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.

Water and Taps

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