

[INSERT NHS BOARD NAME]

[INSERT PROJECT NAME]

**EMPLOYERS INFORMATION REQUIREMENTS FOR
BUILDING INFORMATION MODELLING [BIM]**

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Glossary of Terms

AIM	Asset Information Model
AMS	Asset Management System
BEP	BIM Execution Plan
BIM	Building Information Modelling
CAFM	Computer-Aided Facilities Management
CDE	Common Data Environment
EIR	Employer Information Requirement
FM	Facilities Management
IFC	Industry Foundation Classes
LOD	Level of Definition
LOI	Level of Information
PEP	Project Execution Plan
PIM	Project Information Model
PLQ	Plain Language Question
PSCP (OR MAIN CONTACTOR)	Principal Supply Chain Partner

Notes:

NHS Scotland is encouraging the adoption of Level 2 Building Information Modelling (BIM) maturity supporting the recommendations of the “Review of Scottish Public Sector Procurement in Construction” which endorsed that *“BIM will be introduced in central government with a view to encouraging adoption across the public sector. The objective should be that, where appropriate, projects across the public sector adopt BIM level 2 by April 2017.”*

The NHS Scotland BIM strategy is intended to ensure the creation of a digitised information management process which all Boards and people working on NHS Scotland programmes should follow to maintain consistency and facilitate collaborative working, which will in turn reduce waste and non-conformances.

[INSERT PROJECT TITLE]
EMPLOYERS INFORMATION REQUIREMENTS (EIR)

This Employers Information Requirements (EIR) template should form part of the appointment and tender documents on a NHS Scotland BIM Project. Information Requirements need to be defined as part of the Employer's Requirements. These EIR's define which models need to be produced at each project stage – together with the required level of detail and definition. The models are key deliverables in the 'data drops' – contributing to effective decision making by the Boards at key stages of the project.

The content of this model EIR is advisory and should be edited to suit the explicit information needs of a Board and their projects. As the BIM protocol requires details of Building Information Models and Information Management processes, the EIR provides an effective platform to communicate these requirements as part of an appointment process.

All terminologies used in this document are compliant with British Standards.

1. Purpose and Scope of the document

The intent of this document is to provide an outline definition of **Employers Information Requirements (EIRs)** to support the implementation of Building Information Modelling (BIM) on NHS Scotland projects.

- 1.1 Terminology relating to information flow or format relate to the terms used in PAS 1192-2:2013.
- 1.2 The PSCP (Or Main Contractor) shall be responsible for enabling, creating and/or delivering project 3D models that increases in detail and approval from design to an as built status.
- 1.3 This document provides the Employer's Information Requirements (as defined in PAS1192-2:2013) for the deliverables from the Building Information Modelling (BIM) processes.
- 1.4 It should be read in conjunction with the project information pack and other employer requirement documentation.
- 1.5 Nothing in this document is intended to relieve the PSCP (or Main Contractor) or its supply chain of responsibility to comply with the Clients standards including inter alia those relating to handover procedure.
- 1.6 The references to the Employer within this document shall be taken to mean the Client as defined in the contract.

General:

This document defines the Employer's Information Requirements for **[insert project name] project only.**

The terminology used in this document is generally the standard terminology adopted under **[insert contract reference e.g. NEC3]**. Terminology specific to BIM processes that are not covered under the Contract relate to terms used in PAS 1192-2:2013.

NHS Scotland propose to implement a BIM (Asset Information Model) strategy that requires their projects via a PSCP (or Main Contractor) to deliver Level 2 BIM maturity as a minimum standard including:

- 3D Domain Model(s) of the Buildings and infrastructure in both editable format and aggregated in formats for FM Viewing.
- 2D drawings based upon the 3D model(s) and fabrication and manufacturer drawings
- Asset data derived from the 3D model object attributes

2. The Product

2.1 Information about the completed building or reconfigured spaces of the building will constitute part of the product alongside the building itself, other defined project information, training, spares and any other deliverables not forming part of the completed structure.

2.2 This document defines the Employer's Information Requirements from the Building Information Model and its development through the project stages in which the PSCP (or Main Contractor) will be involved.

2.3 The information shall be provided by the constructor as defined.

2.4 Information that is required as part of the established NHS Scotland handover procedure shall be provided at the appropriate stage and may not be assumed to be supplanted by information embodied in the Building Information Model [BIM or the Model] or outputs from it except by prior agreement with the Client.

2.5 Model elements that are created as part of the Model shall be delivered pursuant to the Client's objective for the creation of a model element library. For this purpose, the Designer or PSCP (OR MAIN CONTACTOR) or any other party to the design of the component that may hold intellectual property rights shall grant the client unlimited license to use the design on other projects.

2.6 Formats

To support the development of a PIM and AIM at handover the information exchange formats provided by the PSCP (OR MAIN CONTACTOR) will include the following information from the same data set in a commonly accessible electronic formats as the examples below.

2.6.1.1 Excel file (.docx and or .xlxs) and / or COBie UK files (where appropriate tables from the latest **Uniclass** reference system should be used).

2.6.1.2 2D portable format document drawings (.dwg and .pdf) cut from the native Model(s)

2.6.1.3 The native Model(s)

2.6.1.4 The model(s) in IFC format

2.6.1.5 Programme files .mpp

2.6.1.6 Text files (.doc and .pdf) for specification and all other tender docs

2.6.1.7 Photos (.jpg/ .png)**

2.6.1.8 Images / scans / sketches (.pdf)

2.6.1.9 Videos (mp4)

Plus other formats to be confirmed

Note: The [insert Board name] uses [insert product name] for internal federation and visualisation and use of [insert product name] as a generic model & drawing viewer.

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2.6.2 In the following sections the required format(s) for the delivery of information are described. It will often be the case that information will be provided in the Model and in other formats. Where this is the case the priority shall be to include the information in the Model and to supplement with documentary or other information formats.

The use and responsibility, format and frequency of shared information should be understood by all project team members.

It is a key requirement of NHS Scotland that asset information developed in the design and construction phases of the programme can be incorporated into the Board's computer aided facility management (CAFM) system, <reference Board's systems>, and Asset Management System (AMS), 3i Studio. Asset data will be provided for the NHS Board CAFM and AMS Systems as attributes of objects in the model with the following criteria:

*NB: Only those assets types that are listed in the **NHS asset template sheet** within appendix 1 (to be customised by the Board in concert with individual project requirements) of this document are to be fully coded as above. Other assets only need GUID and local name/description and client reference. The PSCP (Or Main Contractor) shall be responsible for supplying the data in agreed MS Excel or equivalent formats for import by the NHS Board to their CAFM and 3i Studio systems.*

Attribute Field	Description
GUID (Globally Unique Identifier)	3D Model Generated Code.
Building Name/Description	Code available from NHS Boards.
Asset Template Name	Choose the correct Asset Template Name from the NHS Scotland Asset Template Sheet.
Asset Template Code	Choose the associated code matching the name from the NHS Scotland Asset Template Sheet.
Local Name/Description	Enter with a relevant name for the asset as it could be identified on site (e.g. West AHU No1). This is the name defined in the design process.
Quantity	In the case of individual assets created this will be one. In the case of "grouped" assets it will be the count of the assets. e.g. Fire Extinguishers; Fire Hose Reels; Lighting; Emergency Lighting; FCUs; Eye Bolts. These are multi selected when defined in the Models.
Manufacturer	The manufacturer's name.
Model	The model or reference of the asset.
Serial No.	The asset serial number, this typically is added to the model late in the procurement and installation process and lends itself to being carried out via export, data entry and re-import. Where not applicable state N/A.
Floor/Level	The Level of the building or building zone.

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Position	Detailed description of location including block and room
<p>Non-graphical attributes in an agreed digital format for:</p>	<p>operating instructions</p> <p>maintenance instructions</p> <p>fault finding instructions</p> <p>commissioning instructions</p> <p>working life expectancy of the asset including cost, remaining life etc. on sub elements e.g. windows, doors, sanitary ware</p> <p>commissioning dates and data</p> <p>health and safety file</p> <p>regular statutory tests</p> <p>Specification and cleaning regime to room level – finishes and fittings, furniture and equipment</p> <p>Building level life cycle information Warranty information on sub elements (installed date, start and end dates)</p> <p>Schedule of information on maintainable assets (site, building, floor, department and room levels) for PPM Scheduling</p> <p>Schedule of information on maintainable systems e.g. security, access control etc., (site, building, floor, department and room levels) for PPM Scheduling</p> <p>Fuel supply and storage arrangements (site and building level)</p> <p>Power consumption information</p> <p>Maintenance information on restricted access features e.g. high ledges, glazing etc</p> <p>Room level manufacturer information on soft furnishings e.g. blinds, curtains, bed-screens</p>

3. Processes

3.1 Applicable standards

In order to establish a consistent approach to collaboration and information management, NHS Scotland requires the PSCP (or Main Contractor) and its associated supply chain to adopt the following British Standards:

- BS 1192:2007
- BS 7000-4:1996A
- PAS 1192-2:2013
- PAS 1192-3:2014
- BS 1192-4:2014
- PAS 1192-5: 2015
- BS 8536-1:2015
- Core Classification: Uniclass (latest format)

Any relevant standards which emerge during this project are to be reviewed by the project team and adopted where beneficial to the delivery of the project.

3.2 Project specific standards

Coordinates:

The PSCP (or Main Contractor) shall define a common coordinate system for all BIM data and adopt it consistently for all Models. As a priority the Client requires that Ordnance Survey National Grid Coordinates shall be used unless there is a justifiable project level reason not to do so. As a default:

- Eastings and Northings to British National Grid (x and y)
- Elevations to mAOD (Newlyn) (z)
- 3D Co-ordinates to be no less accurate than 10mm in all directions (x,y,z).

Planning the Work & Data Segregation:

The PSCP (or Main Contractor) shall agree, adopt and maintain a BIM Strategy focusing on the following project-specific processes as a minimum:

- Model Management
- Zones and Areas
- Naming Conventions
- Publishing processes

Site Information:

The minimum site information as a digital default will include (for export into 3i Studio):

- Site Name
- Site Status
- Land Area (Ha)
- Site Grouping
- Address including Postcode

- GIA of proposed asset(s)
- Site Cross Reference
- UPRN

Block Data:

All block layouts will include the following minimum digital data set as a default will include (for export into 3i Studio):

- Site Code
- Block No
- Block Name
- Block Status
- Block Type
- GIA (m²)
- GEA (m²)

Floor data:

All floor layouts will include the following minimum digital data set as a default will include (for export into 3i Studio):

- Site Code
- Block No
- Floor Level
- Floor Code
- Floor Description
- GIA (m²)
- GEA (m²)

Room data:

All rooms will include the following minimum digital data set as a default will include (for export into 3i Studio):

- Site Code
- Block No
- Floor Level
- Room Number
- Zone Name
- Room Description
- Room Area (m²)
- Space Utilisation [These requirements will require further expansion and clarification in a project context]
- Functional Suitability [These requirements will require further expansion and clarification in a project context]
- Quality
- Room Height (m)
- Volume

3.3 Outline of processes

3.3.1 The required data drops for the **insert project name** are summarised in the following table and further information is provided in the following subsections.

3.3.2 The **Level of Model Definition (LOD)** is to be generally delivered in line with **PAS1192-2:2013 Figure 20**. The project specific LOD requirements will be identified at each stage as part of the Bidder Submission Requirements as an Information Delivery Plan.

Note: the tables as a default show there being alignment of Level of Model of Definition where the Level of Detail (Graphical Representation) and Level of Information (Non-graphical data) are in concert; these should be set to suit project specific requirements. The NBS Digital Toolkit helps define these growing requirements (<https://toolkit.thenbs.com/>). The deliverables and LOD are shown for illustrative purposes only and these should be established to meet the needs of explicit project plain language questions.

NHS Project stages	Description	Drop	Purpose	Level of Definition	
				Level of Detail	Level of information
Mid-Way through NHS Stage 1	After Strategic Definition	1	Determine strategic case and fit	0	1
Early in NHS Stage 2	Early in Outline Business Case (OBC)	2	Feasibility and analysis of options	1	1
Late in NHS Stage 2	Late in Outline Business Case (OBC)	3	Identification of proposed solution	2	2
End of NHS Stage 3	At end of Full Business Case (FBC)	4	Design freeze and price agreement	3	3
End of NHS Stage 4	At end of implementation / construction stage and prior to handover	5	Practical completion – populate O&M manual(s) and Client's CAFM systems	6	6

NHS Scotland Drop 3

Information to be delivered prior to the end of RIBA Plan of Work Stage C

(to be edited in concert with individual project requirements)

(RIBA POW13 – Stage 2)

NHS Scotland Drop 3	Description	Model	2D PDF Drawings	2D DWG Drawings	COBie UK	Digital Documentation	Level of definition
Overall form and content							
Space planning	Confirmed zoning. Confirmed scale of spaces and of the building as a whole that the PSCP (OR MAIN CONTACTOR) Proposes. Confirmed adjacencies and circulation pattern	✓			✓	✓	2
Site and context	Relationship to adjacent buildings and external uses/circulation. Proposed levels.	✓			✓	✓	2
External form and appearance	Proposed approach	✓			✓	✓	2
Building and site sections	Relationship to adjacent buildings and external uses/circulation. Proposed levels	✓			✓	✓	2
Internal layouts	Proposals for internal layout of key spaces	✓			✓	✓	2
Design strategies							
Fire	Compliant summary of strategy that will be adopted for this building	✓			✓	✓	2
Physical security	Compliant summary of strategy that will be adopted for this building	✓			✓	✓	2
Disabled access	Compliant summary of strategy that will be adopted for this building	✓			✓	✓	2
Maintenance access	Compliant summary of strategy that will be adopted for this building	✓			✓	✓	2
BREEAM	Outline pre-	✓			✓	✓	2

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	assessment schedule. The Tenderer's strategy for achieving BREEAM 'excellent' in accordance with the performance specification specific to this building.							
Performance								
Building	Compliant summary of performance that will be achieved by the Proposals for this building. Supplemented by drawings as necessary	✓			✓	✓		2
MEP systems	Compliant summary of performance that will be achieved by the Proposals for this building. Supplemented by drawings as necessary	✓			✓	✓		2
Structural	Compliant summary of performance that will be achieved by the Proposals for this building. Supplemented by drawings as necessary	✓			✓	✓		2
Building								
	Compliant summary of construction strategy that will be achieved by the Proposals for this building. Supplemented by drawings as necessary. Including the following:	✓			✓	✓		2
	External envelope construction	✓			✓	✓		2
	Internal construction	✓			✓	✓		2
	Walls	✓			✓	✓		2
	Foundations	✓			✓	✓		2
	Frame	✓			✓	✓		2
	Roof	✓			✓	✓		2
	Doors, windows, louvres and other openings in the envelope	✓			✓	✓		2
	Finishes	✓			✓	✓		2
	Furniture, Fittings and	✓			✓	✓		2

[INSERT PROJECT TITLE]
EMPLOYERS INFORMATION REQUIREMENTS (EIR)

	Equipment						
	Significant fittings	✓			✓	✓	2
Specifications	Elemental specifications	✓			✓	✓	2
MEP systems							
	Compliant summary of MEP systems strategy that will be achieved by the Proposals for this building. Supplemented by drawings as necessary	✓			✓	✓	2
Construction process proposals							
Phasing	Summary of project phasing Proposed. Supplemented by drawings as necessary.		✓			✓	2
Site access	Summary of site access Proposed. Supplemented by drawings as necessary		✓			✓	2
Site set-up	Summary of site set-up Proposed. Supplemented by drawings as necessary		✓			✓	2
Health and Safety			✓			✓	2
Project overview	Summary of project proposal supplemented by drawings as necessary		✓			✓	2
Description of works	Outline methodology for design / delivery of the works		✓			✓	2
Project site specific risks for Constructor's design;	Summary of project Proposals. Supplemented by drawings as necessary		✓			✓	2
Constructor design team details;	Summary of project Proposals. Supplemented by drawings as necessary		✓			✓	2
Safe systems of work and person responsible for their coordination;	Summary of project Proposals. Supplemented by drawings as necessary		✓			✓	2
Site compound location and arrangements (refer to other section if included elsewhere);	Summary of project Proposals. Supplemented by drawings as necessary		✓			✓	2
Traffic management plan identifying access arrangements (refer to other section if included elsewhere);	Summary of project Proposals. Supplemented		✓			✓	2

[INSERT PROJECT TITLE]
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	by drawings as necessary						
Construction plant or equipment to be used in project.	Summary of project Proposals. Supplemented by drawings as necessary		✓			✓	2
BIM execution plan	Provide outline BIM execution plan to demonstrate how project will comply with PAS1192:2					✓	
Model co-ordination	Demonstrate how Model(s) will be co-ordinated.					✓	
Other (specify)							
Other (specify)							
Other (specify)							

NHS Scotland Drop 4

Information to be delivered prior to the end of RIBA Plan of Work Stage F (RIBA POW13 – Stage 4)

(to be edited in concert with individual project requirements)

NHS Scotland Drop 4	Description	Model	2D PDF Drawings	2D DWG Drawings	COBie UK	Digital Documentation	Level of definition
Overall form and content							
Space planning	Confirmed zoning. Confirmed scale of spaces and of the building as a whole that the Constructor Proposes. Confirmed adjacencies and circulation pattern	✓			✓	✓	3
Site and context	Relationship to adjacent buildings and external uses/circulation. Proposed levels.	✓			✓	✓	3
Surveys	The outcome of all surveys undertaken	✓				✓	3
External form and appearance	Proposed approach	✓			✓	✓	3
Building and site sections	Relationship to adjacent buildings and external uses/circulation. Proposed levels.	✓			✓	✓	3
Internal layouts	Proposals for internal layout of all spaces	✓			✓	✓	3
Design strategies							
Fire	Compliant fire strategy that will be adopted for this building.	✓			✓	✓	3
Physical security	Compliant Physical Security strategy that will be adopted for this building	✓			✓	✓	3
Disabled access	Compliant Disabled Access strategy that will be adopted for this building	✓			✓	✓	3
Maintenance access	Compliant Maintenance Access strategy that will be	✓			✓	✓	3

[INSERT PROJECT TITLE]
EMPLOYERS INFORMATION REQUIREMENTS (EIR)

	adopted for this building						
BREEAM	Design stage evidence as set out in BREEAM Contractor Performance Specification. Model updated with any elements that contribute to BREEAM.	✓			✓	✓	3
Performance							
Design Performance Analysis (technical compliance including building regulations)	Principles of analysis, calculation output, updated Model and drawings	✓			✓	✓	3
Structural Analysis	Principles of analysis, calculation output, updated Model and drawings	✓			✓	✓	3
Thermal Simulation	Principles of analysis, calculation output, updated Model and drawings	✓			✓	✓	3
Sustainability Analysis	Principles of analysis, calculation output, updated Model and drawings	✓			✓	✓	3
Acoustic analysis	Principles of analysis, calculation output, updated Model and drawings	✓			✓	✓	3
4D Programming Analysis	Not a requirement of level 2 BIM. To be agreed with the PSCP (OR MAIN CONTACTOR)	As Agreed			As Agreed	✓	3
5D Cost Analysis	Not a requirement of level 2 BIM. To be agreed with the PSCP (OR MAIN CONTACTOR)	As Agreed			As Agreed	✓	3
Elements, materials components							
Building	Developed construction strategy Proposed for this building.	✓			✓	✓	3
	External envelope construction	✓			✓	✓	3

[INSERT PROJECT TITLE]
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	Internal construction	✓			✓	✓	3
	Walls	✓			✓	✓	3
	Foundations	✓			✓	✓	3
	Frame	✓			✓	✓	3
	Roof	✓			✓	✓	3
	Doors, windows, louvres and other openings in the envelope	✓			✓	✓	3
	Finishes	✓			✓	✓	3
	Equipment schedules	✓			✓	✓	3
Specifications	Developed specifications					✓	
MEP systems	Developed MEP systems strategy Proposed for this building. Including the following:	✓			✓	✓	3
	Cross site services and incoming service arrangements	✓			✓	✓	3
	Primary electrical services installations	✓			✓	✓	3
	Electrical distribution	✓			✓	✓	3
	Small power	✓			✓	✓	3
	Lighting	✓			✓	✓	3
	Lightning protection	✓			✓	✓	3
	Fire alarm systems	✓			✓	✓	3
	General Alarms	✓			✓	✓	3
	Pegging	✓			✓	✓	3
	Cell call	✓			✓	✓	3
	Internal CCTV	✓			✓	✓	3
	External CCTV	✓			✓	✓	3
	PIDS	✓			✓	✓	3
	Security systems	✓			✓	✓	3
	Disabled person call systems	✓			✓	✓	3
	Intercom	✓			✓	✓	3
	Earthing	✓			✓	✓	3
	TV & Radio Aerial System	✓			✓	✓	3
	Telecom incomers	✓			✓	✓	3
	IT containment and cabling	✓			✓	✓	3
	Induction loop systems	✓			✓	✓	3
	Standby supply	✓			✓	✓	3
	Primary Mechanical plant	✓			✓	✓	3
	Ventilation	✓			✓	✓	3

[INSERT PROJECT TITLE]
EMPLOYERS INFORMATION REQUIREMENTS (EIR)

	Heating	✓			✓	✓	3
	Water supplies	✓			✓	✓	3
	Fire fighting/life safety systems	✓			✓	✓	3
	Building Management system	✓			✓	✓	3
	Above ground drainage	✓			✓	✓	3
	Lift	✓			✓	✓	3
	Below ground drainage	✓			✓	✓	3
	Catering Equipment	✓			✓	✓	3
	Access/Lifting equipment	✓			✓	✓	3
	Laundry Equipment	✓			✓	✓	3
	Fuel Storage	✓			✓	✓	3
	Flag Poles	✓			✓	✓	3
	Stores Racking	✓			✓	✓	3
	Water Features	✓			✓	✓	3
	Rain Water Harvesting	✓			✓	✓	3
Other (specify)							
Other (specify)							
Other (specify)							

NHS Scotland Drop 5

Information to be delivered prior to the end of RIBA Plan of Work Stage K

(to be edited in concert with individual project requirements)

(RIBA POW13 – Stage 5)

The Board's requirements for information submitted by the PSCP (OR MAIN CONTACTOR) as part of its Operating and Maintenance Information shall constitute Data Drop 5.

If demolitions or removal of existing equipment are necessary as an enabler for the contract, then a separate data drop 5 shall be provided at the end of such demolitions or removals to allow updating of the Board's CAFM system.

If enabling works or sectional completions are to be employed then a Data Drop 5 will be provided at the completion of each section.

NHS Scotland Drop 5 Handover + Closeout: O&M Information	Description	Model	2D PDF Drawings	2D DWG Drawings	COBie UK	Digital Documentation	Level of definition
Overall form and content							
Space planning	Confirmed zoning. Confirmed scale of spaces and of the building as a whole as constructed. Confirmed adjacencies and circulation pattern	✓	✓		✓	✓	6
Site and context	Relationship to adjacent buildings and external uses/circulation. Constructed levels.	✓	✓		✓	✓	6
External form and appearance	Confirmed construction	✓	✓		✓	✓	6
Building and site sections	Relationship to adjacent buildings and external uses/circulation as constructed. Levels as constructed.	✓	✓		✓	✓	6
Internal layouts	Internal layout of all spaces as constructed	✓	✓	✓	✓	✓	6
Design strategies							
Fire	Confirmed fire strategy that is adopted for this building.	✓	✓		✓	✓	6
Physical security	Confirmed Physical Security strategy that is adopted for this building	✓	✓		✓	✓	6
Disabled access	Confirmed Disabled Access strategy that is adopted for this building	✓	✓		✓	✓	6
Maintenance access	Confirmed Maintenance Access strategy that is adopted for this building	✓	✓		✓	✓	6
BREEAM	All the post construction stage evidence required by BREEAM Contractor Performance Specification. Model updated to include any elements that contribute to BREEAM	✓			✓	✓	6
Performance							
Design Performance Analysis (technical compliance including building regulations)	Record of analysis, calculation output, updated Model and drawings	✓			✓	✓	6
Structural Analysis	Record of analysis, calculation output (If requested by the TA), updated Model and drawings	✓			✓	✓	6
Thermal Simulation	Record of analysis, calculation output, updated Model and drawings	✓			✓	✓	6
Sustainability Analysis	Record of analysis, calculation output,	✓			✓	✓	6

[INSERT PROJECT TITLE]
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	updated Model and drawings						
Acoustic analysis	Record of analysis, calculation output, updated Model and drawings	✓			✓	✓	6
4D Programming Analysis	To be agreed with the PSCP (OR MAIN CONTACTOR)	As Agreed			As Agreed	✓	6
5D Cost Analysis	To be agreed with the PSCP (OR MAIN CONTACTOR)	As Agreed			As Agreed	✓	6
Services Commissioning	Record of design requirements used for commissioning (design flow rates etc.) and certification that these were achieved within acceptable limits.	As Agreed			As Agreed	✓	6
Elements, materials components							
Building	Record of construction strategy adopted for this building.	✓	✓		✓	✓	6
External envelope construction		✓	✓		✓	✓	6
Internal construction		✓	✓		✓	✓	6
Walls		✓	✓		✓	✓	6
Foundations		✓	✓		✓	✓	6
Frame		✓	✓		✓	✓	6
Roof		✓	✓		✓	✓	6
Doors, windows, louvres and other openings in the envelope		✓	✓		✓	✓	6
Finishes		✓	✓		✓	✓	6
Furniture, Fittings & Equipment	Equipment schedules (drilled down to room level)	✓	✓		✓	✓	6
Specifications	Elemental specifications	As Agreed	✓				6
MEP systems	Record of MEP systems strategy adopted for this building. Including the following:	✓	✓		✓	✓	6
	Cross site services and incoming service arrangements	✓	✓		✓	✓	6
	Primary electrical services installations	✓	✓		✓	✓	6
	Electrical distribution	✓	✓		✓	✓	6
	Small power	✓	✓		✓	✓	6
	Lighting	✓	✓		✓	✓	6
	Lightning protection	✓	✓		✓	✓	6
	Fire alarm systems	✓	✓		✓	✓	6
	Security systems	✓	✓		✓	✓	6
	Disabled person call systems	✓	✓		✓	✓	6
	Intercom	✓	✓		✓	✓	6
	Earthing	✓	✓		✓	✓	6
	TV & Radio Aerial System	✓	✓		✓	✓	6
	Telecom incomers	✓	✓		✓	✓	6
	IT containment and cabling	✓	✓		✓	✓	6
	Induction loop systems	✓	✓		✓	✓	6
	Standby supply	✓	✓		✓	✓	6
	Electrical systems specific to Video Courts	✓	✓		✓	✓	6
	Primary Mechanical plant	✓	✓		✓	✓	6
	Ventilation	✓	✓		✓	✓	6
	Heating	✓	✓		✓	✓	6
	Water supplies	✓	✓		✓	✓	6
	Fire fighting/life safety systems	✓	✓		✓	✓	6
	General Alarms	✓	✓		✓	✓	6
	Pegging	✓	✓		✓	✓	6

[INSERT PROJECT TITLE]
EMPLOYERS INFORMATION REQUIREMENTS (EIR)

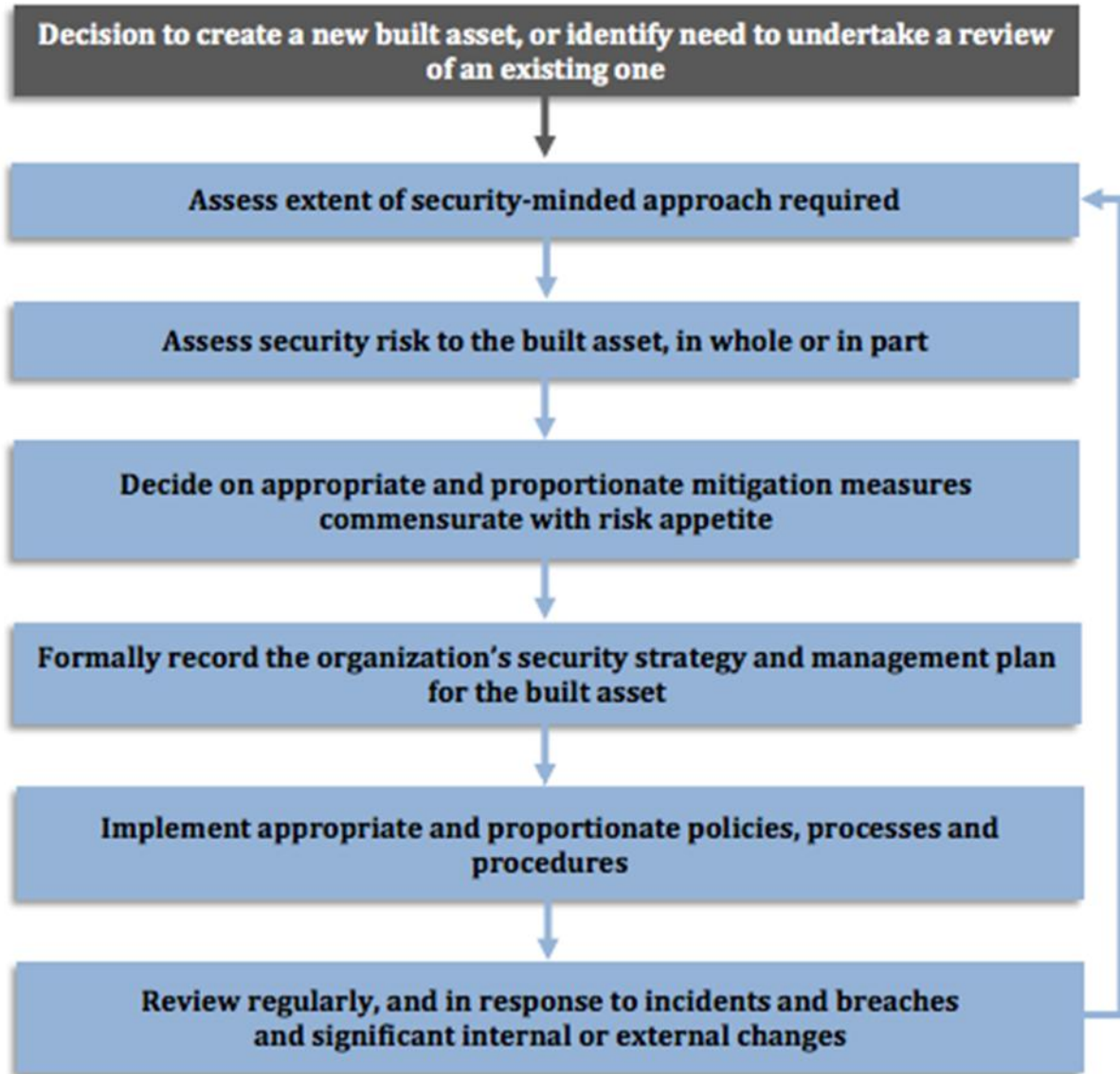
	Medical Gases	✓	✓		✓	✓	6
	Internal CCTV	✓	✓		✓	✓	6
	External CCTV	✓	✓		✓	✓	6
	PIDS	✓	✓		✓	✓	6
	Security systems	✓	✓		✓	✓	6
	Building Management system	✓	✓		✓	✓	6
	Above ground drainage	✓	✓		✓	✓	6
	Lift	✓	✓		✓	✓	6
	Below ground drainage	✓	✓		✓	✓	6
	Catering Equipment	✓	✓		✓	✓	6
	Access/Lifting equipment	✓	✓		✓	✓	6
	Laundry Equipment	✓	✓		✓	✓	6
	Fuel Storage	✓	✓		✓	✓	6
	Flag Poles	✓	✓		✓	✓	6
	Stores Racking	✓	✓		✓	✓	6
	Water Features	✓	✓		✓	✓	6
	Rain Water Harvesting	✓	✓		✓	✓	6
	Other (specify)						
External Landscaping	Soft landscaping and planting	✓	✓		✓	✓	6
	Walls, fencing and gates	✓	✓		✓	✓	6
	Roads and car parks	✓	✓		✓	✓	6
	Paths and paved areas	✓	✓		✓	✓	6
	External fittings and furniture	✓	✓		✓	✓	6
	Ancillary buildings	✓	✓		✓	✓	6
Health and Safety							
Completed operation and maintenance manuals in the timescale dictated by NHS Scotland handover procedures	Documentation supplemented with drawings. Model to be updated where necessary.	✓	✓		✓	✓	6
Record of any residual risks for Constructor's design;	Documentation supplemented with drawings. Model to be updated where necessary.	✓	✓			✓	6
Safe systems of work for future maintenance (refer to Maintenance Strategy if included therein)	Confirmed project Proposals. Supplemented by drawings as necessary	✓	✓			✓	6
Local Authority Approval Documents						✓	
	Other (specify)						

With regard to the Model(s), these shall be supplied in the native format used by the PSCP (OR MAIN CONTACTOR) and in a format suitable for viewing on the client's IT system. At data drop 5 the Models shall be supplied in a format capable of being read and edited on the client's IT system.

Drop 5 will include the Asset Data as prescribed in Appendix 1 - NHS asset template sheet and 2.6.2 of this document

4. SECURITY

The project shall follow the principles set out in PAS1192-5:2015, Specification for security-minded building information modelling, digital built environments and smart asset management. An overview of the process is illustrated below:



Specific NHS Scotland Security Requirements are defined here:

PSCP (or Main Contractor), consultants and agency staff providing services to NHS Scotland may use their own computing facilities to deliver services with the following conditions:

These computing facilities must be their 'tools of trade', i.e. separate from personal computing facilities used by themselves or their families etc. for leisure or other personal uses; and must employ best practice security controls such as up to date anti-virus control, personal firewall, access control, disk encryption and up to date software patches.

Use of these computing facilities should be limited to activities involving NHS Scotland data such as producing reports, reviewing documents, sending and receiving emails, and should

not involve storing and processing large volumes of NHS Scotland data, for example database extracts.

Disc encryption must be in accordance with NHS Board requirements.

Where the computer connects to a remote network e.g. the contractor's company network, then an encrypted link must be used.

No data will be stored in 'the cloud' other than via the agreed project CDE solution (project extranet) or stored outside the UK or transferred via non-secure FTP. [to be edited where necessary to suit an NHS Board or Project Cloud Strategy]

No emails containing protectively marked or personal data, or any other type of sensitive information should be sent un-encrypted over the Internet.

Any removable media used to transport data outside of secure buildings must be encrypted. Once no longer required these devices should be securely disposed of. CD/DVDs and floppy disks should be cut into 4 pieces and disposed of as normal waste.

Computer hard disk drives should be securely erased before disposal or recycling if it has held any personal or protectively marked data. NHS Scotland Information Assurance Branch should be consulted on the procedure to be followed.

In compliance with the Data Protection Act, any personal data must be deleted when no longer required and must not be used for any other purposes that what it was collected for. It must not be retained beyond the duration of engagement with the NHS Scotland

Where there is a need to provide access to large volumes of personal or protectively marked data only NHS Scotland computing facilities must be used. Removable media provided by NHS Scotland must be returned to the NHS Scotland after use.

Paper records containing sensitive or personal data should be stored, transported and disposed of securely. Sensitive waste paper should be collected separately from normal waste, and stored securely pending destruction by shredding or burning. As with electronic records, particular care should be taken when moving bulk paper records.

Any file, including .ifc files, when uploaded to a NHS Scotland digital common data environment are deemed to be secure to the standard required by NHS Scotland.

5. ROLES AND RESPONSIBILITIES

The PSCP (or Main Contractor) will assign these responsibilities as defined in PAS1192-2 within their BEP. This should include:

- Project Delivery Manager (PDM)
- Information Manager (IM)
- Lead Designer (LD)
- Task Team Manager (TTM)

The Board will participate in the BIM process, for example EIR drafting, receipt of data drop information, CAFM FM provider engagement and Stakeholder / end-user engagement.

The roles themselves are addressed in specific appointments.

Guidance 1: Roles associated with the management of information on BIM-enabled projects are described in outline in PAS 1192-2:2013.

Guidance 2: An outline scope of service for the role of Information Management has been published by CIC.

Guidance 3: All of the roles described in PAS 1192-2:2013 are expected to be undertaken within the scope of existing appointments.

Guidance 4: Any drafting of roles and responsibilities in the EIRs should be aligned with drafting published in appointment documentation and employer's requirements / specifications.

Guidance 5: Details of how any BIM-specific roles will be delivered and coordinated should be included in the BIM Execution Plan (BEP).

Details of activities undertaken by the Boards:

5.1 TRAINING

The NHS Scotland Board will require training as follows [insert project specific training requirements – for example]:

- Maintenance / updating of the COBie dataset
- The principles / process of BIM federation
- Navigation around BIMs using freely available software

Training should be delivered periodically throughout the design and construction period as required. Responsibility for training rests with the PSCP (or Main Contractor).

5.2 PLANNING OF THE WORKS AND DATA SEGREGATION

The PSCP (OR MAIN CONTACTOR) should organise the Project Information Model to ensure that managed access to its content is available. The CDE should be managed in accordance with BS1192 and PAS1192-2. The PSCP (OR MAIN CONTACTOR) is also required to manage model area, volume and zoning strategies. All models and data should hold consistent reference to blocks, zones, rooms and spaces as a means of identity space reference should be managed through a formal change control process. For documents and files there should be a single naming convention which is adopted project wide with all information managed in accordance with the processes described in PAS1192-2, PAS1192-3, BS1192 and BS1192-4.

Model Management

Details for procedures required. The expectation is that this will be co-ordinated by the Information Manager

Volumes, Zones and Areas

Requirements in connection with the definitions of zones and the management of adjacency within the model

Requirements in connection with the definition of the project volume structure

Naming Conventions

Definition of the requirement for a single project convention – preferably based on a departmental standard agreed with the Board.

Fully documented procedures are required in the BEP.

5.3 Coordination and Clash Detection Process

The purpose of this section is to define the required co-ordination process, together with requirements for quality control.

Provide details of the following within the BEP on coordination, clash prevention and detection process in line with PAS1192-2-2013:

- Details of the clash detection process including:
 - Software
 - Process overview
 - Responsibilities
 - Outputs
- Technical query workflow
- Tolerance strategy
- Clash resolution process

6. Collaboration Process

The purpose of this section is to define how, where and when project information will be shared.

Provide details of the collaboration process sufficient to demonstrate competence and capability. It is expected that full details of the process will be included within the completed BIM Execution plan and should include details of:

- Form of sharing
- Extent of model i.e. reduced LoD
- Frequency of collaboration and information exchange
- Details of model review workshops and other collaborative working practices

6.1 Health & Safety and Construction (Design and Management)

Regulations

The purpose of this section is to enable the employer to define how BIM- based working will support H&S/CDM monitoring aligned with the work stages. Data and records capture processes also need to be documented.

Details of how BIM enabled processes will be used to manage the employer's and supplier's H&S/CDM obligations, sufficient to demonstrate competence and capability.

- Schedule of work stages (APM/RIBA/ICE/bespoke Work Breakdown Structures)
- Overview of key H&S deliverables against each work stage
- Confirmation on how deliverables should be stored
- Requirements for disaster planning
- Approach to design authoring

6.2 System Performance

The purpose of this section is to communicate to bidders any constraints in the employer's systems or specific IT requirements which may need additional resources or non-standard solutions.

The following employer-side IT system restrictions and requirements need to be taken into account when developing the BIM Execution Plan:

- Model size
- Software uses
- Access to free viewers
- Security issues (also elaborated above in a separate section on page 22)

6.3 Compliance Plan

The purpose of this section is to enable the PSCP (or Main Contractor) to communicate how the integrity of the model and other data sources will be maintained.

Details of client-specified model and data compliance requirements, including references to standards and to compliance software that is used by the employer.

The PSCP (or Main Contractor) proposals for model and data compliance will be detailed within the BIM Execution plan, which should refer to:

Quality assurance/control procedure by including details on:

- Associated software
- Level of assurance
- Period of aftercare (the number of years that the model should be managed for)

6.4 BIM Execution Plan

The PSCP (or Main Contractor) shall prepare, deliver and maintain a BIM Execution Plan (BEP) for the project that responds to this Employer Information Requirements.

The PSCP (or Main Contractor) shall review their BEP regularly and additionally when there is any change to their contract.

The BEP should also address BIM Capacity and Experience details. Responses will need to describe how mature an organisation is, and what capabilities are held; this should include the following details:

- BIM experience - organisational and personnel;
- BIM capabilities; and
- BIM capacities and experience of out-sourced roles.

Appendix 1 - NHS asset template sheet

Code Series	Category of Items	Includes E.G.	Mapped 3I code		
			Facet	Element	Sub element
AA	ALARM SYSTEMS	INTRUDER, ATTACK FIRE, SMOKE, MED GAS ETC	2	19	
AB	ANAESTHETIC RESUSCITATION	RESUSCITATION TROLLEY, VENTILATOR, MOBILE DENTAL ETC			
AC	ANTI-STATIC ITEMS	CLOTHING, EQUIPMENT ETC			
BB	HEAT SOURCE	BOILERS & ASSOCIATED EQUIPMENT	2	11	
BC	BLINDS & CURTAINS				
BUIGEN	BUILDING GENERAL		1		
CA	CLOCKS				
CB	COLD WATER SUPPLY	TANKS, VALVES, PIPES ETC	2	14	
CC	CALL SYSTEMS	BED UNITS	2	18	4
CD	CONVEYORS/ELEVATORS/ROLLERS	FOOD CONVEYOR ETC	2	15	
CE	CEILINGS	SUSPENDED, PLASTER, TILES ETC	2	4	3
DA	DOMESTIC EQUIPMENT	VACUUM, FLOOR SCRUBBER, POLISHER ETC.			
DB	DRAINAGE – EXTERNAL	DRAINS, MANHOLES, GUTTERS ETC	2	7	
DC	DRAINAGE – INTERNAL				
DR	DOORS		1	4	5
EA	MEDICAL EQUIPMENT	BEDS, TROLLEYS, OPERATING	1	5	3
EB	ELECTRICAL INSTALLATION	SWITCHES, FUSES, GENERATORS ETC.	2	17	
ENGGEN	ENGINEERING GENERAL			2	
EW	EXTERNAL WORK	ROADS, PATHS, FENCING ETC	2	7	2
FA	FIRE FIGHTING SERVS	EXTINGUISHERS: HYDRANTS	6	14	
FB	FLOORS & COVERINGS	VINYL: TERRAZZO: CARPET	1	4	2
FC	FINISHES – INTERNAL	WALLS: PAINTED/TILED/PAPERED	1	4	1
FF	FIXTURES & FITTINGS	WC CUBICLES: FIXED ROOM DIVIDERS/SCREENS: LOOSE FURNITURE	1	5	
GA	GARDENING EQUIPMENT	TRACTOR: LAWN MOWER: HAND TOOLS	1	6	1
GB00	FITTINGS - GROUP 1				
GG	GROUNDS & GARDENS	GRASS: FLOWER BEDS	1	6	1
HA	HEATING INSTALLATIONS	CENTRAL HEATING BOILER: HEATERS: RADIATORS	2	8	
HB	DOMESTIC HOT & COLD WATER SERVICES	CISTERN: WATER HEATER: SHOWER	2	14	
ISOO	INTERNAL STRUCTURES				
KA	KITCHEN EQUIPMENT – FIXED	STEAMERS: FRYERS: OVEN	2	16	4
LA	LABORATORY EQUIPMENT	CENTRIFUGE: FRIDGE: SCALES			
LB	LAUNDRY EQUIPMENT – FIXED	WASHING MACHINES: CALENDER FOLDER	2	16	5

[INSERT PROJECT TITLE]
EMPLOYERS INFORMATION REQUIREMENTS (EIR)

LC	LIFTS	BED LIFT: PASSENGER LIFT	2	15	1
LD	LIGHTING	BED HEAD LIGHT: EXAMINATION LAMP	2	17	7
LE	LADDERS				
MA	MEDICAL FURNITURE	BED: TROLLEY: OPERATING	1	5	3
MB	MEDICAL GAS/VACUUM/AIR	VALVES: PIPES: COMPRESSOR	2	13	7
MD	NON-MEDICAL FURNITURE		1	5	
PA	PROTECTIVE INSTALLATIONS	LIGHTING PROTECTION			
PC	PHYSIOTHERAPY EQUIPMENT – ELECTRICAL	HEAT LAMP WAX BATH			
PD	PHYSIOTHERAPY EQUIPMENT – MECHANICAL	EXERCISE APPARATUS: HYDROTHERAPY POOL			
PE	PORTABLE TOOLS	ELECTRIC DRILL: TEST EQUIPMENT			
PI	PLUMBING – INTERNAL	POST MORTEM TABLE: SLUICE SINKS: SHOWERS	2	14	
PX	PLUMBING – INTERNAL & ROOF	GUTTERS	1	2	4
RA	REFRIGERATION PLANT	COOLING TOWER: BLAST FREEZER CABINET: BLOOD BANK FRIDGE	2	12	6
RG	GENERAL ROOFING	TYPES OF ROOF – PITCHED/TILE.SLATE ETC	1	3	
SA	SERVERY & WASHING UP EQUIPMENT	BAIN-MARIE: HEATED FOOD TROLLEY: VENDING MACHINE	1	5	99
SB	SEWAGE PLANT	FILTER BED: PUMPS: VALVES	2	7	1
SC	STERILISING: TSC/CSSD EQUIPMENT	AUTOCLAVE: WASHING MACHINE FOR BOTTLED/GLASSWARE ETC			
SD	STORAGE EQUIPMENT	RACKS/BINS: FILING CABINETS	1	5	99
SE	SERVICES EQUIPMENT				
SFOO	SOFT FURNISHINGS				
S1	SPECIAL INSTALLATIONS	WINDOW CLEANING EQUIPMENT			
TA	TRANSPORT	TYPES OF VEHICLES – BUS/AMBULANCE/VAN/CAR ETC			
VA	VENTILATION SYSTEMS	HUMIDIFIER: AIR CONDITIONING	2	12	
WA	WARNING SYSTEMS	BLOOD BANK: MEDICAL GASSES: BABY INCUBATOR	2	19	
WB	WASTE DISPOSAL: SANITARY WARE	WASTE DISPOSAL MACHINE: URINAL: BEDPAN WASHER	2	16	2
WC	WATER TREATMENT & EQUIPMENT	TANKS: FILTERS	2	14	2
WD	WORKSHOP EQUIPMENT	BENCH DRILL: LATHE			
WORKS GENERAL					
WS	WALLS – EXTERNAL	TYPES OF WALLS – BRICK/STEEL/TIMBER ETC: CANOPIES: CHIMNEY	1	2	1
WW	WINDOWS & FITTINGS	TYPES OF WINDOWS – WOOD/METAL /SLIDING/HINGED ETC	1	2	2
XA	X-RAY EQUIPMENT	FILM PROCESSOR: MOBILE X-RAY MACHINE: MAMMOGRAPHY UNIT			

[INSERT PROJECT TITLE]
EMPLOYERS INFORMATION REQUIREMENTS (EIR)

ZB	BUSINESS MACHINES: COMPUTERS	FRANKING M/C: DICTATION M/C: PHOTOCOPIERS: TYPEWRITER COMPUTER/ PRINTER/VDU ETC			
ZC	CONTROLS & INSTRUMENTS	AIR CONDITIONING CONTROL: INCUBATOR CONTROL			
ZD	DIALYSIS EQUIPMENT	BLOOD PUMP: DEIONISER			
ZE	ELECTRONIC MEDICAL EQUIPMENT	IMPEDANCE METER: OXYGEN MONITOR: PULSE MONITOR			
ZL	ELECTRONIC LAB EQUIPMENT	AUTO ANALYSER: DIGITISER			
ZM	AUDIOMETRIC EQUIPMENT	ARTIFICIAL EAR/LUNG: DIGITAL MULTIMETER			
ZP	PHYSIOTHERAPY ELECTRONIC EQUIPMENT	DIATHERMY: MUSCLE STIMULATOR			
ZS	COMMUNICATION SYSTEMS	INTERCOM: DOORBELL: STAFF LOCATION SYSTEM	2	18	
ZT	TEACHING & RECREATION EQUIPMENT	PUBLIC ADDRESS AMPLIFIER: PROJECTOR: RADIO: TV			