

**NHS Greater Glasgow & Clyde
Parkhead Hub
Key Stage Assurance Review**

**Construction
KSAR Report
V2.0**

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Document Overview

Key Stage Assurance Review Report | Construction Stage

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Document Control Sheet

Revision History

Version	Date	Revision Details	Originator	Changes Marked
V1.0	19/03/2024	Issue to NHSGGC for factual accuracy review	NHS Scotland Assure (NHSSA)	First Issue
V2.0	01/05/2024	Final issue following NHSGGC factual accuracy review	NHS Scotland Assure (NHSSA)	No

Approvals

This document requires the following signed approvals:

Version	Date	Name & Organisation	Role	Signature
V1.0	19/03/2024	[REDACTED]	Head of Engineering	TR
V2.0	01/05/2024	[REDACTED]	Head of Engineering	TR

Distribution

This document has been distributed to:

Version	Date	Name	Role / Area
V1.0	19/03/2024	[REDACTED]	Depute Programme Director, Major Projects, NHSGGC

V1.0	19/03/2024	[REDACTED]	Project Manager, NHSGGC
V2.0	01/05/2024	[REDACTED]	Depute Programme Director, Major Projects, NHSGGC
V2.0	01/05/2024	[REDACTED]	Senior Project Manager, NHSGGC
V2.0	01/05/2024	[REDACTED]	Project Manager, NHSGGC

1. Executive Summary

As a result of the construction Key Stage Assurance Review (KSAR) and based on the information presented, NHSScotland Assure (NHSSA) note the project is “supported” at this stage.

There are, however, items identified which if not resolved timeously represents potential significant risks. These are:

- NHSSA note at the time of the KSAR the final location of the external portable generator has still to be agreed. The generator sequence of operation has also still to be developed along with cable sizing and design proposals including verification of how the cables will be ducted to the external connection cubicle.
- The connection details of sub-main cables into the busbar end feed units and from the busbar tap-off units to riser distribution boards (DBs) has still to be resolved and a suitable solution demonstrated on site.

There are also a number of observations that we recommend NHS Greater Glasgow and Clyde (NHSGGC) address prior to the next KSAR stage. Key points of note include:

- There remains a number of unresolved observations from the Full Business Case (FBC) KSAR stage. NHSGGC should ensure all outstanding observations are addressed prior to the commissioning stage KSAR.
- NHSGGC have provided assurance regarding input and inclusion of the infection prevention and control (IPC) team with the project during the design stages and construction phase. The structure of the IPC team for the health board and project has also been confirmed. Additional information could have been provided to demonstrate IPC governance and escalation to the Healthcare Associated Infection (HAI) executive lead.
- Assurance was provided regarding specific design derogations for the project and IPC involvement in these discussions and associated action plans. HAISCRIBE stage 3 was available and completed to a good standard with only some additional clarification required by NHSSA, which in the main has been provided.
- Assurance was provided regarding IPC input to the design of the facility through the review and support to the design of the rooms across the facility.
- At the time of the KSAR, no evidence has been provided by NHSGGC to confirm that the health board’s process for vetting of the sub-contracting companies, their site operatives and management structure has been undertaken and completed.
- Assurance was also lacking with respect to the training records of ventilation and medical gas installers.
- BIM360 has been adopted as a process to monitor and track technical submittals, Contractor Design Portions and defects/quality management.

However, there is no definitive assurance that the process is being fully adopted by all parties including NHSGGC Estates, the Quality Monitor, and any other third parties involved in the review and appraisal of construction stage activities.

- Whilst the Authority Construction Requirements (ACR's) provides assurance that spare capacity and space for minor additions and modifications to services in future had been agreed and allocated, the documentation provided for review does not detail NHSGGC's process for monitoring this during the construction stage.
- NHSSA note at the time of the KSAR pre-commissioning checklists have been provided which confirm intent to carry out installation checks ahead of commissioning of the systems. The checklists have yet to be completed, audited, and approved by an independent organisation. In some instances, there are examples where alignment with the various SHTM checklists for each system is not evidenced e.g. SHTM 02-01, Appendix A.
- The electrical distribution strategy notes the use of cable armour as the circuit protective conductor (CPC) instead of a separate CPC which does not comply with SHTM 06-01 recommendations. NHSGGC did not provide assurance they had an appropriately detailed derogation or supporting assessment of this solution in place.

NHSSA would like to note that NHSGGC acted in a collaborative manner throughout the KSAR process and would like to thank the health board's team for their cooperation and commitment to the review process.

1.1 Summary of Findings

The findings of this report have been collated based on information provided by NHSGGC. The following table outlines the status of key findings as derived from the KSAR and identified within the NHSSA recommended action plan issued to NHSGGC under separate cover:

Review	No. of Issues per category				
	1	2	3	4	5
Project Governance and General Arrangements	0	0	0	8	0
Water and Internal Plumbing / Drainage Systems	0	0	15	10	4
Ventilation	0	0	8	5	1
Electrical	2	2	8	3	0
Medical Gases	0	0	2	1	1
Fire	0	0	1	1	1
Infection Prevention and Control Built Environment	0	0	0	4	4

The following categories were used in relation to the findings:

Category	Definition
1	Significant – Concerns requiring immediate attention, no adherence with guidance.
2	Major – Absence of key controls, major deviations from guidance.
3	Moderate – Not all control procedures working effectively, elements of noncompliance with guidance.
4	Minor – Minor control procedures lacking or improvement identified based on emerging practice.
5	Observation and improvement activity.

1.2 Project Overview

NHSGGC is working with Glasgow City Health and Social Care Partnership (HSCP) to develop a new health and social care hub at Parkhead Hub, Salamanca Street, Glasgow. The HSCP are leading the equipping of the building with close support from NHSGGC Capital Planning project managers. The HSCP are liaising with the National Procurement (NP) Strategic Sourcing Equipping Sourcing team to equip the Parkhead Hub project.

The new hub will bring together a number of public facing community health and social services, which are currently located at nine different sites. The facility will provide services over 11,200 square meters of accommodation covering children, adult community care groups, mental health services, addictions, criminal justice, homelessness, sexual health and health improvement including general practitioner (GP) services, community pharmacy and dental services.

The facility will also provide community spaces including bookable rooms, library and café facilities. Parkhead Hub will be offering out-patient and day-patient services and will bring together the following services:

- day-patients and out-patients
- non-clinical support services
- sexual health.

2. Review Methodology

2.1 Overview of NHS Scotland Assure and the KSAR Process

Good management and effective control of projects is an essential element to the successful delivery and maintenance of healthcare facilities across NHSScotland estates.

The NHSScotland Assure (NHSSA), Assurance Service was launched on the 1 June 2021 following a letter issued by Scottish Government to health board Chief Executives, Directors of Finance, Nursing Directors and Directors of Estates. The letter outlined the purpose of NHSSA, with an overarching aim to deliver a co-ordinated approach to the improvement of risk management in new builds and refurbishment projects across NHSScotland. The new service will underpin a transformation in the approach to minimising risk in our healthcare buildings and environments, protecting patients from the risk of infection and supporting better outcomes for patients in Scotland.

From 1 June 2021, all NHS health board projects that require review and approval from the NHS Capital Investment Group (CIG), will need to engage with NHSSA to undertake key stage assurance reviews (KSARs). Approval from the CIG will only follow once the KSAR has been satisfactorily completed. The KSARs have been designed to provide assurance to the Scottish Government that guidance has been followed. The Scottish Government may also commission NHSSA to undertake reviews on other healthcare-built environment projects. This does not change accountability for the projects; NHS health boards remain accountable for their delivery. NHSSA will be accountable for the services it provides that support delivery of the projects.

NHSSA will also work closely with health boards to identify where a KSAR may be required for projects under their delegated authority, utilising a triage system to assess risk and complexity of projects.

The KSARs will assess if health board's project management teams (inclusive of clinicians, appointed construction consultants, and contractors) are briefed and following best practice procedures in the provision of facilities. We will review if projects are compliant in all aspects of safety, if specific engineering systems are designed, installed and commissioned, and for ongoing safety maintenance including infection prevention and control (IPC).

The KSAR focuses on key topics, specifically – project governance, water (including plumbing and drainage), ventilation, electrical, medical gases, fire safety and IPC. This ensures they are designed, installed and functioning from initial commissioning of a new facility and throughout its lifetime. Health boards are required to have appropriate governance in place at all stages of the construction procurement journey.

The purpose of the KSAR at the construction stage is to confirm there is a good and comprehensive understanding of the category of patient who will use the proposed facility and that the project team consider how appropriate quality and safety standards will influence the build. It looks to provide assurance that the project can proceed to the commissioning stage.

Whilst the KSAR focusses on actions to improve the end product, it is not intended to detract from the merits of a development that will add significant benefit for the healthcare of the population served, and which has many exemplary elements. Rather, it is a reflection of the complexity of healthcare construction projects and the stage of development at which it was reviewed. Some conflicts and changes are to be expected as complex projects develop and project teams have in place mechanisms to identify and address these. This report adds a layer of scrutiny and assurance to that process to address the above requirement from government.

2.2 KSAR Process

The Construction KSAR for NHS Greater Glasgow and Clyde Parkhead Hub took place between October 2023 and February 2024.

- 2.2.1 To inform the findings of the KSAR, the Health Board were issued with key documents outlining the assurance question set and expected level of evidence and supporting documents in accordance with relevant legislation and guidance. This included the construction KSAR workbook and construction deliverables list.
- 2.2.2 The KSAR report includes an overview of the main findings of the review, with a further itemised list of detailed observations included within the appendices of the report. The detailed observations are recorded in an action plan that should be adopted by the health board following the review and subsequently monitored by them to ensure appropriate actions are completed in a timeous manner.

2.3 Application of Standards & Legislation

- 2.3.1 Health Facilities Scotland (HFS) currently provides a range of advisory and delivery services across a wide variety of topics from a portfolio which covers the built estate, engineering and environment and facilities management. With some exceptions these services are largely advisory in nature, identifying best practice and developing national guidance and standards.
- 2.3.2 Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) Scotland currently provides advice and guidance on all aspects of infection protection and control nationally in Scotland, inclusive of expert advice and

guidance on the topic of Healthcare Associated Infections (HAI) and antimicrobial resistance.

The NHSScotland National Infection Prevention and Control Manual (NIPCM) was first published on 13 January 2012, by the Chief Nursing Officer ([CNO \(2012\)1](#)), and updated on 17 May 2012 ([CNO \(2012\)1 Update](#)).

The NIPCM provides IPC guidance to all those involved in care provision and is considered best practice across all health and care settings in Scotland.

The re-launch of the NIPCM by the CNO on 11 July 2022 emphasises the ongoing importance of application of Infection Prevention and Control (IPC) guidance within health and care settings across Scotland.

The authority of guidance produced by National Services Scotland (NSS) and other national organisations e.g. Healthcare Improvement Scotland is best described by the definitions outlined below (SHTM 00 – Best practice guidelines for healthcare engineering):

Regulations are law, approved by Parliament. These are usually made under the Health and Safety at Work etc Act following proposals from the Health & Safety Commission. Regulations identify certain risks and set out specific actions which must be taken.

Approved Codes of Practice give advice on how to comply with the law by offering practical examples of best practice. If employers follow the advice, they will be doing enough to comply with the law.

Approved Codes of Practice have a special legal status. If employers are prosecuted for a breach of health and safety law, and it is proved that they did not follow the relevant provisions of an Approved Code of Practice, they will need to show that they have complied with the law in some other way, or a court will find them at fault.

Standards (British or European), institutional guides and industry best practice play a large part in how things should be done. They have no direct legal status (unless specified by Regulations). However, should there be an accident, the applied safety practices at the place of work would be examined against existing British or European Standards. It would be difficult to argue in favour of an organisation where safety was not to the described level.

Guidance is issued in some cases to indicate the best way to comply with Regulations, but the guidance has no legal enforcement status.

2.3.3 Whilst guidance is deemed not compulsory by the Health and Safety Executive (HSE), where compliance with guidance is specified in a contract, as is the case here, it becomes a contractual requirement. Therefore, any permitted deviation from it would be expected to follow a formal process with input from all relevant parties, with clarity around how the outcome was reached, including risk assessments where appropriate and sign off by all those authorised to approve it.

2.4 Project Technical Outline Summary

A mixture of natural and mechanically ventilated spaces is provided throughout the building. Mechanical ventilation plant such as air handling units (AHUs) and fans are generally located externally at roof level.

Low temperature hot water (LTHW) is generated from 2 no. air source heat pumps (ASHP) located externally within a plant compound at roof level, serving 5no. thermal stores located within a dedicated plant space on the lower ground floor. The LTHW serves radiant panels, heater batteries, underfloor heating (UFH) circuits and AHU frost coils.

The incoming mains water supply is derived from the Scottish Water main on East Wellington Street.

The cold-water services system consists of a bulk raw cold-water storage tank, filtration system and filtered bulk water tank, associated packaged booster sets, and a chlorine dioxide system. The water tanks and associated ancillary plant including filters and boosters are located within a dedicated plantroom on the lower ground floor. The domestic cold-water is distributed below ground to multiple risers to help maintain water temperatures.

Hot water is generated locally via electric point of use (POU) water heaters. There is no central hot water system or central hot water storage.

Above ground drainage (foul) is provided throughout the facility via a gravity system consisting of several primary, ventilated stacks distributed around the building, connecting to the new below ground drainage serving the facility. Most stacks are ventilated to atmosphere, with only a few stub-stacks at ground floor proposed.

Refrigerant based direct expansion (DX) cooling systems provide cooling to the Comms Rooms, Dispensary, Gym and AHU cooling coils.

Medical gas systems include 5.5 bar dental air, dental suction and anaesthetic gas scavenging to serve 6 no. dental rooms on level two. The dental air generation is via a combined compressor / dryer unit located within a dedicated internal plantroom on level two, with air intake via a roof mounted windcatcher. Gas scavenging and suction plant is provided to each dental treatment room, venting through the roof.

A building management system (BMS) including all controls and cabling is provided within the building. The BMS integrates and interfaces with all mechanical, electrical and public health (MEP) systems and other clinical support systems.

A new low voltage (LV) supply for the building is derived direct from the local Scottish Power Energy Networks (SPEN) infrastructure. A dedicated SPEN sub-station is located within the car park adjacent to the building. The LV supply from the sub-station is routed below ground into the LV switch room at lower ground floor level where it terminates into the main LV switchboard. LV sub-main distribution within the building is a combination of direct armoured cable supplies and rising main busbar

within the risers. No permanent standby generator is provided for the building, however there is infrastructure provision for connection to a temporary mobile generator.

An Uninterruptible Power Supply (UPS) system has been provided within the building to provide emergency power to the evacuation lifts during a power outage.

LED lighting is provided throughout the facility. Emergency lighting is also provided throughout the building, with local battery packs utilised to provide three-hour emergency lighting in the event of a loss of mains power.

A Category L1 fire detection and alarm system to BS5839-1 is provided within the facility, with the main control panel located at the main ground floor entrance.

Security systems are provided, which includes CCTV, access control, staff attack and intruder alarm.

A structured cabling system is provided throughout the new facility with cabling routed to comms cabinets located within dedicated server rooms.

A lightning protection system is installed which utilises the building structure.

Electric vehicle charging outlets are provided in the external car park.

3. KSAR Review Summary

The following narrative relates directly to the construction KSAR workbook and the evidence indicated therein. The comments associated with the points are because of the evidence presented by the Board and their advisors during the review process.

3.1 Project Governance and General Arrangements

3.1.1 Project Governance and General Arrangements KSAR Observations

Workbook Ref No.	Areas to probe	Evidence expected
1.1	Has suitable plans and documentation been put in place for the project to manage and monitor Quality Management and Assurance?	Project Quality Plan Inspection and Test Plans Inspection and Test Schedule/Register
<p>NHS Scotland Assure Observations: A number of reports have been provided from the technical advisor / quality monitor which provides assurance that quality is being monitored and managed on the project.</p> <p>A quality management plan (QMP) has been provided by the contractor and details how inspections and test plans will be managed on the project. This states that a risk inspection and test schedule containing a list of all the project risk inspections and test plans (ITP's) is required in order to manage project stage quality risks.</p> <p>NHSSA would however note that the QMP provided is dated October 2022 and would recommend that all QMPs on the project are regularly updated and issued to the project team for review and comment. No evidence has been provided of NHSGGC comment / approval of this document.</p> <p>Documents referenced are: <i>NEH-BAM-XX-XX-PL-W-00001-Quality Management Plan</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
1.2	Has suitable arrangements been implemented on the project for document control processes for Quality Assurance and Management?	Process for ensuring latest drawings approved and used. Processes for ensuring latest specification and details approved and used.

		<p>Approach to management of non-conformances.</p> <p>Approach to change management control.</p> <p>Document management recording and structure.</p>
<p>NHS Scotland Assure Observations:</p> <p>NHSGGC has provided a BIM 360 user guide which is the tool being utilised on the project to manage project documentation. This document sets out the folder structure requirements and details how project information will be managed.</p> <p>Assurance has been provided that the change control process is being managed on the project and has been demonstrated via an authority change notice (ACN) / governance paper by NHSGGC requesting approval by the project board. Meeting minutes have also been provided from an executive steering group meeting which shows a number of ACN's 's being approved by the health board.</p> <p>The process for ensuring the latest approved drawings is also documented on the BAM PDMP noting that all drawings should be uploaded to the CDE (BIM 360) for review, comment and approval. Assurance has been provided that the design team is reviewing, commenting and approving latest CDP documents / specifications on BIM 360 however here is a lack of assurance of NHSGCC input into this. Video evidence has been provided showing a specific example of how non-conformances are being raised, tracked and closed out on BIM 360. The issues shown have been raised by various parties on the project and demonstrates quality assurance and collaboration between the parties in relation to non-conformances.</p> <p>Documents referenced are:</p> <p><i>Paper 2 for ESG approval of ACN 9 - Low Level Ventilation-collated</i> <i>NEH-BAM-XX-XX-PL-W-00001-Project Design Management Plan</i> <i>NEH-P53-XX-XX-PROJECT PLAN- V3 including appendices</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
1.3	How has the Health Board approached Quality Assurance on the project to ensure processes and procedures are being adhered?	Evidence of regular Quality Assurance audits / reports undertaken on the project.

NHS Scotland Assure Observations:

NHSGGC have provided assurance that quality processes and procedures are being adhered. NHSGGC has provided numerous site inspection reports carried out by the quality monitors for the project. This demonstrates that quality inspections are being carried out regularly for both building fabric and MEP with the reports being issued to the contractor and NHSGGC.

As noted above in 1.2 a specific example has been provided in relation to a quality observation raised by NHSGCC estates, however no definitive assurance has been provided for observations being raised by the quality monitor and the status of these on BIM 360.

Comments noted within the MEP quality monitors reports note that MEP designer drawings are being used to review the MEP installation on site and not MEP sub-contractor drawings. NHSGGC to evidence that the correct / approved drawings are being used to review the works on site.

Documents referenced are:

QM MEP Inspection Report - 08 NHS North East Hub 03.08.2023
QM Inspection Report - 60 NHS North East Hub 31.05.2023
QM MEP Inspection Report - 03 NHS North East Hub 25.05.2023
QM MEP Inspection Report - 04 NHS North East Hub 08.06.2023
QM MEP Inspection Report - 05 NHS North East Hub 22.06.2023
QM MEP Inspection Report - 06 NHS North East Hub 06.07.2023
QM MEP Inspection Report - 07 NHS North East Hub 20.07.2023
QM MEP Inspection Report - 08 NHS North East Hub 03.08.2023
QM MEP Inspection Report - 09 NHS North East Hub 17.08.2023
QM MEP Inspection Report - 10 NHS North East Hub 31.08.2023
QM MEP Inspection Report - 11 NHS North East Hub 14.09.2023
QM MEP Inspection Report - 12 NHS North East Hub 28.09.2023
QM MEP Inspection Report - 13 NHS North East Hub 12.10.2023
QM MEP Inspection Report - 14 NHS North East Hub 26.10.2023

Workbook Ref No.	Areas to probe	Evidence expected
1.4	How does the Health Board assure itself that Testing and Commissioning of services and systems have / are being developed and put in place to meet the project needs?	Evidence of Testing and Commissioning monitoring / witness of tests. Evidence of Testing and Commissioning review of results. Evidence of Testing and Commissioning acceptance of results. Testing and Commissioning programme.

		<p>Plans have / are being developed for collating information and documents.</p> <p>Have additional checks (external parties) been carried out to review the Contractors T&C's proposed plans.</p>
<p>NHS Scotland Assure Observations:</p> <p>NHSGGC have provided assurance that plans are in place for the testing and commissioning of services on the project. A detailed commissioning programme has been provided showing these activities taking place between January to July 2024 however the programme does not provide any information on pre-commissioning activities. There is a one-week duration shown on the programme for “client familiarisation”, which includes activities for training for FM staff and familiarisation for building users. A series of checklists from both the principal contractor and the plumbing contractor have also been provided by NHSGGC in response to the KSAR. This provides assurance a process is in place for the contracting team to self-check the installation ahead of testing and commissioning.</p> <p>A 14-week period has been allocated towards the end of the programme for handover of all documentation which will include testing / commissioning certification and as-fitted drawings.</p> <p>A witnessing summary document has been provided detailing the witnessing process and the parties that will be involved when commissioning the systems on the project. This provides assurance that the relevant parties are all providing input and engagement into this process.</p> <p>A commissioning plan and specification document has been provided from the commissioning manager on the project. This details how the commissioning process will be facilitated, the key people that will be involved and their roles and responsibilities.</p> <p>Documents referenced are: <i>NEH commissioning plan & specification</i> <i>Hub West Scotland NHS GGC Testing and Commissioning Programme (PC Comments) (003)</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
1.5	How does the Health Board assure itself that the management of defects have / are being developed and put in place to meet the project needs?	<p>Systems and process for recording and management defects.</p> <p>Process for the rectification and close out of defects prior to handover.</p> <p>Plans have / are being developed for collating information and documents.</p>

NHS Scotland Assure Observations:

Overall, there is a lack of assurance of how all defects and observation are being managed. As noted in 1.3 the overall status of quality observations (Circa 3500 raised) on the project has not been fully demonstrated by NHSGCC therefore lack of assurance around defects close out. NHSSA queried within the weekly progress meetings how close out of defects would be managed at pre-handover. NHSGCC confirmed that specific areas within the building would be snagged with all issues captured on BIM 360 and addressed before this was then offered up to the quality monitors for inspection. This provided assurance that there are plans / procedures in place for how this process will be managed at pre-handover stage.

There is a lack of assurance that the project quality plan fully documents the processes noted above in relation to defects management.

Documents referenced are:

NEH-BAM-XX-XX-PL-W-00001-Quality Management Plan

Workbook Ref No.	Areas to probe	Evidence expected
1.6	How does the Health Board assure itself that the management of the Handover process have / are being developed and put in place to meet the project needs?	Soft Landings process Plans have / are being developed for collating as installed information and documents.

NHS Scotland Assure Observations:

Assurance has been provided by NHSGCC that the handover processes are being put in place and managed on the project. A soft landings terms of reference has been provided which identifies the soft landings champion for the project and confirms that the soft landings group reports to the project board and executive steering group.

Two sets of minutes from soft landings meetings have been provided dated 12/04/23 and 08/06/23. When the minutes for these meetings were discussed during the governance workshop NHSGCC confirmed that the soft landings group had only focussed on technical matters so far however would need to focus on operational issues going forward. It was also noted that a dedicated person from HSCP was going to be joining the project to help manage this process.

A NHSScotland soft landings interactive tool has been provided which defines the outputs required during the construction stage on the project. This includes activities such as migration planning, operational readiness programme, building user guides, processes for client training and demonstrations and risk and opportunities register.

A completion criteria document has been provided which fully details testing / commissioning information that needs to be provided prior to project completion.

Documents referenced are:

MEP & Soft Landings Parkhead Minute 12 04 23

MEP & Soft Landings Parkhead Minute 08 06 23

NEH - ME and SL Group ToR -V1 Dec22

NHS soft-landings-interactive-tool-v01

Workbook Ref No.	Areas to probe	Evidence expected
1.7	How does the Health Board assure itself that the works are following the procedures as laid out in HAISCRIBE?	<p>Evidence that the Contractor in charge of the works has read, understood and signed the HAISCRIBE.</p> <p>Evidence that Infection Control have carried out interim site inspections at points where setting out of the rooms are underway to pick up implications of any Contractor's onsite adjustments.</p> <p>For works inside of or adjacent to healthcare spaces which are in use, evidence that a task specific HAISCRIBE has been produced and that compliance is monitored by the Board.</p>

NHS Scotland Assure Observations:

Assurance has been provided regarding the HAISCRIBE process and approval has been completed for full business case (FBC) and construction phases and signed by project team members, IPC and construction representatives. A statement of intent has also been provided and is signed by the contractor representative. Both stage 2 and stage 3 HAISCRIBE assessments were provided for review as part of the KSAR however there are some responses where clarification has been requested by NHSSA and remains outstanding. NHSGGC did provide assurance regarding the risk assessments and mitigations taken by the board to manage HAI risk to the adjacent health centre throughout the construction phase.

Assurance was provided noting an IPC nurse and consultant microbiologist attendance at a site visit when the sample rooms were ready for inspection as well as input into an associated action tracker to ensure rectifications for the rooms are complete. Confirmation was provided by NHSGGC at the IPC workshop of 23 November 2023 that NHSGGC IPC colleagues will be invited to regular planned walk rounds of the facility to capture IPC risks until completion of the project.

Documents referenced are:

*HAI-SCRIBE - NEH Construction Phase Rev. A -collated
 Stage 1&2 HAI-SCRIBE - NEH Construction Phase 1
 Email NEH Business Manager
 Sample Room Action Tracker, rev. 1, 021123*

Workbook Ref No.	Areas to probe	Evidence expected
1.8	How does the Health Board continue to assure itself that the clinical needs of the facility are clearly understood by each section of the client organisation?	<p>Updated description of each department of the facility review process evidenced.</p> <p>All specifications are being related back to the Portfolio Document (PD).</p> <p>An updated and live Derogation document.</p>

NHS Scotland Assure Observations:

NHSGGC have provided assurance that the clinical needs of the facility are understood by the component parts of the client organisation. Evidence has been provided for various departments within the following documents: BIM modelling, security guidance, pharmacy responsibility matrix, area and occupancy responsibility matrix, IT design guidelines, acoustic performance guidelines, strategic briefs for library and digital estates. All of these have information that links back to clinical needs.

Appendix A – Signed Room Layouts includes 388 room layout drawings which have all been signed off by service leads, executive group chair and the project manager. This demonstrates that the clinical / services team are in agreement that the clinical needs are being met through the design.

Appendix J Derogations V2 has been provided and demonstrates that design derogations on the project have been signed off by the executive group chair and the project manager. It is not clear from the information what input / comment or approval the clinical team has had in relation to this. The document is also dated September 2019 and it is unclear whether any derogations have been identified since that date.

Documents referenced are:

Appendix A – Signed Room Layouts.pdf
Appendix C – Accommodation Schedule v18.pdf
Appendix D – Mechanical and Plumbing Design Matrix – v20.pdf
Appendix E – Electrical ICT and AV Design Matrix -V23.pdf
Appendix F – Finishes and Component Matrix – v22.pdf
Appendix G – Acoustic Performance Matrix – V18.pdf
Appendix H – IT Design Guidance v2.3 – November-2021.pdf
Appendix I – Arts Matrix – V2.pdf
Appendix J – Derogations V2.pdf

Appendix K – Area and Occupancy Matrix – v20.pdf
Appendix L – Library – Strategic Brief v8 – Sept 21.pdf
Appendix M – Soft Landings Guidance v01-1.0.pdf
Appendix N – Digital Estate Strategy Paper-1.0.pdf
Appendix O – Building Information Modelling Guidance v01-1.0.pdf
Appendix P – Mindful Security Guidance v01(1.0).pdf
Appendix Q – Pharmacy Responsibility Matrix
North East HUB Health Care Centre – ACRs Version 14 – Final.pdf

Workbook Ref No.	Areas to probe	Evidence expected
1.9	Are the Principal Designers regularly carrying out site inspections and providing reports to the Board and Principal Contractor?	<p>Regular (fortnightly) reports being provided to the clients' project management team, certifying installation is being provided in accordance with the CD.</p> <p>Regular comment on each of the installing contractors' quality safety plan and work delivered.</p> <p>If the Principal Designer is not employed to carry out site inspections, evidence that the Board has alternative, adequate means of design / construction quality control in place.</p>
<p>NHS Scotland Assure Observations: There is lack of assurance provided to evidence that the Principal Designer is carrying out regular reviews throughout the course of the project. As noted below one Principal Designer report has been provided dated 26/04/23. The report confirms that the construction phase plan addresses the health and safety issues on the project and that this is being updated in line with the construction programme. It is also states that at the time of the visit, health and safety is being well managed on the project and in accordance with health and safety industry standards.</p> <p>Documents referenced are: <i>NEH – PD Report_26 04 23.pdf</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
1.10	The Health Boards approach on the procurement journey with evidence of the plans on how the Board will provide assurance, particularly emphasis on the critical system identified earlier.	<p>Evidence on how this requirement is being managed and how it fits with the project governance arrangements</p> <p>Plans to identify any gaps in the procurement approach that may require to be addressed.</p> <p>Evidence on how Infection Prevention and Control are involved with the procurement approach to future plans for project.</p> <p>Evidence that the Health Boards selected procurement route has gone through the Board's Governance channels.</p>
<p>NHS Scotland Assure Observations:</p> <p>NHSGGC provided assurance on the critical system planning, uploading a document titled '2023 06 28 GGC Northeast Hub Strategy APPROVED.docx', which details the critical systems and how they are managed within the project governance arrangements for procurement. A tracker indicating risks to be monitored during this process has been included, as well as a clear indication of scope of works going forward. Additionally, consideration has been made to understand any potential gaps identified. Within the commodity strategy, the document clearly sets out expected adherence to health board procurement governance channels, however there is only limited reference to IPC within the strategy document.</p> <p>Assurance has been provided regarding IPC involvement in procurement approach. This has been co-ordinated under a service level agreement between National Procurement / NHSSA equipping team and the NHSGGC project team. The strategy document notes infection control items will be considered with reference to either the framework level requirements or within the quotation stage if not covered by a framework tender. No explanation is provided within the document as to how this process would be achieved.</p> <p>Documents referenced are:</p> <p><i>2023 06 28 NHS GGC Northeast Hub Strategy APPROVED.docx</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
1.11	Evaluation of the Health Boards commissioning plan.	<p>Evidence that the Health Board has recorded plans that are comprehensive and adequate to address the needs of the project and that they are fully resourced.</p> <p>Evidence that the Board has had all pre-commissioning checks audited and approved by an independent organisation.</p>
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance that commissioning plans are in place on the project. As noted within section 1.4, a detailed commissioning programme has been provided for the project, however this requires to be updated to show pre-commissioning activities.</p> <p>A commissionability study has been provided where comments have been raised by the designers and responded to by the MEP sub-contractor. This provides assurance that technical queries are being raised in relation to testing and commissioning and responded to the by the relevant parties. No supporting evidence to demonstrate they have been suitably addressed.</p> <p>The appointment document for the quality monitor on the project has been provided. This confirms that the quality monitor will review 100% of test results to ensure compliance with standards.</p> <p>Documents referenced are: <i>FES Commissionability R2.pdf</i> <i>Quality Monitor Appointment.pdf</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
1.12	Evaluation of the Health Boards duty holder matrix.	<p>Evidence that the Health Board have a fully recorded matrix of the required roles and responsibilities and have a clear governance structure that is fully resourced together with plans in place for the implementation.</p> <p>Evidence that Health Boards have appropriate number of competent, qualified staff to carry out specific duties throughout the life cycle of the project e.g., IPC, Engineers, Estates staff etc.</p>

		The number of competent, qualified staff will depend on the type and size of the Build Project.
<p>NHS Scotland Assure Observations: NHSGGC provided assurance of the various responsibilities and duties of staff who will be working on the project. The document titled 'North East HUB – Key roles and responsibilities_25.07.23.pdf' clearly notes all key staff involved in project execution, including relevant competencies and experience within their specific roles. Additionally, NHSGGC has included their governance arrangements, highlighting where each department responsibilities rest.</p> <p>Documents referenced are: <i>North East HUB – Key roles and responsibilities_25.07.23.pdf</i> <i>P53 Project Directory LIVE (1).pdf</i> <i>Project Governance Arrangements.pdf</i></p>		

3.1.2 Project Governance and General Arrangements: Further Observations

In addition to the points raised via the KSAR workbook above, we also include the following observations as a result of the review, all of which relate to the evidence presented during the appraisal.

3.1.2.1	There are a number observations from the FBC KSAR across all KSAR topics where assurance has not yet been provided by NHSGGC. NHSSA recommend that all observations are addressed by NHSGGC in advance of the Commissioning Stage KSAR.
3.1.2.2	Whilst some evidence of competency checks of the installation companies has been provided, no evidence has been provided to confirm competency checks of other 3rd parties (e.g. Quality Monitor, Commissioning Manager etc.) has been undertaken.

3.2 Water and Internal Plumbing / Drainage Systems

3.2.1 Water and Internal Plumbing / Drainage Systems: KSAR Observations

Workbook Ref No.	Areas to probe	Evidence expected
2.1	How does the Health Board assure itself that all plumbers are trained to understand the needs (including special requirements) for the installation of water and plumbing/drainage systems in the healthcare environment?	<p>Evidence of a vetted list of site plumbers which confirms qualifications and healthcare experience.</p> <p>Evidence that the site induction with respect to working on water and plumbing/drainage services has been developed, implemented and agreed with the Board.</p> <p>Where anyone does not have previous healthcare experience, evidence should be provided of the relevant onsite training which was provided to them before they commence work on site.</p> <p>Evidence that all contractors and sub-contractor competency checks have been completed and signed off.</p>

NHS Scotland Assure Observations:

NHSGGC have provided assurance that plumbers are trained to understand the needs for the water installations in a healthcare environment however there is no assurance provided in relation to the vetting process to be followed, the level of competency checks being undertaken, or that the competency of the sub-contractor(s) has been signed off by NHSGGC.

NHSGGC have provided assurance in relation to the skills and training of the operatives undertaking the plumbing works in the form of skills card registrations and relevant training records such as *Certificates of Training on Legionella and Microbiological Awareness in Healthcare Buildings Hot and Cold-Water Systems*, site specific inductions, pipework manufacturer training certificates and *Domestic Water Services* toolbox talks. However no evidence has been provided to confirm the operatives previous healthcare experience or that the site specific inductions have been developed, implemented and agreed with the Board.

Documents referenced are:

Plumber Skills/Register Cards (multiple)

Certificates of Pipework Manufacturer Training (multiple)

Certificates of Training on Legionella and Microbiological Awareness (multiple)

Domestic Water Services Toolbox Talk

<i>Plumbing Inductees</i>

Workbook Ref No.	Areas to probe	Evidence expected
2.2	How does the Health Board assure itself that the plumbing contracting company have the relevant experience to direct and manage their staff on the site for a healthcare environment?	<p>Evidence of similar, previous healthcare projects by the contractor.</p> <p>Evidence of site management structure.</p> <p>Evidence of HAI and SHPN 30 training.</p>
<p>NHS Scotland Assure Observations:</p> <p>NHSGGC have provided assurance that the plumbing sub-contracting company has the relevant experience to direct and manage their staff within a healthcare environment.</p> <p>It was confirmed during the KSAR technical workshops that the contracting companies are appointed through a pre-approved HUB framework, where the competency checks form part of the framework procurement process.</p> <p>The documentation provided by NHSGGC includes a capability statement from the Mechanical, Electrical and Plumbing (MEP) subcontracting company responsible for the plumbing installation that confirms their relevant healthcare experience.</p> <p>The capability statement includes multiple examples of previous healthcare projects carried out in Scotland. The management structure of the project delivery team and CVs of key personnel highlighting healthcare experience is also included within the capability statement. Furthermore, other relevant International Organisation for Standardisation (ISO) accreditations (e.g. quality; environmental; safety; energy; information security) have also been provided.</p> <p>No evidence of specific Healthcare Associated Infection (HAI) and Scottish Health Planning Note (SHPN) 30 training has been provided, however a signed <i>Contractors Endorsement Certificate / Statement of Intent</i> has been provided. This is a declaration from the principal contractor agreeing to the <i>HAI-SCRIBE (Healthcare Associated Infection System for Controlling Risk in the Built Environment) Implementation Strategy</i> as detailed in <i>SHFN 30 Parts A and B</i>. Furthermore, a <i>Development Stage 3: Construction and Refurbishment Work</i> form contained within <i>SHFN 30 Part B</i> has been completed and signed by the HAI-SCRIBE review team, which includes representation by the principal contractor.</p> <p>Documents referenced are:</p> <p><i>Capability Statement Group Healthcare 0423</i></p> <p><i>BAM Signed State of Intent</i></p> <p><i>HAI-SCRIBE – NEH Construction Phase Rev A</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
2.3	How does the Health Board ensure that the water and plumbing / drainage systems are being installed to the correct standard and reflect the agreed design?	Written and photographic, monthly evidence for the progress of work produced by a body which is independent of the contractor and which confirms compliance of the works to date.
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance they are undertaking the necessary checks to ensure that the water and drainage systems are being installed to the correct standard and reflect the agreed design.</p> <p>NHSGGC have appointed a quality monitor who are independent of the main contractor. The quality monitor carries out regular site inspections on behalf of NHSGGC. Multiple <i>MEP inspection reports</i> produced by the quality monitor have been provided for review. The reports confirm site attendance at two-week intervals from 15 May 2023 to 30 October 2023, with ongoing attendance understood to be continued to project completion.</p> <p>NHSSA would note that the reports provided in relation to the inspection of the water and plumbing / drainage systems include specific observations relative to areas, rooms and locations inspected, including supporting photographic evidence.</p> <p>However, from the evidence submitted there is no definitive assurance that the observations raised in the quality monitor reports are being raised and addressed through BIM 360.</p> <p>A series of checklists from both the Main Contractor and the plumbing contractor have also been provided by NHSGGC in response to the KSAR. This provides assurance a process is in place for the contracting team to self-check the installation ahead of testing and commissioning.</p> <p>An NHSGGC <i>Estates Site Visit Record Schedule</i> has also been provided. The schedule identifies the date and area of the building visited. An accompanying <i>Observation Tracker</i> goes into a greater level of detail, listing attendees and observations made. However there is no definitive assurance provided to confirm the observations noted by NHSGGC Estates personnel is being uploaded to BIM360.</p> <p><i>Documents referenced are:</i> <i>QM MEP Inspection Reports (14 no.)</i> <i>Domestic Water QA Draft</i> <i>Domestic Water Cut-out Report Example</i> <i>Quality Checklists (BIM 360; multiple)</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
2.4	How does the Health Board ensure that precautions are taken throughout the works to avoid open pipe ends for a period beyond the time needed to make a joint on that pipe end?	Photographic and written evidence for the progress of work produced by a body which is independent of the contractor (on a monthly basis).
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance they are taking the necessary precautions during the construction works to avoid open pipe ends.</p> <p>As noted in question 2.3, NHSGGC have appointed a quality monitor to undertake regular site inspections. The quality monitor reports capture photographic examples of material storage and installed services open ends, noting that in the most part, services are <i>'protected in accordance with NHS protocols'</i>, also highlighting any instances where pipe end protection is missing. Whilst NHSGGC confirmed during the KSAR technical workshops that observations raised within the quality monitor reports are recorded on BIM 360 there is not always a clear audit trail in place to demonstrate this protocol is being followed. NHSGGC may wish to consider how the quality monitor reports are interfaced with BIM 360 system to ensure an audit trail is provided. For example including a BIM 360 quality monitoring report appended to the main quality monitor report. Note the appendices sections within the quality monitor report provided to NHSSA were not included.</p> <p>Examples of the main contractor carrying out their own quality control checks have also been provided. Samples of BIM 360 records capture storage of pipework, and where a non-conformance has been found, highlight the process of the defect (open pipe-end) being raised by the main contractor, then closed following photographic evidence of the issue being rectified by the plumbing contractor.</p> <p>Documents referenced are: <i>QM MEP Inspection Reports (14 no.)</i> 1514_Stored pipe_06-09-23 2702_Pipe to be bagged_09-27-23</p>		

Workbook Ref No.	Areas to probe	Evidence expected
2.5	How does the Health Board ensure that water services are installed in a fashion which will provide ease of access for future maintenance?	Evidence that the contractor has presented their co-ordination drawings (BIM model) to the Board. Evidence that the contractor has presented their co-ordination drawings

		<p>(BIM model) to the design consultant and that they have agreed them for construction.</p> <p>Evidence that the contractor has presented each of the main service runs plus plant rooms to the Board's FM team.</p> <p>Evidence that the plant access strategy is being adhered too.</p>
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NHS Scotland Assure Observations:

Overall, from the evidence provided by NHSGGC assurance has been provided with respect to the water services systems being installed in a fashion which will provide ease of access for future maintenance. There are however a few areas where NHSSA have identified further assurance is required.

During the KSAR technical workshops, the Main Contractor provided a demonstration of BIM 360, confirming that all drawings are uploaded for review by the design consultant and wider team, with comments, approval status and drawing revision history also being tracked. Examples of the BIM 360 workflow including comment history and approval status was not provided to NHSSA for review.

NHSGGC also confirmed that the MEP and soft landings group, and associated workshops, are the main forum for presenting the BIM 3D model to the NHSGGC estates team and the wider stakeholders, with NHSGGC estates also having access to the model through the Principal Main Contractor. A copy of meeting minutes and a terms of reference were provided as evidence and confirm that the NHS estates team are represented in the MEP and soft landings group and attend the meetings.

Reflected ceiling plans have been provided as evidence. Demountable 1200mm x 300mm tiles are typically being installed throughout all corridors, providing access to the main horizontal services distribution within the ceiling voids. Within most rooms, 600mm x 600mm demountable tiles are being installed, again giving access to the local services within the room ceiling voids. Where plasterboard is the proposed ceiling finish, the drawings include ceiling access hatches however no evidence has been provided to confirm these arrangements have been reviewed and agreed with NHSGGC's estates personnel.

A 3D BIM model and co-ordinated riser drawings have been provided, which include layouts, sections and 3D isometric views however no co-ordinated multi-service distribution drawings have been provided for review. NHSSA would note that from the evidence provided and during the NHSSA site visit of 29 November 2023, there are some instances where corridor services distribution routes were congested and not all services / components were easily accessible. These instances primarily relate to piped services located at the side or to the rear of ductwork installations.

NHSGGC confirmed that NHS estates carry out regular site visits, with an NHSGGC estates site visit record schedule provided as evidence. The schedule identifies the

building level / zone and dates of NHS estates site visits. Additional observation trackers have also been provided, which go into a greater level of detail, listing attendees and observations made, including comments relating to access of equipment and components for maintenance.

During the KSAR technical workshops, NHSGGC confirmed that the FBC Stage *Access and Maintenance* document that was produced, is still relevant to the construction stage of the project, with no deviations or need for updates noted. However, based on the observations noted by NHSSA this may require further review by NHSGGC.

Documents referenced are:

Reflected Ceilings Plans (8 no. drawings)

Riser Coordinated Services (10 no. drawings)

231117 NHS Estates Site Visit Observations Record

231013 NHS Estates Site Visit Observations Record

231013 NHS Estates Site Visit Schedule Record

MEP Revit Model

NEH – ME & SL Group ToR – V1 Dec 22

MEP & Soft Landings Parkhead Minutes 080623

Workbook Ref No.	Areas to probe	Evidence expected
2.6	How does the Health Board ensure that water and plumbing / drainage services are installed in a fashion which will retain space for minor additions and modifications to services in the future?	<p>Evidence that the contractor has presented their co-ordination drawings (BIM model), with space for future flexibility identified, to the Board.</p> <p>Evidence that the design consultant has considered and agreed with the Board, space for future flexibility in the service installations.</p> <p>Evidence that the contractor has presented their co-ordination drawings (BIM model), with space for future flexibility identified, to the design consultant and that they have agreed them for construction.</p> <p>Evidence that the contractor has presented each of the main service runs plus plant rooms to the Board's FM team, to highlight space for future flexibility.</p>

		<p>Evidence that the Health Board has agreed a strategy (percentage) for spare capacity and a documented allowance to be incorporated into the design.</p> <p>Are plant/tank rooms, IPS sections, horizontal distribution runs and risers appropriately sized for the equipment being installed and facilitate safe adequate maintenance?</p>
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NHS Scotland Assure Observations:

NHSGGC have provided assurance that space for minor additions and modifications to services in the future has been fully agreed and allocated via the project ACR's however there is no assurance that this has been monitored during the construction phase.

As noted in question 2.5 the KSAR has highlighted that there are a small number of areas where access and maintenance is potentially restricted and it is unclear how NHSGGC are tracking this.

NHSGGC have provided an *Authority Change Notice (ACN) 029* for review. The change requests amendments to the domestic water services system, most notably, the introduction of a filtration system. This change increases the amount of equipment being located within the cold-water storage tank room, however during the KSAR technical workshop, it was confirmed that the tank room was designed to allow sufficient space for the future installation of a filtration system, therefore there is no change to the plantroom footprint.

Assurance has been provided that confirms access to services is a topic reviewed during the NHSGGC estates site visits. However, the site visit reports did not raise any concerns.

No assurance has been provided in relation to how the spare capacity for future additions noted within the ACR's (specifically within risers and horizontal distribution runs) is being monitored during the Construction stage by NHSGGC.

Construction stage *Coordinated riser* drawings have been provided as evidence however they do not highlight the agreed zone of spare capacity for future minor additions and modifications as previously noted in the FBC DRF. Although it may be possible to install additional services in some risers, spaces in other risers is restricted, with limited or no spare capacity provided. Similarly, as noted in response to question 2.5, sections of corridor ceiling void services distribution were observed during the NHSSA site visit of 29 November 2023 as being congested, again limiting any future additions or modifications.

Documents referenced are:

ACN/029 – Domestic Water System

Riser Coordinated Services (10 no. drawings)
NEH NHS Estate Visit Tracker
231117 NHS Estates Site Visit Observations Record
231013 NHS Estates Site Visit Observations Record
231013 NHS Estates Site Visit Schedule Record
NEH CDP Final Review – 280623
NE Hub CDP Track as of 250623

Workbook Ref No.	Areas to probe	Evidence expected
2.7	How does the Health Board assure itself that all plumbers materials are stored on site in an environment which protects them from deterioration and from the entry of contaminants into the parts of the component which will be in contact with the water?	Written, monthly evidence for the progress of work produced by a body which is independent of the contractor and which confirms inspection of the site storage of materials. Photographic evidence of the site storage of materials produced by a body which is independent of the contractor (on a monthly basis).

NHS Scotland Assure Observations:

NHSGGC have provided assurance via the Quality Monitor reports that they are taking the necessary precautions to ensure all plumbing materials are stored on site in an environment which protects them from deterioration and from the entry of contaminants.

The observations noted in response to question 2.4 are also applicable to this question.

Documents referenced are:

QM MEP Inspection Reports (14 no.)
1514_Stored pipe_06-09-23
2702_Pipe to be bagged_09-27-23

Workbook Ref No.	Areas to probe	Evidence expected
2.8	How does the Health Board assure itself that all pre-commissioning inspections are completed and recorded before commissioning can commence?	Evidence that adequate pre-commissioning check sheets (SHTM 04-01 Part A) have been completed and signed off. Evidence that the Health Board has had all pre-commissioning checks audited

		and approved by an independent organisation.
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NHS Scotland Assure Observations:

NHSGGC have provided assurance they are taking measures to ensure pre-commissioning inspections of the water systems will be completed and recorded prior to commissioning commencing.

Whilst the commissioning process has yet to commence, a series of checklists from the Main Contractor, currently noted as *'in progress'* on BIM 360, and an example checklist from the building services sub-contractor have been provided. This confirms a process is in place for the contracting team to self-check the installation ahead of testing and commissioning. Although the checklists are detailed in content, there are some suggested pre-commissioning checks as noted within SHTM 04-01 Part A (16.22 to 16.34) that have not been incorporated into the checklist template provided and NHSSA would recommend review by NHSGGC.

A RIBA Stage 3 commissionability review document compiled by an independent commissioning specialist, and a commissionability study carried out by the building services sub-contractor during the construction stage have been provided, also providing assurance that commissioning of systems is being considered throughout the project process. No designers commissioning brief has been provided, this was previously highlighted at the FBC KSAR. Therefore, it is unclear if this documentation has been provided to the commissioning specialist to inform their review.

During the KSAR technical workshops, NHSGGC confirmed that a commissioning manager had been appointed to manage the pre-commissioning activities, noting that they were in the process of compiling a report. NHSSA have not been provided with a copy of this report, that confirms pre-commissioning activities such as a water sampling plan etc in reference to BS 8680.

NHSGGC also confirmed that the appointed commissioning manager is independent to the main contractor, and they are employed to oversee and manage the physical commissioning activities undertaken by the main contractor and their respective sub-contractors on their behalf.

Documents referenced are:

NEH Domestic Water Pre-commissioning Checks (QA Completion Checklist)

Parkhead Stage 3 Phoenix Commissionability 25.02.21

FES Commissionability R2

QM MEP Inspection Reports (14 no.)

Quality Checklists (BIM 360; multiple)

Workbook Ref No.	Areas to probe	Evidence expected
2.9	How does the Health Board assure itself that all variations which may be required to water and plumbing and drainage systems after tender are investigated and agreed by all parties before they are instigated?	Evidence that the each variation / derogation has a detailed technical analysis and has been referred to the Board and agreed with their water management group, clinical, Estates, infection control and FM teams.
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance they have processes in place to deal with variations to the water and drainage systems.</p> <p>Evidence provided includes a specific example of a construction stage variation to design for the future installation of a water filtration system. A technical design note, Authority Change Notices (ACN-010) variation enquiry, signed and approved cost estimates, and signed variation confirmation notice from NHSGGC authorising the change are included as evidence. ACN-029 was later provided as evidence, superseding ACN-010, with the filtration system now being designed for installation during the current construction stage.</p> <p>Minutes from an <i>North East Hub (NEH) Executive Steering Group</i> meeting provides further evidence that the post tender change process is being followed. The minutes confirm the ACN has been presented, reviewed and approved at this meeting by the NHSGGC Executive Steering Group.</p> <p>A <i>Variation Register</i> has also been provided by NHSGGC as part of their KSAR response. The register tracks the status of all ACN's and contract changes. Each variation has a specific reference, description, notes the dates of the variation being raised and when it is issued to the various parties, response dates, any additional comments, and the status / acceptance of the variation.</p> <p>An <i>MEP & Soft Landings Group Terms of Reference</i> document has been provided by NHSGGC. This group report to the project board and executive steering group, and the document confirms one their responsibilities is to '<i>provide input and technical advice of proposed derogations</i>'.</p> <p>Documents referenced are: <i>P53 Variation Register_240923</i> <i>P53 Variation Register_151123</i> <i>NEH – ME & SL Group ToR – V1 Dec 22</i> <i>Appendix J – Derogations V2</i> <i>Water Filtration ACN (multiple associated documents)</i></p>		

3.2.2 Water and Internal Plumbing / Drainage Systems: Further Observations

In addition to the points raised via the KSAR workbook above, we also include the following observations as a result of the review, all of which relate to the evidence presented during the appraisal.

3.2.2.1	<p>Emergency Flushing Valves</p> <p>Multiple end of line flushing valves are proposed as a means of drawing water through the system to maintain the water temperature below 20°C. The control of the operation is manual via the BMS, which monitors the water temperature and raises an alarm for the operator.</p> <p>Although the reasoning for the flush valves is understood, it is unclear if the proposal has been discussed and agreed with the various stakeholders, including estates, AE/AP, IPC, water safety group etc.</p>
3.2.2.2	<p>Strainers</p> <p>Review of the water schematics highlighted the proposed use of strainers throughout the cold-water system. SHTM 04-01 Part A clause 9.56 states that strainers 'should be removed after commissioning has been satisfactorily completed'.</p> <p>This was highlighted during the KSAR technical workshop and was also discussed on-site during the NHSSA site visit of 29 November 2023, with strainers noted as already being installed in multiple locations, particularly within typical pipework arrangements serving all WHBs as part of the warranty requirements for the point of use water heaters. NHSGGC estimated 200-300 strainers have been installed. There is no supporting evidence to confirm that the Water Safety Group have reviewed this.</p>
3.2.2.3	<p>Chlorine Dioxide Dosing</p> <p>ACN-029 includes the introduction of a chlorine dioxide dosing system, however no evidence has been provided to confirm any requirements or impacts this may have on the system materials including pipework, valves etc.</p>
3.2.2.4	<p>Expansion Vessels/Water Booster Hydraulic Accumulator</p> <p>It is unclear from the documents provided if expansion vessels/hydraulic accumulators being installed are flow through type to avoid stagnation and introducing a potential for Legionella colonisation (see SHTM 04-01, clause 8.22)</p>

3.3 Ventilation

3.3.1 Ventilation: KSAR Observations

Workbook Ref No.	Areas to probe	Evidence expected
3.1	How does the Health Board assure itself that all duct and plant installers are trained to understand the needs (including special requirements) for the installation of ventilation systems in the healthcare environment?	<p>Evidence of a vetted list of duct and plant installers which confirms qualifications and healthcare experience.</p> <p>Evidence that the site induction with respect to working on ducts and plant services has been developed, implemented and agreed with the Board.</p> <p>Evidence that all contractors and sub-contractor competency checks have been completed and signed off.</p>
<p>NHS Scotland Assure Observations: NHSGGC has not provided assurance that all duct and plant installers are trained to understand the needs for the installation of ventilation systems in a healthcare environment. There is also no assurance that the health board has vetted the site duct and plant installers and their relevant healthcare sector experience.</p> <p>As part of the NHSGGC KSAR response, no evidence was provided in relation to the qualifications and healthcare experience of the project ductwork and plant installers – only the Main Contractor and services sub-contractor (in the form of Certificates of Attendance (9 no.) at a half day <i>Healthcare Ventilation Construction Awareness Workshop – Begin with the End in Mind</i> have been provided). It is unclear from the evidence provided whether representatives from the ductwork installation contractor attended.</p> <p>NHSGGC demonstrated a toolbox talk document is in place for ventilation operatives, however there is no supporting attendance register to demonstrate who has undertaken this. There is also no assurance that project specific induction processes are in place with respect to the ventilation installation that has been developed, implemented and agreed with the Board.</p> <p>Documents referenced are: <i>BENG TB Talk NHS - SHTM 03-01 Part A – Ventilation Installation Standards</i> <i>SHTM 03-01 Part A – Ventilation Installation Standards</i> <i>Healthcare Ventilation Workshop Certificate of Attendance (9 no.)</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
3.2	How does the Health Board assure itself that the ventilation contracting company and their plant installers have the relevant experience to direct and manage their staff on the site for a healthcare environment?	<p>Evidence of similar, previous healthcare projects by the contractor.</p> <p>Evidence of site management structure.</p>

NHS Scotland Assure Observations:

NHSGGC have provided assurance that the ventilation contracting company and their plant installers have the relevant experience to direct and manage their staff within a healthcare environment.

As noted in question 2.2, NHSGGC confirmed during the KSAR technical workshops that the contracting companies are appointed through a pre-approved HUB framework, where the competency checks form part of the framework procurement process.

The documentation provided by NHSGGC includes an organisation chart of the ventilation contracting company, detailing the site management structure for the project.

Although no evidence is provided of the ventilation contracting companies' previous healthcare projects, the ventilation sub-contracting companies contract managers CV has been included, confirming previous experience on multiple healthcare projects in Scotland. A CV has also been provided for a member of a ventilation sub-contracting company, again confirming previous experience on healthcare projects, although it is unclear what the individual's role is within the project's ventilation installers site management structure.

Documents referenced are:

Brankin – Organogram

Lee Heggie – CV

J Henderson 2023

Workbook Ref No.	Areas to probe	Evidence expected
3.3	How does the Health Board ensure that the ventilation systems are being installed to the correct standard and reflect the agreed design?	Written, monthly evidence for the progress of work (including photographs) produced by a body which is independent of the contractor and which confirms compliance of the works to date.

NHS Scotland Assure Observations:

NHSGGC have provided assurance they are undertaking the necessary checks to ensure that the ventilation systems are being installed to the correct standard and reflect the agreed design.

The observations noted in response to question 2.3 apply to this question with respect to ventilation systems.

Assurance was provided in the form of quality monitor and NHSGGC estates inspections and reports, with quality checks being carried out by the principal contractor and ventilation contractor, and the appointment of an independent commissioning manager.

Furthermore, a *Risk Assessment Method Statement* for the *Ductwork Installation* has also been provided by NHSGGC. This captures the ventilation contractors understanding of the project, and sets-out their sequence and method of work including preparation and planning, installation of ductwork and supporting documentation to which the install shall comply with. The document also confirms that both the Main Contractor and MEP sub-contractors have reviewed the method statement.

Documents referenced are:

Ventilation QA Draft

Ductwork Installation Review (Risk Assessment/Method Statement)

QM MEP Inspection Reports (14 no.)

Workbook Ref No.	Areas to probe	Evidence expected
3.4	How does the Health Board ensure that precautions are taken throughout the works to avoid open duct or plant ends for a period beyond the time needed to make a joint on that duct / plant end?	Photographic and written evidence for the progress of work produced by a body which is independent of the Contractor (on a monthly basis).

NHS Scotland Assure Observations:

NHSGGC have provided assurance they are taking the necessary precautions during the construction works to avoid open duct and plant ends.

The observations noted in response to question 2.4 apply to this question with respect to ventilation systems.

Assurance was provided in the form of quality monitor and NHS estates inspections and reports, quality checks being carried out by the principal contractor and ventilation contractor, and non-conformances recorded through BIM 360.

Photographic evidence of ventilation installation and material storage is contained within the *Quality Monitor MEP Inspection Reports* produced by the quality monitor. The reports capture examples of installation and storage of ductwork sections, attenuators, grilles and a roof top extract fan, generally stating that most are '*protected in accordance with NHS protocols*', however, did note '*minor damage was noted to several protective wrappings*' associated with the ductwork. Whilst the report notes examples of observations raised there is no evidence to provide assurance that any remedial works or corrective actions to resolve these items has been addressed.

Samples records of storage of ductwork materials have also been created by the principal contractor, logging the quality observations (dated 9 June 2023) on BIM 360. The photographs show material stored off ground / floor level and wrapped / bagged within designated storage areas on the floorplates.

As noted in response to question 3.3, a *Risk Assessment Method Statement* for the *Ductwork Installation*, which has been reviewed by both the principal and building services sub-contractors, has also been provided. The following applicable points are captured within the method statement:

- *All ductwork delivered will be bagged off and remain bagged off at all times during the installation.*
- *Ductwork VCD's, SFD's stored on site must be covered at all times, in a clean dry area by BAM / FES and as per TR19. Tarpaulins will be used to keep this material and equipment covered daily.*
- *All ductwork will be internally cleaned prior to sub assembly and installation, this will be done by using dry cloths to wipe away any small amount of dust from site.*
- *As duct installation progresses all open spigot ends will be capped off with heavy-duty polythene sheet and taped.*
- *All open ends to be sealed at the end of every shift and any ductwork including VCD's / SFD's being stored must be covered with a tarpaulin at all times.*

It was apparent during site visits carried out by NHSSA on 27 July 2023 and 29 November 2023, that both the Ventilation Contractor and Main Contractor have a process in place to manage the ventilation installation however a small number of open-end ducts missing protection were identified whilst on site.

There were however several instances where damage to the duct protection was observed, the majority of which were located externally where weather damage was the obvious reason and challenge. The intent to protect open duct ends was however clear.

Documents referenced are:

QM MEP Inspection Reports (14 no.)
 1674_Storage and erecting of Ventilation ductwork_06-09-23
 2701_Good practice ductwork storage_09-27-23
 NEH-FES-XX-XX-MS-M-00004 Ductwork Installation REVIEW

Workbook Ref No.	Areas to probe	Evidence expected
3.5	How does the Health Board ensure that ventilation services are installed in a fashion which will provide ease of access for future maintenance?	<p>Evidence that the Contractor has presented their co-ordination drawings (BIM model) to the Board.</p> <p>Evidence that the Contractor has presented their co-ordination drawings (BIM model) to the Design Consultant and that they have agreed them for construction.</p> <p>Evidence that the Contractor has presented each of the main service runs plus plant rooms to the Board's FM team.</p> <p>Safe and adequate access has been provided.</p>

NHS Scotland Assure Observations:

Overall, from the evidence provided by NHSGGC assurance has been provided with respect to the ventilation systems being installed in a fashion which will provide ease of access for future maintenance. The observations noted in response to question 2.5 apply to this question with respect to ventilation systems. There are however a few areas where NHSSA have identified further assurance is required.

NHSGGC estates noted within minutes from an *MEP & Soft Landings Group* meeting held on 8 June 2023 that NHSGGC estates have concerns regarding access to some of the installed smoke fire dampers (SFD's). Whilst the Main Contractor has confirmed that a video will be provided to show access is possible to all dampers posing a concern no evidence has been provided to confirm this observation has been addressed and closed out by NHSGGC estates.

A sample (4 no.) of ductwork fabrication drawings have been provided as evidence. Review of the drawings confirm inspection doors in the ductwork are being provided to allow access for ductwork cleaning and inspection of key inline ventilation components. The accessibility to the inspection doors is however less clear. Although demountable ceiling grid tiles allow access to the void space, there were instances noted during the NHSSA site visit on 29 November 2023 of some inspection doors appearing difficult to access due to the installation of other services within close proximity.

As noted in response to question 2.3, NHSGGC Estates are regularly attending site to review the installation progress and raising any concerns regarding access to services and components however there is a lack of assurance around how any concerns raised by NHSGGC Estates are recorded, tracked/monitored and closed out through the use of the BIM 360 protocol.

Documents referenced are:

Ductwork Fabrication drawings (4no.)

Reflected Ceilings Plans (8no. drawings)

Riser Coordinated Services (10no. drawings)

231117 NHS Estates Site Visit Observations Record

231013 NHS Estates Site Visit Observations Record

231013 NHS Estates Site Visit Schedule Record

MEP Revit Model

Workbook Ref No.	Areas to probe	Evidence expected
3.6	How does the Health Board ensure that ventilation services are installed in a fashion which will retain space for minor additions and modifications to services in the future?	<p>Evidence that the contractor has presented their co-ordination drawings (BIM model), with space for future flexibility identified, to the Board.</p> <p>Evidence that the design consultant has considered and agreed with the Board, space for future flexibility in the service installations.</p> <p>Evidence that the contractor has presented their co-ordination drawings (BIM model), with space for future flexibility identified, to the design consultant and that they have agreed them for construction.</p> <p>Evidence that the contractor has presented each of the main service runs plus plant rooms to the Board's Estates team and / or, to highlight space for future flexibility.</p> <p>Evidence that the ventilation solution has been agreed with clinical and IPC colleagues.</p> <p>Evidence that the Board has agreed a strategy (percentage) for spare capacity</p>

		<p>and a documented allowance to be incorporated into the design.</p> <p>Are plant rooms, horizontal distribution runs and risers appropriately sized for the equipment being installed and facilitate safe adequate maintenance?</p>
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance that space for minor additions and modifications to services in the future has been fully agreed and allocated via the project ACR's however there is no assurance that this has been monitored during the construction phase.</p> <p>The observations noted in response to questions 2.6 and 3.5 are also applicable to this question.</p> <p>Documents referenced are: <i>Riser Coordinated Services (10 no. drawings)</i> <i>NEH NHS Estate Visit Tracker</i> <i>231117 NHS Estates Site Visit Observations Record</i> <i>231013 NHS Estates Site Visit Observations Record</i> <i>231013 NHS Estates Site Visit Schedule Record</i> <i>NEH CDP Final Review – 280623</i> <i>NE Hub CDP Track as of 250623</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
3.7	How does the Health Board assure itself that all ventilation materials are stored on site in an environment which protects them from deterioration and from the entry of contaminants into the parts of the component which will be in contact with the air flow?	<p>Written and photographic, monthly evidence for the progress of work produced by a body which is independent of the contractor and which confirms inspection of the site storage of materials.</p> <p>Photographic evidence of the site storage of materials produced by a body which is independent of the contractor (on a monthly basis).</p>
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance they are taking the necessary precautions to ensure all ventilation materials are stored on site in an environment which protects them from deterioration and from the entry of contaminants.</p> <p>The observations noted in response to question 3.4 are also applicable to this question.</p>		

Documents referenced are:

QM MEP Inspection Reports (14 no.)

1674_Storage and erecting of Ventilation ductwork_06-09-23

2701_Good practice ductwork storage_09-27-23

Workbook Ref No.	Areas to probe	Evidence expected
3.8	How does the Health Board assure itself that all pre-commissioning inspections are completed and recorded before commissioning can commence?	<p>Evidence that adequate pre-commissioning check sheets (CIBSE, BSRIA) have been completed and signed off.</p> <p>Evidence that the Board has had all pre-commissioning checks audited and approved by an independent organisation.</p>

NHS Scotland Assure Observations:

NHSGGC have provided assurance they are taking measures to ensure pre-commissioning inspections of the ventilation systems will be completed and recorded prior to commissioning commencing.

The observations noted in response to question 2.8 apply to this question with respect to ventilation systems.

NHSGGC provided an example of the pre-commissioning checklist they plan to utilise on the project, however due to current stage of activity on site this has not yet been populated. Some of the pre-commissioning checks in SHTM 03-01 Part A (18.18 to 18.28) have not been incorporated into the checklist template provided and would merit further review by NHSGGC.

Documents referenced are:

NEH Ventilation pre-commissioning checks

Parkhead Stage 3 Phoenix Commissionability 25.02.21

FES Commissionability R2

Workbook Ref No.	Areas to probe	Evidence expected
3.9	How does the Health Board assure itself that all variations which may be required to ventilation systems after tender are investigated and agreed by	Evidence that each variation / derogation has a detailed technical analysis and has been referred to the Board and agreed with their clinical, Estates, infection control and FM teams.

	all parties before they are instigated?	
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance they have processes in place to deal with variations to the ventilation systems.</p> <p>The observations noted in response to question 2.9 apply to this question with respect to ventilation.</p> <p>Evidence provided includes a specific example of a variation associated with low level ventilation. Although the ventilation system was designed and approved to SHTM 03-01 2014, NHSGGC carried out a review of the latest SHTM 03-01 (2022) to understand possible implications to the design should the current guidance be followed. As a result of the review, an ACN was raised in relation to low level ventilation. The ACN details the reason for the proposed change, complete with accompanying drawings, estimated costs, and NHSGGC approval.</p> <p>Documents referenced are: <i>NEH Exec Steering Group Minute 060623</i> <i>Paper 2 for ESG approval of ACN 9 – Low Level Ventilation</i> <i>P53 ACN09 Pt 2 (low level vent)</i> <i>SHTM 03-01 2022 Design Implications – R2</i> <i>P53 Variation Register_240923</i> <i>P53 Variation Register_151123</i></p>		

3.3.2 Ventilation: Further Observations

In addition to the points raised via the KSAR workbook above, we also include the following observations as a result of the review, all of which relate to the evidence presented during the appraisal.

3.3.2.1	<p>Fire Smoke Damper Installation Details No evidence of installation details or test certification (declaration of performance, test reports etc.) has been provided for review, for the fire smoke dampers being installed on site.</p>
3.3.2.2	<p>Fire Smoke Damper Installation Inspection & Test Sheets The fire smoke damper installation is currently ongoing; however no evidence has been provided to confirm how the fire smoke damper installation is being monitored and inspected including how inspection and test sheet certification is collated and recorded.</p>
3.3.2.3	<p>Heater Battery within Treatment Rooms A low temperature hot water (LTHW) heater battery is shown on the ventilation drawings within treatment and consulting rooms. This is not in accordance with the recommendations of SHTM 03-01 2013, clause</p>

4.71 & 4.72, which states in relation to LTHW heater batteries *'In any event, to facilitate maintenance access, they should be located above corridors or other non-critical areas and never above patient occupied spaces.'* No derogation and/or supporting risk assessment has been provided.

3.4 Electrical

3.4.1 Electrical: KSAR Observations

Workbook Ref No.	Areas to probe	Evidence expected
4.1	How does the Health Board assure itself that all electricians are trained to understand the needs (including special requirements) for the installation of electrical systems in the healthcare environment?	<p>Evidence of a vetted list of site electricians which confirms qualifications and healthcare experience.</p> <p>Evidence that the site induction with respect to working on electrical services has been developed, implemented and agreed with the Board.</p> <p>Evidence that all contractors and sub-contractor competency checks have been completed and signed off.</p>
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance that electrical systems installers are trained to understand the needs for the installation of electrical systems in the healthcare environment, however there is no assurance provided in relation to the vetting process to be followed, the level of competency checks being undertaken, or that the competency of the sub-contractor(s) has been signed off by NHSGGC.</p> <p>The observations noted in response to question 2.1 apply to this question with respect to the electrical systems.</p> <p>A signed off competency checklist has been provided for the electrical subcontractors LV AP.</p> <p>Documents referenced are: <i>18th Edition Training Register</i> <i>Capability Statement Group Healthcare 0423</i> <i>Competency Checklist</i> <i>ESM CPD</i> <i>John Robertson</i> <i>Level 3 Initial Verification</i> <i>NEH Access and Attendance – Detailed</i> <i>NEH Inductee Richard Wiseman – FES</i> <i>T9.1 Safety Training CPD Cert</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
4.2	How does the Health Board assure itself that the electrical contracting company have the relevant experience to direct and manage their staff on the site for a healthcare environment?	<p>Evidence of similar, previous healthcare projects by the contractor.</p> <p>Evidence of site management structure.</p> <p>Electricians completed approved current BS 7671 training course.</p> <p>Evidence that commissioning contractors have completed relevant test and commissioning courses.</p> <p>Evidence of trained operatives (AP and CP) to SHTM 06-02.</p>
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance they have undertaken the necessary checks to confirm the electrical contracting company has the relevant experience to direct and manage their staff within a healthcare environment.</p> <p>The documentation provided by NHSGGC includes evidence of similar healthcare project experience by the electrical contracting company. The evidence also provides an organisational chart detailing the team site management structure and roles and responsibilities. This includes CVs with recent healthcare project experience for the management team.</p> <p>Training records have been provided identifying operatives who have completed the approved current BS 7671 training courses and evidence on other relevant training has been provided including safety management, access & attendance and testing and commissioning. A signed off competency checklist has also been provided for the LV AP.</p> <p>NHSGGC have not yet appointed AP's and CP's for the site.</p> <p>As noted in question 2.2, NHSGGC confirmed during the KSAR technical workshops that the contracting companies are appointed through a pre-approved HUB framework, where the competency checks form part of the framework procurement process.</p> <p>Documents referenced are: 18th Edition Training Register Capability Statement Group Healthcare 0423 FES ESM - LV AP Appointment Register Competency Checklist ESM CPD John Robertson</p>		

Stuart Clarkson
 Level 3 Initial Verification
 NEH Access and Attendance – Detailed
 NEH Inductee Richard Wiseman – FES
 PHC - AP Appointment
 Richard ECS Card
 T9.1 Safety Training CPD Cert

Workbook Ref No.	Areas to probe	Evidence expected
4.3	How does the Health Board ensure that the electrical systems are being installed to the correct standard and reflect the agreed design?	<p>Written, monthly evidence for the progress of work produced by a body which is independent of the contractor and which confirms compliance of the works to date.</p> <p>Photographic and written evidence for the progress of work produced by a body which is independent of the contractor (on a monthly basis).</p>

NHS Scotland Assure Observations:

NHSGGC have provided assurance they are undertaking the necessary checks to ensure that the electrical systems are being installed to the correct standard and reflect the agreed design.

The observations noted in response to question 2.3 apply to this question with respect to electrical systems. Assurance has been provided in the form of quality monitor and NHSGGC estates inspections and reports, quality checks being carried out by the principal and electrical contractor, non-conformances being recorded through BIM 360, and the appointment of an independent commissioning manager.

The electrical systems contractor has also provided installation QA checklists to ensure that the installations have been installed as per the drawings and manufacturer's instructions which are to be completed prior to testing and commissioning of systems. These are incomplete at this stage and will be considered in more detail at future KSAR stages.

Documents referenced are:

QM MEP Inspection Report - 09 NHS North East Hub 17.08.2023

Electrical QA draft

FES - Cabling - Single Core-202309271506 (1)

FES - Cabling - Single Core-202309271506

LV Cabling QA draft

Workbook Ref No.	Areas to probe	Evidence expected
4.4	How does the Health Board ensure that electrical services are installed in a fashion which will provide ease of access for future maintenance?	<p>Evidence that the contractor has presented their co-ordination drawings (BIM model) to the Health Board.</p> <p>Evidence that the contractor has presented their co-ordination drawings (BIM model) to the design consultant and that they have agreed them for construction.</p> <p>Evidence that the contractor has presented each of the main service runs plus plant rooms to the Health Board's FM team.</p>
<p>NHS Scotland Assure Observations:</p> <p>NHSGGC have not provided assurance that the electrical services are installed in a fashion which will provide ease of access for future maintenance. There are concerns particularly around the connections to and from the rising main busbars in the electrical risers. This is a significant issue at this stage of the project. If these connections cannot be installed in accordance with manufacturers guidance on bending radius of cables there could be significant issues around safety of the cable installation and potential faults on the system. The contractor still needs to demonstrate that a fully safe and accessible installation can be achieved.</p> <p>During our site visit of 29 November 2023, we were advised by the contractor that there was insufficient space to install the current design proposal of installing armoured cables from the tap-off units to the distribution boards within the riser. The contractor is proposing to install a 50mm flexible metal conduit e.g. Kopex and tri-rated cables in lieu of the armoured cables. The installing contractor could not provide definitive assurance, however that this solution was viable as there are areas where it is unclear if the minimum bending radii of the cables can be maintained – a failure to maintain the bending radii could impact on the safety and performance of the cable.</p> <p>NHSGGC are aware of this issue on site and are monitoring this change through the approved change control process with the contractor.</p> <p>The observations noted in response to question 2.5 apply to this question with respect to electrical services.</p> <p>NHSGGC estates are regularly attending site visits to review the installation progress and recording any concerns regarding access to services and components.</p> <p>Documents referenced are: <i>MEP & Soft Landings Parkhead Minute 08 06 23_.pdf</i></p>		

NEH CDP Final Review – 090823
 NE Hub CDP Tracker as of 250623
 NEH CDP Final Review – 210623
 NEH-ACM-Ph2-00-RP-BS-0400-MEP Acc & Maint Strat
 231117 NHS Estates Site Visit Observations Record
 231013 NHS Estates Site Visit Observations Record
 231013 NHS Estates Site Visit Schedule Record
 MEP Revit Model

Workbook Ref No.	Areas to probe	Evidence expected
4.5	How does the Health Board ensure that electrical services are installed in a fashion which will retain space for minor additions and modifications to services in the future?	<p>Evidence that the contractor has presented their co-ordination drawings (BIM model), with space for future flexibility identified, to the Health Board.</p> <p>Evidence that the design consultant has considered and agreed with the Health Board, space for future flexibility in the service installations.</p> <p>Evidence that the contractor has presented their co-ordination drawings (BIM model), with space for future flexibility identified, to the design consultant and that they have agreed them for construction.</p> <p>Evidence that the contractor has presented each of the main service runs plus plant rooms to the Health Board's FM team, to highlight space for future flexibility.</p> <p>Evidence that the Health Board has agreed a strategy (percentage) for spare capacity and a documented allowance to be incorporated into the design.</p> <p>Are sub stations, switch rooms, distribution board cupboards, horizontal distribution runs and risers appropriately sized for the equipment being installed and facilitate safe, adequate maintenance?</p>

NHS Scotland Assure Observations:

NHSGGC have provided assurance that space for minor additions and modifications to services in the future has been fully agreed and allocated via the project ACR's however there is no assurance that this has been monitored during the construction phase.

The observations noted in response to questions 2.6 and 3.5 are also applicable to this question. This specifically relates to the space within the electrical risers and the ability to terminate the current design proposal for cable connections to the busbars and from the tap-off units.

Documents referenced are:

NEH NHS Estate visit tracker

NEH NHS Estate site observations

Workbook Ref No.	Areas to probe	Evidence expected
4.6	How does the Health Board assure itself that all electrical materials are stored on site in an environment which protects them from deterioration and from the entry of contaminants into the operational parts of the component?	<p>Written, monthly and photographic evidence for the progress of work produced by a body which is independent of the contractor and which confirms inspection of the site storage of materials.</p> <p>Photographic evidence of the site storage of materials produced by a body which is independent of the contractor (on a monthly basis).</p>

NHS Scotland Assure Observations:

NHSGGC have provided assurance they are taking the necessary precautions to ensure all electrical materials are stored on site in an environment which protects them from deterioration and from the entry of contaminants.

Written monthly quality monitor (QM) reports are produced which provide photographic evidence and details of the storage of material on site. No significant observations have been raised by the quality monitor in relation to storage of electrical materials.

Documents referenced are:

QM MEP Inspection Report - 03 NHS North East Hub 25.05.2023

Subsequent monthly reports 04-14 from 08/06/23 – 26/10/23

Workbook Ref No.	Areas to probe	Evidence expected
4.7	How does the Health Board assure itself that all pre-commissioning inspections are completed and recorded before commissioning can commence?	<p>Evidence that adequate pre-commissioning check sheets (e.g. SHTM 06-01 Part A, BS7671, etc.) have been completed and signed off.</p> <p>Evidence that the Health Board has had all pre-commissioning checks audited and approved by an independent organisation.</p>

NHS Scotland Assure Observations:

NHSGGC have provided assurance they are taking measures to ensure pre-commissioning inspections of the electrical systems will be completed and recorded prior to commissioning commencing.

The observations noted in response to question 2.8 in relation BIM 360 and the appointment of the independent commissioning manager apply to this question with respect to electrical systems.

In-progress checklists have been provided by the electrical sub-contractor for busbar, containment, and cable installations, which check systems are installed correctly to manufacturers standards and the specification in advance of commissioning activities.

A detailed method statement and risk assessment for the testing and commissioning of the LV systems has been provided by the electrical sub-contractor.

Further assurance is provided through the appointment of an independent commissioning manager to oversee the pre-commissioning activities as confirmed by NHSGGC during the KSAR technical workshops.

Further supporting assurance includes the commissioning managers RAMS tracker which reviews and comments on the method statements for the testing and commissioning of the electrical systems.

The electrical subcontractor and the commissioning company have also produced separate commissionability reports to ensure systems have been reviewed with commissioning in mind and that the installation is suitable for commissioning to commence.

Documents referenced are:

3.1 Quality Monitor Appointment

NEH-FES-XX-XX-MS-E-00010 - LV Inspection & Testing

QM Inspection Report - 72 NHS North East Hub 22.08.2023

QM MEP Inspection Report - 09 NHS North East Hub 17.08.2023

FES - Busbar (1), (2) & (3)

FES - Cabling - Single Core (1), (2), (3), (4), (5) & (6)

FES - Containment- Level 0 zone C

FES - Containment- Level 2 zone C
 FES - Containment-Level 0 zone B
 FES - Containment-Level 1 zone B
 FES - Containment-Level 1 zone C
 FES - Containment-Level 2 zone B
 231123 - NEH Health Centre - Commissioning Tracker RAMS Elec
 FES Commissionability R2
 Parkhead Stage 3 phoenix commission ability 25.02.21

Workbook Ref No.	Areas to probe	Evidence expected
4.8	How does the Health Board assure itself that all variations which may be required to electrical systems after tender are investigated and agreed by all parties before they are instigated?	Evidence that the each variation / derogation has a detailed technical analysis and has been referred to the Health Board and agreed with their clinical, Estates, infection control and FM teams.
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance they have processes in place to deal with variations to the electrical systems.</p> <p>The observations noted in response to question 2.9 apply to this question with respect to electrical systems.</p> <p>Evidence provided includes a specific example of a variation associated with amendments to the ACR in relation to the staff attack system. An ACN has been raised in relation to the proposed change. The ACN details the background and reason for the proposed change, complete with accompanying drawings, estimated costs, and authority approval. It also confirms that the change has been highlighted to the executive steering group and that they have been asked to formally approve the change. No record of the final approval has been provided.</p> <p>NHS Scotland Assure were advised by NHSGGC during the KSAR technical workshop and the weekly progress meetings that further electrical changes are going through the change control process. These include the use of the sub-main cable armour as a CPC instead of a separate CPC, changes to the standby generator location and connection of sub-main cables to rising main busbar systems.</p> <p>Documents referenced are: <i>P53 Variation Register_151123</i> <i>Paper 4 for ESG approval of ACN18 - Staff Attack-combined_3</i> <i>NEH Exec Steering Group Minute 050723</i> <i>NEH Sta Att Drg 241122</i> <i>P53 ACN-18 Staff Attack</i></p>		

Sta Nrs C&E070423

3.4.2 Electrical: Further Observations

In addition to the points raised via the KSAR workbook above, we also include the following observations as a result of the review, all of which relate to the evidence presented during the appraisal.

3.4.2.1

Temporary Standby Generator Location and Cabling

The final location of the temporary external generator has still to be agreed and is currently going through a change control process. This change control requires to be resolved to allow the temporary generator works to proceed. The generator sequence of operations requires to be provided to ensure that the size and operation of the generator set is understood by the estates team. NHSGGC designers have not provided assurance that all cables are calculated in accordance with BS7671 for the temporary generator connection. It is currently proposed that the cables are installed in a tre-foil arrangement in below ground ducts to the generator connection point and therefore the correct application of de-rating factors requires to be demonstrated.

3.5 Medical Gases

3.5.1 Medical Gases: KSAR Observations

Workbook Ref No.	Areas to probe	Evidence expected
5.1	How does the Health Board assure itself that all medical gas installers are trained to understand the needs (including special requirements) for the installation of medical gas systems in the relevant healthcare environment?	<p>Evidence of a vetted list of site medical gas installers which confirms qualifications and healthcare experience.</p> <p>Evidence that the site induction with respect to working on medical gas services has been developed, implemented and agreed with the Board.</p> <p>Evidence that all contractors and sub-contractor competency checks have been completed and signed off.</p>
<p>NHS Scotland Assure Observations:</p> <p>Whilst NHSGGC have provided assurance around the relevant qualifications and skills of the medical gas installers, as per the response to 3.1, NHSSA have identified assurance is lacking with respect to the health boards vetting of the medical gas installers and their relevant healthcare sector experience.</p> <p>Although there is some evidence provided in relation to the skills of the medical gas installers, assurance is lacking with respect to their specific project healthcare experience. Although a toolbox talk document has been provided, there is no completed attendance register to confirm attendance by the medical gas installers, and the evidence does not confirm the adoption of specific site inductions that have been developed, implemented and agreed with NHSGGC.</p> <p>Documents referenced are: <i>TBT 120-01 Infection Prevention Control</i> <i>G McQ – All Certs</i> <i>T McQ – All Certs</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
5.2	How does the Health Board assure itself that the medical gas contracting company have the relevant experience to direct and manage their staff on the	<p>Evidence of similar, previous healthcare projects by the contractor.</p> <p>Evidence of site management structure.</p> <p>AP and CP training to SHTM 02-01 for operatives.</p>

	site for the relevant healthcare environment?	
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance that the medical gas sub-contracting company have the relevant experience to direct and manage their staff within a healthcare environment.</p> <p>Furthermore, as noted in question 2.1, NHSGGC confirmed during the KSAR technical workshops that the contracting companies are appointed through a pre-approved HUB framework, where the competency checks form part of the framework procurement process.</p> <p>The documentation provided by NHSGGC includes an organisation chart of the medical gas contracting company and a director's CV has been included, confirming experience on multiple healthcare projects in Scotland.</p> <p>Certificates have also been provided confirming MGPS AP/CP training for operatives has been undertaken as per SHTM 02-01 requirements.</p> <p>Documents referenced are: ALG-Org Chart BMcN.CV</p>		

Workbook Ref No.	Areas to probe	Evidence expected
5.3	How does the Health Board ensure that the medical gas systems are being installed to the correct standard and reflect the agreed design?	Written and photographic, monthly evidence for the progress of work produced by a body which is independent of the contractor and which confirms compliance of the works to date.
<p>NHS Scotland Assure Observations: Whilst it is noted that the medical gas installation has yet to commence, NHSSA would note there are aspects of the information provided where assurance is lacking.</p> <p>As per responses to 2.3 and 3.3, assurance is provided in the form of the appointment of a quality monitor and NHSGGC estates inspections who will undertake quality checks in addition to quality control processes being adopted by the Main Contractor and the appointment of an independent commissioning manager.</p>		

A Quality Assurance checklist document has been provided for the medical gas installations. However, whilst the example template for undertaking quality assurance checks confirms there is a process in place for the contracting team to self-check the installation ahead of testing and commissioning there is no specific documentation provided that references or align with the specific requirements of SHTM 02-01 Part A (Appendix A). The evidence provided also does not detail if any quality assurance checks have been delegated to other parties e.g. quality monitor or NHS Estates.

Documents referenced are:

QM MEP Inspection Reports (14 no.)

Medical Gas QA Draft

231117 NHS Estates Site Visit Observations Record

231013 NHS Estates Site Visit Observations Record

231013 NHS Estates Site Visit Schedule Record

Workbook Ref No.	Areas to probe	Evidence expected
5.4	How does the Health Board ensure that precautions are taken throughout the works to avoid open pipe ends for a period beyond the time needed to make a joint on that pipe end?	Photographic and written evidence for the progress of work produced by a body which is independent of the contractor (on a monthly basis).

NHS Scotland Assure Observations:

The installation of the medical gas systems has yet to commence, therefore no progress is noted within either the quality monitor or NHSGGC estates site observations documents provided. The works appear to be accommodated within the current programme.

Documents referenced are:

QM MEP Inspection Reports (14 no.)

231117 NHS Estates Site Visit Observations Record

231013 NHS Estates Site Visit Observations Record

231013 NHS Estates Site Visit Schedule Record

Workbook Ref No.	Areas to probe	Evidence expected
5.5	How does the Health Board ensure that medical gas services are installed in a fashion which will	Evidence that the contractor has presented their co-ordination drawings (BIM model) to the Board.

	provide ease of access for future maintenance?	<p>Evidence that the contractor has presented their co-ordination drawings (BIM model) to the design consultant and that they have agreed them for construction.</p> <p>Evidence that the contractor has presented each of the main service runs plus plant rooms to the Health Board's FM team.</p>
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NHS Scotland Assure Observations:

NHSGGC have provided assurance that the medical gas services will be installed in a fashion which will provide ease of access for future maintenance.

A medical gas layout drawing, technical submittal, and minutes from 2 no. contractor design portion (CDP) meetings have been provided as evidence. Contained within the minutes is confirmation that the *'final design team approved CDP package'* had been shared with NHS estates, and subsequently accepted.

Review of the drawing highlights that 6 no. dental chairs located at level two will be served off the medical gas system, with the compressor room located on the same level, and pipework routed within the ceiling void of Level 1, popping up as required to serve the island dental chairs. The coordinated ceiling plans identifies the pipework will be accessible at level 1 via demountable 600x600 ceiling panels.

As noted in the response to question 2.5, NHSGGC confirmed during the KSAR technical workshops that BIM 360 is used to manage document / drawing upload and review. The Main Contractor gave an overview of this system with a live demonstration of the platform, however no documented examples of the BIM 360 workflow including comment history and approval status were provided to NHSSA for review.

Documents referenced are:

NEH-FES-XX-01-DR-X-5402-Medical Gas Layout

NEH-ACM-Ph2-ZZ-DR-M-5400-Medical Gas Schematic

NEH-FES-XX-XX-TS-M-00003-Medical Gases (Technical Submittal Rev 00)

NEH CDP Final Review – 280623

NEH CDP Final Review – 090823

Reflected Ceilings Plans (8no. drawings)

Workbook Ref No.	Areas to probe	Evidence expected
5.6	How does the Health Board ensure that medical gas services are installed in a fashion which will retain space for minor	Evidence that the contractor has presented their co-ordination drawings (BIM model), with space for future flexibility identified, to the Health Board.

	additions and modifications to services in the future?	<p>Evidence that the design consultant has considered and agreed with the Board, space for future flexibility in the service installations.</p> <p>Evidence that the contractor has presented their co-ordination drawings (BIM model), with space for future flexibility identified, to the design consultant and that they have agreed them for construction.</p> <p>Evidence that the contractor has presented each of the main service runs plus plant rooms to the Health Board's FM team, to highlight space for future flexibility.</p>
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NHS Scotland Assure Observations:

NHSGGC have provided assurance that space for minor additions and modifications to services in the future has been fully agreed and allocated via the project ACR's however there is no assurance that this has been monitored during the construction phase.

The medical gas installation is limited to a single zone of the building. Associated spatial requirements for minor future expansion and modifications are therefore also minimal. Furthermore, review of the medical gas layout and schematic drawings confirm that a valved and capped spare branch is being provided, allowing for the future expansion of the system to serve an extra room / dental chair in line with the authority's construction requirements (ACR). This provides assurance that the need for additional capacity has been established for future primary medical gas plant and is being maintained however no evidence has been provided to confirm any distribution pipework spare capacity for the medical gas system is being maintained during the construction stage.

Documents referenced are:

NEH-FES-XX-01-DR-X-5402-Medical Gas Layout

NEH-ACM-Ph2-ZZ-DR-M-5400-Medical Gas Schematic

NEH-FES-XX-XX-TS-M-00003-Medical Gases (Technical Submittal Rev 00)

Workbook Ref No.	Areas to probe	Evidence expected
5.7	How does the Health Board assure itself that all medical gas materials are stored on site in an environment which protects them from	Written, monthly evidence for the progress of work produced by a body which is independent of the contractor and which confirms inspection of the site storage of materials.

	deterioration and from the entry of contaminants into the parts of the component which will be in contact with the gas?	Photographic evidence of the site storage of materials produced by a body which is independent of the contractor (on a monthly basis).
<p>NHS Scotland Assure Observations: The installation of the medical gas systems has yet to commence, therefore no progress is noted within the quality monitor reports provided, nor was the storage of medical gas materials observed by NHSSA during the site visit of 29 November 2023. The works appear to be accommodated within the current programme.</p> <p>Documents referenced are: <i>QM MEP Inspection Reports (14 no.)</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
5.8	How does the Health Board assure itself that all pre-commissioning inspections are completed and recorded before commissioning can commence?	<p>Evidence that adequate pre-commissioning check sheets (e.g. SHTM 02-01 Part A) have been completed and signed off.</p> <p>Evidence that the Health Board has had all pre-commissioning checks audited and approved by an independent organisation.</p>

NHS Scotland Assure Observations:

Whilst NHSGGC have provided evidence in relation to the recording of medical gas pre-commissioning inspections there is a lack of assurance from the information provided.

A *Quality Assurance* checklist in relation to medical gases has been provided by the Mechanical and Electrical sub-contractor. Whilst the installation has yet to commence the checklist provided does not detail the pre-commissioning approach undertaken by the medical gas sub-constructing company. The template provided also does not reference or align with the specific requirements of SHTM 02-01 Part A (Appendix A).

Documents referenced are:

Medical Gas QA Draft

Parkhead Stage 3 Phoenix Commissionability 25.02.21

FES Commissionability R2

Workbook Ref No.	Areas to probe	Evidence expected
5.9	How does the Health Board assure itself that all variations which may be required to medical gas systems after tender are investigated and agreed by all parties before they are instigated?	Evidence that the each variation / derogation has a detailed technical analysis and has been referred to the Board and agreed with their medical gas management group, clinical, Estates, infection control and FM teams.
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance they have processes in place to deal with variations to the medical gas systems.</p> <p>The observations noted in response to question 2.9 apply to this question with respect to the medical gas systems.</p> <p>A signed and approved contract change notice (CCN) to increase the footprint of the compressor room has been provided as evidence of a specific variation regarding the medical gas system.</p> <p>Documents referenced are: CCN28 Comp Room NEH-HOS-XX-02-DR-A-SK0553</p>		

3.5.2 Medical Gases: Further Observations

3.5.2.1	<p>Proximity of Potential Contaminants to Air Intake Drain stack SVP/27 currently terminates within close proximity to the compressor room air intake and it is unclear from the information provided if the appropriate separation distance between the air intake and vitiated air is achieved. Additionally, the gas scavenging and suction air exhaust locations have not been identified to confirm sufficient separation from the compressor room intake or general air handling unit air intakes to prevent contamination of the AHU air intake.</p>
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3.6 Fire

3.6.1 Fire: KSAR Observations

Workbook Ref No.	Areas to probe	Evidence expected
6.1	How does the Health Board assure itself that all fire stopping specialists are trained to understand the needs (including special requirements) for the installation of fire stopping systems in the healthcare environment?	<p>Evidence of a vetted list of site fire stopping specialists which confirms qualifications and healthcare experience.</p> <p>Evidence that the site induction with respect to working on fire stopping services has been developed, implemented and agreed with Board.</p> <p>Evidence that all contractors and sub-contractor competency checks have been completed and signed off.</p>
<p>NHS Scotland Assure Observations: No assurance has been provided that the site induction with respect to working on fire stopping services has been developed, implemented and agreed with Board.</p> <p>NHSGGC have provided evidence to demonstrate that the fire stopping specialists are trained to understand the needs for the installation of fire stopping systems in the healthcare environment.</p> <p>NHSGGC have not provided evidence of any site induction training for fire stopping specialists; however, they have provided a sample fire safety induction training record but this does not provide specific details of the fire stopping specialists.</p> <p>Documents referenced are: <i>Competence Questionnaire SKE&R_Fire Engineer & Consultant_JGA_Review NHSProjectList.pdf</i> <i>Project Health, Safety and Environmental Induction Record (180-.pdf</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
6.2	How does the Health Board assure itself that the fire stopping contracting company have the relevant experience to direct and manage their staff on the site for a healthcare environment?	<p>Evidence of similar, previous healthcare projects by the contractor.</p> <p>Evidence of site management structure.</p>

NHS Scotland Assure Observations:

NHSGGC have provided assurance of previous health care projects by the contractor as well as evidence of the site management structure.

Documents referenced are:

NHSProjectList.pdf

Scutum Organogram.pdf

Workbook Ref No.	Areas to probe	Evidence expected
6.3	How does the Health Board ensure that the fire stopping systems are being installed to the correct standard and reflect the agreed design?	Written, monthly evidence for the progress of work produced by a body which is independent of the contractor and which confirms compliance of the works to date.

NHS Scotland Assure Observations:

NHSGGC have provided assurance in relation to documents, photographic evidence and details demonstrating progress of work, as well as confirming compliance of the work to date (at the time of inspection).

Documents referenced are:

BAM23-20230516-Gerry Gavan.pdf

BAM23-20230515-Gerry Gavan.pdf

BAM23-20230518-Gerry Gavan.pdf

ROCKWOOL REPORT.PDF

QM Inspection Report - 73 NHS North East Hub 31.08.2023.pdf

Workbook Ref No.	Areas to probe	Evidence expected
6.4	How does the Health Board ensure that precautions are taken throughout the works to avoid openings in fire barriers to occupied spaces during the works?	Written and photographic evidence for the progress of work produced by a body which is independent of the contractor (on a monthly basis).

NHS Scotland Assure Observations:

NHSGGC have provided assurance to demonstrate that where services penetrate a compartment, sub-compartment, cavity barrier or fire-resistant construction protecting escape routes, they are fire and smoke stopped to ensure they maintain at least the same level of fire resistance as the surrounding structure.

Documents referenced are:*BAM23-20230516-Gerry Gavan.pdf**BAM23-20230515-Gerry Gavan.pdf**BAM23-20230518-Gerry Gavan.pdf**ROCKWOOL REPORT.PDF**QM Inspection Report - 73 NHS North East Hub 31.08.2023.pdf**QM MEP Inspection Report - 09 NHS North East Hub 17.08.2023.pdf*

Workbook Ref No.	Areas to probe	Evidence expected
6.5	How does the Health Board ensure that fire stopping systems are installed on ventilation, electrical, plumbing and drainage services where they penetrate fire barriers?	Photographic and written evidence for the progress of work produced by a body which is independent of the contractor (on a monthly basis).

NHS Scotland Assure Observations:

NHSGGC have provided assurance that demonstrates where services penetrate a compartment, sub-compartment, cavity barrier or fire-resistant construction protecting escape routes, they are fire and smoke stopped to ensure they maintain at least the same level of fire resistance as the surrounding structure.

Documents referenced are:*QM Inspection Report - 73 NHS North East Hub 31.08.2023.pdf*

Workbook Ref No.	Areas to probe	Evidence expected
6.6	How does the Health Board ensure that fire stopping is installed in electrical containment (trunking / tray systems) systems where they penetrate fire barriers?	Photographic and written evidence for the progress of work produced by a body which is independent of the contractor (on a monthly basis).

NHS Scotland Assure Observations:

NHSGGC have provided assurance that demonstrates where services penetrate a compartment, sub-compartment, cavity barrier or fire-resistant construction protecting escape routes, they are fire and smoke stopped to ensure they maintain at least the same level of fire resistance as the surrounding structure.

Documents referenced are:*231130 Putty Pad install 1st floor.docx*

ROCKWOOL REPORT.pdf
 BAM23-20230516-Gerry Gavan.pdf
 BAM23-20230515-Gerry Gavan.pdf
 BAM23-20230518-Gerry Gavan.pdf

Workbook Ref No.	Areas to probe	Evidence expected
6.7	How does the Health Board assure itself that all fire stopping materials are stored on site in an environment which protects them from deterioration?	Written, monthly evidence for the progress of work produced by a body which is independent of the contractor and which confirms inspection of the site storage of materials. Photographic evidence of the site storage of materials produced by a body which is independent of the contractor (on a monthly basis).
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance by photographic evidence that fire stopping materials are stored safely on site in an environment which protects them from deterioration.</p> <p>Documents referenced are: <i>QM Inspection Report – 72 NHS North East Hub 22.08.2023.pdf</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
6.8	How does the Health Board assure itself that all fire detection and alarm systems are installed in the correct locations and are easily maintained?	Written evidence for the progress of work produced by a body which is independent of the contractor (on a monthly basis). Demonstration by the contractor that any detectors which are above 3m from floor level or in ceiling voids, to the Board's FM team, have suitable access for maintenance.
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance, by supplying the fire alarm design details which includes the system specification and drawings which detail device locations.</p> <p>NHSSA observed during the site visit on 29 November 2023 that there appeared to be suitable access to detector heads to allow for maintenance to be carried out,</p>		

NHSSA has photographic evidence to support this, however, NHSGGC has not confirmed in writing that they are satisfied that there is suitable access.

Documents referenced are:

Parkhead Fire Alarm Specification.pdf

NEH-FES-XX-XX-TS-E-00009 - Fire Alarms Technical Submission.pdf

NEH-FES-XX-01-DR-E-6702-Fire Alarm Level 01, 02 & 03

ASR200-005.05 Construction KSAR Site Visit Report V1_Arup_Fire_231207.pdf

Workbook Ref No.	Areas to probe	Evidence expected
6.9	How does the Health Board assure itself that all variations which may be required to fire stopping systems after tender are investigated and agreed by all parties before they are instigated?	Evidence that the each variation has been referred to the Health Board and agreed with their clinical, engineering, infection control and FM teams.

NHS Scotland Assure Observations:

NHSGGC have provided assurance that they have an agreed schedule of works to complete fire stopping to the appropriate standard.

Documents referenced are:

Refer to Question 6.3 which contains details in documents referenced.

Workbook Ref No.	Areas to probe	Evidence expected
6.10	How does the Health Board assure itself that all fire dampers and fire/smoke dampers can be accessed for inspection, resetting and maintenance?	<p>Evidence that the contractor has presented their co-ordination drawings (BIM model) to the Health Board.</p> <p>Evidence that the contractor has presented their co-ordination drawings (BIM model) to the design consultant and that they have agreed them for construction.</p> <p>Evidence that the contractor has presented each of the fire dampers and smoke / fire dampers to the Health Board's FM team.</p>

NHS Scotland Assure Observations:

No assurance has been provided that all fire dampers and fire/smoke dampers can be accessed for inspection, resetting and maintenance.

NHSGGC have informed NHSSA that there are fire dampers and fire/smoke dampers which may be inaccessible for inspection, resetting and maintenance. At the time of review, NHSGGC have not provided any further evidence to demonstrate that this has been resolved.

NHSSA carried out a site visit on 29 November 2023 and noted that there were areas where it appeared difficult to access to fire and smoke dampers.

Documents referenced are:

NE Hub CDP Tracker as of 250623.pdf

231117 NHS Estates site visit Observations record.pdf

FSD issue-202311301359.pdf

ASR200-005.05 Construction KSAR Site Visit Report V1_Arup_Fire_231207.pdf

Workbook Ref No.	Areas to probe	Evidence expected
6.11	How does the Health Board assure itself that any fire rated ductwork is correctly installed?	Evidence that the system is certificated and that the installation follows the installation details which were used for the certification. Written confirmation from the design consultant.

NHS Scotland Assure Observations:

NHSGGC have provided assurance regarding details of the ductwork installation, and this includes the appropriate installation standard (DW 144). This was also reviewed during the NHSSA site visit of 29 November 2023.

Documents referenced are:

P18-027_FireStrategySummary_incFireEngReport_v4_compressed.pdf

ASR200-005.05 Construction KSAR Site Visit Report V1_Arup_Fire_231207.pdf

NEH-FES-XX-XX-MS-M-00004 Ductwork Installation.pdf

Workbook Ref No.	Areas to probe	Evidence expected
6.12	How does the Health Board assure itself that any smoke control and / or clearance systems are fit for purpose?	Evidence that the smoke system has been designed by an accredited Fire Engineer.

		<p>Evidence that Building Control have accepted the solution.</p> <p>Confirmation from the Building Services Design Consultant that the operating sequence for the smoke system has been agreed and integrated into the control of other building systems.</p>
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance regarding a cause & effect for smoke control, as well as plans detailing smoke extraction systems.</p> <p>Documents referenced are: <i>NEH-ACM-XX-XX-RP-BS-0001-Cause & Effect.pdf</i> <i>NEH-Q9-XX-R1-DR-X-000002-S3.pdf</i></p>		

Workbook Ref No.	Areas to probe	Evidence expected
6.13	How does the Health Board assure itself that all pre-commissioning inspections are completed and recorded before commissioning can commence?	Evidence that the Health Board has had all pre - commissioning checks audited and approved by an independent organisation.
<p>NHS Scotland Assure Observations: NHSGGC have provided assurance by sample evidence detailing pre-commissioning inspections and these include the disabled refuge system and the fire detection & alarm system.</p> <p>Documents referenced are: <i>3.1 Quality Monitor Appointment.pdf</i> <i>Scutum – Fire – Zone Documents (Levels 0-2, Zone A-C)</i> <i>Scutum – Dis Refuge – Zone Documents (Levels 0-2, Zone A-C)</i></p>		

3.6.2 Fire: Further Observations

In addition to the points raised via the KSAR workbook above, we also include the following observations as a result of the review, all of which relate to the evidence presented during the appraisal.

3.6.2.1	<p>NHSGGC have provided a description of change in works regarding smoke / fire detector heads, changing to multi-sensor detectors in all locations.</p> <p>Documents referenced are: <i>P53 ACN17 Confirmation Notice 100723 hWS signed .pdf</i></p>
3.6.2.2	<p>NHSGGC have provided detail on battery backup for the fire alarm system. This is a 24-hour backup followed by 30 minutes.</p> <p>NHSGGC should ensure that there are suitable standard operating procedures in place to deal with any instances where there is loss of power to the fire alarm (this is particularly important when the building may be unoccupied over a 24-hour period e.g weekends).</p> <p>Documents referenced are: <i>NEH-FES-XX-XX-TS-E-00009 - Fire Alarms Technical Submission.pdf</i></p>

3.7 Infection Prevention & Control Built Environment

3.7.1 Infection Prevention & Control Built Environment: KSAR Observations

Workbook Ref No.	Areas to probe	Evidence expected
7.1	<p>How does the Health Board demonstrate that there is an effective infection prevention and control management structure in place?</p> <p>How does the Health Board demonstrate leadership and commitment to infection prevention and control to ensure a culture of continuous quality improvement throughout the organisation and that there is an effective IPC structure in place?</p>	<p>The Health Board provides evidence that there is an IPC Management Structure with the necessary expertise and leadership skills to support the organisation:</p> <p>The Health Board provides evidence that there is an IPC Management Team with the necessary expertise and leadership skills to support the project. The board are compliant with content of HDL (2008) role of the ICM / CNO 22.12.16.</p> <p>Executive board reports or minutes. Risk registers or equivalent, Minutes from operational and governance groups, (and action points). Structure of infection prevention and control team (IPCT) and qualifications held, previous experience supporting new build projects.</p> <p>Evidence IPC and clinical teams have been involved with any derogation through the build process and are satisfied this will not impact on patient safety, evidence could be through meeting minutes, risk assessments, risk registers relating to IPC with evidence of escalation through the agreed NHS board governance process.</p> <p>Evidence the Executive Board Member assigned to lead on IPCT has been kept informed of IPC risks identified and associated with the project this can be demonstrated by the board.</p>

		<p>Evidence IPCT advice has been followed, such as IPCT walk round audits during the construction process. Evidence that fixtures fitting and equipment have not been incorporated into the project that would represent an identified IPC risk.</p> <p>Evidence that all contractors and sub-contractor competency checks have been completed and signed off.</p>
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NHS Scotland Assure Observations:

Assurance has been provided regarding the competency checks undertaken for contractors involved with the project. Examples of contractor toolbox talks and attendance lists were provided. These includes processes which should be followed to maintain safety for the facility during construction and when the facility is occupied.

Assurance has been provided regarding IPC involvement in procurement approach. This has been co-ordinated under a service level agreement between National Procurement / NHSSA equipping team and the NHSGGC project team. The strategy document notes infection control items will be considered with reference to either the framework level requirements or within the quotation stage if not covered by a framework tender. No explanation is provided within the document as to how this process would be achieved.

Assurance was provided by NHSGGC regarding the IPC structure within the board by the provision of an organogram which notes the reporting/escalation route of the IPC leads for the project to the HAI Executive lead. However, no evidence was provided regarding how the HAI executive lead is routinely updated regarding the project via the project or IPC governance route.

Additional information was requested by NHSSA during the IPC workshop from NHSGGC to demonstrate how the project is embedded in the IPC work programme and reported through the IPC governance structure to the HAI executive lead and the health board. Assurance was provided regarding design approval for the sample rooms by IPC and a site visit was undertaken on 29 November 2023 to review the sample rooms nearing completion. An action tracker was provided to detail all IPC observations and actions for the project team and minutes of meetings were provided demonstrating discussions between the project team and IPC. It was unclear from the documents submitted the involvement of IPC in the design of the rooms within the wider facility. Appendix A noted signed layouts for room designs but there was no evidence as to IPC review and/or approval. Confirmation was received from the IPC team at an NHSSA and GGC IPC meeting that they have been involved in review of the room design. team.

Appendix J notes the listed derogations for the project but there are no noted signatories from the IPC team. Assurance was provided regarding the proposed

derogations for point of use water heaters and the water filtration derogations identified.

Documents referenced are:

NHSGGC North East Hub Equipping SLA v1 2022-06-02
 FW NE Hub - NHS National Procurement
 NEH Roles & Responsibilities Table (including IPC Group)
 NHS GGC Northeast Hub Strategy APPROVED
 230424 M&E Toolbox talk attendees
 NE Hub – Sample Room Group 2 equipment – email
 Appendix J – Derogations V2
 Sample room action tracker
 Water Heater, WHB and Tap Discussion - 27 November 2023

Workbook Ref No.	Areas to probe	Evidence expected
7.2	How does the Health Board demonstrate implementation of evidence based infection prevention and control measures during the design process?	<p>The Health Board provides evidence: The board can demonstrate the current version of the National Infection Prevention and Control Manual has been adopted by the organisation and all staff are aware of how and where to access this and it is being referred to during the construction process.</p> <p>IPC risks (actual or perceived) risks identified during the work programme or through the KSAR evidence review are provided.</p> <p>Evidence of walk rounds during the construction process and these are being fed back to clinical staff and the executive team to provide assurance that the requirements of the CD are being adhered with.</p>

NHS Scotland Assure Observations:

Assurance has been provided by NHSGGC regarding the involvement of IPC with the HAISCRIBE risk assessment for the project. Stage 2 was submitted as part of the FBC KSAR and Stage 3 for the construction KSAR. Clarification has been requested by NHSSA on points within both documents. The risk assessment followed through HAISCRIBE embeds the principles laid out within the NIPCM.

Assurance was provided regarding the water heater and tap review undertaken by the health board to appraise the options for use of the equipment within the facility as well as minutes of the meeting noting involvement of the IPC team in the process.

This process outlines how risks associated with the project have been managed by the project team including IPC involvement in the process. An email was provided by the health board to confirm that the IPC team were involved in the review of derogations and have approved them and any mitigations planned.

Assurance was provided by NHSGGC describing how the national infection prevention and control manual (NIPCM) is embedded across the organisation and available for all staff to access.

Regular walk rounds have been established by the NHSGGC project team with the local facilities teams where observations are raised through the quality management system for action. The IPC team have attended one site visit on 29 November 2023 during the construction phase. Details of the observations have been provided and an action plan developed to manage the actions to resolution. Through discussions NHSSA have been verbally advised that further IPC site visits are planned for the remainder of the project, however NHSSA have no documented evidence of this programme.

The quality monitoring reports provided show how on-site observations are managed through the quality monitoring system to resolution.

NHSGGC provided assurance regarding the risk assessments through HAISCRIBE assessments and associated mitigations taken by the board to manage HAI risks to the adjacent operational health centre throughout the construction phase.

Documents referenced are:

BAM Quality monitoring inspection report produced by Thomas and Adam from 31 st August 2023

RYBKA Quality monitoring MEP inspection report (inspection10) dated 31st August 2023

ServiceReceipt 1 – Rentokil report for construction site

ServiceReceipt 2 – Rentokil report for construction site

HSCP service e-mail 24/11/23

HSCP FM e-mail 30/11/23

e-mail from K McDaid of NHSGGC IPC – 25 July 2023

Workbook Ref No.	Areas to probe	Evidence expected
7.3	How does the Health Board assure itself that the contractors have a proper understanding of the infection prevention and control procedures required by the CD and that the contractors work is	<p>The Health Board evidences that: All relevant staff within the contractors' organisation are provided with clear guidance on roles and responsibilities in relation to infection prevention and control.</p> <p>The contractors' organisation provides an education programme that meets the</p>

	being rigorously managed in this respect?	need of staff which includes mandatory induction, training and updates on HAI guidance, policies and procedures.
<p>NHS Scotland Assure Observations: Assurance has been provided by the health board regarding toolbox talks, which are provided to all contractors. An example of attendance lists has also been provided. Further assurance was provided regarding the content of the toolbox talks which cover construction IPC risks.</p> <p>A signed statement of intent has been provided by the contractor confirming the project would follow SHFN 30 (HAISCRIBE) for the design and construction of the facility.</p> <p>IPC walk round observations and a corresponding action plan have been provided to evidence the national infection prevention and control manual has been followed during design and construction and captured within HAISCRIBE assessments and risk mitigation measures.</p> <p>Documents referenced are: XXXXX 230424 M&E Toolbox talk attendees FES toolbox talk Risk Assessment Method Statement NEH-FES-XX-XX-MS-M-00004 Rev01 Ductwork Installation Parkhead Hub</p>		

Workbook Ref No.	Areas to probe	Evidence expected
7.4	How does the Health Board assure itself that equipment meets the required IPC standards?	The IPC Team are involved and IPC advice followed in all procurement decisions for new equipment prior to purchase. IPCT are satisfied that all equipment purchased can be decontaminated safely in line with National Guidance and manufacturer's instructions.
<p>NHS Scotland Assure Observations: Assurance has been provided regarding the procurement process and its co-ordination under a service level agreement between NHS NSS National Procurement equipping team and the NHSGGC project team. The strategy document notes infection control considerations will be assessed with reference to either the framework level requirements or within the quotation stage if not covered by a framework tender</p> <p>Documents referenced are: 2023 06 28 NHS GGC Northeast Hub Strategy APPROVED FW: NE Hub - NHS National Procurement - Commodity Strategy (for FF&E)</p>		

3.7.2 Infection Prevention & Control Built Environment: Further Observations

In addition to the points raised via the KSAR workbook above, we also include the following observations as a result of the review, all of which relate to the evidence presented during the appraisal.

3.7.2.1	N/A.
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4. Appendices

Appendix 1: Glossary

Please refer to NHSScotland Assure – Assurance Service Master Glossary document available to download from [NHS National Services Scotland website](https://www.nss.nhs.scot/media/1540/nhs-scotland-assure-assurance-service-master-glossary-v10.docx)

<https://www.nss.nhs.scot/media/1540/nhs-scotland-assure-assurance-service-master-glossary-v10.docx>

