)'*. Please explain your understanding of this document. Was the initial bid proposal only to have

2.5 ACH?

A. This document captured VE Ideas at a point in time. The original bid was based on 2.5 air changes.

b) What risk assessments if any, were carried out in order to assure Multiplex that this bid proposal was suitable for a healthcare setting?
The Inquiry understands from this document that it was always the intention to have 2.5 ACH, is this correct? If so, who from NHS GGC at the bid stage would have been aware of this?

A. The proposal was put together by ZBP under the watch of my M&E Director Chris Lovejoy and was included as part of our bid. The QEUH team were aware of this proposal. Main people who would have known would have been Alan Seabourne and Peter Moir from the QEUH team and key members of the technical advisory team probably Mark Baird and Stuart McKechnie.

c) The document further notes that neither 4 nor 2.5 ACH were SHTM complaint. At what point, if any, was NHS GGC made aware of this? Who was advised?

A. I am not sure exactly when the QEUH team were advised of this but it is clearly recognized in the M&E Log where the derogation is captured. Again Alan Seabourne, Mark Baird and Stuart McKechnie were fully involved in the decision.

d) **Please refer to Bundle 43, Volume 1, Document No.32, Page 113**. Is the Inquiry correct in understanding that this document proposes the use of chilled beams in renal dialysis and a reduction in ACH from 10 to 2.5?

A. Yes that is correct. The rational behind this proposal is explained in the document.

e) What was the purpose of this proposal, who signed it off from NHS GGC? What risk assessments were carried out in respect of this proposal?
What is your understanding, if any, of the impact of this proposal?

A. Sorry I don't know the answer to that. I don't know whether the proposal was accepted or not but it would have gone to Alan Seabourne, Mark Baird and Stuar McKechnie.

Ward 4B and 4C

35. The Inquiry understands that Ward 4B in the QEUH was originally intended to provide accommodation for Renal and Haemato-oncology patients. The 2009 NHS Clinical Output Specification for the Haemato-oncology ward stated, “Please note the haemato-oncology ward area has a very specific function and a considerably higher than average requirement for additional engineering support/infrastructure. There should be no opening windows, no chilled beams. Space sealed and ventilated. Positive pressure to rest of the hospital and all highly filtered air >90%, probably best HEPA with adequate number of positive pressure sealed HEPA filtered side rooms for neutropenic patients as in the Beatson West of Scotland Cancer Centre.” **(Please refer to Bundle 16, Document No.15, Page 1595)**. However, following a Change Order Request in July 2013 by Jonathan Best **(Please refer to Bundle 16, Document No.29, Page 1699)** it was confirmed that the Bone Marrow Transplant (BMT) service would transfer to Ward 4B in the QEUH and the haematology patients that were originally planned to accommodate Ward 4B would move to Ward 4C.

a) Please confirm how this change was communicated to Multiplex and how this change was captured in the revised design and specification documentation, following the Change Order Request.

A. It would have been issued as a Change Order by the QEUH following a study on design feasibility, programme impact and cost. Once the Change Order had been issued it would have been sent to the relevant parties in our design team to incorporate the change into the design.

b) Please confirm if Multiplex highlighted any risks with the proposal to move the adult BMT Unit to the QEUH.

A. Sorry I was not there at this time so have no knowledge of this.

c) When did you stop working on the QEUH/RHC project?

A. At the end of 2010.

d) In 2013 please confirm if Multiplex highlighted any risks with the proposal to move the adult BMT Unit to the QEUH.

A. Sorry I have no knowledge of this.

e) Did Multiplex advise the GGC Project Team that the requirements set out in SHTM 03-01 relating to air change rates, pressure differentials and filtration requirements would

not be achievable in Ward 4B at the QEUH?

A. Sorry I was there at this time so have no knowledge of this.

f) Who approved the lower specification from the GGC Project Team and the Board for the adult BMT service?

A. Sorry I was not there at this time so have no knowledge of this.

g) Why were suspended ceilings installed in Ward 4B given that the original Clinical Output Specification (COS) referred to 'space sealed' – did Multiplex raise this as a non-compliance with the 'Works Information'?

A. Sorry I was not there at this time so have no knowledge of this.

h) The Inquiry understands that the original design specification for Ward 4B called for a 'sealed space' during your time on the project. Therefore did Multiplex raise the suspended ceilings as a non-compliance during your time on the project? If not, why not? If so, what action, if any, was taken to accommodate this?

A. I was not involved at this level of detail. However, ward 4B, like all others, would have been discussed through the user group meetings and the QEUH teams requirements clarified and captured. The ceiling type would have been captured on the Room Data Sheet and approved by the QEUH team.

i) Please confirm who approved the reflected ceiling plans for this area.

A. I was not there at this time but it would have been the QEUH Team.

j) As construction progressed on site, please confirm if suspended ceilings were highlighted as non- compliant with the COS (works information).

A. Sorry I was not there at this time so have no knowledge of this.

k) Why was no back up Air Handling Unit (AHU) provided for Ward 4B? Who approved this decision? And what strategy was agreed for PPM or equipment failure?

A. Sorry I was not there at this time so have no knowledge of this.

l) In respect of Ward 4C, what was the specification of this ward at the point of the Change Order? Did you understand that Ward 4C was to be used to house

immunocompromised patients? If so, what was the justification from departing from SHTM guidance in respect of ventilation, pressure and filtration requirements and who signed this off?

A. Sorry I was not there at this time so have no knowledge of this.

m) What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 4B and 4C, and was this the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A. Sorry I was not there at this time so have no knowledge of this.

Ward 2A/ 2B RHC

36. The Inquiry understands that Ward 2A/2B is the paediatric-oncology Unit and includes the Teenage Cancer Trust and the paediatric Bone Marrow Transplant (BMT) Unit - the department is known as the Schiehallion Unit.

a) Confirm your understanding regarding the intended use and purpose of the Ward 2A/2B, what guidance was considered in the design of these wards, what processes Multiplex put in place to ensure guidance compliance?

A. Sorry I was not involved at this level of detail.

b) With the benefit of hindsight, as Project Director for Multiplex ought this not to have been within your knowledge?

A. No, not at this level of detail. The clinical requirements for these wards would have been discussed between my design team and the QEUH team at the user group meetings. The QEUH requirements would then have been captured in the design documentation.

c) If you were not aware, who would have been?

A. Emma White from Nightingales and Steve Pardy from ZBP.

d) What changes, if any, were made to the design during construction? Please describe any such changes, describe the impact, if any, on guidance compliance, and describe

the sign off process for any such changes and your involvement. Was external advance ever sought in respect of design changes?

A. Sorry I was not there at this time so have no knowledge of this.

e) Who from Multiplex would have been involved at the time?

A. Mike Sharples was the Project Director until his untimely death. He was replaced by Alistair Fernie. Darren Pike was the M&E Director and Darren Smith the Senior Design Manager. Nightingales and ZBP would also have been involved in any changes.

f) Describe the IPC involvement in the design of Wards 2A and 2B, who was involved and who signed off the final design and when?

A. Sorry I was not there at this time so have no knowledge of this.

g) What concerns, if any, did you have regarding the final design specification of Wards 2A and 2B, and what action, if any, did you take in respect of these concerns?

A. N/A.

37. What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 2A and 2B, and was this the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A. Sorry I was not there at this time and was not involved at this level of detail.

Isolation Rooms

38. Describe how the number and location of the isolation rooms was agreed? Who approved the final number and locations in the QEUH and RHC?

A. I wasn't involved in the detail, but they would have been developed from the exemplar design through the User Groups and signed off by the NHS GGC team.

39. Who was responsible for producing the drawings and the specification for isolation rooms; who approved these from the NHS GGC Project Team?

A. It would have been a combination of Nightingales the Architects and ZBP the Mechanical & Electrical Engineers. They Drawings and Specifications would have been approved through the Reviewable Design Process.

40. What concerns, if any, did you have regarding isolation rooms and compliance with SHTM/HTM? What action, if any, did you take in respect of any such concerns?

A. No concerns.

a) What assurances did you/ Multiplex have in order to have no concerns in respect of isolation room and compliance with SHTM/HTM?

A. Multiplex had appointed a professional design team to work with the QEUH technical advisory team to develop our design against the QEUH teams requirements. This was developed through the user group meetings where the QEUH requirements for Isolation Rooms were captured.

41. The Inquiry has reviewed the RDS in excel format and notes that there is an entry under 'Design Notes' relating to Ward 2A isolation rooms, the entry states:
"WARNING NOTICE: This room is based on a theoretical design model; which has not been validated (see paragraph 1.8 of HBN 4 Supplement 1). Specialist advice should be sought on its design. The lamp repeat call from the bedroom is situated over the door outside the room."

a) Was this note entered on the RDS? If so, why and by whom?

A. Sorry I was not involved at this level of detail.

b) What specialist advice was sought relating to the design of these rooms

A. Sorry I was not involved at this level of detail.

c) What was the final agreed design for isolation rooms and who approved this?

A. Sorry I was not involved at this level of detail but it would have been approved through the Reviewable Design Process.

42. Why was the main extract placed in the patient's bedroom and not the ensuite as outlined in SHPN 04 Supplement 01? Why was this change requested, who requested this change and who approved this from the NHS GGC Project Team?

A. Sorry I was not involved at this level of detail.

Water and Taps

43. Describe your involvement, if any, in respect of the decision to use Horne taps.

A. None.

a) What concerns, if any, did you have regarding the use of Horne taps?

A. N/A

b) What risk assessments were carried out in respect of the use of Horne taps?

A. Sorry I was not there at this time so have no knowledge of this.

c) Who was involved in, and who signed off the use of Horne taps?

A. Sorry I was not there at this time so have no knowledge of this.

d) Did you attend the meeting regarding the use of Horne taps in 2014**?** If so, why was the decision made to proceed with Horne taps?

A. No

e) Did the use of Horne taps depend on thermal disinfection? If so why, if not, why not? What action, if any, was taken regarding this, and your involvement, if any?

A. Sorry I have no knowledge of this.

44. Are you aware of the water system having been filled prior to handover on 26 January 2015? If so, who filled the system, why was it filled and what concerns, if any, did you have. If you had concerns to whom did you escalate these concerns?

A. Sorry I wasn't aware of this.

Commissioning and Validation

45. In respect of commissioning and validation please confirm the following:
Describe your role in the lead up to commissioning. What action, if any, did you take to ensure that the wards within RHC and the QEUH met the guidance requirements of SHTM?

A. Sorry I was not there at this time so have no knowledge of this.

a) Describe what commissioning of the water and ventilation system took place prior to handover, and your involvement, if any.

A. Sorry I was not there at this time so have no knowledge of this.

b) Who was responsible for ensuring that commissioning of the water and ventilation system was carried out, and who signed off that it had been carried out?

A. That would be Mercury Engineering and signed off by Capita

46. Clause 6.8.2 of the Employer's Requirements requires the Contractor to provide a Final Commissioning Programme setting out details of all commissioning tasks, including the timing and sequence of events. This was also to include the relevant testing and commissioning elements of other parties, such as the Control of Infection Officer, the Supervisor and the Independent Commissioning Engineer. **(Please refer to Bundle 16, Document No. 13, Page 1357)**

a) Was the Final Commissioning Programme prepared? If so, by whom and who was it shared with? If not, why not?

A. Sorry I was not there at this time so have no knowledge of this. I would be very surprised if it had not been prepared.

47. Clause 6.8.4.2 of Employer's Requirements states that the Contractor was required to arrange, "all factory testing and shall furnish the Board, its Project Manager and its Supervisor with the opportunity to witness all factory testing and sign off marked items of Plants and Materials. The Board, its Technical Advisors and the Supervisor shall be given fourteen days notices of such testing." **(Please refer to Bundle 16, Document No.13, Page 1357)**

a) Was Capita given the opportunity to witness all factory testing and sign off on marked items of Plants and Materials?

A. Sorry I was not there at this time so have no knowledge of this.

b) If Capita was given the opportunity to witness all factory testing, please describe the process.

A. Sorry I was not there at this time so have no knowledge of this.

c) If Capita was not given the opportunity to witness all factory testing, why not? How did this impact, if at all, Capita's role as NEC3 Supervisor?

A. Sorry I was not there at this time so have no knowledge of this.

48. The Inquiry understands that NHS GGC decided to forgo the requirement to have an independent commissioning engineer. Who made this decision? What was the rationale was behind this decision? What was the impact, if any, of this decision? In hindsight, do you think that it was the correct decision?

A. Sorry I was not there at this time so have no knowledge of this.

49. **Please refer to Bundle 15, Document 7, Page 606**. SHTM 04-01, part E states that, "any pipes delivered unprotected or with open ends should be rejected". The Inquiry understands that Capita highlighted on a number of occasions that pipework was being left open during the construction work making them vulnerable to contamination. What was done to rectify this issue? Was such pipework subsequently rejected?

A. Sorry I was not there at this time so have no knowledge of this. I am confident that if this issue was raised by Capita the Multiplex team would have dealt with it as required.

50. Was the energy centre commissioned prior to NHS GGC taking occupation of QEUH? If so, describe what you know about the commissioning of the energy centre. Provide details of the intricacies in relation to its completion.

A. Sorry I was not there at this time so have no knowledge of this.

51. Describe your involvement, if any, in the decision for the energy centre to be retained by Multiplex following handover. What as the rationale/when was the energy centre handed over to NHS GGC, and what was your involvement, if any? Describe your knowledge and understanding, if any, of a payment being made by NHS GGC to Multiplex in respect of the energy centre following the same being handed over.

A. Sorry I have no recollection of this. I had no involvement.

52. Please describe what role Multiplex had, if any, in ensuring that validation was carried out? Was this required to be carried out prior to handover? If so, by whom? The Inquiry understands that validation was intended to be carried out by an independent

party. Did this happen? If not, why not?

A. Sorry I was not there at this time so have no knowledge of this.

Handover

53. Describe your role in the lead up to NHS GGC accepting handover.

A. Sorry I was not there at this time so was not involved.

a) At the point of handover, how satisfied were you that all areas of QEUH/RHC accepted by NHS GGC, were designed to the intended specification and suitable for the intended patient cohort, meeting all the relevant guidance requirements?

A. Sorry I was not there at this time but would have assumed that by NHS GGC accepting the QEUH/RHC Multiplex had given them what they asked for.

b) How were you assured that the wards met the requirements of the specific patient cohorts?

A. Sorry I was not there at this time but the requirements of the specific patient cohorts would have been captured at the User Group meetings and translated into the construction information.

c) Were any wards not handed over, or only partially handed over, please confirm. If so, why they were they held back? Was there any financial consequence to both Multiplex and NHS GGC of the ward(s) being held back? What works were carried out in order to allow this ward(s) to be handed over to the NHS GGC?

A. Sorry I was not there at this time so have no knowledge of this.

d) Describe the process for approving the defects listed on the Stage 3 Sectional Completion Certificate **(Please refer to Bundle 12, Document No. 3, Page 23)** Who saw the Stage 3 Section Completion Certificate before it was signed? Why was the Stage 3 Sectional Completion Certificate signed when there were a number of outstanding defects listed?

A. Sorry I was not there but defects would have been worked on by Multiplex's relevant trade contractor then offered for inspection and signed off by Capita. This would have been agreed with Alistair Fernie Multiplex's Project Director. It is normal to have a

defects list attached to a Completion Certificate.

e) Do you think that the Stage 3 Sectional Completion Certificate accurately listed all of the defects with the QEUH/RHC? If not, please describe the inaccuracies.

A. Sorry I was not there at this time so can't answer this.

54. Who oversaw contractual compliance? Who was responsible for ensuring that the paperwork was produced to confirm contractual compliance? What action, if any, did you take to ensure that paperwork was in place to ensure contractual compliance? Was validation of the ventilation system a contractual requirement? If so, who signed off on contractual compliance given the lack of validation?

A. Sorry I was not there at this time so can't answer this in detail. Multiplex's Managers were responsible for ensuring the quality of the construction. Each had to work to the Multiplex Quality Assurance Manual. Supporting paperwork should have been collected as part of the Quality Assurance checks. Capita would also have been looking for this. I can't comment on the Ventilation system.

a) If, given its existence in SHTM and the working relationship you have described there should have been in your view provision in the programme for validation by GGC and discussion between parties about it being carried out?

A. Yes Validation should have been done by the QEUH team post Multiplex completion of each area.

55. Explain what the Building Contract says about a retention period in which some money would be held back pending completion of the QEUH/RHC. In doing so, please explain if the retention period was enforced?

A. I am not sure what the Building Contract says about a retention period but it would be normal for a retention to be held and paid at the end of the defects period. I think in this case that was 2 years.

a) Describe your post-handover knowledge, if any, of all contractual retentions; b) post-handover additional payments made to Multiplex by NHSGGC; and c) any additional payment for achieving energy targets/ BREEAM

A. The only thing I am aware of is that there was an additional payment of £250,000 agreed for meeting the Energy target. I am not sure when or if this was paid.

56. Who was responsible for providing asset tagging. Why was there no asset tagging? Who decided to proceed without it?

A. Sorry I was not there at this time so have no knowledge of this.

a) Given your role, surely it would be within your remit to be aware of whether asset tagging was a Multiplex obligation?

A. Asset tagging would have been a Multiplex responsibility that would have been passed down to Mercury Engineering our MEP Contractor.

57. Did you consider it appropriate for the handover of QEUH/RHC to take place when the energy centre was not operational due to design issues? Did you appreciate at the time of handover that it would take almost a year before the energy centre was in a position to be brought online?

A. Sorry I was not there at this time so have no knowledge of this.

58. The Inquiry understands that no validation was carried out in respect of the ventilation system of QEUH/RHC prior to handover. When did you become aware of this? How did handover come to be accepted without the ventilation system being validated? Who was responsible for this and who signed off on this?

A. Sorry I was not there at this time so have no knowledge of this. The responsibility for carrying out the validation would have been Mercury Engineering the Mechanical & Electrical Contractor.

a) Are you not incorrect in saying validation was for Mercury in 58? If not, please confirm where this requirement for Mercury to carry out validation would be recorded?

A. Sorry Mercury were responsible for commissioning the systems and Multiplex's managers and the Capita team would have witnessed this commissioning as appropriate. Validation would have been an QEUH team responsibility.

59. Describe Multiplex's involvement in works carried out following handover. Describe the nature of these works, whether remedial or new works, the cost and responsibility of payment of these works, details of who instructed the works and when.

A. Sorry I was not there at this time and don't remember what extra works were carried out, if any.

60. Describe the build condition of the QEUH/RHC as at Final Defects Certificate (CI 43.3) Completion of Whole Works – Stage 3 Adults and Child's Hospital and Energy Centre dated 26th January 2017 **(Please refer to Bundle 12, Document No. 113, Page 848)**.

A. The Hospital was fully operational at this time. The final defects Certificate would be a list of defects that had been found since the completion of the Hospital in January 2015. Multiplex's team would continue to work with the QEUH team to clear these as quickly as possible.

DMA Canyon

61. Prior to handover, who was the Duty Holder in respect of the water system at QEUH/RHC?

A. Sorry I was not there at this time so have no knowledge of this.

62. What responsibility, if any, did Multiplex have in respect of carrying out L8 testing prior to handover? If Multiplex had such a responsibility, was the L8 testing carried out and by whom, and where would the records of the testing be sorted? Were these records made available to NHS GGC?

A. Sorry I was not there at this time so have no knowledge of this.

63. Who became Duty Holder when NHS GGC took handover of the QEUH/RHC site on 26 January 2015?

A. Sorry I was not there at this time so have no knowledge of this.

a) Given your role, can you please reconsider whether you can recall who would have become Duty Holder at the point of handover?

A. Sorry I don't know who it was but the responsibility would have passed to the QEUH team led by David Louden.

64. SHTM 03 01 remains an obligatory part of the contract except insofar as derogated from. Is it not your/ Multiplex's job to ensure that what you/ Multiplex deliver complies with it?

A. Yes it is Multiplex's job to deliver a scheme compliant with all of our contractual

obligations.

65. Do you have any further information that you consider relevant or interest to the Inquiry?

A. I have nothing else to add.

Declaration

66. I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

A50091098 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 12 - Estates Communications (External Version)

A47206723 - Scottish Hospitals Inquiry - Hearing Commencing 26 February 2024 - Bundle 13 - Miscellaneous - Volume 5 (External Version)

A47664054 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 15 - Water PPP (External Version)

A47851278 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 16 - Ventilation PPP (External Version)

A49342285 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 17 - Procurement History and Building Contract PPP (External Version)

A52399188 - Scottish Hospitals Inquiry - Hearing Commencing 13 May 2025 - Bundle 43 - Volume 1 - Procurement, Contract, Design and Construction, Miscellaneous Documents (External Version)

A52725667 - Scottish Hospitals Inquiry - Hearing Commencing 13 May 2025 - Bundle 43 - Volume 3 - Procurement, Contract, Design and Construction, Miscellaneous Documents (External Version)

Scottish Hospitals Inquiry
Witness Statement of
John Redmond

This statement was produced by the process of sending the witness a questionnaire with an introduction followed by a series of questions and spaces for answers. The introduction, questions and answers are produced within the statement.

Personal Details and Professional Background

1. Name, qualifications, chronological professional history, specialism etc – please provide an up-to-date CV to assist with answering this question. Please provide details of your role working for Capita Symonds Limited who became Capita Property and Infrastructure Limited (hereinafter referred to as 'Capita') during the time Capita were appointed as NEC3 Project Supervisor in respect of QEUH/RHC, providing details of when you started and left this role, your responsibilities.

A. Name: John Redmond

Qualifications:

2004 Scottish Qualifications Certificate
Introduction to CAD for Construction.
1993 Direct exams with the Chartered Institute of Building.
1992 Direct exams with the Association of Architects and Surveyors later became the Chartered Association of Building Engineers.
1983 Higher Building Certificate in Law Relating to Building.
1983 Higher Building Certificate in Economics Relating to Building.
1980 Clerk of Works Final Part II.
1979 Higher National Certificate in Building.
1976 Ordinary National Certificate in Building.

Professional History:

From 1973 to 1979 employed as a Clerk of Works with the Scottish Development Agency Supervising small works and maintenance of industrial buildings in Central Scotland.

From 1979 to 1987 gained property management experience working as a Technical Officer at Parkhead Housing Association and as a Maintenance Manager at Yorkhill Housing Association. Projects included tenement rehabilitation up to (£2.5m).

From 1987 to 1988 I was employed as a Building Surveyor with the Automobile Association based at their headquarters in Basingstoke involved with the surveying and refurbishing of retail outlet property throughout the UK.

From 1988 to 1989 employed as a Building Surveyor with Spiers Parnie and Adams and was involved in tenement rehabilitation work, dilapidation, property surveys and providing maintenance advice to clients.

From 1989 to 1992 joined Calder Ashby Chartered Building Surveyors and was responsible for a £1.5m various works contract at Jordanhill School and a variety of other projects including re-roofing, refurbishment work, dilapidations, structural surveys and condition surveys.

From 1992 until 2003 I was employed as the Building Surveyor with Strathkelvin Council/East Dunbartonshire Council. I provided a full Building Surveying Service to all client departments. I carried out “condition surveys” especially in relation to education buildings. This provided a financial feasibility study to identify the condition of property. The reports highlighted the condition and maintenance requirement. I also provided Building Surveying Service in relationship to fire re-instatement of traditional sandstone property, schools, and houses. I was also involvement in refurbishment of sandstone property and Public Buildings.

From 2003 to 2004 I was employed as Project Co-ordinator at South Lanarkshire Council as Project Co-ordinator working with a team of Housing Programme Officers. I also provided training courses for the Area Housing Officers to explain a 5 year programme of remedial and planned maintenance work amounting to £144m.

From 2004 to 2006 I was employed as a Building Surveyor with David Morris Associates and was involved in refurbishment of retail property, conversion of offices into flats, various alteration works to church buildings including work to comply with the Disability Discrimination Act.

From March 2006 until I retired in 2015 I provided Independent Tester Services on a number of hospitals including Romford New Hospital and the New Psychiatric Unit at Stobhill Hospital. I was the Independent Tester on the Birmingham New Hospital Project which was a PFI contract ([redacted]). This was a joint appointment from Consort Healthcare and Birmingham and Solihull Mental Health NHS Trust/University Hospital Birmingham NHS Foundation. I regularly inspected the works, prepared monthly reports and issued Completion Certificates for phased handovers over a 5 year contract period.

NEC3 Project Supervisor in respect of QEUH/RHC:
The contractor is self sufficient in terms of complying with standards and the contractual obligations. My role as an NEC3 Supervisors Service over a period of 5 years from May 2010 until November 2015 on the New South Glasgow Hospital included witnessing tests inspecting and monitoring the works and identifying defects. I carried out checks in particular to work that could be hidden and this was the only situation in the contract where the NEC3 Supervisor could issue an instruction to the contractor.
I notified any defects in accordance with NEC3 (Clause 42.2) to the Contractor and Project Manager/Employer. However the contractor also has an obligation Under Clause 43 to correct a Defect whether notified or not.

I issued monthly reports to the Progress Meeting documenting the activity of the NEC3 Supervisors visits which included visits by the Capita Mechanical, Electrical and Structural Engineers.
I worked closely with the Contractors Quality Manager undertaking reviews of their method statements and quality reviews. Also contained within the report were observation of the works which included supporting site photographs, defects and any tests witnessed. I also issued requests for information or clarification under clause 13.1. I carried out room inspections in areas which the Contractor offered up as complete. When the Project Manager decided on a completion date the NEC3 Supervisor issued the Notification of Defects at Completion.

2. What previous experience or training, if any, did and you have working as NEC3 Project Supervisor? How, if at all, did this experience serve you for the role in respect of QEUH/RHC?

A. I participated in an NEC3 two day training course which gave me an insight into the various clauses relating to the contract.

Appointment as NEC3 Supervisor

3. The Inquiry understands that Capita was appointed as Project Supervisor to undertake the design and support services of an NEC3 Supervisor for the QEUH & RHC. The stages of the project mirrored the Building Contract: Stage 1 (Construct Laboratories), Stage 2 (Detailed design of hospital to FBC submission), Stage 3 (Construction), Stage 3A (Demolition surgical block and landscaping) **(Please refer to Bundle 17, Document No.76, Page 2956)**

a) Describe the appointment process leading up to the Capita's appointment as Project Supervisor.

A. I was not involved with the appointment process.

b) Describe your role and remit.

A. I had no involvement in this process.

c) Describe your working relationship with NHS GGC prior to appointment, had you worked with any members of the NHSGGC Project Team prior to appointment, if so whom and when?

A. I did not have a working relationship with NHSGGC Project Team prior to appointment and had never worked with members of the NHSGGC Project Team prior to appointment.

d) Describe your working relationship with NHS GGC during the terms of your appointment, including day-to-day dealings with the NHS GGC Project Team, members of the details of who you worked with and in respect of what matters?

A. From taking up my post as the NEC3 Supervisor on site in May 2010 I had little dealings on a day to day basis with the Project Team. I presented my monthly report (which was a record of the NEC3 Supervisors activities) to the Project Manager/ Employer and Contractor at the Monthly Progress Meetings.

e) Describe your working relationship with Multiplex prior to appointment, had you worked with any members of Multiplex who worked on QEUH/RHC prior to appointment, if so whom and when?

A. I had no previous working relationship with Multiplex.

f) Describe your working relationship with Multiplex during the terms of your appointment, including day-to-day dealings, and details of whom you worked with?

A. From taking up my post in May 2010 my relationship with Multiplex was professional and collaborative. I work with approximately twelve Area/ Zone Managers who were responsible for the construction of their own areas or zones. Due to the size of the project I carried out joint inspections with the Area/Zone Managers checking drawings and specifications. This was for both the Hospital and the Laboratory Building. During these inspections any defects identified would be noted and a Defect Notification issued under Clauses 42.2.

I also had regular meetings with the Quality Manager to monitor their quality procedures and review their method statements. After completion I had regular meetings with Multiplex to monitor defects identified at completion. I had little or no day to day contact with the senior directors of the Multiplex Team.

g) Who were the area zone managers that you worked with? Can you describe their roles?

A. As it was 15 years ago and the only names I remember are Pete Norton and Mark McKinnon. They managed the various works within zones or areas during the construction process.

h) Describe your day-to-day work on the QEUH/RHC site? What did you do day to day?

A. My day to day work, involved oversight and quality control on construction projects. Monitor the various aspects of the project. This included closely observing the construction process, witnessing tests and identifying any defects that may exist.

To accomplish this I liaised with Brookfield's Zone /Area Managers. I also liaised with Capita's Civil and Structural Engineer and Mechanical/Electrical Engineers colleagues who visited the site in accordance with the activities schedule.

I prepared a Monthly Report which recorded the activates of all the NEC3 Supervisors and presented the report to the Employer at the Monthly Progress Meeting.

i) What drawings and specifications were you checking against?

A. I was checking against Brookfield's Construction drawings and specifications.

j) Who did you report to on a day-to-day basis?

A. I did not report to anyone on a day to day basis.

Review of the 'Works Information'

4. The NEC3 Supervisor was expected to review and comment on the contractor's design proposals. Appendix A, in the High Level Information Pack – Supervisor Role**(Please refer to Bundle 17, Document No.75, Page 2881)**states that this process involved the NEC3 Supervisor reviewing and acquainting himself with all of the contract documentation including, "all design drawings, schedules, specifications, layouts at 1:500, 1:200 & 1:50, specialist suppliers detail drawings and all information listed in Appendix 3…."

a) Describe the review process that Capita engaged with in respect of the design drawings, schedules, specifications, layouts at 1:500, 1:200 & 1:50, specialist suppliers detail drawings and all information listed in Appendix 3.

A. Capita had limited involvement in the RDD and no involvement in design sign off or pre approval. We did however get access to construction drawings after June 2010 and Multiplex arranged access to their Aconex system to review the construction drawings when we started our site visits and inspections.

b) Describe the review process which was required in terms of the NEC3 contract? Describe how you carried out this process? What matters required to be reviewed? What issues, if any, do you recall arising during the review process?

A. As per my previous answer we only got access to construction drawings when we started on site. To the best of my knowledge and recollection the employer asked Capita to review Wallace Whittle ventilation duct drawings which we commented on and returned to the Employer. To the best of my knowledge and recollection Wallace Whittle ventilation duct drawings were the only drawings offered up for review. And this was recorded in the Supervisors Monthly Report. I am unable to provide you with any more detail than I already have.

b) Describe your involvement, if any.

A. I had no involvement.

c) Who was involved and what feedback/ information were you provided in respect of this process?

A. I am unable to provide you with any more detail than I already have.

d) Describe any concerns which arose from the review process, your involvement, if any, and how matters were dealt with, if at all.

A. I did not take part in design review.

e) How did you/Capita fulfil the requirements of Appendix A?

A. Capita had limited involvement in the RDD and no involvement in design sign off or pre approval. We did however get access to construction drawings after June 2010 and Multiplex arranged access to their Aconex system to review the construction drawings.

f) What, if anything, do you recall from this review?

A. I am unable to provide you with any more detail than I already have.

g) How did you meet your obligations if the only drawings you got access to were construction drawings?

A. I am unable to provide you with any more detail than I already have.

5. The Inquiry is aware of the agreed ventilation derogation recorded in the M&E Clarification Log. **(Please refer to Bundle 16, Document No. 23, Page 1662)**

a) When did you first become aware of it and how?

A. I was not involved with this process.

b) At the time what concerns, if any, did you have regarding the derogation? Did you raise any concerns, if so with whom?

A. N/A

6. When did you first become aware of the ZBP Ventilation Strategy Paper dated on or around 15 December 2009? **(Please refer to Bundle 16, Document No.21, Page 1657)**

A. I was not involved in the contract at that stage. I did not take up the post of NEC3 Supervisor until May 2010.

a) Since you were in post, what awareness did you have of this document?

A. To the best of my knowledge I don't recall this document.

b) What, if anything, did you understand of the ventilation requirements for QEUH/RHC?

A. Although not a Mechanical Ventilation Engineer my understanding is that the employer would have provided the design information to enable the contractor to design, install and test the ventilation to the employers requirements.

c) If you did not have an awareness of the ventilation requirements of each Ward, how did you supervise the works that had been carried out in respect of ventilation?

A. I am not qualified as a Mechanical Ventilation Engineer and did not supervise the installation of the ventilation.

d) What concerns if any did you have on reading this document?

A. I am not aware of the document but the NHS Project Team would have signed off design to allow the contractor to produce construction drawings.

e) At any time during your appointment, what concerns, if any, did you have regarding the ventilation specifications for any parts of the QEUH/RHC?

A. I am not a qualified ventilation engineer and I am unable to provide you with any more detail than I already have.

f) How did you ensure the works complied with the ERs including SHTM 03 01?

A. I am not a qualified ventilation engineer and I am unable to provide you with any more detail than I already have.

7. Are you aware of any risk assessments, whether in compliance with the standards in HAI Scribe or otherwise, that NHS GGC carried out in respect of

the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper dated 15 December 2009?**(Please refer to Bundle 16, Document No.21, Page 1657)**

A. I was not involved in the contract at that stage. I did not take up the post of NEC3 Supervisor until May 2010.

Full Business Case

8. The Inquiry understands that the obligations and role of the NEC3 Supervisor were set out in the High Level Information Pack – Supervisor Role.**(Please refer to Bundle 17,Document No.75, Page 2881)**Appendix 3 provided a List of Design Requirements for the Full Business Case to be provided by the Contractor and notes that the "The Supervisor team will also be asked to review and comment of the package / construction related elements in respect of compliance with the works information as they are developed". How did you/Capita fulfil the requirements of Appendix 3?

A. Capita had limited involvement in the RDD and no involvement in design sign off or pre approval. We did however get access to construction drawings after June 2010 when Multiplex arranged access to their Aconex system to review drawings and packages which were at the construction stage.

a) How, if at all, did you/ Capita ensure compliance with the works information as developed?

A. I am unable to provide you with any more detail than I already have.

b) How, if at all, did you/ Capita fulfil the requirements of Appendix 3?

A. I am unable to provide you with any more detail than I already have.

9. Under 'Services Systems' confirmation was required "that the design fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current legislation". The Inquiry is aware of several departures from SHTM 03-01 Guidance in relation

to air change rates, pressure differentials and filtration requirements. There was also a variation to the primary extract arrangement for PPVL isolation rooms from that set out in SHPN 04 Supplement 01. Was Capita aware at the time of these non-compliances? If so, please confirm how Capita communicated these non-compliances to the NHS GGC Project Team. If no action was taken by the NHS GGC Project Team what obligations, if any, did Capita have to report matters further and to whom?

A. Capita was not involved in the contract until May 2010 and had no involvement with the design and was not aware of these non-compliances.

a) From the date of your appointment, was Capita aware at the time of these non-compliances? If so, please confirm how Capita communicated these non-compliances to the NHS GGC Project Team. If no action was taken by the NHS GGC Project Team what obligations, if any, did Capita have to report matters further and to whom?

A. I am unable to provide you with any more detail than I already have.

b) So how did Capita ensure contractor compliance with the contract?

A. I am unable to provide you with any more detail than I already have.

10. Was the Ventilation Derogation noted in the M&E Clarification Log, recorded in the Full Business Case? Who was responsible for doing this? If you were aware that it had not been recorded in the Full Business Case please explain what action, if any, you took.

A. I have no knowledge of this.

Design and Construction and Role in the QEUH/RHC Project

11. The Inquiry understands that drawings and Room Data Sheets (RDS) were approved through the Reviewable Design Data (RDD) process. However, the HLIP states that Supervisor team were not to be involved in the design sign off process with the user groups and contactors design team.**(Please refer to**

Bundle 17,DocumentNo.75, Page 2881) Can you please confirm if you/Capita had any role in the RDD process and User Group Meetings.

A. Capita had no role in the RDD process and User Group Meetings.

a) Following the sign off process for drawings and Room Data Sheets, how was this information shared with Capita?

A. Drawings would have been uploaded onto Aconex and Capita would have had access to them after June 2010.

b) How were decisions agreed at the user group meetings communicated to Capita?

A. I have no knowledge of this.

c) How then were relevant matters communicated to you/ Capita?

A. I am unable to provide you with any more detail than I already have.

d) How were areas in dispute or items still to be agreed highlighted to Capita?

A. I have no knowledge of this.

12. Please describe how the technical requirements (air change rates, pressure differentials and filter requirements) for the rooms were managed and approved, including your role and involvement.

A. I have no knowledge and had no involvement in the approval process.

13. Appendix 3 states: “Commissioning settings for all elements of the works, including microbiological testing proposals for operating theatres and specialist ventilation…Confirmation that the design fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM’s, HBN’s, SHTM’s and current legislation”.

a) Describe the intended use and purpose of the following wards in QEUH/RHC: Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU RHC – RHC; all Isolation rooms.

A. I have no knowledge of this and was not involved during the design development of the project.

b) How did your lack of knowledge of the intended use and purpose of the Wards impact, if at all, you/ Capita supervising the works being carried out?

A. I am unable to provide you with any more detail than I already have.

c) Was knowledge of the Wards and purpose of Wards not necessary for carrying out the role of supervisor?

A. I am unable to provide you with any more detail than I already have.

d) If you were not aware of the intended use and purpose of the Wards, how did you/ Capita ensure "*that that the design fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current legislation"* in accordance with Appendix 3?

A. I am unable to provide you with any more detail than I already have.

e) What were the specifications of these wards?

A. I have no knowledge of this and did not take part in the design of these areas. Capita had no involvement in design sign off or pre approval.

f) What guidance was considered in the design of these wards, what processes were in place to ensure guidance compliance?

A. Capita had no involvement in design sign off or pre approval of these wards. It was my understanding that the design would have been signed off by the Employer.

g) Appendix 3 states *"that the design fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM's, HBN's, SHTM's and current legislation"* therefore during the build following the design how did you/ Capita ensure compliance?

A. I am unable to provide you with any more detail than I already have.

h) Were there any changes to the design during the design and build, if so, please describe any such changes, describe the impact, if any, on guidance compliance as set out in Appendix 3, and describe the sign off process for any such changes, your involvement and how any changes were communicated to the Board. Was external advice ever sought in respect of design changes?

A. Capita had no involvement in design sign off or pre approval.

i) Do you recall any design changes during the build? If so, please describe these changes and your role/ how these changes impacted your role and were communicated to you?

A. To the best of my knowledge I don't recall a design change.

14. As per Appendix 3, the NEC3 Supervisor was required to be involved in theDesign Acceptance Procedure which meant considering "Clinical functionality" and in turn "infection control".

a) Describe your involvement, if any, in the 'Design Acceptance Procedure', what action was taken and by whom?

A. Capita had no involvement in this process.

b) If Capita was not involved as NEC3 Supervisor who would have carried out the obligations of NEC3 Supervisor?

A. I am unable to provide any more detail than I already have.

c) What was your involvement with Infection Prevent and Control staff at this stage? Provide details of from Infection Control staff you were involved with and when.

A. I had no involvement with Infection Prevent and Control staff.

d) How, if at all, was "Clinical functionality" and in turn "infection control" considered?

A. I no involvement with this process.

e) Describe any concerns you had with any aspects of the design and build during the 'Design Acceptance Procedure', what action, if any, did you take? Were matters resolved and if so, how so?

A. Capita had no involvement in the Design Acceptance Procedure.

f) Who would have been involved in this process? When would this process have been carried out?

A. I am unable to provide any more detail than I already have.

15. The Inquiry understands that as part of the NEC3 Supervisor role, duties included monitoring the works on site to ensure compliance with the 'works information' and to witness any testing.

a) Please confirm, how often you were on site. Were any other employees from Capita on site carrying out inspections? If so, please describe each role.

A. I was on site weekly carrying out inspections. My Mechanical, Electrical and Structural Engineer colleagues visited the site in accordance with the Activities Schedule and we all liaised with Multiplex when carrying out inspections and witnessing tests. Following my colleagues visits to site our activities were recorded in the Supervisors Monthly Report and presented to the Project Manager and Contractor at the monthly progress meetings. All defects identified were notified to the Project Manager and the Multiplex. The resources provided by Capita leading up to the handover was myself predominately carrying out above ceiling inspections and room inspections and my colleague who was witnessing tests.

b) Did Capita correct/comment on these Reports?

A. Supervisors Monthly Report was updated every month.

c) Were site visits also carried out with the NHS GGC Project Team?If so, how often and who attended.

A. I don't know when the NHS GGC Project Team carried out visits or who attended.

d) Please confirm what meetings were held to discuss progress, including frequency of such meetings and who attended.

A. The Progress Meeting were held monthly where Multiplex presented their Progress Report. The meetings were chaired by the Project Manager. The Contractors and Capita's representative also attended.

e) Please confirm how Capita provided the NHS GGC Project Team with updates regarding progress on site.

A. Capita did not report on the progress on site. It was the responsibility of the Contractor to provide progress reports to the Project Manager at the monthly Progress Meetings.

16. Describe your involvement and understanding, if any, of the decision to remove carbon filters? What was the rationale behind this decision, who was involved and what advice, if any, was sought in reaching this decision?

A. I had no involvement in the decision to remove carbon filters. This was decided between the Project Manager, Employer and Multiplex.

Ward 4B and 4C

17. The Inquiry understands that Ward 4B in the QEUH was originally intended to provide accommodation for Renal and Haemato-oncology patients. The 2009 NHS Clinical Output Specification for the Haemato-oncology ward stated, "Please note the haemato-oncology ward area has a very specific function and a considerably higher than average requirement for additional engineering support/infrastructure. There should be no opening windows, no chilled beams. Space sealed and ventilated. Positive pressure to rest of the hospital and all highly filtered air >90%, probably best HEPA with adequate number of positive pressure sealed HEPA filtered side rooms for neutropenic patients as in the Beatson West of Scotland Cancer Centre." **(Please refer to Bundle 16, Document No.15, Page 1595).**However, following a Change Order Request in July 2013 by Jonathan Best **(Please refer to Bundle 16,**

Document No.29, Page 1699)it was confirmed that the Bone Marrow Transplant (BMT) service would transfer to Ward 4B in the QEUH and the haematology patients that were originally planned to accommodate Ward 4B would move to Ward 4C.

a) Please confirm how this change was communicated to Capita and how this change was captured in the revised design and specification documentation, following the Change Order Request.

A. I have no knowledge of this being communicated to Capita or this change being discussed at the Monthly Progress Meeting. I do not recall seeing any revised construction drawings being issued by the Contractor.

b) Why were suspended ceilings installed in Ward 4B given that the Clinical Output Specification (COS) referred to 'space sealed' – did Capita raise this as a non-compliance with the 'Works Information'?

A. I do not recall seeing any revised drawings issued by the Contractor changing the ceiling type and I don't recall a Defect being issued at the time. However Multiplex had an obligation under the contract to correct a defect whether notified or not.

c) Please confirm who approved the reflected ceiling plans for this area.

A. I do not know who approved the reflected ceiling plans but approving plans are not within the role and responsibilities of the NEC3 Supervisor.

d) As construction progressed on site, please confirm if suspended ceilings were highlighted as non-compliant with the COS (works information).

A. I do not recall seeing any revised drawings issued by the Contractor showing a change in the ceiling type and don't I recall a defect being notified by either Capita or Multiplex in accordance with clause 42.2.

e) In respect of Ward 4C what was the specification of this ward at the point of the Change Order? Did you understand that Ward 4C was to be used to house immunocompromised patients? If so, what was the justification from

departing from SHTM guidance in respect of ventilation and who signed this off?

A. I am not a Mechanical ventilation Engineer and I do not recall what the specification was and I was not aware of the change order or who was responsible signing this off.

f) What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 4B and 4C, and was this the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A. I am not a qualified Mechanical Ventilation Engineer and I did not have access to this information and I have no knowledge of who signed it off.

g) If you did not have this information how did you carry out your function of ensuring contract compliance?

A. I am unable to provide any more detail than I already have.

Ward 2A/ 2B RHC

18. The Inquiry understands that Ward 2A/2B is the paediatric-oncology Unit and includes the Teenage Cancer Trust and the paediatric Bone Marrow Transplant (BMT) Unit - the department is known as the Schiehallion Unit.

a) Confirm your understanding regarding the intended use and purpose of the Ward 2A/2B, what guidance was considered in the design of these wards, what processes Capita put in place to ensure guidance compliance?

A. Capita was not involved in the design of these wards.

b) While you/ Capita were not involved in the design, what was your understanding at the time, if any, of the intended useand purpose of Ward 2A/ 2B?

A. I am unable to provide any more detail than I already have.

c) If you/ Capita were not aware of the intended use and purpose of Ward 2A/ 2B, how did you ensure and put processes in place to ensure that guidance compliance?

A. I am unable to provide any more detail than I already have.

d) What changes, if any, were made to the design during construction? Please describe any such changes, describe the impact, if any, on guidance compliance, and describe the sign off process for any such changes and your involvement. Was external advance ever sought in respect of design changes?

A. Capita was not involved in the design or sign off of these wards.

e) Describe the IPC involvement in the design of Wards 2A and 2B, who was involved and who signed off the final design and when?

A. Capita was not involved in the design of these wards.

f) What concerns, if any, did you have regarding the final design specification of Wards 2A and 2B, and what action, if any, did you take in respect of these concerns?

A. Capita was not involved in the design of these wards.

g) What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 2A and 2B, and was this the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A. I am not a qualified Mechanical VentilationEngineer and I did not have access to this information and I have no knowledge who signed it off.

h) If you did not have this information how did you carry out your function of ensuring contract compliance?

A. I am unable to provide any more detail than I already have.

Isolation Rooms

19. Describe how the number and location of the isolation rooms was agreed? Who approved the final number and locations in the QEUH and RHC?

A. Capita was not involved in the design of these rooms and I do not know who approved the isolation rooms.

20. Who was responsible for producing the drawings and the specification for isolation rooms; who approved these from the NHS GGC Project Team?

A. Capita was not involved in the design of these rooms and I do not know who approved the drawings and the specification.

21. What concerns, if any, did you have regarding isolation rooms and compliance with SHTM/HTM? What action, if any, did you take in respect of any such concerns?

A. Capita was not involved in the design of these rooms.

22. The Inquiry has reviewed the RDS in excel format and note there is an entry under 'Design Notes' relating to Ward 2A isolation rooms, the entry states:

"WARNING NOTICE: This room is based on a theoretical design model; which has not been validated (see paragraph 1.8 of HBN 4 Supplement 1). Specialist advice should be sought on its design. The lamp repeat call from the bedroom is situated over the door outside the room."

a) Was this note entered on the RDS? If so, why and by whom?

A. I have no knowledge of this.

b) What specialist advice was sought relating to the design of these rooms?

A. Capita was not involved in the design of these rooms.

c) What was the final agreed design for isolation rooms and who approved this?

A. Capita was not involved in the design of these rooms and I don't know who approved them.

23. Why was the main extract placed in the patient's bedroom and not the ensuite as outlined in SHPN 04 Supplement 01? Why was this change requested, who requested this change and who approved this from the NHS GGC Project Team?

A. Capita was not involved in the design of these rooms and do not know why the change was requested or who approved the change.

a) Was it not your job to ensure these rooms complied with guidance?

A. I am unable to provide any more detail than I already have.

Water and taps

24. Describe your involvement, if any, in respect of the decision to use Horne taps.

A. Capita had no involvement in this process.

a) What concerns, if any, did you have regarding the use of Horne taps?

A. None.

b) At the time, were you aware of the incidents in Northern Ireland with Horne Taps? If so, did this not give you cause for concern?

A. I was not aware of the incident in Northern Ireland.

c) What risk assessments were carried out in respect of the use of Horne taps?

A. Capita were not involved in the selection of Horne taps.

d) Who was involved in, and who signed off the use of Horne taps?

A. I don't have any knowledge of this and do not know who signed off the taps.

e) Did you attend the meeting regarding the use of Horne taps in 2014? If so, why was the decision made to proceed with Horne taps?

A. I did not attend the meeting regarding the use of Horne taps.

f) Did the use of Horne Taps depend on thermal disinfection? If so why, if not,why not? What action, if any, was taken regarding this, and your involvement, if any.

A. I did not have any involvement with this.

25. Are you aware of the water system having been filled prior to handover on 26 January 2015?If so, who filled the system, why was it filled and what concerns, if any, did you have, and if you had concerns to whom did you escalate these concerns?

A. I did not have any involvement with this process.

a) Please confirm if you were aware of the process and had or raised any concerns?

A. To the best of my knowledge I don't recall this process.

Commissioning and Validation

26. **Please refer to Bundle 17, Document No. 78, Page 2959**.Describe Capita's responsibilities and involvement, if any, in respect of witnessing testing of commissioning activities in relation to the ventilation system and water system at QEUH/RHC.

A. Our responsibility in accordance with NEC3 Clause 40.3 was that the Supervisor may watch any test done by the contractor. When notified of any tests my colleague witness these and the result of the tests were recorded in the Supervisors Monthly Report. If a test was unsuccessful the contractor corrected the error and a further tested was carried out. My colleague did witness tests in relation to the operation of smoke dampers, air handling units and witnessed a water sample being taken. These were recorded in the

Supervisors January Report Bundle 15 page 991. Did Capita countersign test results? No Capita do not countersign test results. Tests are witnessed and reported in the Supervisors Monthly Report.

a) Did Capita witness all of the tests? If not, how did Capita ensure that it met its obligations under the NEC3 Supervisor Contract?

A. In accordance with the NEC3 Supervisor Contract Capita witness tests notified by Multiplex and recorded these in our Monthly Reports.

b) The Inquiry understands from your response above, that the only tests required to be supervised as those Capita was advised to witness by Multiplex, is this correct?

A. In accordance with NEC3 Clause 40.3 the Supervisor may watch any test done by the contractor. The NEC3 does not supervise tests. They witness them in accordance with the NEC3 Contract. To witness a test we need to know when the particular work is at a stage when a test can be carried out.

c) If this is the case, are you aware of other tests (not advised by Multiplex) being carried out, and if so, what tests were these, and who carried them out?

A. To the best of my knowledge I do not know of other tests not advised by Multiplex.

d) What concerns, if any, did you have regarding commissioning of the ventilation system and water system prior to handover of the QEUH/RHC? What action, if any, did you take to escalate these concerns?

A. I am not a Mechanical Ventilation Engineer and was not involved with any of these processes.

e) In your capacity, what concerns, if any, did you have regarding the commissioning of the ventilation system and water system prior to handover of the QEUH/RHC?

A. I am unable to provide any more detail than I already have.

27. Who was responsible for ensuring that commissioning of the water and ventilation system was carried out, and who signed off that it had been carried out?

A. The contractor was responsible for the commissioning of the water and ventilation system. The commissioning contractor is responsible for commissioning and balancing the ventilation system and to issue a Ventilation Commissioning Certificate to satisfy Building Control Certification. These certifications allow the Project Manager to issue the Sectional Completion Certificate. I do not know who signed off that the water test had been carried out**.**

28. **Please refer to Bundle 16, Document No.13, page 1357.Clause 6.8.4.2 of the Volume 2/1 Employer's Requirements**, which formed part of the Building Contract, states that the "Contractor" was required to arrange, "all factory testing and shall furnish the Board, its Project Manager and its Supervisor with the opportunity to witness all factory testing and sign off marked items of Plants and Materials. The Board, its Technical Advisors and the Supervisor shall be given fourteen days notices of such testing."

a) Was Capita given the opportunity to witness all factory testing and sign off on marked items of Plants and Materials?

A. No Capita were never invited to witness factory testing.

b) If Capita was given the opportunity to witness all factory testing, please describe the process.

A. N/A

c) If Capita was not given the opportunity to witness all factory testing, why not? How did this impact, if at all, Capita's role as NEC3 Supervisor?

A. I do not know why Capita was not invited to witness factory tests. It's my understanding that the client and contractor would have specified products and components at the design stage to the relevant standards including British Standards and in accordance with the Building Regulations.

Consequently there would be very little impact on the role of the NEC3 Supervisor.

29. The Inquiry understands that NHS GGC decided to forgo the requirement to have an independent commissioning engineer. Who made this decision? What was the rationale was behind this decision? What was the impact, if any, of this decision? In hindsight, do you think that it was the correct decision?

A. I do not know who made the decision not to appoint an independent commissioning engineer therefore I don't know the rationale behind the decision. I do not know what the impact was. I have no information to comment on whether it was the correct decision and was not involved with the Completion Criteria Meetings.

30. **Please refer to Bundle 15, Document 7, page 606**. SHTM 04-01, part E states that, "any pipes delivered unprotected or with open ends should be rejected". The Inquiry understands that Capita highlighted on a number of occasions that pipework was being left upon during the construction work making them vulnerable to contamination. What was done to rectify this issue? Was such pipework subsequently rejected?

A. Multiplex protected the ends by temporarily covering them during the installation. The pipes were not rejected. Under the NEC3 contract the Supervisor cannot instruct Multiplex. Only the Project Manager can.

a) Were the ends ever permanently covered? If so, when?

A. I am unable to provide any more detail than I already have.

31. Was the energy centre commissioned prior to NHS GGC taking occupation of QEUH? If so, describe what you know about the commissioning of the energy centre. Provide details of the intricacies in relation to its completion.

A. I have no knowledge of the commissioning of the Energy Centre. I was not involved with its completion and was not involved with the Completion Criteria Meetings.

32. Describe your involvement, if any, in the decision for the energy centre to be retained by Multiplex following handover. What as the rationale/when was the energy centre handed over to NHS GGC, and what was your involvement, if any? Describe your knowledge and understanding, if any, of a payment being made by NHS GGC to Multiplex in respect of the energy centre following same being handed over.

A. I had no involvement with the decision that the Project Manger and Employer made with Multiplex to retain the Energy Centre.

33. Please describe what role, Capita had, if any, in ensuring that validation was carried out?

A. We had no role in the validation of the Energy Centre.

a) Ventilation validation should have been carried out by or on behalf of GGC before accepting rooms . What did capita do to ensure that happened?

A. I am unable to provide any more detail than I already have.

Handover

34. How was Capita assured that commissioning had been successfully completed in compliance with all relevant standards when signing the Sectional Completion Certificate and Notification of Defects at Completion?
(Please refer to Bundle 12, Document No.3, Page 23 and Bundle 12, DocumentNo.113, Page 848)

A. The Project Manager and members of his Technical Team had Completion Criteria meetings with Multiplex. Capita was not involved with these meetings. All of the documentation including the Ventilation Commissioning Certificate which satisfies Building Control Certification would have been made available to the Project Manager to allow the issue of the Sectional Completion Certificate. Without all the appropriate certification the project Manager cannot issue the Sectional Completion Certificate.

The NEC3 Supervisor signing of the Sectional Completion Certificate was confirmation that inspections had been carried out and any defects discovered were entered onto the Multiplex Data Management System. This allowed the Notification of Defects at Completion to be issued. In accordance with the NEC3 Contract only the Project Manager can sign off the contract.

a) How was capita assured not of compliance with building standards but with the compulsory guidance in the contract? You make reference to any defects discovered, was it Capita's job to ensure there were none?

A. I am unable to provide any more detail than I already have.

35. Who did the final inspections of the QEUH/RHC before handover in January 2015? Did you think the hospitals were ready to be handed over at that point? If not, why not?

A. Because of the size of the hospital inspections were carried out by myself the various Multiplex Managers and the NHS Technical Team over a period of weeks. These defects were then uploaded onto Multiplex Data Management System. It is not within my remit to speculate whether the hospitals should have been handed over at that point. However in accordance with NEC3 clause 11.1 completion is purely about the state the works are in at the time of the handover. It's the Project Managers responsibility to determine if the works meet the criteria for completion under clause NEC3 clause 35.I do not know the circumstances why the Project Manager/ Employer accepted handover.

a) Was it not capita's role to ensure that Multiplex had complied with the contract so the PM could sign off?

A. I am unable to provide any more detail than I already have.

36. Did you consider it appropriate for the handover of QEUH/RHC to take place when the energy centre was not operational due to design issues? Did you appreciate at the time of handover that it would take almost a year before the energy centre was in a position to be brought online?

A. Capita did not have a role in the contract to decide when the Energy Centre should be handed over. I was not involved in discussion between the Project Manager, and Multiplex.

37. Did the Sectional Completion Certificate list all of the known defects with the hospital at the point of handover? If so, why was the energy centre not included on the list of defects given it was not operational at the time of handover?

(Please refer to Bundle 12, Document No.3, Page 23)

A. The Sectional Completion does not list the known defects, the Defect Notification at Completion does. My understanding is that the Energy Centre was incomplete work as agreed between Multiplex and the Employer and not part of the handover. I do not have access to the NEC3 Supervisors Reports consequently I cannot confirm if any Defect Notification were issued.

38. The Inquiry understands that no validation was carried out in respect of the ventilation system of QEUH/RHC prior to handover.

A. The Project Manager was having Completion Criteria Meetings with Multiplex to manage the Inspection Testing and Acceptance of the Hospital. Capita were not involved in these meetings. Although not qualified in mechanical and ventilation I was aware that validation was carried out as it’s an integral part of the commissioning and balancing of ventilation systems by the commissioning contractor. This resulted in the commissioning contractor issuing a Ventilation Commissioning Certificate which satisfies Building Control Certification. Both these certificates together with other commissioning certificates would have allowed the Project Manager/Employer to issue the Sectional Completion Certificate.

a) The Inquiry has heard evidence that no validation of the ventilation system was carried out. Who do you understand carried out validation of the ventilation system? Who advised you that this had been done?

A. I am unable to provide any more detail than I already have.

b) When did you become aware of this?

A. See my previous answer

c) The Inquiry understands from Document A45099401 **(Please refer to Bundle 43, Volume 5, Document 126, Page 992)** that Capita were expected to "check and validate every room" –
please confirm what is meant by check and validate every room and confirm Capita's role with regards to Inspection, Testing, Commissioning & Acceptance as recorded in Document A45099401.

A. Checking and validating of rooms was carried out using Room Data Sheets provided by Multiplex which are elevation drawings of the room providing detailed briefing requirements of individual rooms in the hospital. Inspections were carried out with the Multiplex manager responsible for that area and any defect found by Capita were recorded and stored and managed on an Integrated Database Management

d) How did you validate each room, what guidance was the validation process tested against? Describe the process.

A. The finished rooms were offered up as complete by the contractor and inspections were carried out as described in my previous answer. The drawings as mentioned in the previous answer showed the finishing, positions of fixtures and fittings. These were checked to determine if they had been installed correctly. The general quality of the finish in the room was also checked and any defects identified and recorded.

e) What documentation, if any, did Capita produce and provide in respect of validation and where would this have been stored?

A. Defects were recorded on hand held devices by Multiplex managers who

accompanied Capita during inspections. All defects identified from the room inspections were stored in their Integrated Database Management System managed by Multiplex.

f) In respect of validation, what documents did Capita produce and where would this have been stored?

A. Capita's inspections to identify defect are recorded in the Supervisors Monthly Reports and defects issued to the Multiplex and Project Manager. Defects identified from the completed room inspections were uploaded to the Integrated Database Management System managed by Multiplex.

g) How did handover come to be accepted without the ventilation system being validated? Who was responsible for this and who signed off on this?

A. It is the Project Managers responsibility under the NEC3 Contract to certify completion, signing and issuing of the Sectional Completion Certificate. The Project Manager had Completion Criteria Meetings with Multiplex to manage the Inspection Testing and Acceptance of the Hospital. The Project Manager would have required the Ventilation Commissioning Certificate. This is evidence that a ventilation system has been correctly installed, inspected and commissioned to satisfy Building Control Certification and would have allowed the Project Manager/Employer to issue the Sectional Completion Certificate.

h) Validation on behalf of GGC was required before handover. What did Capita do to ensure this was done?

A. I am unable to provide any more detail than I already have.

39. Who was responsible for providing asset tagging. Why was there no asset tagging, who decided to proceed to handover of the QEUH/RHC without it?

A. I do not know who provided asset tagging and why there was none. Capita was not involved with this process. I do not know who decided to proceed to handover without them.

a) If as the Inquiry understands asset tagging was a Multiplex responsibility what

did Capita do to ensure it was in place?

A. I am unable to provide any more detail than I already have.

40. Describe Capita's involvement, if any, in works carried out following handover. Describe the nature of these works, whether remedial or new works, the cost and responsibility of payment of these works, details of who instructed the works and when.

A. Following handover the Monthly Meetings ceased however Capita still issued an NEC3 Monthly Report to the Project Manager and Employer and Multiplex. Capita continued to inspect the outstanding defects in the hospital reported at handover and continued to issue Defect Notifications to the Contractor, Project Manager and Employer. Capita had regular meetings with the Quality Manager from Multiplex to interrogate their Integrated Database Management System. Capita continued to inspect the new work at the Neurology Building and included this in the NEC3 Monthly Report to the Project Manager, Employer and Multiplex. Capita cannot issue instructions to Multiplex although there is one exception and that is to search if there was a suspicion of a hidden defect. Consequently Capita did not have any involvement in the payment of these works or know who instructed the works and when.

Declaration

41. I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

A45099401 – Scottish Hospitals Inquiry – Hearing Commencing 13 May 2025 – Bundle 43, Volume 5 – Procurement, Contract, Design and Construction Miscellaneous Documents

A47069198 – Scottish Hospitals Inquiry – Hearing Commencing 19 August 2024 – Bundle 12- Estates Communications

A47664054 – Scottish Hospitals Inquiry – Hearing Commencing 19 August 2024 – Bundle 15 – Water PPP

A47851278 – Scottish Hospitals Inquiry – Hearing Commencing 19 August 2024 – Bundle 16 – Ventilation PPP

A49342285 – Scottish Hospitals Inquiry – Hearing Commencing 19 August 2024 – Bundle 17 – Procurement History and Building Contract PPP

The witness provided the following documents to the Scottish Hospital Inquiry for reference when they completed their questionnaire statement.

Appendix B

John Redmond CV (A51812670)

John Redmond
MCIOB, MBEng

Special Expertise

- Both as a Maintenance Manager and a Building Surveyor involved in “cost management” and comprises of the overall planning, co-ordination, control and reporting of all cost-related aspects from project initiation to operation and maintenance.
- Undertaking “condition surveys” especially in relation to education buildings. Principally to carry out a physical and financial feasibility study to identify the

condition of property. To produce reports including maintenance budgets, thus allowing the production of asset management plans. Highlighting the condition and maintenance requirement which allows the client to decide on the appropriate route to finance future projects.

- Fire re-instatement experience of traditional sandstone property, schools, and houses.
- Involvement in refurbishment of sandstone property and Public Buildings.
- Knowledge of sandstone restoration which was the subject of a dissertation presented as part of the examinations for the Incorporated Association of Architects and Surveyors.
- Expertise in the Building (Scotland) Regulations 2004.

Project Experience

Birmingham New Hospitals Project ([redacted])

Independent Tester in relation to the PFI contract for the construction of the Birmingham New Hospitals Project. A joint appointment from Consort Healthcare and Birmingham and Solihull Mental Health NHS Trust/University Hospital Birmingham NHS Foundation Trust.

Stobhill LFPU ([redacted])

Independent Tester support in relation to the PFI contract for the construction of the new psychiatric unit at Stobhill Hospital. A joint appointment from Canmore Partnership Ltd and Greater Glasgow Health Board

Project Manager and Building Surveying services on a variety of projects.
Housing Programming Co-ordinator.

Previous Projects included:

- ([redacted]) Renewal, repair, and new work at Jordanhill School Glasgow. ([redacted]) Refurbishment of Bishopbriggs Library. Contract Administration role. ([redacted]) DDA upgrades.
- Reproofing projects to education facilities. Up to ([redacted])
- Demolition of tenement property including structural work to adjacent property.
- Numerous fire re-instatement projects.
- ([redacted]) conversation of offices into flats in a conservation area.

Background & Other Interests

From 1979 to 1987 gained property management experience working as a Technical Officer at Parkhead Housing Association and as a Maintenance Manager at Yorkhill Housing Association. Projects included tenement rehabilitation up to (£2.5m).

From 1987 to 1988 was employed as a Building Surveyor with the Automobile Association based at their headquarters in Basingstoke involved with the identifying and refurbishing of retail outlet property throughout the UK.

In 1988 returned to Scotland as a Building Surveyor with Spiers Parnie and Adams involved in tenement rehabilitation work, dilapidation, structural surveys and maintenance advice to clients.

From 1989 to 1992 joined Calder Ashby Chartered Building Surveyors and was responsible for the £1.5m various works contract and a variety of smaller project including re-roofing, refurbishment work, dilapidations, structural surveys and condition surveys.

In 1992 until 2003 was employed as the Building Surveyor with Strathkelvin Council which was superseded by East Dunbartonshire Council in 1996. Provided a full Building Surveying service to all client departments.

In 1996 gained recognition as an Arquitecto Tecnico from the Consejo General de la Arquitectura Tecnica.
In 2003 moved to South Lanarkshire Council as Project Co-ordinator and lead a team of Housing Programme Officers. Also provided training courses for the Area Offices to explain the 5 year programme of remedial and planned maintenance work amounting to £144m.

In 2004 was employed as a Building Surveyor with David Morris Associates and was involved in refurbishment of retail property, conversion of offices into flats, various alteration works to church buildings including DDA work.

From 2006 until I retired in 2015 I provided Independent Tester Services on a number of hospitals including Romford New Hospital and the New Psychiatric Unit at Stobhill Hospital.
I was the Independent Tester on the Birmingham New Hospital Project which was a PFI contract ([redacted]). This was a joint appointment from Consort Healthcare and Birmingham and Solihull Mental Health NHS Trust/University Hospital Birmingham NHS Foundation. I regularly inspected the works, prepared monthly reports and issued Completion Certificates for phased handovers over a 5 year contract period.
My role as an NEC3 Supervisors Service over a period of 5 years from June 2010 until November 2015 on the New South Glasgow Hospital included witnessing tests inspecting and monitoring the works and identifying defects. I regularly inspected the works, prepared monthly reports and issued the Defect Notification at Completion. I also carried out checks in particular to work that could be hidden and this was the only situation in the contract where the NEC3 Supervisor could issue an instruction to the contractor.

Scottish Hospitals Inquiry Witness Statement of David Hall

I, David Hall, will say as follows:-

1 The facts and matters set out in this witness statement are within my own knowledge unless otherwise stated, and I believe them to be true to the best of my recollection.

2 This witness statement was prepared with the assistance of the solicitors for Currie & Brown, Keoghs LLP, following Teams calls to discuss my response to the Glasgow IV Questionnaire issued by the Inquiry on 27 January 2025 and supplemental questions issued by the Inquiry on 31 March 2025, but it is in my own words and sets out my recollection and understanding.

3 I refer to the project to design and construct the QEUH/RHC as the “Project” and I refer to NHS Greater Glasgow & Clyde as the “Board” throughout this witness statement.

4 As the key events took place several years ago at a time when I was working collaboratively with the Board Project Team, it is difficult to accurately recall the detail surrounding certain events or meetings that I have been asked about. I have set out to assist the Inquiry to the best of my ability when preparing this statement. Whilst I have knowledge that certain decisions were made by the Board, due to the passage of time I cannot specifically recall who within the Board made these decisions and, in some instances, due to Currie & Brown’s reduced remit following the award of the contract to design and build the hospitals to Multiplex in late 2009, was only aware of some decisions anecdotally. Where this is the case, I have tried to explain why I am unable to provide any more information and suggest who any such questions may be better directed to.

5 Where I refer to information supplied to me by other people, the source of the information is identified; facts and matters derived from other sources are true to the best of my knowledge and belief.

Personal details, professional background and experience

6 I am an experienced Project Manager and currently hold the post of Director of Projects at the University of Glasgow. To assist the Inquiry, I produce marked DH1 a copy of my CV, detailing my professional history and specialism.

7 By way of overview, I was an Architectural Trainee with GD Lodge & Partners between 1982 and 1985. I then worked as an Architectural Assistant with JG Wallace Architects between 1985 and 1989, during which I obtained a National Certificate in Building (1986) and a Higher National Certificate (HNC) in Architectural Technology (1988). I then worked as a Senior Architectural Technologist with The Miller Partnership for 3 years, Regional Surveyor with William Hill for 3 years, and Regional Projects Manager with Safeway Stores PLC between 1996 and 2000. I became a member of the Association of Project Management (MAPM) in 2000, a Member of the Chartered Institute of Builders (MCIOB) in 2006, and a Fellow of the Chartered Institute of Builders (FCIOB) in 2008.

8 In previous roles I gained significant experience working on complex projects such as the Safeway retail store at Greenock and large stadium developments such as Murrayfield and Nottingham Forest.

9 I was employed by Currie & Brown from 2000 to February 2016. During that time, I progressed from Senior Project Manager to Associate Director and ultimately became a Director of Project Management in the Glasgow office. I was

responsible for the line management of project managers and senior project managers working across a variety of commissions in both public and private sectors. This was in relation to large construction projects such as assisting RBS with their strategy for building in Glasgow City Centre, and Citygate in Newcastle. I also had experience of working on healthcare projects such as the Coatbridge and Airdrie Health Centres.

10 In September 2008, my work became solely focused on the commission of the Project. I remained full-time on the Project until around April 2015, after handover to the Board but prior to the hospital going live. During my time working on the Project my role was to support and assist the Board's Project Manager, Peter Moir, with things such as Project Management of the design development process, contract management and construction delivery. Peter would delegate duties for people to undertake. I am a Chartered Construction Project Manager by qualification and so my role was centred around the coordination of Project activities. I did not undertake any design responsibilities at all.

11 I have been asked to describe my day-to-day role and responsibilities and to describe how I supported and assisted the Project Manager. My role spanned a seven-year period, and the focus of my activity changed as the Project moved through design development and into construction during this period and so I set out my roles and responsibilities throughout at a high level below.

12 In the first year following the award of the building contract to Multiplex on 18 December 2009 my time was split between supporting and coordinating the process of design development of the hospital and the contract administration of the medical laboratory building as requested by Peter Moir. My day-to-day activities on design development included attendance at user group meetings with the design team, internal Project team meetings, and external meetings with statutory authorities such as building control and planning. As explained above and below, my role involved supporting only the coordination and management of

these activities and I did not have any input into developing or commenting on the design (and I was not qualified to do so). I also attended meetings held to administer the contract through design development including Early Warning Meetings, Programme Review Meetings and meetings with external parties such as Glasgow City Council in relation to planning and building control.

13 I have been asked to describe the design development process. The design development process for the Hospitals took place in the 12-month period from the award of the Building Contract to Multiplex in December 2009 and involved the Multiplex design team (Multiplex, Nightingales, ZBP etc) developing their initial bid proposal into a full RIBA Stage 4 design via a series of stakeholder meetings. The final output, Appendix K, formed the basis of the Board's instruction to commence construction.

14 I have been asked to set out the Project activities that I coordinated. Again, as my role spanned a long period of time, I set this out at a high level. During the design phase I supported the Board Project Managers, primarily Heather Griffin, in the coordination of user group meetings to progress the development of the RIBA Stage 4 design. During the construction phase, my activities focused on contract administration, coordinating responses to Early Warnings, and continuing to support design development and client change requests. In the latter stages, and beyond completion, my coordination activities focused on Group 5 equipment installation (which I understand is unrelated to the subject- matter of this Inquiry).

15 I have been asked to help the Inquiry understand more clearly what I was doing and was not doing during my time on the Project. Over the seven-year period from 2008 to 2015 and as noted elsewhere my activities focused on contract management in support of Peter Moir, the Board NEC Project Manager. This included construction programme reviews as required under the NEC form of contract to support acceptance activities by the Board, facilitating and managing the design reviews for clinical functionality carried out with the clinical user groups,

and administration of Early Warning Processes etc. Multiplex was responsible for the entire design of the hospitals, however the Board had a responsibility to review the clinical functionality. For elements of this, I had a delegated authority from Peter Moir to undertake that element of review, i.e. the review of clinical functionality only. I was not involved at all in technical commissioning, witnessing, or validation.

Currie & Brown's appointment as Lead Consultant

16 Currie & Brown was appointed as Lead Consultant following the acceptance of its tender submission in 2008 by the Board. I was not involved in Currie & Brown's tender or the negotiation of Currie & Brown's terms for the Project as this preceded my involvement in the Project. The development and agreement of the scope of service to be provided by Currie & Brown was undertaken primarily by Douglas Ross and James Hackett.

17 I have been asked to describe my understanding at the time of the scope of the role of Lead Consultant. The role in the initial pre-design stage was to develop the Employer's Requirements for the new Hospitals and the Medical Laboratory Building to support the procurement strategy which included a competitive dialogue process with evaluation outcome based upon the Most Economically Advantageous Tender (MEAT).

18 I was aware that the scope of Currie & Brown's services changed at the end of the pre-design phase of the Project. This change did not affect the Project Management support service that I was providing but it removed Currie & Brown's role of NEC Project Supervisor from that point which resulted in responsibility for inspection and witnessing transferring to Capita. I am unable to recall how and when I became aware of this change, however it would have been in 2010 and

would have been apparent at the latest when Capita were appointed into the NEC Project Supervisor role and began to have an involvement.

19 I have been asked to describe my understanding at the time of how the scope of Currie & Brown's role changed and to describe the impact of the change. At the end of the pre-design phase of the Project, in January 2010, Currie & Brown's role was significantly reduced to Cost and Project Management. The supervisor services were omitted from Currie & Brown's remit and instead separately contracted out by the Board (to Capita). The design services provided by Currie & Brown in the initial pre-design stage were not extended, with responsibility for technical design instead forming part of the Multiplex contract. Currie & Brown was not appointed as Lead Consultant following January 2010 because it no longer had any design responsibilities and that role was instead fulfilled by Multiplex (under the design and build form of contract) together with its own professional design team (which Currie & Brown was not part of).

20 I have been asked to describe the changes to Currie & Brown's role after the predesign and construction stage of the QEUH/RHC (2008-2009) and its role during the design and construction stage (2010-2015). My comments at paragraph 19 above set out my understanding of this.

21 I have been referred to the Board's letter to Currie & Brown dated 18 January 2010 (**Bundle 17, Document No.74, Page 2870)** which is referred to as the "Revised Fee Agreement". I have been referred to the text under the heading "Delegation of Duty" in the Revised Fee Agreement which states, "As the Board are undertaking the role of Project Manager we require to delegate a range of duties which will most likely mirror the attached schedules A-C. I propose that David and Mark meet with myself and Alan Seabourne to agree duties for both Project Manager and Cost Advisor, please let me know if you wish to undertake this task." I have been asked whether the meeting referred to took place and to describe the outcome and confirm whether a finalised schedule of duties was prepared and

signed. I cannot recall one specific meeting where Currie & Brown's duties were agreed and think that multiple meetings or discussions took place over a period of time which allocated duties across a number of staff. I also cannot recall a single schedule of agreed duties being prepared.

22 I have been asked what the rationale was for the Board's decision to appoint itself as NEC Project Manager and appoint a separate NEC Supervisor (Capita), which resulted in the Board issuing the Revised Fee Agreement to Currie & Brown. As I was not involved in contractual discussions, this is not something I have any knowledge of and is something that Peter Moir would have been able to comment on, and that Douglas Ross may be able to comment on in view of his involvement in the relevant contractual discussions.

23 I have been asked what impact the Board's decision to appoint itself as NEC Project Manager and appoint a separate NEC Supervisor had. The impact was that Capita was instead appointed NEC Supervisor and the scope of Currie & Brown's services was significantly reduced.

24 I have been asked whether, with the benefit of hindsight, this was the correct decision for the Board to have made. I find it difficult to comment on this. So far as I was concerned, there was nothing unusual about the Board's decision because this reflected the practices of the NHS Frameworks across Scotland at the time. The Board's appointed NEC Project Manager, Peter Moir, was an experienced architect with many years' experience in healthcare.

25 The Inquiry have raised questions about how the Memorandum of Understanding dated 6 April 2011 came to be signed by Currie & Brown. I am afraid I cannot comment on this as it was not within my remit at the time and I was not involved at all in that process.

26 I believe that the Memorandum of Understanding was within Douglas Ross' remit and that he dealt with that.

Project timeframe

27 Currie & Brown was involved in the Project over a number of years, covering several phases of the Project:

27.1 The Initial pre-design phase September 2008 to April 2009

27.2 The Competitive Dialogue phase April 2009 to September 2009

27.3 The bid evaluation phase September 2009 to October 2009

27.4 The Design and Construction Phase 2010 to 2015 – This phase included an initial 12-month process throughout 2010 to develop the design from the Multiplex bid document through to a RIBA Stage 4 design prior to the Contract being awarded to Multiplex. During this process design documents were prepared by Multiplex's design team and were ultimately included in Appendix K to the Contract. The aim of the process was to allow a final target price to be agreed for the Project.

28 I detail my involvement in each of these phases below. I worked alongside the Board Project Team throughout. I mostly worked with Alan Seabourne (Board Project Director up until 2013), David Loudon (who was Alan's replacement from 2013 onwards), and Peter Moir, (Board Assistant Project Director and NEC Project Manager). I also worked regularly with Heather Griffin who was the Board's Adult Hospital Project Manager. As part of the Board's Project

Management team, I also interacted frequently with senior members of the Multiplex team including, but not limited to, Mike Sharples (Project Director until his sad passing), Alastair Fernie (Project Director), Darren Pike (M&E Lead), Jim Murray (Design Manager) and Gavin Burnett (Design Manager). On a day- to-day basis I reported to Douglas Ross of Currie & Brown and Peter Moir of the Board. The working relationships between us all were professional in a collaborative working environment as required by the NEC form of contract.

Initial Pre-design Stage: September 2008 to April 2009

29 During the initial pre-design stage Currie & Brown appointed a team of technical advisory sub-consultants (the "Technical Team") consisting of:

29.1 Buchan Associates (Medical Planners)

29.2 HLM Architects (Architects for the Adult Hospital exemplar design)

29.3 BMJ Architects (Architects for the Children's Hospital exemplar design)

29.4 Wallace Whittle (M&E Engineers)

29.5 URS (Civil and Structural Engineers)

Employers' Requirements and Exemplar Design

30 With the assistance of the Technical Team, Currie & Brown worked collaboratively with key Board stakeholders to develop a set of Employers' Requirements ("ERs"). The ERs are a set of documents that outline the employer's requirements (or when referring to exemplar designs, expectations) for a project and which must be complied with in the design and construction of the Project.

31 During the Pre-design phase, my role was primarily to provide Project Management support to the Board on the Exemplar Design and ERs. Generally, I had less involvement in the Children's Hospital (RHC) and more of my time was spent on the Adult Hospital (QEUH).

32 Exemplar Design is the use of a model, or example elements, to inform the creation of a new design. Exemplars are used to provide guidance, identify potential issues and to inspire new ideas. Project management of the Exemplar Design process brings together designers and stakeholders to facilitate sessions where the stakeholders can outline their requirements to the design team. Subsequent sessions involve reviewing draft design solutions until an agreed Exemplar Design for that specific department is agreed.

33 It should be noted that these Exemplar Designs were only a sample of key departments. From recollection Exemplar Designs were prepared for eleven departments, including Critical Care, A&E, imaging, an adult ward and a children's ward. These were departments and not wards, although some departments included wards. The completed Exemplar Designs were not integrated with each other.

34 The development of the Exemplar Design required a series of meetings between the Technical Team and the Board end users (clinical specialists connected with the chosen department) and stakeholders (such as Estates and Infection Control). I recall that these were large meetings and could involve as many as thirty people. The Board Project Managers for each hospital, Heather Griffin for the Adult

Hospital or Mhari McLeod for the Children's Hospital, invited the appropriate end users and stakeholders and so are better placed to comment on who was invited to attend the various meetings from these groups. My primary role was to facilitate the sessions where the end users and stakeholders were setting out what their requirements were (e.g. A&E needs to be close to imaging departments) and the designers were asking questions to understand that.

35 I would describe my role as facilitator to assist the end users and stakeholders in presenting their requirements to the designers and getting the designers to understand what the end users and stakeholders required. I was party to all the discussions, but I was not the designer, end user or stakeholder and my role was only to encourage work to progress.

36 I have been asked whether, in carrying out my role, I was aware of the design requirements of the Project. I was familiar with and was aware of the contents of the Employer's Requirements and the list of guidance documentation, however, as I am not a designer the technical content and application of the guidance was beyond my remit, experience, and understanding. Currie & Brown engaged and relied on the Technical Team to develop and review the clinical and technical aspects of the Employer's Requirements.

37 Producing an Exemplar Design is an iterative process and subsequent sessions involved reviewing draft design solutions until an agreed Exemplar Design for that specific department was agreed. My role at these subsequent sessions was the same. My role was primarily to organise and facilitate these sessions alongside the Board Project Managers, Heather Griffin and Mhairi McLeod, to ensure that the requirements were accurately represented by the outturn Exemplar Designs for the relevant departments.

38 The Clinical Output Specifications that were included within the ERs were produced by user groups which were typically led by the Board Project Manager

for the relevant hospital, i.e. Heather Griffin for the Adult Hospital and Mhari McLeod for the Children's Hospital. The relevant NHS guidance that was included in the ERs was primarily collated by Mark Baird of Currie & Brown and the Technical Team.

39 It is important to understand that, whilst the Exemplar Design was an important tool to inform the bidders in the Competitive Dialogue process, and therefore in selection of the successful bidder, it did not form any part of the final design and was never built. The final design was developed by Multiplex and its design team at further meetings/sessions with the full stakeholder group later, during the Design and Construction Phase (after the Contract was awarded to Multiplex). This process involved repeating the exercise for the 11 departments and completing the process across all departments (I believe there were circa 96 in total) with groups involving end users and stakeholders. I participated in a significant number of these meetings, mainly focussed on the adult hospital, but was not involved in all departments.

Removal of the Maximum Temperature Variant

40 I have been asked about my involvement and understanding, if any, in the removal of the maximum temperature variant. **(Bundle 17, Document No.26, Page 1063).** My expertise and role was restricted to Project Management activities and I am not a mechanical engineer. Therefore, I had no technical involvement in this and am not qualified to comment on this from a technical perspective. Room temperature guidance is typically set out at an early stage in ERs and was initially set at 28 degrees for the Project. Through facilitating Project meetings where technical matters were discussed, I was aware that Alex Macintyre, the Board Director of Facilities, had expressed concern about the maximum room temperature which was set at 28 degrees. I became aware from these same meetings that a new maximum room temperature of 26 degrees was then set, with a possible allowance of exceeding the maximum for up to 50 hours per year.

I cannot recall a specific meeting where the decision to adopt this new maximum room temperature was approved, or who made the decision. This is a question that Peter Moir would have been able to answer, although I am aware that sadly Peter is now seriously unwell so I appreciate it may not now be possible for that to be put to him.

41 I have been asked why Alex McIntyre was concerned about the maximum room temperature being set at 28 degrees. I recall that this was based on his experience of “lessons learned” in relation to patient comfort from previous projects such as ACADs at Victoria and Stobhill, i.e. that the rooms were found to be too warm and that this was also the rationale for reducing the maximum room temperature to 26 degrees.

42 I have been asked who from Currie & Brown was involved and what role they had in the technical aspects of this decision. Wallace Whittle in its capacity as mechanical engineer was involved in this as part of Currie & Brown’s Technical Team at this time. Currie & Brown did not itself have any separate involvement in the technical aspects of this decision as Currie & Brown did not have the required technical expertise and was instead relying on its consultant Wallace Whittle to advise on this.

Use of Chilled Beams

43 I have been asked about my involvement in and understanding of the decision to use chilled beams, if any. Similar to the position with the maximum temperature variant, my role was restricted to Project Management activities; as I am not a mechanical engineer I had no technical involvement in the plant selection and am not qualified to comment on this from a technical perspective. I cannot recall a specific meeting where the decision to use chilled beams was approved, or who made the decision. This is a question that Peter Moir would have known the answer to.

44 I have been asked who from Currie & Brown was involved and what role they had in the technical aspects of this decision. Again, Wallace Whittle as mechanical engineer was involved as part of Currie & Brown's Technical Team at this time. Currie & Brown had no separate involvement in the technical aspects of this decision due to its lack of technical expertise and relied instead on its consultant Wallace Whittle to advise on this.

45 I have been asked what risk assessments were taken prior to the decision to use chilled beams and what the impact of using chilled beams was. I am not aware of any risk assessments which may have been undertaken in relation to this decision as this was not part of my role. It was for Multiplex and its design team to undertake any required risk assessments. As I am not a mechanical engineer I do not know and therefore am not able to comment on the impact of using chilled beams.

46 I have been asked who provided the specification for environmental data relating to air change rates, pressure differentials and filter requirements. These specifications were included in the ERs and were provided by Wallace Whittle.

47 I have been asked who was responsible for HAI-SCRIBE assessment regarding the proposed site development, design and planning and new construction. The Board was responsible for this.

Technical Review Group Meetings

48 The Inquiry have directed me to minutes of the Technical Review Group meetings dated 30 January 2009 and 13 February 2009 (**Bundle 17, documents 42 and 43)**.

These were meetings of the Exemplar Design Technical Group. The purpose of those meetings was to pull together ER documentation that would eventually go out to the bidders for the Competitive Dialogue process. I would make the point that there were more than two meetings in this process.

49 My role in the Technical Review Group was purely to pull documentation together, I did not have any input into the actual technical content of the documents. Mark Baird of Currie & Brown took the lead in the compilation of the ERs, and I supported him with that task.

50 Compliance with the SHTMs and HTMs was extremely important and was a fundamental requirement of the ERs. I can see from both sets of the minutes to which I have been referred that SHTM/HTM compliance was listed as a separate agenda item which shows the significant weight attached to the issue. The reason why compliance was so important is because the SHTM/HTM was guidance developed and provided by the NHS and specialists in those fields and therefore it needed to be fully considered. I also believe it was a term of the Contract that the SHTM/HTMs were complied with. It is important to note that at this stage the group was putting the SHTMs and HTMs into the document alongside the exemplar department design layout which formed part of the Employer's Requirements.

51 I have been asked whose job it was to ensure that the significance of the SHTM was retained and locked into the Project prior to the Construction Contract being awarded. I consider that this was the responsibility of the Project team as a whole and recall that the SHTMs were incorporated into the contract documentation, including the ERs.

52 I have been asked whose job it was to ensure that BREEAM was not prioritised over SHTM. This would be the responsibility of the Board's Project Director as the BREEAM Advisor was appointed directly by the Board.

53 I have been asked whether the Technical Review Group discussed BREEAM and energy efficiency, what weight was placed on achieving BREEAM excellent status, and whether this was ever given priority over SHTM/HTM compliance. The ERs reflected the Board's requirement to achieve BREEAM excellent status, which I understand was a Board requirement for all of their capital projects (and may have emanated originally from the Scottish Government). This is not an unusual requirement and is pretty standard for public projects. This required a score of 70 points or more on the BREEAM scoring matrix and so the Project would aim to achieve more than that. My recollection is that BREEAM was never given more importance than SHTM/HTM compliance and in my experience, you would not decide to improve this score if it meant going against guidance in the SHTM.

54 Separate to BREEAM, the ERs also contained an energy target of 80kg of carbon per square metre, per annum. This target was set because of the importance of energy efficiency and reducing carbon emissions. I was aware that this target was in the ERs but was not at the meeting where this target was set. Stewart McKechnie of Wallace Whittle or Susan Logan of Ecoteric (the Board's sustainability consultant) would be better placed to respond to this question.

Competitive Dialogue – April 2009 to August 2009

55 As Lead Consultant Currie & Brown supported the Board in undertaking a competitive tender to secure a design and build contractor. A design and build contractor takes on the responsibility both for the design and construction of a facility. Currie & Brown was responsible for the project management of the Competitive Dialogue process. This is a procurement process that allows bidders

to submit initial solutions and then undertake a series of negotiations with the client to discuss and develop the solutions.

56 Currie & Brown's role involved ensuring that the sessions were administered correctly, and that all discussions were recorded in the action tracker. In practical terms this required Currie & Brown to ensure that the discussion sessions were held between the Board, including their end users and stakeholders, and the bidders on an individual basis. We ensured that each session was administered correctly, that each stayed confidential (e.g. that design features and details from one bid were not discussed in front of another bidder) and that all discussions were recorded in action trackers. I attended all the Competitive Dialogue sessions. My role was to support the organisation of the sessions and to facilitate break-out sessions focusing on clinical functionality and design.

57 Subsequent sessions involved the bidders presenting their developing designs in order to get feedback from stakeholders and user groups to further improve them for their final offer.

Selection of Sealed Building design

58 I have been asked about the impact of selecting a sealed building design, who approved the decision, and why this decision was made. To the best of my recollection, this was considered at the Competitive Dialogue stage. Whilst I facilitated meetings where I was aware discussions were being held about sealed building design, it was Alan Seabourne's responsibility as Project Director to obtain approval for the decision to select a sealed building. Any technical questions regarding the impact of selecting a sealed building design should be answered by a mechanical engineer as I was not there to provide technical input.

59 I have been asked what my understanding was of the rationale for this decision. My understanding from my attendance at the meetings referred to above was that the Board's rationale was to minimise risk of infection as well as reducing odour nuisance.

Bid evaluation – September 2009 to October 2009

60 Assessment of the bids took 3-4 weeks and involved a team of 30-40 people including representatives from the Technical Team, members of the Board Project Team such as Alan Seabourne, Peter Moir, Frances Wrath and Mhari McLeod, and Board nominated end users and stakeholders. The Board would be better placed to list all clinical end user and stakeholder attendees. The assessment was in two distinct areas, namely: (i) quality and (ii) commercial. During the process those scoring quality had no access to the commercial scoring, and vice versa, to ensure that neither element was influenced by the other.

61 The Technical Team, clinical end users and the Board Project Team were involved in the technical assessment. They would do the required reading and then get together and come to a consensus scoring. I was involved in the quality scoring area which was led by Peter Moir of the Board. Others were involved in the financial scoring. Only when the quality and commercial scores were finalised were they combined. Legal scoring was also independent and undertaken by Shepherd and Wedderburn, the Board's lawyers.

62 Throughout the bidding process, compliance with the ERs, which included SHTM/HTM compliance, was an important part of the assessment.

63 I have been asked whether SHTM compliance was regarded as being of paramount importance. I have also been asked what else was of paramount importance. SHTM compliance was considered extremely important, however, where the Board's requirements created conflicts with guidance, alternative

design solutions were developed and appraised. Patient safety and comfort were of paramount importance.

64 I have been asked how this importance was reflected in the scoring. I no longer have access to the bid scoring documentation and, as this was 16 years ago, I cannot recollect the scoring detail. This question would be better put to someone with access to the relevant documentation.

65 Presentations were made to the Board regarding outcome of the evaluation of the three bids submitted. Currie & Brown participated in the preparation of these presentations. Mark Baird and I were involved in collating the technical scoring and Douglas Ross was involved in separately reporting on the cost element. The presentations were led by Alan Seabourne, the Board Project Director, who presented a recommendation for a preferred bidder based upon the MEAT (Most Economically Advantageous Tender) scoring criteria. As I have no access to my files from the time (because I no longer work for Currie & Brown), I cannot recall the details of the scoring outcome, however the Multiplex bid was technically evaluated as “the most economically advantageous tender”, providing the Board with the best value for money. Quality and price formed part of the evaluation, with a weighting aimed at quality. I was present at some, but not all, of the presentations led by Alan Seabourne and Peter Moir. Douglas Ross presented on the cost elements of the sessions.

Ventilation Derogation

66 I have been asked to explain my understanding of the ventilation design strategy contained in the Contractor’s Tender Return Submission dated 11 September 2009 **(Bundle 18 Volume 1, Document 8, Page 205)**. I had no technical involvement in this, as I am not qualified to comment on this from a technical perspective (not being a mechanical engineer, as mentioned above). Whilst I facilitated meetings where I was aware discussions were being held about the ventilation design

strategy, it was Alan Seabourne's responsibility as Project Director to seek support for any decisions in respect of the ventilation design strategy. Any technical questions regarding the ventilation design strategy should be answered by a mechanical engineer as I was not there to provide technical input.

67 I have been asked who provided technical support from Currie & Brown during the discussions about the ventilation design strategy. Because it had no technical expertise of its own, Currie & Brown sought advice and input from its consultant Wallace Whittle, the mechanical engineers in Currie & Brown's Technical Team at the time. Currie & Brown were reliant on Wallace Whittle for this technical input.

68 I have been asked whether it was part of my role to ensure the importance of SHTM was stressed and to ensure that there was a process to inform the Board of any significant departure from SHTM. This was part of my role in providing project management support to the Board. As referred to at paragraph 63 above, SHTM compliance was considered extremely important and it was stressed by me and by members of Currie & Brown's Technical Team, including in the Employer's Requirements and during discussions about any proposed departures from SHTM. The clarification logs were the tool to communicate any potential departure from SHTM and record decisions made. The logs were understood by the Board, and by all on the Project, to be the correct channel for communications on such issues. This is because this is the standard practice on projects of this nature - this is not unusual at all. Post award of Building Contract, responsibility for informing the Board of any significant departure lay with Multiplex as designer.

69 I have been asked whether the design and/or specification of the ventilation system as recorded in the Building Contract, in particular in the M&E Clarification Log (**Bundle 16, Document No. 23, Page 166)**, was compliant with NHS Guidance and if not, why this design was designed, proposed and accepted. As before, because I am not a mechanical engineer, I had no technical involvement in this and so am not qualified to comment on this from a technical perspective. Whilst I

facilitated meetings where I was aware discussions were being held about the design and specification of the ventilation system; it was Alan Seabourne's responsibility as Project Director to seek support for any decisions in respect of the design and/or specification of the ventilation system. Any technical questions regarding the ventilation system should be answered by a mechanical engineer as I was not there to provide technical input.

70 I have been referred to the **Design Summary documents (Bundle 43 Volume 2 Document 21) reference** The Inquiry have referred me to the 'Brookfield Comment' section at page 5 of this document which states: 'Brookfield proposal as outlined within the bid submission is to incorporate chilled beams as a low energy solution to control the environment which do not rely on large volumes of treated air or variable natural ventilation. All accommodation is single bedrooms and therefore the need for dilution of airborne microbiological contamination should be reduced (rooms could also be at slightly negative pressure to corridor). Providing 6 air changes is energy intensive and not necessary.' I have also been referred to the comment in the far right hand column of this document by John Bushfield of Wallace Whittle which states: 'This derogation to the SHTM is not accepted. Any variation would require Board clinical infection control review.'

71 I have been asked what concerns, if any, I had regarding non-compliance with SHTM and whether this was the first time that non-compliance with SHTM was brough to my attention in respect of ventilation. I have also been asked what action, if any, I took to obtain Board clinical infection control review, and how given John Bushfield's comments this derogation came to be accepted.

72 The document I have been referred to is an appendix to the ERs in the Contract. Not being a mechanical engineer, I had no technical or direct involvement in this and am not qualified to comment on this from a technical perspective. I was at Project meetings where the potential derogation from the SHTM was discussed. My recollection is that following the comments referred to above by John Bushfield, a report was produced by Wallace Whittle which discussed compliance

with the Chartered Institution of Building Services Engineers (CIBSE) design standards however I did not see this report at the time and do not have a copy of it. I recall discussion that the Wallace Whittle report was based on 5 people being present in the room: the patient, two members of the patient's family, a doctor and a nurse. I had no involvement in organising IPC review on the proposed derogation, but there was an IPC Nurse, who I think was initially Annete Rankin, until she was replaced by Jackie Sewart, on the Project Team. I recall being in a meeting where people were reporting back that there had been discussions with IPC on the issue.

73 I have been asked whether it was part of my role to ensure the importance of SHTM was stressed and to ensure that there was a process to inform the board of any significant departure from SHTM. As I refer to at paragraph 68 above, the clarification logs were the tool to communicate such issues and record decisions made.

74 I have been asked when I first became aware of the agreed ventilation derogation recorded in the M&E Clarification Log (**Bundle 16, Document No. 23, Page 1662)**. From recollection, this formed part of the Multiplex bid and was discussed in the period up to contract execution in December 2009. The **Design Summary document reference A48743262 to be bundled** was referred to Wallace Whittle by Currie & Brown for comment and discussed with the Board. Mark Baird, who managed the Clarification Log, led organised these discussions, arranging for the engineers to attend as requested by the Board, for example on Currie & Brown's behalf. I may have been present at some, but not all, of these discussions and do not recall the detail. I have been asked what concerns, if any, I had regarding the derogation. As part of the team reviewing the position, we were aware that the alternative design solution did not achieve 6ACH and this was why the design was referred to Wallace Whittle for advice. I recall Alan Seabourne telling me he had, in addition, made contact with Peter Hoffman of Public Health England to seek advice on the issue of ventilation generally.

75 I have been asked whether I am aware what advice Alan Seabourne received from Peter Hoffman on the issue of ventilation and whether Alan asked Mr Hoffman about the proposed ventilation derogation. I am not aware of the detail of the conversation, however I understand that Peter Hoffman confirmed that the air change requirements related primarily to patient comfort. For fuller understanding, this question would be better put to Alan Seabourne and Peter Hoffman.

76 I have been asked what my understanding was of the advice received from Wallace Whittle regarding the impact of non-compliance. My understanding from discussions with the wider team was that Wallace Whittle advised that the alternative design was in line with CIBSE good practice, considering an occupancy of 5 persons in the single bedroom.

ZBP Ventilation Strategy Paper

77 I have been asked when I first became aware of the ZBP Ventilation Strategy paper dated on or around 15 December 2009 (**Bundle 16, Document No.21, Page 1657)**. I note that this document was sent by email from Ross Ballingall of Multiplex to Mark Baird at 08:16 on 15 December 2009 (**Bundle 17, Document No.72, Page 2863)**. I was also named as a recipient on this email, however as the email was addressed to Mark, it is likely that I was effectively copied into the email to be able to progress matters if Mark was unavailable. This was likely to be the first time I became aware of this document. Ongoing consideration of final matters relating to the contract were discussed in December 2009 and this document was, to the best of my recollection, issued at around this time.

78 I have been asked why advice was sought from Wallace Whittle on the ZBP Ventilation Strategy paper, from whom advice was sought, and what was their opinion of the document. I have also been referred to a number of emails between

Mark Baird and Stewart McKechnie of Wallace Whittle over 15 and 16 December 2009 **(Bundle 16, Document No.21, Page 2861)** regarding the ZBP Ventilation strategy document which I have been asked to comment on. As I was not involved in all of these emails, and was likely to have been copied into some for information purposes only, Mark Baird would be better placed than me to comment on this.

79 I was aware of discussions about this only at a general level from my attendance at Project Team Meetings but was not directly involved and was not asked to provide any technical input or advice as I was not qualified to do so. I do not recall seeing any calculations from Wallace Whittle on this issue.

80 I have been asked whether the ZBP Ventilation Strategy paper was escalated to the Board and if so, what action was taken in response. I do not recall being aware of this paper at the time and consider that Mark Baird or Stewart McKechnie would be better placed to comment on this in view of their direct involvement.

81 I have been referred to an email exchange between Mark Baird and Stewart McKechnie of Wallace Whittle dated 15 December 2009 **(Bundle 17, Document No.72, Page 2861)**. I was only copied into part of this email exchange; I was copied into Mark Baird's email to Stewart McKechnie at 08:41 **(Bundle 17, Document No.72, Page 2869)** but do not appear to have been copied into Stewart McKechnie's reply to Mark Baird at 10:04. My inclusion was likely to have been for awareness and not for action or my specific attention i.e. to allow me to pick up the issue if Mark was unavailable or similar. Mark Baird or Stewart McKechnie would be best placed to comment on the purpose of the review and how much reliance was to be placed on the review. As I was not directly involved in the exchange, or in the review undertaken by Wallace Whittle, I cannot comment on the scope of their review.

82 I have been asked how important achieving BREEAM targets was in considering the ZBP ventilation strategy. As I was not directly involved in the email exchange

with Wallace Whittle, or Wallace Whittle's review of the ZBP Ventilation Strategy, I do not have first-hand knowledge of this issue. The Board retained a BREEAM advisor, Susan Logan of Ecocentric, and she may be better placed to answer any questions regarding BREEAM.

83 I have been asked whether the ZBP Ventilation strategy was compliant with SHTM, and if not what the justification was for departing from national guidance. I would defer to Stewart McKechnie of Wallace Whittle's email to Mark Baird of 10:04 on 15 December 2009 (**Bundle 17, Document No.72, Page 2863**) on the issue of compliance, as I am not technically qualified to comment on this. In terms of the justification for departing from guidance, in any complex design there are conflicting requirements and the guidance acknowledges this. Any acceptance of change to ERs had to be made by the NEC Project Manager, Peter Moir. Any Alternative Design Solutions were reviewed and assessed by Stakeholders and where necessary by either the NEC3 Supervisor or the exemplar design team, by individual instruction.

84 I have been asked what risk assessments were carried out, if any, in respect of the proposal and who was responsible for ensuring that appropriate risk assessments were carried out. Risk assessments were responsibility of the Board, and it would be IPC who would undertake those risk assessments on behalf of the Board. Currie & Brown had no responsibility for risk assessments, and I was never asked to produce one. Therefore, I am not aware of any specific risk assessment that may have been carried out. Contractually, the proposal for reduced air changes was accepted by the Board as NEC3 Project Manager. I understand that in carrying out the review of this Alternative Design solution, Board infection control staff, including those on the Project team, were consulted. External advice on the purpose of air change rates (comfort or infection control) was also sought by the Board from Peter Hoffman. I am aware either through discussions with Alan Seabourne at the time, or through discussions in meetings which I attended where people were reporting back on activities undertaken, that

Alan Seabourne and Peter Moir were involved in the discussions with Peter Hoffman and Board IPC staff.

85 I have been asked what my understanding was, at the time, of which wards and rooms the proposal was intended to be applied to and which wards and rooms it was in fact applied to. The discussions around reduction related to the adult general wards where there were single rooms and SHTM requirement for 6 air changes. At that time the proposal was for single rooms in general wards only. At the point of my departure from the Project and Currie & Brown, I was unaware that this was applied to other areas.

86 I have been asked whether I can refer the Inquiry to any documents to support my understanding above. As I left my employment with Currie & Brown in February 2016 and have not subsequently had access to any files, I am unable to provide the Inquiry with or refer to any documents.

87 I have been asked whether in carrying out the review of the ZBP Ventilation Strategy, Board Infection Prevention and Control (IPC) team/staff were consulted. As Wallace Whittle carried out the review, I am unable to comment on this and believe that Wallace Whittle would be better placed to comment.

88 I have been asked whether I am aware of any risk assessments, whether in compliance with the standards in HAI Scribe or otherwise, that the Board carried out in respect of the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper. As above, Currie & Brown had no involvement in carrying out any risk assessments and I am not aware of whether any risk assessment was produced. Any risk assessment would presumably have been undertaken by Infection Control on behalf of the Board. The Board were responsible for instructing Infection Control or external experts, unless Currie & Brown was specifically asked by the Board to do something. In this instance, we

were not asked to undertake that work. This question is therefore better posed to Alan Seabourne.

89 I have been referred to an email exchange between Mark Baird and Stewart McKechnie of Wallace Whittle dated 16 December 2009 (**Bundle 17, Document No.72, Page 2869)**. I was only copied into part of this email exchange; I was copied into Mark Baird's email to Stewart McKechnie at 08:51 which sets out a number of issues for discussion, including "Air Changes – WW to take Board through this + specific query = do we think SHTM 03-01 is driven by temperature or HAI for stated nr oa air changes". I do not appear to have been copied into Stewart McKechnie's reply to Mark Baird at 09:08. Again, my inclusion was likely to have been for awareness and not for action or my specific attention, i.e. to allow me to pick up the issue if Mark was unavailable or similar. I cannot recall if I attended the meeting in question and so any queries in relation to whether Wallace Whittle advised the Board regarding proposed air changes on the M&E Log at the time, and details surrounding that would be better asked to Mark Baird, Stewart McKechnie, or one of the others who were in attendance.

90 I have been asked by the Inquiry whether, given my recognition of the importance of SHTM, it was part of my role to ensure that "if the Board was going to build hundreds of single rooms in a flagship hospital without complying with national and UK guidance this was fully understood and assessed". In my project management support role I was part of making sure that the Board Project team, including senior members such as Peter Moir and Alan Seabourne, were fully aware of the proposed alternative design solution via provision of information and meetings on the subject matter both pre and post signing of the contract. As explained in more detail in paragraphs 66 to 76 above, I fulfilled that role by supporting my colleague Mark Baird in facilitating discussions of the proposed alternative design solution in meetings with Wallace Whittle, who had the appropriate technical expertise to advise; and by ensuring the proposed

derogation that came out of those discussions was recorded in the appropriate clarification logs in line with agreed and standard practice.

91 I have been referred to a further email exchange between Mark Baird and Stewart McKechnie of Wallace Whittle timed at 18:44 on 16 December 2009 **(Bundle 17, Document No.72, Page 2869)** which states “Think we have a way forward on this one, need a calculation carried out however tomorrow morning to prove our resolution. This involves litres per second, air changes etc and therefore requires your technical input and illustration. Can we have support for half-hour/hour in the morning please”. Again, my inclusion on this email was likely to have been for awareness and not for action or my specific attention. I do not think I attended the meeting the following morning and I was not party to or involved in the resolution that was being discussed so cannot comment in respect of this and suggest that Mark Baird or Stewart McKechnie may be better placed to comment.

92 I have been told that the Inquiry is aware of several departures from SHTM 03-01 Guidance in relation to air change rates, pressure differentials and filtration requirements as well as a variation to the primary extract arrangement for PPVL isolation rooms from that set out in SHPN 04 Supplement 01. I have been asked whether Currie & Brown was aware at the time of these non-compliances and if so, how Currie & Brown communicated these non-compliances to the Board Project Team. I was not aware of this or involved in this at the time. The responsibility for compliance with the ERs and in turn the guidance was fully with Multiplex and any variance should have been highlighted by Multiplex to the Board Project Manager via an Early Warning Notice. Where this occurred, the process was for the Board to appoint a qualified reviewer, typically the NEC Supervisor (i.e., Capita), to comment upon the alternative design. The NEC Supervisor was also responsible for checking that the construction was compliant with the design.

93 I have been asked whether I recall Capita checking whether construction was compliant with the design and, if this was not being carried out by Capita, whether

I escalated this as an issue. It was not any part of my role or Currie & Brown's role to check Capita's work, and we did not have full visibility of their work (nor were we expected to) – it was for the Board, who appointed Capita, to manage Capita's work. Currie & Brown had no responsibility or authority to check Capita's work. I was generally aware from my attendance at meetings that Capita was undertaking checks on both construction and system installation. The Capita contract was managed by Peter Moir of the Board, not by Currie & Brown. I personally was not aware of any failings in Capita's service delivery.

94 I have been asked what material including drawings was necessary to allow Capita to check compliance. The full suite of design documentation was available to Capita via Multiplex's document management system Aconex. As above, it was not part of my role or Currie & Brown's role to manage Capita, and we had no authority to do so, so I do not know what documents Capita did or did not review. This is a question that would be better directed to the Board (who appointed and managed Capita), or to Multiplex (who managed the issuance of project documentation), or to Capita itself.

95 I have been asked whether the Ventilation Derogation noted in the M&E Clarification Log was recorded in the Full Business Case. I don't know and therefore cannot comment on this as I was not directly involved in the preparation of the Full Business case. This was a Board activity and therefore this would be better directed to the Board.

96 I have been asked how the agreed Ventilation derogation was signed off by the Board and asked about my personal knowledge of the comments in Currie & Brown's response to PPP13 that the Board Project Team advised Helen Byrne and Alex McIntyre (Director of Facilities) and Peter Gallagher (Director of Finance) of the agreed ventilation derogation. I do not know if there was ever a formal document that was signed by any senior members of the Board but I was aware at the time that Alan Seabourne and Peter Moir had advised these senior members of the Board. I recall that Helen Byrne was Alan Seabourne's line

manager and believe that Peter Gallagher was from the Board's finance team. My understanding is anecdotal however, and I cannot remember how I came to have that knowledge.

Design and Construction phase 2010-2015

97 From 2010-2015 the Project moved to the design and construction stage. There were two elements of work which were contracted out. Firstly, the Laboratory where Multiplex moved straight onto construction. Secondly, the hospitals which went into a 12-month period of design before Multiplex was awarded the Contract in 2010.

98 Once Multiplex was appointed as Design & Build Contractor in 2010, the Board assumed the formal role of NEC Project Manager. As NEC Project Manager, the Board was responsible for the impartial administration of the contract including but not limited to responsibilities for:

98.1 Time and cost management.

98.2 Risk management.

98.3 Contract administration.

98.4 Compensation events.

98.5 Record keeping.

98.6 Early warning.

98.7 Project delivery.

99 At this point, the Board established a series of Project Groups as part of its Project governance. I was appointed as a member of the following groups:

99.1 Project Steering Group, whose remit was to identify and review strategic drivers for the Project, review Project issues reported from sub-groups, monitor and identify any shortfalls in Project resources, and monitor the critical path of the Project programme. Both Alan Seabourne and Peter Moir were also in this group.

99.2 Project Management Group, whose remit was to monitor change control, the construction and design programme, Project administration, oversee the work and sign-off proposals of sub-groups, unblocking any issues and monitor community benefit programmes. Both Alan Seabourne and Peter Moir were also in this group.

99.3 Technical Design Group, which had a focus on planning applications and conditions as well as monitoring compliance with the ERs and CPs and managing any derogations or clarifications to either. Both Alan Seabourne and Peter Moir were also in this group, along with Board Infection Control.

99.4 Design and Healthy Environment Strategy Group, which was a sub- group of the Technical Design Group focused on how art could be best incorporated into the Project and to agree the Project Art Strategy. Peter Moir was also in this group.

99.5 Medical Planning Group, whose remit was to monitor the medical planning programme, the medical planning sign-off process, manage mock-ups for

functionality sign-off and monitor production of the RDS. Alan Seabourne and Board Infection Control were also in this group.

100 My role on these groups was to provide project management support to Peter Moir or Alan Seabourne.

RDD process

101 I have been asked about my involvement in the Reviewable Design Data (RDD) process and User Group Meetings. I was in attendance at a significant number of User Group Meetings in support of the Board Project Manager, primarily for the Adult Hospital. My role in these meetings was to understand the aims of both parties and facilitate discussion to agree the way forward. In this role I was also involved in the RDD process which was where Multiplex submitted their proposals for comment by the Board. It is important to note that this was limited to clinical functionality (i.e., end user clinical requirements ensuring that the right things were in the room, e.g. sink, bed, medical gases etc.) and this did not involve setting or commenting on the technical specifications, or technical compliance. Technical compliance for the design was always the responsibility of Multiplex, as set out in the ERs.

102 In accordance with the sign off process for drawings and Room Data Sheets, this information was shared with Currie & Brown via Multiplex's Aconex document management system. Currie & Brown and the NHS Project Team had access to RDD documentation via Aconex as did Multiplex and their supply chain and Capita as NEC Supervisor. The decisions agreed at the User Group Meetings were communicated via design documentation revision on Aconex. Currie & Brown's role was to check compliance with clinical functionality and my role in this was to review changes against meeting notes, revert to end users where necessary and sign-off on behalf of the Board.

103 I have been asked how the technical requirements (air change rates, pressure differentials and filter requirements) for the rooms were managed and approved and to describe my role and involvement in that. In accordance with the NEC Contract, Multiplex were responsible for technical compliance with the ERs including SHTM/HTM compliance. Any alternative design solutions had to be highlighted and approved. I had a Project Management co-ordinating role in this process. If Multiplex came up with a proposal which wasn't exactly in line with the guidance then it was referred to an appropriate person in terms of design e.g. Peter Moir instructed Capita to undertake some design review work on elements of the ventilation systems. I had to counter-sign some drawings but only for clinical functionality where they had been reviewed by User Groups and they were content with them, or where a designer had reviewed the proposal and signed it off to say that they had been reviewed, because Multiplex would not recognise a Capita signature. As far as Multiplex were concerned, they wanted to see one of 3 or 4 names on the drawing e.g. Peter Moir, Frances Wrath or me. I signed off that the process for reviewing the design had been completed, not the technical design itself.

104 I have been asked why Multiplex did not recognise a Capita signature. The process for sign off was put in place early in the design development stage, before Capita was appointed as NEC Supervisor, so Capita was not included in that process. My understanding is that, as a result, Multiplex requested a counter signatory. However, this is a matter that Multiplex or Capita would be better placed to comment on.

105 I have been asked whether it was part of the reviewing design process to ensure that the design complied with guidance and whether this is what I was signing off on. Compliance with guidance was fully the responsibility of Multiplex and its design team, and this is not what I was signing off on. Neither I nor Currie & Brown was expected to sign off on compliance with guidance because this was not part

of our role, as all participants in the Project knew. I was not qualified to sign off on compliance with guidance anyway. It was the Board's responsibility to check clinical functionality.

106 I have been asked what design work Peter Moir instructed Capita to undertake on elements of the ventilation systems. I did not ever see these instructions as they were direct from the Board to Capita. To be clear, Currie & Brown had no responsibility at all for the management of Capita which fell entirely to the Board, who had appointed Capita. The extent of the instructions would need to be checked and advised by someone with access to the historic contract administration documents which will include any compensation events issued to Capita under their appointment. I do not have access to those documents, having left Currie & Brown in 2016.

107 I have been asked to describe the intended use and purpose of the following wards in QEUH/RHC: Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU RHC – RHC; all Isolation rooms. I don't have access to all my files to check all wards, but my recollection is Critical Care was the Critical Care Ward, PICU was the Paediatric Intensive Care Unit and my understanding was that Ward 2A/B were intended to be used as the Paediatric-Oncology Unit which includes the Teenage Cancer Trust and the paediatric Bone Marrow Transplant (BMT) Unit.

108 I have been asked what guidance was considered in the design of these wards and what processes were in place to ensure guidance compliance. The guidance was the relevant SHTM or HTM requirements as set out in the ERs. Multiplex was responsible for technical compliance with the ERs. The NEC Supervisor was responsible for witnessing and accepting the facilities and ensuring that what had been built complied with the ERs. Capita would be better placed to comment on compliance in view of their role.

109 I have been asked whether there were any changes to the design of Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU RHC – RHC and all Isolation rooms during the design and build. This is a very wide question, and I have been unsure how to best tackle it. I have done my best to set out answers to more specific questions below.

110 I have been asked about my involvement in and understanding of the decision to remove carbon filters. I have been referred to the Board Project Manager Instruction #945 dated 26 April 2012 **(Bundle 43, volume 1, Document No. 44, Page 229)** which confirms the Board's decision to remove carbon filters. I was party to Project Team discussions where the issue of carbon filters was discussed. My recollection is that the carbon filters were considered to be onerous to maintain from an operational perspective and energy intensive to run as they created a large resistance to air movement. I understand that the Board decided to omit carbon filters on the basis that they were primarily included for odour management related to the adjacent sewerage treatment plant, and Scottish Water had a requirement/commitment to undertake improvement works to substantially improve the odour emission issues.

111 I have been asked what the understanding I have explained in the paragraph above is based on. This is based on my recollection of discussions on this matter in regular Project team meetings.

Ward 4B and 4C

112 I have been asked how the change in use of Ward 4B following a Change Order Request issued by the Board in July 2013 **(Bundle 16, Document No.29, Page 1699)** was communicated to Currie & Brown and how this change was captured in the revised design and specification documentation. I was not directly involved

in this change. I was aware of the changes via attendance at weekly risk reduction meetings but that was the extent of my knowledge/involvement. Peter Moir would have known the answer to this question.

113 I have been asked why suspended ceilings were installed in Ward 4B given that the Clinical Output Specification (COS) **(Bundle 16, Document No.15, Page 1595)** referred to 'space sealed' and whether Currie & Brown raised this as a non-compliance with the "works information". Multiplex was responsible for the design and construction in accordance with the ERs as modified/updated. Identifying non-compliances with Works Information was the responsibility of the NEC Supervisor, Capita. Similarly, during the construction phase Currie & Brown was not responsible for inspections and so I was unaware of this at the time and am unable to comment as to whether suspended ceilings were highlighted as noncompliant as works progressed. Without access to my files and records I am unable to confirm who approved the reflected ceiling plans for this area. I only became aware many years later, towards the end of my time on the Project, that an issue with suspended ceilings had been raised after handover.

114 In respect of Ward 4C's specification at the point of the Change Order and the justification for departing from the SHTM guidance in respect of ventilation, I cannot provide comment as I was not directly involved and had no more than a general and limited awareness of this at the time from my attendance at Project Team meetings. The Board's Assistant Project Director, Peter Moir, led on this. The same applies in respect of the requisite air change rate required with SHTM guidance in respect of Ward 4B and 4C and whether this was achieved. Peter Moir would have known the answer to this question.

115 I have been asked what role Currie & Brown played at Project meetings. These meetings covered a multitude of topics and individual attendees would provide updates on their assigned activities. This generally allowed all parties to have an

overview of what everyone was doing but not to go into the details of others' activities. My role was to report on the activities that I was involved in.

Wards 2A and 2B

116 I have been asked what my understanding was of the intended use and purpose of Wards 2A/2B, what guidance was considered in the design of these wards, and what processes Currie & Brown put in place to ensure compliance with guidance. My understanding was that these wards were intended to be used as the Paediatric-Oncology Unit which includes the Teenage Cancer Trust and the paediatric Bone Marrow Transplant (BMT) Unit. The guidance was the relevant SHTM or HTM requirements as set out in the ERs. Multiplex was responsible for all aspects of technical design/compliance for these wards. I recall that there were some specific end user requirements that required design adaption. I was informed by Mhari McLeod and Frances Wrath that there was a lot of discussion involving the clinicians for this department wanting the new department to mirror what they had at Yorkhill in terms of pressure differentials. I learned of these changes indirectly as I had a lesser involvement in the Children's Hospital and Mhari McLeod and Frances Wrath were primarily involved. I was in team meetings where some of this was discussed and talked through by Peter Moir and Frances and Mhari.

117 I have been asked what information Capita would have needed to ensure that these wards met what the ERs required and what the clinicians wanted. Capita had access to all of the design information prepared by the Multiplex design team and should have used this to assess compliance with the design. I do not know whether Capita did so – as stated above, neither I nor Currie & Brown had any responsibility for checking Capita's work or indeed any authority to do so. This is a question that would be better directed to the Board, Multiplex, or Capita.

118 I have been asked what changes, if any, were made to the design of these wards during construction, what impact any changes had to compliance with guidance and to describe the sign-off process for any such changes. The responsibility for compliance with the ERs and in turn the guidance was fully with Multiplex and any variance should have been highlighted by Multiplex to the Board Project Manager via an Early Warning Notice. Where this occurred the Board would appoint a qualified reviewer, typically the NEC Supervisor (i.e. Capita), to comment upon the alternative design. The NEC Supervisor was also responsible for checking that the construction was compliant with the design.

119 I recall that Capita was instructed via a Compensation Event Notice to review various alternative design drawings, including ventilation drawings. This was an additional service and involved an additional cost as Capita's primary role as NEC Supervisor was only to check what had been built, not to check any alternative design proposals submitted by Multiplex. Once the drawings had been checked and signed by Alan Follet of Capita, they were returned to Multiplex. However, Multiplex would not recognise Capita approval as authority to proceed and I therefore counter-signed some drawings to evidence the fact that they had been through the appropriate process. I was not signing off the technical content of these drawings as I was not qualified to do so.

120 I have been asked whether, in signing drawings, I was giving authority to Multiplex to proceed and whether this was within Currie & Brown's remit. I was countersigning these drawings only to confirm that they had been through a review process by Capita. The status of the drawings was advised by Capita following

its review. Limited authority to sign drawings which required clinical functionality review only, or to counter-sign drawings which involved alternative design solutions, was delegated to me by the NEC Project Manager. Where alternative design solutions were proposed, as in this instance, authority to sign the drawing and allocate a status was delegated by the NEC Project Manager to Capita, as

Capita was qualified to review the technical content (whereas Currie & Brown was not).

121 I have been asked whether, with the benefit of hindsight, counter-signing drawings is something which I should have been expected to do given that I was not signing off the technical content. As above, I was counter-signing only to confirm that the drawings had been through a review process by Capita as per the authority delegated by the NEC Project Manager. The basis on which I was counter-signing drawings was well known by and clear to the Board, Multiplex, and Capita.

122 I have been asked to describe the IPC involvement in the design of Wards 2A and 2B. I recall the Board appointed an infection control nurse to the core client team across the Project from the outset and my understanding was this was to provide a direct and continuous link back to the wider Board Infection Control team. I am not qualified to comment on the qualifications or experience of these individuals. Given my limited involvement in this aspect, I was not aware of any concerns at the time regarding the final specification of Ward 2A and 2B.

123 I have been asked about my understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 2A and 2B, and whether this the air change rate was achieved. My understanding of the requisite air change rate required in accordance with the SHTM guidance for these wards was that they were specialist areas with specific requirements as set out in the SHTM/HTM. The actual rates achieved should have been measured during commissioning. I was unaware at the time of whether this air change rate was achieved. Multiplex was responsible for the commissioning. Capita was responsible for witnessing the commissioning for acceptance. I did not become aware until about two or three years after handover that these air change rates were not being achieved, around the time that external consultants were engaged to re-design the system. I am not aware of why those air change rates were not achieved.

Isolation Rooms

124 I have been asked how the number and location of Isolation rooms was agreed and approved, who was responsible for producing the drawings and specification for these rooms and who within the Project Team approved them. The number and location of the isolation rooms was a matter for the Board. My understanding was that the original intent was that each ward would have an isolation room, but that (with the exception of the critical care units) these isolation rooms were omitted by the Board following a debate within the Board about how many were needed. I was aware of that debate going back to 2009, but was not involved in it – it was a matter for Board and in particular Heather Griffin, Mhairi Macleod, and IPC. Multiplex was responsible for producing the room drawings and specifications. The Board Project Team was required only to approve the clinical functionality of them as per the contract.

125 I have been referred to the excel Room Data Sheets (RDS) and in particular a note under 'Design Notes' relating to Ward 2A isolation rooms which states: "WARNING NOTICE: This room is based on a theoretical design model; which has not been validated (see paragraph 1.8 of HBN 4 Supplement 1). Specialist advice should be sought on its design. The lamp repeat call from the bedroom is situated over the door outside the room." I have no personal knowledge of whether this note was entered on the RDS and if so by whom and when. I have been asked what specialist advice was sought regarding the design of these rooms. I do not know what specialist advice was sought or obtained, if any. This was a responsibility for Multiplex. They will also be best placed to confirm what the final agreed design was and who approved it. I was not in the meetings where the RDS were discussed and did not know the detail.

126 I have been asked why the main extract was placed in the patient's bedroom and not the ensuite as outlined in SHPN 04 Supplement 01. I have also been asked

why this change was requested, who requested it and who approved the change from the Project Team. I recall that the change was requested by Multiplex and their design team on the basis that it was thought to be a better solution than SHPN 04 Supplement 01. I had a general awareness of this decision from attendance at the Project Team meetings but was not directly involved and was not consulted on it, so am unable to recall this decision in detail. I presume Peter Moir approved as Project Manager in accordance with the processes required by the contract.

127 I have been asked to explain what I mean by “better solution” in the paragraph above. My understanding from discussions with Peter Moir was that this was to do with improved distribution of air, avoiding stagnant areas.

128 I have been asked what my understanding was of whether a risk assessment was carried out in respect of this decision given my awareness and attendance at Project Team meetings. A design evaluation was undertaken by Capita. I am not aware of a specific risk assessment. Risk assessment was a matter for the Board as they would engage with clinicians and infection control.

129 I have been asked whether I recall whether Peter Moir approved the decision. I do recall this to be the case.

130 The Inquiry has referred me to **Bundle 47 Volume 8 document 13 pg 16S** and **Bundle 47 Volume 8 Document 12 page 15**. I have been asked to describe my involvement in respect of the decision for the main extract to be placed in the patient bedrooms. As noted previously, I countersigned this drawing only to confirm it had been through a review process by Capita, I was not party to the design review discussions.

131 I have been asked to confirm what the amendment was. As I am not qualified to comment on matters of technical design, this question would be better put to the technical reviewer, Allan Follet.

Horne Taps

132 I have been asked to comment on my involvement, if any, in respect of the decision to use Horne taps. At the time of selection, I attended a specific focus group on the tap selection due to issues that had arisen in other hospitals around infection control and ease of access to filters. Board facilities staff, such as Ian Powrie, were also involved in this group and were part of the selection process as were Alan Seabourne and Peter Moir.

133 At this point in time, advice was sought by the Board Project Team from others within NHS as to the best practice in terms of tap selection. Specifically I am aware that Alan Seabourne engaged with the Director of Facilities at NHS Lanarkshire, David Browning, who had encountered some issues with water quality and recommended the use of the Horne tap. The general view was that the Horne tap was most easily maintained. The Project Team were involved in the selection including Project Director, Assistant Project Director and Facilities representative. As explained above, Currie & Brown had no responsibility for or involvement in risk assessments. Therefore, I was not involved in risk assessing the Horne Tap and cannot recall whether the use of them depended on thermal disinfection.

134 In follow-up questions from the Inquiry I have been asked whether I meant David Louden instead of Alan Seabourne in the paragraph above. I recollect that this was prior to Alan Seabourne leaving, and so recall it was Alan Seabourne.

135 I have been asked if I attended a meeting regarding the Horne Taps in 2014. I am unsure which meeting is being referred to. If it is the meeting with Health Protection Scotland held on 5 June 2014 **(Inquiry Bundle 15, Document 9, page 692)**, I was not in attendance (and nor was anyone else from Currie & Brown) but was aware that the meeting was taking place and learned of the outcome from Alan Seabourne or possibly David Loudon. I understood from my discussion with Alan or David that the outcome of the meeting was that, as the taps were already installed, they should be treated as existing and remain in place.

136 The Inquiry has asked me whether thermal disinfection was mentioned at the meeting on 5 June 2014. As I explained in the paragraph above, I was not at the meeting so do not know if thermal disinfection was mentioned then. Looking at the timing of this meeting I now think it was probably David Loudon who attended rather than Alan Seabourne. I cannot recall if thermal disinfection was mentioned in my discussion with David following the meeting.

Water System

137 I have been asked if I was aware of the water system being filled prior to handover on 26 January 2015. I was not aware of when the water system was filled. The water system would have had to be filled in time for handover, but I do not know when that took place and was not involved in the inspection, testing or witnessing of the water systems so cannot comment.

138 I have been asked to explain my understanding of why the water system had to be filled prior to handover, and my understanding of whether it should have remained full. I have been asked to explain my answer within the confines of my knowledge, understanding and experience. I do not have any technical understanding of this, but from my experience on other projects I understand that the systems would have had to be filled prior to handover so that they could be

flushed, tested and sampled. My understanding is that the system would remain filled and be flushed to a programme to maintain cleanliness.

Commissioning and validation

139 I have been asked what Currie & Brown's responsibilities and involvement were, if any, in respect of commissioning activities in relation to the ventilation system and water system. Currie & Brown was not involved in the commissioning of the water or ventilation systems. Commissioning was the responsibility of Multiplex with the NEC Supervisor, Capita, responsible for witnessing and notifying the NEC Project Manager.

140 I have been asked what support Currie & Brown provided to the Board in discharging its Project Manager functions. Assuming this query is referring to duties in relation to technical commissioning and validation, Currie & Brown did not provide advice or support as these activities were in the NEC Supervisor's remit. Currie & Brown did provide limited advice and support to the Board in discharging its NEC Project Manager functions in connection with the planning of the clinical commissioning. This clinical equipment included, e.g., MRI scanners and imaging equipment which was procured by the Board under separate agreements outside the Main Contract. Paul Fairie and I provided support in connection with planning the procurement, installation, and commissioning of these pieces of clinical equipment after the technical commissioning and handover of the new hospitals by Multiplex.

141 I have been referred to the original Memorandum of Understanding between Currie & Brown and the Board [**Bundle 17, Document No.40, Page 1938**] and asked whether this document is limited to '*the planning the procurement, installation, and commissioning of these pieces of clinical equipment after the technical commissioning and handover of the new hospitals by Multiplex'*. I was

not involved in the negotiation or agreement of this document and would defer to Douglas Ross in relation to the terms of the Memorandum. My understanding is that Currie & Brown's role in relation to commissioning was limited to commissioning of the clinical equipment which was outside of the Multiplex contract and unrelated to the subject matter of this Inquiry.

142 I have been asked whether this was the extent of Currie & Brown's role in respect of commissioning. Currie & Brown was not involved at all in the technical commissioning of the Hospitals.

143 I have been asked what role Currie & Brown had, if any, in the validation of the water and ventilation systems. Validation and testing was not part of Currie & Brown's role either.

144 I have been asked who was responsible for carrying out validation. Validation of the systems was a Board responsibility.

145 I have been asked what arrangements were in place to allow for validation to take place prior to handover. I was not involved and therefore do not know and am unable to comment on this.

146 I have been asked what awareness I had at the time of the lack of validation of the ventilation system prior to handover and what concerns I had regarding a lack of validation. I was unaware of the lack of validation of any areas prior to occupation.

Currie & Brown engagement with Wallace Whittle

147 I have been asked which M&E issues Currie & Brown engaged with Wallace Whittle on during the design and construction stage of the QEUH/RHC. Engagement with Wallace Whittle during the design and construction stage was very limited as in the construction phase the Board made the decision to refer design review of proposed alternative design solutions to Capita as NEC Supervisor. Multiplex were required to identify any alternative design solutions via Early Warning Notifications which is where potential M&E issues would be captured.

148 I have been asked about Multiplex directly engaging Wallace Whittle as part of its own technical team and whether Wallace Whittle was involved in the Project in two separate capacities. I do not recall this being a decision made by Multiplex. My recollection is that Wallace Whittle acquired ZBP, who were already part of the Multiplex design team.

149 Wallace Whittle, at that point, had been stood down by Currie & Brown, along with the rest of the Technical Team, following the change in Currie & Brown's role after the Contract was awarded to Multiplex. I understand that the Board used Capita in a support role to review alternative design solutions. I have been asked whether, with hindsight, this was the correct decision. As noted above, I believe that this was a commercial matter between Wallace Whittle and ZBP rather than a decision made by Multiplex.

150 I have been asked a series of questions regarding the Board's decision to forgo the requirement to have an independent commissioning engineer. In 2013 the Board issued a Project Managers Instruction ("PMI") (**Bundle 43, Volume 1, Document 50 page 245**) allowing Multiplex to assume the role of Independent Commissioning Engineer. The contractual requirement was for Multiplex to appoint the independent commissioning engineer (independent of Mercury Engineering who were the Mechanical Electrical and Plumbing (MEP) Subcontractor and who were undertaking the installations). Multiplex proposed David Wilson within their team as capable and competent to undertake the role.

151 I have been asked what the impact of this decision was and whether in hindsight it was the correct decision. Under the Contract, Multiplex were responsible for appointing the commissioning engineer. Given the contractual arrangement and requirements I don't think the fact that an internal Multiplex resource undertook the role made a material difference from a contractual point of view. As neither I nor Currie & Brown was involved in commissioning I do not know whether it made any other difference and so I cannot comment on whether this was the correct decision.

152 I have been asked to describe my involvement in the decision for the energy centre to be retained by Multiplex following handover as well as my knowledge of a payment being made by the Board to Multiplex in respect of the energy centre following it being handed over. To the best of my knowledge the energy centre was commissioned and was providing heat, power and emergency generation, when required, to the hospitals at the point of handover. I had no involvement in nor any knowledge of commercial matters post-handover relating to the Energy Centre as this post-dated my employment with Currie & Brown.

Handover

153 I have been asked who did the final inspections of the hospitals before handover in January 2015 and whether the hospitals were ready to be handed over at that point. Any questions in respect of final inspections and handover, including the contents of the Sectional Completion Certificate (**Bundle 12, Document No.3, Page 23)**, would be best answered by the Board Assistant Project Director, or Capita who issued the certificate of completion including the list of outstanding works/defects. I was not involved in any technical inspection or testing, although did participate in room reviews for clinical functionality as part of the wider project team.

154 I have been asked whether it was appropriate for the handover of hospitals to take place when the energy centre was not operational due to design issues. As far as I was aware, the energy centre was operational and providing power and heat to the hospitals at the point of handover. I left the Project in summer 2015 and subsequently left Currie & Brown in February 2016 and therefore my awareness of any defects that arose post-handover in relation to the energy centre is very limited.

155 I have been informed that the Inquiry understands that the energy centre was retained by Multiplex for two years and was not handed over. I have been asked whether I think it was appropriate for the handover of hospital to take place without the energy centre being handed over. It was not my understanding that the energy centre was not handed over at the same time as the Hospitals. There was a 2-year defects liability period for all works and it was my recollection and understanding that Multiplex undertook defect correction activities in this period.

156 I have been asked how the hospital came to be handed over without validation of the ventilation system and who was responsible for this. Validation and testing was not part of Currie & Brown's role and I was not personally involved. At this time my focus was on Group 5 equipment installation to the Imaging Departments including CT & MRI Scanners (Quarter 4 2014 to Q2 2015) therefore I am unable to comment on this.

157 I have been asked who was responsible for asset tagging, why there was no asset tagging prior to handover and who decided to proceed with handover in the absence of asset tagging. Asset tagging is a system that allows you to prepare the planned prepared maintenance schedule for the building and maintain assets in line with manufacturers' recommendations. I was not involved in asset tagging, nor was I engaged in the collation or acceptance of information on the Zutec document management system, which was designed to hold all as-built

information, such as drawings, O&M manuals and planned preventative maintenance schedule etc. The Board had not allocated me a Zutec licence because, whilst Currie & Brown had peripheral involvement in clinical commissioning of certain clinical equipment as I explained above, it had no involvement in the technical commissioning of the building. I therefore had no means to check what was contained in the files.

158 I have been asked to comment on a feasibility study to investigate a new location for the BMT Unit within the hospital which the Board commissioned Currie & Brown to prepare in November 2016. My direct involvement with the Project ceased in around May 2015 and I left the employment of Currie & Brown in February 2016 and so I am unable to comment on this. I am also unable to comment on Currie & Brown's involvement in any other works following handover for the same reasons.

Meeting with Dr Peters on 25 June 2015

159 I have read paragraph 34 of the witness statement provided to the Inquiry by Dr Christine Peters **Witness Bundle – Week Commencing 26 August 2024 – Volume 4, page 117**. Dr Peters refers to a meeting which she arranged and attended on 25 June 2015 with Dr Inkster, Ian Powrie of the Board, and a representative from Brookfield Multiplex. I am also noted to have attended as "*a representative from the Health Board commissioning team*". Dr Peters says that the Multiplex representative and I were unaware that the Infectious Diseases Unit and the BMT unit were on site at that time and did not know that the Infectious Diseases Unit was ever planned to be based at the QEUH.

160 As Currie & Brown was not involved in commissioning, neither I nor anyone else at Currie & Brown was a member of the Board commissioning team, and I do not

know why Dr Peters described me as such. I cannot recall attending this meeting, but I would probably have attended on behalf of Peter Moir, or at Peter Moir's request if he was unavailable to attend. Noting the time of year, Peter may have been on holiday, for example). By June 2015 I was no longer directly involved in the Project or based at the hospital and was working on projects in London.

161 I was aware that the BMT Unit was moving into the hospital, but as I was no longer directly involved in the Project by June 2015 I may not have been fully up to speed on that at the time. I don't recall ever being informed or being aware that the Infectious Diseases Unit would be moving into the hospital. Dr Peters says that I stated I would discuss these issues with David Loudon after the meeting. Whilst I cannot specifically recall speaking with David Loudon, I expect that I would have done so if I said I would.

162 I have been asked to describe my working relationship with Capita, Multiplex, Mercury, Wallace Whittle and the NHS GGC Project Team during the course of the project. My working relationship was, as required by the NEC form of contract, both professional and collaborative. All parties were working proactively together for the benefit of the project.

163 I have been asked to describe any difficulties I experienced in those working relationships. Whilst there were many challenges in the Project, these were dealt with professionally and collaboratively.

164 I have been informed that the Inquiry has heard evidence from a number of witnesses in the August 2024 hearings that suggests that the QEUH/RHC site looked like a building site at handover. I have been asked what I would say to this. This may have appeared the case as in the period post January 2015 there were significant activities ongoing that were outside the Multiplex contract primarily related to Group 5 equipment installation. The Board procured all of this equipment directly and much of it was installed in the period February 2015 to May 2015.

Declaration Statement of Truth

I believe that the facts stated in this witness statement are true. I understand that proceedings for contempt of court may be brought against anyone who makes, or causes to be made, a false statement in a document verified by a statement of truth without an honest belief in its truth.

Signed: [redacted] Print name: David Hall

Scottish Hospitals Inquiry In respect of the Glasgow IV, Part 1 Hearing Commencing 13 May 2025

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

A47069198 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 12 - Estates Communications (External Version)

A47664054 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 15 - Water PPP (External Version)

A47851278 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 16 - Ventilation PPP (External Version)

A49342285 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 17 - Procurement History and Building Contract PPP (External Version)

A48743262 - Scottish Hospitals Inquiry- Hearing Commencing 13th May 2025 Bundle 43 Volume 2-Procurement Contract Design and Construction Miscellaneous documents

A48032049 – Scottish Hospitals Inquiry- Hearing Commencing 13th May 2025 - Bundle 47 Volume 8 – Critical Care Drawings and Room Data Sheets

A35809031 – Scottish Hospitals Inquiry- Hearing Commencing 13th May 2025- Bundle 47 Volume 8- Critical Care Drawings and Room Data Sheets

The witness provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix B

N/A

Appendix C

EXHIBIT SHEET

This is exhibit **DH1** referred to in the witness statement of David Hall David B Hall FCIOB, MAPM.

EMPLOYMENT

University of Glasgow, Estates Directorate University Avenue, Glasgow G12 8QQ

Director of Projects – September 2023 to present Project Director (Campus Expansion) – November 2018 to September 2023 Head of Construction & Project Management – February 2016 to October 2018

Initially appointed as Head of Construction & Project Management with an overarching role to deliver both the campus redevelopment and expansion into the former western infirmary site, I, at the request of University Senior Management Group and Estates Committee, re-focused primarily upon the campus expansion in 2018 and assumed

responsibility for the design development and construction of 7 major new builds and the associated infrastructure project.

Projects completed include:

- The James McCune Smith Leaning Hub
- The Mazumdar Shaw Advanced Research Centre
- The Clarice Pears School of Health & Wellbeing
- The Adam Smith Business School & PGT Hub
- Western Infrastructure Phase 1

Projects Currently in the design phase include:

- Keystone
- Student Residencies
- Innovation Building

Currie & Brown UK Limited, Building 3, 2 Parklands Avenue Maxim Office Park, Eurocentral, Lanarkshire, ML1 4WQ

May 2000 – February 2016 Senior Project Manager (circa 2000 to 2004) Associate Director (circa 2004 to 2007) Divisional Director (circa 2007 to 2010) Director (2010 to 2016)

Working across a variety of sectors including healthcare, financial institutions, retail, and commercial we delivered multi-disciplinary services to clients utilising both internal and external resources tailored to meet the project needs.
Projects Completed included:

- New South Glasgow Hospitals

- Community Resource Centre: Coatbridge
- Community Health Centre: Airdrie
- City Centre Office Rationalisation Strategy: Glasgow
- Banking Automation: UK & Ireland
- Commercial Development: Newcastle

Safeway Stores plc, Melford Road, Righead Industrial Estate, Bellshill ML4 3DD
Senior Project Manager, January 1996 to May 2000

Initially employed in the Property Department as a Regional Building Surveyor with responsibility for facilities management and minor capital expenditure within a group of 25 large Safeway superstores in Scotland East, I quickly progressed into the refits and extensions project management team which was subsequently combined with the new stores team.

Projects completed included: ○ Roll-out programme of third party ATMs into stores throughout the UK ○ Installation of third party financial units into stores.
○ Construction of new stores in Greenock and East Kilbride ○ Major Extensions in Glasgow, Edinburgh, Fort William and Aberdeen

William Hill Organisation Limited, 9-15 North Drive, Glasgow G1 4BL

Regional Building Surveyor April 1992 – December 1995

Regional Building Surveyor, reporting to Property Director, I was responsible for the property portfolio across Scotland ensuring that all statutory requirements were met and properties were maintained to a functional standard.

Responsibilities & Projects completed:

○ Responsible for Facilities management of circa 200 retail units across Scotland. ○ Implementation of electronic purchasing system to replace manual system ○ Minor refits programme to 20 stores/annum

The Miller Partnership, 9 Royal Crescent Glasgow, G3 7SX,

Senior Architectural Assistant January 1990 – April 1992

A senior architectural assistant reporting to the project architect on the design and construction of a number of stadia developments and refurbishments with responsibility to manage and deliver the technical detailing and coordination of the wider design team.
Projects Completed:

○ The New Den, Millwall, London
○ The City Ground, Nottingham ○
Firhill Stadium, Glasgow ○ Murrayfield
Stadium, Edinburgh

J.G. Wallace Architects, St Vincent Place Glasgow, G1 2EU Architectural Assistant July 1985 – December 1989

An architectural assistant reporting directly to the partner in charge, I was responsible for the design development and statutory approvals on a range of commercial and residential projects including:

- Various branch extensions and refurbishments for Clydesdale Bank plc
- Office Development @ 176 Bath Street Glasgow
- Sheltered Housing development. Pollokshields, Glasgow

GD Lodge & Partners, Empire House, 131 West Nile Street, Glasgow, G1 2RX

Architectural Trainee August 1982 – June 1985

An architectural trainee reporting to project architects, I was responsible for providing drafting support on a variety of projects including:

- Various branch extensions and refurbishments for Clydesdale Bank plc
- Residential development master-plans
- Restaurant fit-outs for Pizzaland

EDUCATION

Professional Fellow of the Chartered Institute of Building

Metropolitan College, Glasgow Direct Membership Examinations

Member of the Association for Project Management

Experienced Practitioner Route Direct Membership Application

Accredited RICS Mediator Accredited NEC4 Project Manager Further Education Glasgow College of Building & Printing North Hanover Street, Glasgow

Qualifications: Higher National Certificate in Architectural Technology, National Certificate in Building

Bundle of documents for Oral hearings commencing from 13 May 2025 in relation to the Queen Elizabeth University Hospital and the Royal Hospital for Children, Glasgow

Witness Statements – Volume 2
Week Commencing 19 May 2025

A52855608