



HM Government

## **Employer's Information Requirements (EIR)**

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Government Hubs  
Programme Fit-Out  
FF&E Framework

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# **1 Introduction**

## **1.1 Purpose of document**

HM Government require all Stakeholders on the Government Hubs Programme FFE Fit-Out Framework to work to Building Information Modelling (BIM) Level 2 as defined by PAS 1192-2:2013.

The intent of this document is to outline the information requirements to support the implementation of BIM and shall be known as the Employer's Information Requirement (EIR). The EIR document also outlines the following to support collaborative processes to produce the information required during design, construction and handover:

- Management processes and standards
- Commercial requirements
- Technical deliverables

This document specifies the minimum information requirements for all Stakeholders and represents part of the contractual agreement.

No part of this document shall be construed as preventing any Stakeholders from collaborating if this is to benefit the programme.

## **1.2 Government Hubs Programme FFE Fit-Out Framework**

The HM Government Hubs Programme is comprised of multiple projects which will see the current landscape of 170 offices reoriented into 13 modern Regional Centres. The government's estates vision is to create an efficient, fit-for-purpose and sustainable estate. As part of that vision, the supply, delivery, and installation of furniture will be one part of a wider programme of the hub fit-out.

A key objective for implementation of BIM for this Programme is the deliverable of a digital Asset Information Model (AIM) to support operational and maintenance activities of the facility after completion of the building and construction fit-out works. It is for this reason that an EIR document has been developed specifically for this programme which takes into account the specific information requirements.

## **1.3 Bidders' responses to the BIM requirements**

Each bidders' response to the BIM requirements specified within this document shall be detailed in a 'Call-Off Stage 1' BIM Execution Plan (BEP), outlining a proposed approach to achieving the requirements set out in this document.

Upon appointment, the Contractor Lead shall integrate their proposed BIM methodology into the 'Call-Off Stage 2' BIM Execution Plan (BEP), and maintain for the remaining programme duration.

In addition to the above all parties interfacing with BIM models shall provide details of their BIM processes or any specific modelling requirements. This shall be integrated into the BEP as the agreed BIM process management standard for the programme.

**This EIR document shall be appended to the CIC Protocol and incorporated into professional services appointments, construction contracts, sub contracts and novation agreements.**

## 2 Abbreviations, Glossary of terms and Programme roles

### 2.1 Abbreviations

<b>AIM</b>	Asset Information Model
<b>BASS</b>	Built Asset Security Strategy
<b>BASMP</b>	Built Asset Security Management Plan
<b>BASIR</b>	Built Asset Security Information Requirements
<b>BEP</b>	BIM Execution Plan
<b>BIM</b>	Building Information Modelling
<b>CAFM</b>	Computer-Aided Facilities Management
<b>CDE</b>	Common Data Environment
<b>CDM</b>	Construction (Design and Management)
<b>EIR</b>	Employer's Information Requirements (document)
<b>FM</b>	Facilities Management
<b>GIS</b>	Geographical Information System
<b>IFC</b>	Industry Foundation Classes
<b>LOD</b>	Level Of Definition
<b>LOI</b>	Level of Information
<b>MPDT</b>	Model Production Delivery Table
<b>PIM</b>	Project Information Model
<b>TBC</b>	To Be Confirmed
<b>WIP</b>	Work In Progress

## 2.2 Glossary of terms

4D	A 3D representation of an asset with the element of time included to enable simulations
5D	A 3D representation of an asset with the element of time and cost included/linked to enable simulations, commercial management and earned value tracking to take place
6D	A 3D representation of an asset which includes data which enables the efficient management, operation and maintenance of the completed asset
Asset Information Model (AIM)	Information model used to manage, maintain and operate the asset
Attribute	A specification that defines a property of an object
BIM Model or BIM Model file	A 3D model file containing hierarchically defined objects to which data can be attributed
Building Information Modelling (BIM)	Process of designing, constructing or operating a building or infrastructure asset using electronic object-oriented information
CIC Scope of Services	Multi-disciplinary scope of services published by the Construction Industry Council (CIC) for use by Stakeholders on the Government Hubs Programme
COBie (Construction to Operation Building information exchange)	Structured asset information for the commissioning, operation and maintenance of a project or programme often in a neutral spread sheet format that will be used to supply data to the Employer or operator to populate decision-making tools, facilities management and/or asset management systems
Common Data Environment (CDE)	Single source of information for any given project or programme, used to collect, manage and disseminate all relevant approved documents for multi-disciplinary teams in a managed process. This is commonly a cloud based SaaS (Software as a Service) solution synchronised with party servers to host the PIM
Data	Information stored but not yet interpreted or analysed
Document	Information for use in the briefing, design, construction, operation, maintenance or decommissioning of a construction programme, including but not limited to correspondence, drawings, schedules, specifications, calculations, spread sheets
Drawing	Static, printed, graphical representation of part or all of a project or asset
Element or NRM1 element	A grouping of measurable objects as defined in NRM1. Elements are categorised by grouped elements and further categorised by sub-elements

## Employer's Information Requirements Government Hubs Programme FFE Fit-Out Framework

Employer's Information Requirements (EIR)	Document setting out the information to be delivered, and the standards and processes to be adopted by the Stakeholders as part of the programme delivery process
Exchange BIM model file	An open and neutral data format for BIM models
Federated BIM model file	A file combining all available latest BIM models into a single BIM model for reference
Graphical data	Data conveyed using shape and arrangement in space
Model Production Delivery Table (MPDT)	Identifies the LOD required for a specific BIM object at a given programme work stage and the BIM author responsible for the object's inclusion
Native BIM model file	The primary data format used by the BIM model authoring tool to create BIM models
Object or BIM Object	A repository of information that holds data regarding 2D and 3D geometry description of the actual product or component
Call-off Stage 1 BEP	The Call-off Stage 1BEP is to demonstrate the Stakeholder's proposed approach, capability, capacity and competence to meet the EIR. It is assessed prior to the appointment of any stakeholder
Call off Stage 2 BEP	The Call off Stage 2 BEP is the document defining standard methods and procedures adopted during the contract in order to meet the objectives and requirements set forth in the EIR. It is utilised following the appointment of Stakeholders and in particular by the Contractor Lead
Project Information Model (PIM)	Information model developed during the design and construction phase of a programme
Space	Represents an area or volume bounded within a BIM model which provides a certain function
Standard Method and Procedure (SMP)	Set of combined processes covering the way information is named, expressed and referenced
Supplier Information Exchange	Structured collection of information at the end of a work stage with defined format and fidelity
Type	A grouping of BIM objects
Volume	Manageable spatial subdivision of a programme. Defined by the Contractor Lead as a subdivision of the overall programme that allows more than one person to work on the models simultaneously and consistent with the design process
Zone	A group of spaces, partial spaces or other zones



## **2.3 Programme roles**

Built Asset Security Manager	As defined in the PAS1192-5:2015 for a security-minded process for the management of BIM information
BIM Author	Originator of BIM model files
BIM Leader	Representative of the Employer
Contractor Lead	Directs and coordinates design and construction after contractor appointment
Cost Manager	Plan, predicts and controls the cost of the programme
Design Lead	Directs and coordinates the Design Team and its related activities until contractor appointment
Design Team	Organisations with a design responsibility until Contractor appointment
Employer	For the purposes of this document the 'Employer' means HM Revenue & Customs (HMRC), Government Property Unit (GPU) and Central Government
Government Soft Landings Champion	Responsible for the process of aligning the interests of those who design and construct an asset with the interests of those who use and manage that asset
Information Manager	As defined in the CIC BIM Protocol – an Information Manager shall be appointed by the Employer to facilitate the management of the federated model and the production of programme outputs. The Information Manager is also responsible for managing the operation, standards and culture of the Common Data Environment
Principal Contractor	As defined in The Construction (Design and Management) Regulations 2015
Principal Designer	As defined in The Construction (Design and Management) Regulations 2015
Stakeholder	Any organisation or individual that is involved in the programme
Task team	Any multi-disciplinary team or team within an organisation assembled to carry out a task on the programme
Task team manager	Individual responsible for a specific task team
Task team interface Manager	Individual responsible for managing spatial co-ordination on behalf of a specific task team
Task team information manager	Individual within a task team responsible for production of information for a given task in compliance with defined standards and methods

## 3 Programme information

The following section defines information about the Programme.

### 3.1 General

Employer	HM Government
Programme	Government Hubs Programme Fit-Out Framework
Short description	Her Majesty's Revenue & Customs and the Government Property Unit ('the Employer') require a FFE fit-out framework to deliver the Government Hubs Programme.
Correspondence address	100 Parliament Street, London, SW1A 2BQ
Contract type	Joint Contract Tribunal (JCT) 2016 Design & Build or Joint Contract Tribunal (JCT) 2016 Standard Building Contract without Quantities
Plan of Work	RIBA 2013

**Table 1:** General Programme Information

### 3.2 Programme information

The BEPs shall detail and expand on the specific information for this programme to include the following:

- Organisations, individuals involved and their assigned roles
- Date for completion of the RIBA Plan of Work
- Dates of programme milestones including Supplier Information Exchanges

## 4 Management

This section outlines the standards and specifications to be referenced for the definition and delivery of the Government Hubs Programme FFE Fit-Out Framework.

### 4.1 Applicable standards and specifications

In order to establish a consistent approach to collaboration, the Employer requires Stakeholders to adopt the following standards:

		Application										
Standards		Collaboration	RIBA Work stages	File naming	Object authoring	Drawing	Classification	LOD/LOI	CDE	Costing	COBie	Contracts
Industry	PAS 1192-2:2013	✓										
	PAS 1192-3:2014								✓		✓	
	BS 1192-4:2014						✓				✓	
	PAS 1192-5:2015	✓							✓			
	BS 1192:2007+A2:2016			✓	✓	✓	✓		✓			
	Level of Definition – NBS Toolkit							✓			✓	
	New Rules of Measurement (NRM1)						✓			✓		
	BS 8541-1:2012				✓							
	BS 8541-2:2011				✓							
	BS 8541-3:2012				✓							
	BS 8541-4:2012				✓							
	BS 8541-5:2015				✓							
	BS 8541-6:2015				✓							
	Uniclass 2015						✓					
	CIC/BIM INS								✓			
	CIC BIM protocol	✓										✓
	BIM Execution Plan	✓	✓	✓	✓			✓	✓	✓		

**Table 2:** Applicable Standards

If it is deemed that any of the standards detailed in the above table are out-of-date during the execution of this programme, the standard may be revised or

superseded by a standard of the same function. For a standard to be revised or superseded, the proposing Stakeholders shall provide the Employer, Information Manager and BIM Leader with a report detailing the change in standard and its implications to the Employer's information requirements. The standard can only be superseded following an explicit agreement with the Employer and BIM Leader.

## **4.2 Planning of work and data segregation**

BIM Information shall be managed in accordance with the processes described in PAS 1192-2:2013 and BS 1192:2007.

The Contractor Lead shall work with the BIM Leader and Information Manager to establish the processes for model management and a volume and system (zone/level) strategy. The approach shall be documented in the Call-Off Stage 2 BEP and agreed by the BIM Leader and Information Manager.

## **4.3 Stakeholder requirements**

BIM uses are defined in APPENDIX A. BIM use definitions and deliverables are defined in APPENDIX B.

Model production responsibilities of the Contractor Lead are defined within the Model Production Delivery Table (MPDT) located in APPENDIX C.

### **4.3.1 Strategic BIM roles**

#### **4.3.1.1 BIM Leader**

- Responsible for reviewing and commenting on the BIM supplier capability assessments of prospective Stakeholders s
- Responsible for facilitating and chairing BIM workgroup and strategy meetings
- Report progress, drivers and highlight risks to the BIM process to the Employer and Stakeholders s
- With the Information Manager, establish a CDE for the management and exchange of BIM information
- Agree the processes and procedures defined by the Information Manager for validating the Employer's information exchange requirements between Stakeholders s

- With the Contractor Lead, agree the process for validating and incorporating as-constructed and commissioning information into the AIM

#### **4.3.1.2 Information Manager**

- Assess and report to the Employer and BIM Leader at defined intervals the compliance of Stakeholders' s BIM information shared via the CDE
- Assess and report to the Employer and BIM Leader that Stakeholders are utilising appropriate software and have the appropriate level of skill

*As defined in the CIC Outline Scope of Services for Information Management:*

- With the BIM Leader establish a CDE for the management and exchange of BIM information
- Define the processes and procedures for validating the Employer's information exchange requirements between Stakeholders s. This shall be detailed in the Call-Off Stage 2 BEP
- With task team managers, establish and implement the information structure and maintenance standards for the Project and Asset Information Model within the Call-Off Stage 2 BEP
- Support the ongoing implementation of the BIM process including the development and ongoing maintenance of the Call-Off Stage 2 BEP
- Prior to contractor appointment, define and implement the Programme Information Plan and Asset Information Plan within the Call-Off Stage 2 BEP, covering:
  - Information structure across roles e.g. software platforms (all levels of supply chain) appropriate to meet Employer requirements and Programme Team resources
  - Agreeing the Level of Definition of BIM model information required for specific BIM Uses

#### **4.3.1.3 Built Asset Security Manager (BASM)**

- Reports directly to the Employer
- Undertakes the security management role

*As defined in PAS1192-5:2015 BASM:*

- Provide a holistic view of the security issues and threats to be addressed

- Offer guidance and direction on the handling of risks
- Take ownership, manage and assist in the development of the Built Asset Security Strategy (BASS)
- Be accountable for security decisions that are taken
- Take ownership, manage and assist in the development of the Built Asset Security Management Plan (BASMP)
- Take ownership, manage and assist in the development of Security Breach/Incident Management Plan (SB/IMP)
- Take ownership, manage and assist in the development of the built asset security information requirements (BASIR)
- Assist in the development of Plain Language Questions and Employer's Information Requirements document (EIR)
- Assist in the development and reviewing of any tendering and programme planning documentation
- Be responsible for promoting a security-minded culture
- Brief advisors, specialist and supply chain on relevant aspects of the BASS, BASMP and BASIR
- Advise on the need for and undertake the review and auditing of documentation, policies, processes and procedures relating to the security of the built asset
- Where appropriate and necessary, seek appropriate professional security advice to provide additional guidance through the lifecycle of the programme and/or asset

As per PAS1192-5:2015 section 6.3, the Built Asset Security Manager may delegate specific security tasks or duties to functional roles to manage on a day-to-day basis however they shall remain responsible for the operational effectiveness of each of the aspects of security.

#### **4.3.1.4 Government Soft Landings Champions**

This describes a role and not a person, the role of the Government Soft Landings Champion may be undertaken by an appropriate appointed Stakeholders. The two Government Soft Landings Champions are to be identified as:

- Employer representative
- Programme representative

The Soft Landings Champions are required to carry out the following with regards to the BIM process:

- Drives the Soft Landings process forward
- Review past experience to inform design
- To engage in the procurement process to place emphasis on achieving better building performance
- To review end of stage progress and re-engage the team with regard to Soft Landings objectives

#### **4.3.2 Design/Contractor Lead specific roles, responsibilities and authority**

Design/Contractor Lead responsibilities specific to the BIM process are described below:

##### **4.3.2.1 Design Lead**

- Responsible for the coordinated delivery of all design information to enable reliable information exchange through the specified CDE
- Responsible for managing information production and information approvals for the maintenance and receipt of information into the Project Information Model (PIM)
- Responsible for confirming overall Design Team deliverables to enable integration and coordination of information within the PIM
- Responsible for confirming status and approving BIM information issued within the CDE
- Responsible for the approval of design changes to resolve clashes

##### **4.3.2.2 Contractor Lead**

The Information Manager responsibilities shall be transferred to the Contractor Lead upon appointment. In addition to these responsibilities the Contractor Lead is required to:

- Establish and implement the information structure and maintenance standards for the Information Model in agreement with the BIM Leader

- Manage the CDE processes and procedures, validate compliance with information requirements and advise on noncompliance
- Deliver the Asset Information Requirements
- Propose and execute the process for validating and incorporating as-constructed and commissioning information into the AIM
- Facilitate BIM model integration for the Contractor Lead supply chain in order to achieve coordination
- Support the ongoing implementation of the BIM process including the development and ongoing maintenance of the Call-Off Stage 2BEP
- Assist the Stakeholders in establishing information exchange processes, including:
  - define and agree procedures for convening, chairing, attendance and responsibility for recording BIM workshop and workgroup meetings
- Participate in, and comply with, Stakeholders management procedures and processes including:
  - risk and value management utilising BIM information where possible
  - performance management and measurement procedures related to BIM

#### **4.3.3 Key BIM roles and responsibilities**

##### **4.3.3.1 Task team manager**

Responsible for:

- The production of design outputs related to a discipline-specific package based or time-based task
- Issuing their team's approved information within the CDE

##### **4.3.3.2 Task information manager**

Responsible for:

- Directing the production of task information in compliance with agreed standards and methods defined in the Call-Off Stage 2 BEP to enable reliable information exchange through the CDE



- Confirming to the Task Team Manager that information is suitable for issue within a CDE

#### **4.3.3.3 Task team interface managers**

Responsible for:

- Managing spatial coordination on behalf of a task team
- Proposing resolutions to coordination clashes

#### **4.3.3.4 BIM author**

Responsible for:

- Developing constituent parts of the information model in connection with specific tasks
- The production of programme outputs for the maintenance and receipt of information into the information model
- Ownership of the authored model

#### **4.3.4 BIM uses**

The Contractor Lead shall propose in the Call-Off Stage 1 BEP, an approach and programme for completing the allocated BIM uses in APPENDIX A. These shall be agreed with the BIM Leader and Employer and detailed in the Call-Off Stage 2 BEP.

#### **4.3.5 Health and safety (H&S) and Construction (Design and Management) compliance**

The Principal Contractor shall outline in their strategy for how BIM models shall be utilised to fulfil H&S and CDM obligations and a schedule of related deliverables. This is to be agreed with the Employer and BIM Leader and detailed in the Call-Off Stage 2 BEP.

### **4.4 Collaborative requirements**

#### **4.4.1 Document naming protocol**

Document naming conventions (including BIM model files) shall be in accordance with BS 1192:2007.

#### **4.4.2 BIM object authoring protocol**

All BIM objects within BIM models shared between Stakeholders and issued as part of Supplier Information Exchanges shall be authored in accordance with the BS 8541 series.

#### **4.4.3 Common Data Environment (CDE)**

The purpose of the CDE is to provide the Employer and Stakeholders with a secure, central, accessible resource of current programme information. The CDE shall be owned by the Employer and utilised by Stakeholders. The CDE shall be the repository of the PIM for the programme lifecycle.

When submitting BIM models to the CDE, Stakeholders are required to report the following to the Information Manager and Contractor Lead upon discovery:

- Discrepancies in BIM models which may cause inaccuracies
- The validity of the data structure within the model and adherence to the data requirements defined in this document
- Instances where information contained within any of the BIM models is known to be superseded

Stakeholders are responsible for storing and maintaining a copy of all programme information in a secure, stable location within their own organisation and shall make information available if requested, over the CDE. The Employer shall have access to both native and exchange BIM model files stored on the CDE at any point during the programme.

#### **4.4.4 Exchange BIM model file format**

When uploading BIM models to the CDE, all Stakeholders are required to include both the native file format and the exchange file format versions of the BIM models.

The exchange file format shall be an Industry Foundation Classes (IFC) file of version IFC2x3. A newer version of the IFC format may be used if agreed by the Information Manager, BIM Leader and the Employer. The exact IFC version shall be defined in the Call-Off Stage 2 BEP.

IFC export settings for the BIM authoring software shall be defined in the Call-Off Stage 2 BEP and shall be consistent throughout the programme.

#### **4.4.5 Federated BIM model file format**

The Contractor Lead is responsible for creating and updating a federated BIM model file linking to the latest BIM. As a minimum requirement, the federated

model shall be updated monthly and issued onto the CDE throughout the programme duration unless explicitly agreed with the Employer and BIM Leader.

The federated model shall be comprised of exchange format BIM models from all of the relevant Stakeholders s. These are to be contained and shared in either:

- A Solibri .smc file (recommended)
- An Autodesk Navisworks .nwf file

Other software platforms may be considered but shall be approved by the Employer, BIM Leader and the Information Manager. The exact format for the federated BIM model file and the approach for its creation shall be defined in the Call-Off Stage 2 BEP.

#### **4.4.6 Security**

All Stakeholders shall adhere to the security requirements defined in PAS 1192-5:2015 and the compliance monitor of information security requirements shall be the responsibility of the Built Asset Security Manager.

All programme information shall be treated with confidence unless explicitly agreed with the Employer and the Built Asset Security Manager. All Stakeholders are required to adopt this policy. Stakeholders are responsible for their supply chain's adherence to this policy.

#### **All BIM information shall be shared through the CDE only.**

To support security and accessibility of information, folder locations and upload purposes shall be strictly adhered to, as defined in PAS 1192-2:2013. Any amendments to the naming or structure of the CDE workspace shall be explicitly agreed with the Employer, BIM Leader and the Information Manager.

#### **4.4.7 Collaboration process requirements**

Call-Off Stage 1 BEPs shall contain a proposed collaboration process detailing the strategy for production of BIM models to address the identified BIM uses. The combined process for all Stakeholders shall be agreed and detailed in the Call-Off Stage 2 BEP. This shall contain the following information as a minimum requirement:

- The exchange format BIM model file and any additional forms of sharing information that required for interoperability with other Stakeholders s

- A copy of the MPDT from this document (APPENDIX C), amended to contain proposed responsible parties and LOD requirements to carry out the required BIM uses. The table shall remain defined by NRM1 sub-element and work stage. Any necessary revisions relating to responsible parties, sub-elements involved or specified LOD shall require an accompanying justification statement.
- Details of proposed model review workshops
- Details of proposed method of collaboration with Stakeholders and the Employer to utilise the federated BIM model and any other models required for BIM uses

The Call-Off Stage 2 BEP shall contain an agreed MPDT that shall represent the LOD requirement for the programme.

#### **4.4.7.1 Trialling of the CDE**

To trial the exchange of BIM models, the Contractor Lead shall facilitate the initial sharing and linking of models using the CDE upon the confirmation of appointments. Upon completion of the trial(s) the Contractor Lead and Information Manager shall report outcomes to the Employer and BIM Leader.

#### **4.4.8 Coordination, clash detection and buildability process**

The Call-Off Stage 1 BEPs shall contain a proposed coordination and clash detection strategy, which is to be agreed by the Employer, BIM Leader, Information Manager and defined in the Call-Off Stage 2 BEP. The minimum requirements of the strategy are defined as:

- Each task team manager shall make their latest BIM models available to Stakeholders via the CDE at least once every two weeks. A schedule and details of how to carry out this exchange shall be defined
- The process for task team interface managers to coordinate their BIM models within their task team
- The process for checking, approving and validating shared data by task team members before sharing data. The shared data shall then be issued to the shared area with the status code 'Issued for coordination' adhering to PAS 1192-2:2013

The Contractor Lead shall access information issued as 'Issued for coordination' provided by all BIM authors and evaluate the BIM models against the requirements of the EIR. This exercise shall occur at least once a month unless otherwise explicitly agreed with the Employer and BIM Leader. An issue report

shall be produced by the Contractor Lead and made available to all Stakeholders three days before BIM coordination meetings.

The issue report shall be structured in line with the defined validation process and criteria used to check BIM models agreed within the Call-Off Stage 2 BEP. This report shall also be used to form the basis of the agenda used to facilitate BIM coordination meetings.

The approach for resolving model issues during coordination meetings and the responsible party for doing so shall be agreed by the Contractor Lead. BIM authors shall then update BIM models following the meeting.

BIM coordination meetings are required to be carried out at least once a month with task team managers, task team interface managers, task team information managers.

Upon contractor appointment, the Contractor Lead shall carry out buildability checks in addition to the coordination and clash detection process. The issues generated shall be reported as part of the validation process.

#### **4.4.9 Systems performance**

To support access and use of information for all Stakeholders, the following guidelines shall be met:

- Individual models shall not exceed 250mb. Stakeholders unable to process a file of this size shall resolve this immediately. This limit may be raised upon explicit agreement of the Information Manager, BIM Leader and the Employer
- Files shall not contain any geometry greater than the LOD requirement defined in the MPDT of this document and the Call-Off Stage 2 BEP

#### **4.4.10 Delivery strategy for asset information**

Asset information is to be delivered in accordance with the BS 1192-4:2014 data schema (COBie), the exchange format is to be defined in the Call-Off Stage 2 BEP. The minimum requirements for asset information data to be exchanged is detailed in APPENDIX D and E. As per the COBie schema, the minimum requirements are those parameters highlighted in yellow.

Further details of model property sets and information required shall be defined through further engagement with the FM provider and agreed by the BIM Leader, Information Manager and the Employer upon appointment of the Contractor Lead. These details may include the outstanding COBie sheets (see

APPENDIX D) and/or the collection of O&M documentation, this shall be defined within the Call-Off Stage 2 BEP.

The Contractor Lead shall incorporate the process for asset information delivery into the Computer Aided Facilities Management (CAFM) system within the Call-Off Stage 2 BEP. The CAFM system shall be detailed and agreed within the BEP once it has been specified by the Employer.

The Contractor Lead shall provide a strategy to demonstrate that information can be accessed efficiently during operations. The proposed strategy shall be agreed and detailed in the Call-Off Stage 2 BEP.

#### **4.4.11 Government Soft Landings**

Soft Landings is a process to improve operation performance of buildings and to provide feedback to teams in line with this.

With the requirement for Government Soft Landing (GSL), on nomination of the Soft Landings Champions a strategic process will be defined and included within the Call-Off Stage 2 BEP. Soft Landing Champions will be active throughout the programme and into operations with set objects engaging in the design, procurement, construction and operational phases.

The GSL process requires an extended period of aftercare following practical completion of up to three years. Stakeholders and particularly the Contractor Lead are to include within their Call-Off Stage 1 BEP how this requirement will be met and any examples of having undertaken this role previously.

#### **4.5 Compliance plan**

The Employer requires all Stakeholders to comply with this document and associated appendices.

The Employer may wish to appoint a third party consultant to audit programme BIM information at key stages within the context of these documents.

All Stakeholders are to make themselves familiar with and consider at all times the security and information requirements of the Employer. The Employer shall seek assurance from the Built Asset Information Manager that all Stakeholders are meeting the necessary standards.

## 5 Commercial

This section looks at the information requirements, defines purposes for data and the content of key deliverables.

### 5.1 Overall purposes requiring information

The Employer requires information to fulfil the following purposes:

- A full registration of assets to support accurate auditing and reporting. Every identifiable internal and external space shall be captured within the BIM model in addition to every distinct floor containing them. Zones shall also be identified within the COBie deliverable
- Facility, floors (regions), zones and spaces (locations) shall be documented with their net and gross areas. The method of measurement used shall be documented on the facility sheet of the COBie deliverable
- Information required for the operation of the facility shall be provided to support the facility operators and the Employer to anticipate costs of operations. This shall be agreed by the Employer and BIM Leader and added to the Call-Off Stage 2 BEP

### 5.2 Employer's strategic BIM priorities

BIM processes are underpinned by open, collaborative behaviours. To maximise the benefits of BIM, Stakeholders shall work openly with shared outcomes and processes.

Defining and understanding the information needs of others will improve outcomes, as each member of the team moves away from serving their own information needs and moves toward openly sharing their output as work in progress to reduce inter-discipline rework.

It is essential for shared benefit that Stakeholders align their aspirations with those of the Employer. The Employer requires the following strategic BIM priorities:

1. Programme delivery of the highest quality
2. Better informed client decision making, earlier and more efficient reporting of developing design information allowing key changes to the design to be made earlier, at less cost

3. Improved multidisciplinary design coordination and reduced variation costs during construction
4. Visual communication and optimisation of construction phasing and sequencing
5. Improved cost certainty and predictability
6. Improved accuracy and consistency of design information
7. Improved health and safety on site and during operation
8. Models and information which can be used to support operation and maintenance of the facility beyond practical completion
9. Asset information delivery of the highest quality
10. More efficient visual communication of the design intent as this develops

These priorities are supported by the prescribed BIM uses and shall also be included in the Call-Off Stage 2 BEP.

Stakeholders shall demonstrate proposals within their Call-Off Stage 1 BEP to facilitate the Employer's strategic BIM priorities within their scope.

#### 5.2.1 **BIM compliance**

To enable the Employer to determine the success of their strategic BIM priorities, the following compliance metrics have been devised:

- **Percentage LOD compliance:**  
All BIM objects within the latest shared BIM models are to be analysed for their compliance to their required LOD for a given work stage, as defined in the amended MPDT within the BEP. BIM objects are to be categorised by NRM1 sub-element and each NRM1 sub-element can then be classified as compliant or non-compliant. All BIM objects within an NRM1 sub-element are to be of the correct LOD for the NRM1 sub-element to be considered compliant
- **Percentage compliance to model data requirements:**  
All BIM objects within the latest authored BIM models are to be analysed for their compliance to their required Level of Information (in addition to LOD) and model classification, as defined in this document and supplemented by requirements in the BEP. BIM objects shall be categorised by NRM1 sub-element



- **Model quality and coordination percentage compliance:**

A numerical metric to be based on the level of BIM object intersections within the federated and individual discipline BIM models and other factors including (but not limited to) spatial and clearance requirements, BIM object integrity and sensibility requirements. During the design work stages uncoordinated elements within the BIM models can be considered compliant if they fall within an agreed tolerance, authorised by the Design Team, BIM Leader and Employer and detailed in the BEP. Any areas of non-compliance shall be clearly documented, demonstrating the location within the federated BIM model

The Information Manager is required to calculate and report these metrics to the Employer and BIM Leader at regularly agreed intervals unless explicitly agreed with the Employer and BIM Leader.

The BIM compliance metrics are calculated as a percentage compliance shall be 100% compliant by the end of each work stage.

### 5.3 Supplier Information Exchange requirements

The following Supplier Information Exchanges (as defined by PAS 1192-2:2013) shall be supplied to the Employer at critical milestones, to align with the RIBA Plan of Work stages defined below:

Supplier Information Exchange	RIBA Workstages	Employer decision point (Gateway)	Required / not-required
1	RIBA Plan of Work stage 1	1	n/a
2	RIBA Plan of Work stage 2	2	n/a
3	RIBA Plan of Work stage 3	3	n/a
4	RIBA Plan of Work stage 4		Required
5	RIBA Plan of Work stage 5		Required
6	RIBA Plan of Work stage 6	6	Required

Table 3: **Supplier Information Exchanges**

The Supplier Information Exchanges as defined in the above table, shall be used as support for Employer decision point reviews, leading to the instruction to proceed to the next stage if the information is satisfactory.

### **5.3.1 Supplier Information Exchange requirements**

The Call-Off Stage 2 BEP shall contain the agreed dates for submitting Supplier Information Exchanges based on the RIBA Plan of Work stages. The Contractor Lead shall be responsible for collecting and collating required information and submitting the Supplier Information Exchanges. All Stakeholders shall be responsible for supplying the required information to the Contractor Lead at the end of each work stage. The following information is required for each Supplier Information Exchange:

- Native BIM model files
- Exchange BIM model files
- Site information if this process is undertaken on the programme
- COBie-UK-2012 export (requirements defined in APPENDIX D)

The Contractor Lead shall agree protocols with the Information Manager to confirm that the model is current and all parties are working to the latest model. These shall be documented in the Call-off Stage 2 BEP.

The Information Manager shall be responsible for validating the Supplier Information Exchange contents against the following:

- The level of coordination in the federated BIM model file
- Compliance with design performance requirements set out in contractual agreements
- The development, completeness and validity of non-geometrical data specified in APPENDIX D

The validation of the Supplier Information Exchanges is to be supported by the BIM compliance metric calculations.

Errors or non-compliance shall be corrected as a priority with agreed timescales. Actions shall be distributed to all Stakeholders by the Contractor Lead via the CDE.

The Built Asset Security Manager, on appointment, shall make all Stakeholders aware of any models required for review and the format these shall be issued in.

The Soft Landings Champions, upon appointment, shall formulate the strategy for programme team engagement and review with respect to the Soft Landings objectives. It is also expected that the Soft Landings Champions will review and contribute to the end of stage review process, at these key stages the programme is assessed to establish if requirements are being met.

## 6 Technical

This section establishes technical information requirements, including software, LOD and non-geometrical requirements.

### 6.1 Software platforms

The agreed software for the production of BIM models, federated BIM model file and the AIM shall be agreed and defined for each phase in the Call-Off Stage 2 BEP. The minimum requirement for software used to author BIM Models shall be buildingSMART certified for export of the agreed exchange BIM model file format.

Software versions may require updating at any point during if deemed beneficial to the collaborative process. Any update or change in software versions shall be agreed by the Employer, Information Manager and Task Information Managers.

The Employer and the BIM Leader may define version and software platform for collaboration and facilities management software in the Call-Off Stage 2 BEP.

For coordination, clash review and comment it is suggested that one of the following software combinations be implemented:

- Solibri:
  - Solibri model checker 9.0 (and onwards, recommended)
  - Solibri model viewer 9.0 (and onwards, recommended)
- Autodesk Navisworks:
  - Navisworks manage 2015 (and onwards)
  - Navisworks freedom 2015 (and onwards)

Other software platforms may be considered but shall be approved by the Employer and the BIM Leader. Stakeholders are to communicate the software platforms they will implement and provide an outline of how they will interoperate with the software listed above as part of their Call-Off Stage 1 BEPs.

## **6.2 BIM Model requirements**

All BIM objects authored for the purpose of this programme shall be shared by Stakeholders. Object standards shall be in alignment with the BS 8541.

### **6.2.1 Level of Definition (LOD)**

The LOD requirement for each NRM1 sub-element at the end of each work stage is defined in the MPDT in APPENDIX C of this document. The responsible party for each sub-element at each work stage shall be defined in the Call-Off Stage 2 BEP.

LOD requirements shall be strictly adhered to unless explicitly agreed by all relevant Stakeholders including the BIM Leader and the Employer. The LOD requirement defines both geometric (level of detail) and non-geometric (level of information) requirements for a BIM object at a given LOD level. The non-geometrical requirements shall be attached to the given object as data attributes as defined in BS 8541.

In future work stages, any amendment to the MPDT shall be explicitly agreed by all Stakeholders that require BIM models to carry out BIM uses so that it remains in alignment with the programme design responsibilities matrix.

On appointment of the Built Asset Security Manager, they shall identify through the Built Asset Security Information Requirements (BASIR) any sensitive assets or systems and their subsequent LOD requirements.

### **6.2.2 Additional non-geometric information requirements (Level of Information)**

In addition to the non-geometric requirements defined by the LOD required level, BIM objects shall have as a minimum, the following information attached as a hosted data attribute:

- Uniclass 2015 classification, in a data attribute termed 'Uniclass2015'
- NRM1 classification, in a data attribute termed 'NRM1' (obtainable from Uniclass 2015)
- Basic parameter requirements; area, volume, length, width, height
- COBie requirements (required at Supplier Information Exchanges, APPENDIX D)

#### **6.2.2.1 COBie required practises**

As per BS 1192-4:2014 the integrity of data, included within the COBie schema, shall be maintained as follows:

- a) Every Component shall be assigned to at least one Space.
- b) Every Component shall be assigned to one Type.
- c) Every Component shall be assigned to at least one System.
- d) Every Space shall be assigned to at least one Zone.
- e) Every reference to other sheets shall be valid.
- f) Every reference to PickList enumerations and classifications shall be valid.
- g) Enumerations specified in the Attributes and PickLists shall be adhered to.

To enable consistency all COBie deliverables shall have continuity with earlier deliverables and shall be developed cumulatively to enable comparison and validation.

#### **6.2.3 Coordinates and origin requirements**

The base programme reference points are to be identified and communicated by the Contractor Lead. As a minimum requirement the base programme reference point shall be defined as a physical location that shall not be altered during the programme.

To keep coordinates consistent, set-out information shall be maintained throughout all BIM models. To eliminate compatibility issues arising from discrepancies between coordinate systems, all BIM model files shall share the same Survey Point and Coordinates.

BIM authors shall set up BIM models with identical locations and origin coordinates. The following procedure is required for establishing model location and origin:

- Building and site location on the architectural BIM model shall be set at the correct longitude and latitude or defined reference point
- True north of the building and site location on the architectural BIM model shall also be set correctly. This is to be consistent with the existing site model

Stakeholders shall share BIM models in the exchange BIM model format so that information is correctly and consistently aligned. The process is to be agreed with the Information Manager, BIM Leader and the Employer and documented in the Call-Off Stage BEP.

### **6.3 Asset Information Model (AIM)**

The AIM shall be delivered as part of Supplier Information Exchange 6 as defined in PAS 1192-3:2014.

At handover, the Employer requires the delivery of an AIM. Object property sets in addition to those defined as non-geometric requirements and COBie parameters (APPENDIX E) may be defined by the Information Manager and incorporated in the Call-Off Stage 2 BEP upon agreement with the BIM Leader and the Employer.

### **6.4 Quality Assurance and Quality Control (QA/QC)**

#### **6.4.1 Geometric quality assurance and quality control**

##### **6.4.1.1 Model files**

BIM models shall not be accepted if considered unsuitable:

- All construction items to be represented in 3D as defined in the LOD requirements of the MPDT (APPENDIX C)
- All drawing sheets shall be created within the BIM model authoring environment to maintain accuracy and coordination.

##### **6.4.1.2 Spatial integrity**

The following rules shall apply to the model spatial integrity:

- Space validation – There shall be no space gaps. Bounding boxes used to represent spaces and zones shall match with architectural requirements and data values
- All walls shall be properly joined to prevent spaces being incorrectly defined. Bounding boxes of spaces shall not conflict
- Spatial data shall be generated and associated with bounding elements (walls, doors, windows, floors, columns, ceilings)

##### **6.4.1.3 Material integrity**

Representations of BIM object's material specifications (as data attributes) shall be modelled correctly in respect to the actual physical materials of the components. In addition:

- Modelling shall follow the method of construction.
- Once BIM models from other disciplines are available they shall be used as linked files and the placeholder BIM objects previously representing aspects of these models are to be deleted. BIM object instances shall not appear in more than one model
- In BIM authoring software where MEP systems are authored, a systems list shall be agreed and detailed in the Call-Off Stage 2 BEP.

#### **6.4.1.4 BIM Validation prior to model sharing**

Validation of BIM models and data extracted from such models, prior to sharing shall check that:

- All linked files and links to centralised information sources or databases have been removed
- All extraneous drawings sheets (i.e. those deemed to not be a deliverable) have been removed from the BIM model
- All BIM models contained within the BIM model file but not present in the design have been removed
- File format and naming conventions conform to this document and the Call-Off Stage 2 BEP and remain constant for the life span of the programme
- Data segregation conforms to programme requirements (as detailed in the Call-Off Stage 2 BEP)
- 3D model and 2D drawings are up to date and the 2D information has been derived from the 3D model
- All BIM objects in the BIM model present in the design have been made visible
- All ownership of any shared work sets has been relinquished
- All BIM models are using the shared coordinate system defined at the outset of the programme

#### **6.4.2 Data Quality Assurance and Quality Control (QA/QC)**



The Contractor Lead programme data QA/QC procedure shall follow the procedure detailed in BS 1192-4:2014 clause 6.

## **6.5 Training**

The Employer shall not be responsible for providing training with regards to the BIM authoring and validation tools used by Stakeholders s. It is a requirement that all individual parties are fully trained on authoring and validation tools prior to programme engagement.

Initial training requirements shall be identified by the Employer and Information Manager through the Stakeholders's response to capability assessments (APPENDIX E).

The Built Asset Security Manager shall include within the Employer's Built Asset Security Management Plan (BASMP) details of any security awareness training or induction requirements programme teams are to undertake upon appointment.

## **7 Competence assessment**

### **7.1 BIM specific capability assessment for Stakeholders s**

The supplier capability assessment shall be completed and returned in tandem with the Call-Off Stage 1 BEP that represents a stakeholders response to the EIR document. This supplier capability assessment is included as APPENDIX E.

### **7.2 Knowledge and Skill Requirements**

#### **7.2.1 BIM Objectives and Processes**

Stakeholders shall demonstrate knowledge of the underlying processes required to support required BIM uses. This will involve communicating and recording intended methodology which shall be shared with the BIM Leader for confirmation prior to implementation.

All Stakeholders are responsible for procuring training within their own organisation, and are required to undertake sufficient training to efficiently and effectively meet the requirements of the programme.

#### **7.2.2 Software**

Experience, knowledge and skill of the task team shall be sufficient to competently undertake processes required to achieve the required BIM uses.

If Stakeholders fail to meet these requirements they shall immediately report this to the Employer and BIM Leader, and are responsible for improving internal skill sets or recruit additional technical staff before implementing processes.

### **7.3 Resource Requirements**

#### **7.3.1 Hardware and Technology**

Stakeholders are required to operate on or procure IT infrastructure which meet system and software requirements of the BIM software tools utilised.

## APPENDIX A BIM uses

REQUIRED BIM USES	RIBA WORK STAGES						
	1	2	3	4	5	6	7
Pre-design							
Existing conditions modelling	-						
Site analysis	-	-	-	-			
Forward planning							
Cost estimation and management	-	-	-	-	-		
Planning, sequencing and simulation		-	-	✓	✓		
Visualisation and communication		✓	✓	✓	✓		
Design authoring							
Spatial planning and optimisation	-	✓	✓	✓			
3D design reviews		✓	✓	✓	✓		
Drawing generation		✓	✓	✓	✓	✓	
Data classification	✓	✓	✓	✓	✓	✓	✓
Bespoke BIM object library authoring		-	-	-	-	-	-
3D coordination		✓	✓	✓	✓	✓	
Assurance and data validation		✓	✓	✓	✓	✓	
Buildability analysis			-	-	-		
Technical/specialist design							
Disaster planning		-	-	✓	✓	✓	✓
Construction							
Operations & Maintenance							
Asset management					✓	✓	✓
Planned maintenance					✓	✓	✓

## APPENDIX B BIM use definitions

BIM Use	Definition	Deliverables
<b>Pre-design</b>		
Existing conditions modelling	Creation of an accurate digital record of the existing asset or facility aligned with accurate survey data to communicate the existing site and asset conditions.	An object based 3D model generated by a 3D laser scan or radar survey, including ground conditions existing structures and services.
<b>Forward planning</b>		
Planning, sequencing and simulation	Utilising 4D BIM processes to simulate, communicate and optimise programme phases and construction sequences, including site logistics and temporary works.	Interactive 4D model and relevant exports including images and videos.
Visualisation and communication	Using or aligning to the BIM models to visualise or communicate the design intent.	Images and videos of the design or construction stage BIM models and / or virtual environment.
<b>Design authoring</b>		
Spatial planning and optimisation	Setup schedules within BIM models to allow for live tracking and export of spatial information including name/function/area (as defined within this document) to inform optimisation processes and report on non-conformities with the design brief.	Space data schedules exported from the BIM models.
3D design reviews	Use of the WIP or Shared BIM models to facilitate the design review process, including walk through exercises and model issue / coordination review.	Issue tracking report.

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Drawing generation	2D graphical information is extracted from the model to communicate design information and meet contractual obligations.	2D graphical information such as plans, sections, elevations, callouts, detailing.
Data classification	The unification of data structures, including property sets, object and BIM model naming taxonomy across all BIM models to provide consistent design, construction and asset information.	BIM models in both native and exchange formats adhering to non-geometrical BIM requirements detailed in the EIR.
3D coordination	Carry out clash detection exercises at regular intervals to identify and eradicate design coordination issues.	Compliant BIM models in both native and exchange formats.
Assurance and data validation	Carry out model validation exercises to identify and eradicate model deficiencies or non-compliances.	Model issue trackers (e.g. xlsx or BCF). End of stage reports. Model validation check lists for distributed information.
<b>Technical/specialist design</b>		
Disaster Planning	Utilise BIM models for analysis or simulation of emergency situations in order to rationalise the strategy, design or emergency event procedure and communicate this to building users and the emergency services.	A report including evidenced analysis of the model to achieve the required result.
<b>Construction</b>		
Record modelling	BIM model which accurately represents the as-built asset, incorporating all changes made during construction and a representation of the physical conditions of the completed facility.	BIM model(s) compliant with geometric and non-geometric requirements.
<b>Operations &amp; Maintenance</b>		

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Asset management	The inputting of asset information into BIM models throughout design and construction to enable the BIM models to contain all asset information for use with a CAFM system.	BIM model(s) compliant with geometric and non-geometric requirements.
Planned maintenance	The integration of the AIM into a software package which enables maintenance to be predicted and scheduled and the asset more easily maintained.	The AIM containing product specifications and maintenance information.

## APPENDIX C Model Production Delivery Table (MPDT)

*To be populated by bidders' with details of responsible party for authoring the BIM objects below*

RIBA 2013 (CIC) Work stages		1		2		3		4		5		6	
		Preparation & Brief		Concept		Developed Design		Technical Design		Construction		Handover & Closeout	
		LOD	Resp Party	LOD	Resp Party	LOD	Resp Party	LOD	Resp Party	LOD	Resp Party	LOI	Resp Party
NRM1 group elements, elements and sub-elements													
1 Substructure													
4 Fittings, furnishings and equipment													
4.1 Fittings, furnishings and equipment	4.1.1 General fittings, furnishings and equipment	1	TBC	2	TBC	3	TBC	4	CON	5	CON	6	CON
	4.1.2 Domestic kitchen fittings and equipment	1	TBC	2	TBC	3	TBC	4	CON	5	CON	6	CON
	4.1.3 Special purpose fittings, furnishings and equipment	1	TBC	2	TBC	3	TBC	4	CON	5	CON	6	CON
	4.1.4 Signs/notices	1	TBC	2	TBC	3	TBC	4	CON	5	CON	6	CON
	4.1.5 Works of art	1	TBC	2	TBC	3	TBC	4	CON	5	CON	6	CON
	4.1.6 Non-mechanical and non-electrical equipment	1	TBC	2	TBC	3	TBC	4	CON	5	CON	6	CON
	4.1.7 Internal planting	1	TBC	2	TBC	3	TBC	4	CON	5	CON	6	CON
	4.1.8 Bird and vermin control	1	TBC	2	TBC	3	TBC	4	CON	5	CON	6	CON
8.5 External fixtures	8.5.1 Site/street furniture and equipment	1	TBC	2	TBC	3	TBC	4	CON	5	CON	6	CON
	8.5.2 Ornamental features	1	TBC	2	TBC	3	TBC	4	CON	5	CON	6	CON
8.6 External drainage	8.6.1 Surface water and foul water drainage	1	TBC	2	TBC	3	TBC	4	TBC	5	TBC	6	TBC
	8.6.2 Ancillary drainage systems	1	TBC	2	TBC	3	TBC	4	TBC	5	TBC	6	TBC
	8.6.3 External chemical, toxic and industrial liquid waste drainage	1	TBC	2	TBC	3	TBC	4	TBC	5	TBC	6	TBC
	8.6.4 Land drainage	1	TBC	2	TBC	3	TBC	4	TBC	5	TBC	6	TBC

## APPENDIX D Supplier information exchange requirements – COBie requirements

It is the responsibility of **all** BIM authors to attribute the following parameter headings to all BIM objects. This is to be undertaken irrespective if the data for that parameter field is required at a specific work stage. This shall enable data to be included at a pre-defined stage later in the programme cycle.

<b>Parameter Heading</b>		
<b>AreaMeasurement</b>	GrossArea	Size
<b>AssetIdentifier</b>	Height	SpaceNames
<b>AssetType</b>	InstallationDate	Stage
<b>Barcode</b>	Manufacturer	Start
<b>Category</b>	Material	Status
<b>CodePerformance</b>	ModelNumber	Suppliers
<b>Colour</b>	Name	SustainabilityPerformance
<b>Constituents</b>	NetArea	TagNumber
<b>Costs</b>	NominalHeight	Type
<b>Description</b>	NominalLength	TypeName
<b>Duration</b>	NominalWidth	UsableHeight
<b>Elevation</b>	PartNumber	Value
<b>ExpectedLife</b>	Phase	VolumeUnits
<b>ExtSystem</b>	ProjectName	WarrantyDescription
<b>ExtObject</b>	RoomTag	WarrantyDurationLabour
<b>ExtIdentifier</b>	Reference	WarrantyDurationParts
<b>Features</b>	ResourceNames	WarrantyDurationUnit
<b>Finish</b>	SerialNumber	WarrantyGuarantorLabour
<b>Frequency</b>	SetNumber	WarrantyGuarantorParts
<b>FrequencyUnit</b>	Shape	WarrantyStartDate
<b>Grade</b>	SiteName	



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The table below is a representation of the COBie schema detailed in PAS1192-4:2014. At each data drop it is the duty of the responsible party to validate the data as per the agreed QA/QC procedure. The Contractor Lead will be responsible for the integrity and completeness of the COBie data set requirements along with carrying out the data drops.

When activity is sub-contracted it is the responsibility of the sub-contracting organisation to articulate the responsibility set forth in this document.

The data set requirement shall be completed, at each relevant stage, for every element authored in line with the MPDT in APPENDIX C. Stakeholders are to identify responsibility for capturing data within the schema and include this within the Call-Off Stage 1 BEP.

	This field is expected as part of the minimum requirement
	The field expects the name or email found on a COBie sheet or the value is to be selected from a picklist
	This field is filled in by the generating application
	This field may be required, this is programme dependant
	This field is user defined

Supplier Information Exchange Programme Work Stage (end of)		1 1	2 2	3 3	4 4	5 5	6 6
Contact sheet							
COBie field	Instance/Type						
Email	Type	-	✓	✓	✓	✓	✓
CreatedBy	Type	-	✓	✓	✓	✓	✓
CreatedOn	Type	-	✓	✓	✓	✓	✓
Category	Type	-	✓	✓	✓	✓	✓
Company	Type	-	✓	✓	✓	✓	✓
Phone	Type	-	✓	✓	✓	✓	✓
ExtSystem	N/A	-	-	-	-	-	-
ExtObject	N/A	-	-	-	-	-	-
ExtIdentifier	N/A	-	-	-	-	-	-
Department	Type	-	✓	✓	✓	✓	✓
OrganizationCode	Type	-	✓	✓	✓	✓	✓
GivenName	Type	-	✓	✓	✓	✓	✓
FamilyName	Type	-	✓	✓	✓	✓	✓
Street	Type	-	✓	✓	✓	✓	✓
PostalBox	Type	-	✓	✓	✓	✓	✓
Town	Type	-	✓	✓	✓	✓	✓
StateRegion	Type	-	✓	✓	✓	✓	✓
PostalCode	Type	-	✓	✓	✓	✓	✓

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<b>Supplier Information Exchange Programme Work Stage (end of)</b>		<b>1 1</b>	<b>2 2</b>	<b>3 3</b>	<b>4 4</b>	<b>5 5</b>	<b>6 6</b>
Country	Type	-	✓	✓	✓	✓	✓
<b>Facility sheet</b>							
COBie field	Instance/Type						
Name	Type	-	✓	✓	✓	✓	✓
CreatedBy	Type	-	✓	✓	✓	✓	✓
CreatedOn	Type	-	✓	✓	✓	✓	✓
Category	Type	-	✓	✓	✓	✓	✓
ProjectName	Type	-	✓	✓	✓	✓	✓
SiteName	Type	-	✓	✓	✓	✓	✓
LinearUnits	Type	-	✓	✓	✓	✓	✓
AreaUnits	Type	-	✓	✓	✓	✓	✓
VolumeUnits	Type	-	✓	✓	✓	✓	✓
CurrencyUnits	Type	-	✓	✓	✓	✓	✓
AreaMeasurement	Type	✓	✓	✓	✓	✓	✓
ExternalSystem	N/A	-	-	-	-	-	-
ExternalProjectObject	N/A	-	-	-	-	-	-
ExternalProjectIdentifier	N/A	-	-	-	-	-	-
ExternalSiteObject	N/A	-	-	-	-	-	-
ExternalSiteIdentifier	N/A	-	-	-	-	-	-
ExternalFacilityObject	N/A	-	-	-	-	-	-
ExternalFacilityIdentifier	N/A	-	-	-	-	-	-
Description	Type	-	✓	✓	✓	✓	✓
Programme Description	Type	-	✓	✓	✓	✓	✓
SiteDescription	Type	-	✓	✓	✓	✓	✓
Phase	Type	-	✓	✓	✓	✓	✓
<b>Floor sheet</b>							
COBie field	Type						
Name	Instance	-	✓	✓	✓	✓	✓
CreatedBy	Type	-	✓	✓	✓	✓	✓
CreatedOn	Type	-	✓	✓	✓	✓	✓
Category	Instance	-	✓	✓	✓	✓	✓
ExtSystem	N/A	-	-	-	-	-	-
ExtObject	N/A	-	-	-	-	-	-
ExtIdentifier	N/A	-	-	-	-	-	-
Description	Instance	-	-	✓	✓	✓	✓
Elevation	Instance	✓	✓	✓	✓	✓	✓

**Employer's Information Requirements  
Government Hubs Programme Fit-Out Framework**

<b>Supplier Information Exchange Programme Work Stage (end of)</b>		<b>1 1</b>	<b>2 2</b>	<b>3 3</b>	<b>4 4</b>	<b>5 5</b>	<b>6 6</b>
Height	<i>Instance</i>	✓	-	✓	✓	✓	✓
<b>Space sheet</b>							
COBie field	Type						
Name	<i>Instance</i>	-	✓	✓	✓	✓	✓
CreatedBy	<i>Type</i>	-	✓	✓	✓	✓	✓
CreatedOn	<i>Type</i>	-	✓	✓	✓	✓	✓
Category	<i>Instance</i>	-	-	✓	✓	✓	✓
FloorName	<i>Instance</i>	-	-	✓	✓	✓	✓
Description	<i>Instance</i>	-	-	✓	✓	✓	✓
<i>ExtSystem</i>	<i>N/A</i>	-	-	-	-	-	-
<i>ExtObject</i>	<i>N/A</i>	-	-	-	-	-	-
<i>ExtIdentifier</i>	<i>N/A</i>	-	-	-	-	-	-
RoomTag	<i>Instance</i>	-		✓	✓	✓	✓
UsableHeight	<i>Instance</i>	-		✓	✓	✓	✓
GrossArea	<i>Instance</i>	-	✓	✓	✓	✓	✓
NetArea	<i>Instance</i>	-	✓	✓	✓	✓	✓
<b>Zone sheet</b>							
COBie field	Type						
Name	<i>Instance</i>	-	✓	✓	✓	✓	✓
CreatedOn	<i>Type</i>	-	-	✓	✓	✓	✓
CreatedBy	<i>Type</i>	-	-	✓	✓	✓	✓
Category	<i>Instance</i>	-	✓	✓	✓	✓	✓
SpaceNames	<i>Instance</i>	-	✓	✓	✓	✓	✓
<i>ExtSystem</i>	<i>N/A</i>	-	-	-	-	-	-
<i>ExtObject</i>	<i>N/A</i>	-	-	-	-	-	-
<i>ExtIdentifier</i>	<i>N/A</i>	-	-	-	-	-	-
Description	<i>Instance</i>	-	-	✓	✓	✓	✓
<b>Type sheet</b>							
COBie field	Type						
Name	<i>Type</i>	-	✓	✓	✓	✓	✓
CreatedBy	<i>Type</i>	-	✓	✓	✓	✓	✓
CreatedOn	<i>Type</i>	-	✓	✓	✓	✓	✓
Category	<i>Type</i>	-	-	✓	✓	✓	✓
Description	<i>Type</i>	-	✓	✓	✓	✓	✓
AssetType	<i>Type</i>	-	-	✓	✓	✓	✓
Manufacturer	<i>Type</i>	-	-	-	-	✓	✓

**Employer's Information Requirements  
Government Hubs Programme Fit-Out Framework**

<b>Supplier Information Exchange Programme Work Stage (end of)</b>		<b>1 1</b>	<b>2 2</b>	<b>3 3</b>	<b>4 4</b>	<b>5 5</b>	<b>6 6</b>
ModelNumber	Type	-	-	-	-	✓	✓
WarrantyGuarantorParts	Type	-	-	-	-	✓	✓
WarrantyDurationParts	Type	-	-	-	-	✓	✓
WarrantyGuarantorLabor	Type	-	-	-	-	✓	✓
WarrantyDurationLabor	Type	-	-	-	-	✓	✓
WarrantyDurationUnit	Type	-	-	-	-	✓	✓
ExtSystem	N/A	-	-	-	-	-	-
ExtObject	N/A	-	-	-	-	-	-
ExtIdentifier	N/A	-	-	-	-	-	-
ReplacementCost	Type	-	-	-	-	✓	✓
ExpectedLife	Type	-	-	-	✓	✓	✓
DurationUnit	Type	-	-	-	-	✓	✓
WarrantyDescription	Type	-	-	-	-	✓	✓
NominalLength	Type	-	-	✓	✓	✓	✓
NominalWidth	Type	-	-	✓	✓	✓	✓
NominalHeight	Type	-	-	✓	✓	✓	✓
ModelReference	Type	-	-			✓	✓
Shape	Type	-	-	✓	✓	✓	✓
Size	Type	-	-	✓	✓	✓	✓
Color	Type	-	-	✓	✓	✓	✓
Finish	Type	-	-	✓	✓	✓	✓
Grade	Type	-	-	✓	✓	✓	✓
Material	Type	-	-	✓	✓	✓	✓
Constituents	Type	-	-	-	✓	✓	✓
Features	Type	-	-	-	✓	✓	✓
AccessibilityPerformance	Type	-	-	-	✓	✓	✓
CodePerformance	Type	-	-	-	✓	✓	✓
SustainabilityPerformance	Type	-	-	-	✓	✓	✓
<b>Component sheet</b>							
COBie field	Type						
Name	Instance	-	✓	✓	✓	✓	✓
CreatedBy	Type	-	✓	✓	✓	✓	✓
CreatedOn	Type	-	✓	✓	✓	✓	✓
TypeName	Instance	-		✓	✓	✓	✓
Space	Instance	-	✓	✓	✓	✓	✓
Description	Instance	-	-	✓	✓	✓	✓
ExtSystem	N/A	-	-	-	-	-	-
ExtObject	N/A	-	-	-	-	-	-

**Employer's Information Requirements  
Government Hubs Programme Fit-Out Framework**

<b>Supplier Information Exchange Programme Work Stage (end of)</b>		<b>1 1</b>	<b>2 2</b>	<b>3 3</b>	<b>4 4</b>	<b>5 5</b>	<b>6 6</b>
<i>ExtIdentifier</i>	<i>N/A</i>	-	-	-	-	-	-
SerialNumber	<i>Instance</i>	-	-	-	-	✓	✓
InstallationDate	<i>Instance</i>	-	-	-	-	✓	✓
WarrantyStartDate	<i>Instance</i>	-	-	-	-	✓	✓
TagNumber	<i>Instance</i>	-	-	-	-	✓	✓
Barcode	<i>Instance</i>	-	-	-	-	✓	✓
AssetIdentifier	<i>Instance</i>	-	-	✓	✓	✓	✓
<b>System sheet</b>							
COBie field	Type						
Name	<i>Instance</i>	-	✓	✓	✓	✓	✓
CreatedBy	Type	-	✓	✓	✓	✓	✓
CreatedOn	Type	-	✓	✓	✓	✓	✓
Category	<i>Instance</i>	-	-	✓	✓	✓	✓
ComponentNames	<i>Instance</i>	-	-	-	✓	✓	✓
<i>ExtSystem</i>	<i>N/A</i>	-	-	-	-	-	-
<i>ExtObject</i>	<i>N/A</i>	-	-	-	-	-	-
<i>ExtIdentifier</i>	<i>N/A</i>	-	-	-	-	-	-
Description	<i>Instance</i>	-	-	✓	✓	✓	✓
<b>Assembly sheet</b>							
COBie field	Type						
Name		-	✓	✓	✓	✓	✓
CreatedBy		-	✓	✓	✓	✓	✓
CreatedOn		-	✓	✓	✓	✓	✓
AssemblyType		-	✓	✓	✓	✓	✓
SheetName		-	✓	✓	✓	✓	✓
ParentName		-	✓	✓	✓	✓	✓
ChildNames		-	✓	✓	✓	✓	✓
<i>ExtSystem</i>		-	-	-	-	-	-
<i>ExtObject</i>		-	-	-	-	-	-
<i>ExtIdentifier</i>		-	-	-	-	-	-
Description		✓	✓	✓	✓	✓	✓

## APPENDIX E    Supplier capability assessment